Public Review Draft

Crows Landing Industrial Business Park Specific Plan Environmental Impact Report

January 2018

Image: lostamerica.com

Image: Jonathan Westerling

Crows Landing
Industrial Business Park
Stanislaus County

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Crows Landing Industrial Business Park Specific Plan Environmental Impact Report

January 2018

Prepared for:

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Sanitary Sewer Infrastructure and Facilities Study
Drainage Study
Transportation Infrastructure Plan

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LIST OF EXHIBITS

ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
µg/m^3	micrograms per cubic meter
µPa	micropascals
µS/cm	microsiemens per centimeter
1,2-DCA	1,2-dichloroethane
2007 SIP	2007 State Strategy for California's SIP for federal $PM_{2.5}$ and 8-Hour Ozone Standards
2008 EPA standard	San Joaquin Valley Air Basin 8-Hour Ozone Plan
2014 RTP/SCS	2014 Regional Transportation Plan/Sustainable Communities Strategy
2015 GAMAQI	Guide for Assessing and Mitigating Air Quality Impact
A-2	General Agriculture
A-2-40	General Agriculture with a 40-acre minimum lot size
AB	Assembly Bill
ACMs	asbestos-containing materials
ADT	average daily trips
AEP	annual exceedance probability
afy	acre-feet per year
AIA	Air Impact Assessment
AIA	Airport Influence Area
ALP	Airport Layout Plan
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
ANSI	American National Standards Institute
APCO	Air Pollution Control Officer
AQAPs	Air Quality Attainment Plans
ARARs	Applicable or Relevant and Appropriate Requirements
ARB	California Air Resources Board
ASTs	above-ground storage tanks
AT&T	AT&T Inc.
ATCT	air traffic control tower
B.P.	before present
BAAQMD	Bay Area Air Quality Management District
BACT	best available control technology for toxics
Basin Plan	Central Valley Regional Water Quality Control Plan for the Sacramento River

	Basin and the San Joaquin River Basin
BAU	Business as Usual
Bay Area	San Francisco Bay Area
BCT	Base Realignment and Closure Cleanup Team
bgs	below the ground surface
BIOS	Biogeographic Information and Observation System
BLM GLO	Bureau of Land Management, General Land Office
BMPs	best management practices
BOR	U.S. Bureau of Reclamation
BPS	Best Performance Standards
BRAC	Base Realignment and Closure
Btus	British thermal units per year
CAA	federal Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CalEMA	California Emergency Management Agency
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
Calveno	California Vehicle Noise
CASQA	California Stormwater Quality Association
CBC	California Building Code
CCAA	California Clean Air Act
CCAP	climate change action plan
CCl_4	carbon tetrachloride
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDPH	California Department of Public Health
CEC	California Energy Commission
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CEQA Guidelines	California Environmental Quality Act Guidelines
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

CESA	California Endangered Species Act
CF	chloroform
CFC	California Fire Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CHRIS	Center of the California Historical Resources Information System
CIP	capital improvement plan
CIWMA	California Integrated Waste Management Act of 1989
CLIBP	Crows Landing Industrial Business Park
CLOMR	Conditional Letters of Map Revision
CMP	Congestion Management Process
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNs	Curve Numbers
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COCs	chemicals of concern
County	County of Stanislaus
County General Plan	Stanislaus County General Plan
CPUC	California Public Utilities Commission
CRHP	California Register of Historic Places
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSA	County Service Area
CTR	California Toxics Rule
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
dB	decibel
dBA	A-weighted sound levels

DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEIR	draft Environmental Impact Report
Delta	Sacramento-San Joaquin Delta
DER	Department of Environmental Resources
DFW	California Department of Fish and Wildlife
diesel PM	particulate matter exhaust from diesel-fueled engines
DM-II	San Joaquin Valley Delta-Mendota Groundwater Sustainability Agency
DO	dissolved oxygen
DOF	California Department of Finance
DPM	diesel particulate matter
DPWD	Del Puerto Water District
Dry Cleaning ATCM	Airborne Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations
DSOD	Division of Safety of Dams
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
EDD	Employment Development Department
EIR	environmental impact report
EISA	Energy Independence and Security Act
EPA	United States Environmental Protection Agency
ERAs	ecological risk assessments
ESA	Endangered Species Act
ESA	Environmental Site Assessment
ETL	Engineering Technical Letter
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FARs	Federal Aviation Regulations
FEIR	final environmental impact report
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMMP	Farmland Mapping and Monitoring Program

FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
g	percentage of gravity
g/hp-hr	grams per horsepower-hour
GA	general aviation
General Plan	Stanislaus County General Plan
GHG	greenhouse gas
GIS	Geographic information system
gpm	gallons per minute
GSA	groundwater sustainability agency
GSP	groundwater sustainability plans
HCM 2000	2000 Highway Capacity Manual
HE	Housing Element
HEPA	High Efficiency Particle Arresting
HFCs	hydrofluorocarbons
HHRA	human health risk assessment
high-GWP	high global warming potential
HRA	health risk assessments
HSWA	Hazardous and Solid Waste Act
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation, and air conditioning
HWCL	Hazardous Waste Control Law
I-5	Interstate 5
ICAO	International Civil Aviation Organization
ILRP	Irrigated Lands Regulatory Program
in/sec	inches per second
IOUs	investor-owned utilities
IPCC	Intergovernmental Panel on Climate Change
IRP	Installation Restoration Program
ISO	Insurance Services Office
ISR	Indirect Source Review
ITS	Intelligent Transportation System
JJ&A	Jacobson James & Associates, Inc.
kBtu	thousand British thermal unit
KCH	CH2MHILL Kleinfelder, A Joint Venture
kV	kilovolt

kWh	kilowatt-hours
LAFCO	Local Agency Formation Commission
LDL	Larson Davis Laboratories
L_{dn}	Day-Night Average Noise Level
LEAs	local enforcement agencies
L_{eq}	Equivalent Noise Level
LID	low-impact development
L_{max}	Maximum Noise Level
L_n	Statistical Descriptor
LOMR	Letters of Map Revision
LOS	Level of Service
LTO	landing and take-off
LUCs	Land use controls
MACT	maximum available control technology for toxics
MBTA	Migratory Bird Treaty Act
MCAG	Merced County Association of Governments
MCL	maximum contaminant level
MEP	maximum extent practicable
mg/L	milligrams per liter
mgd	million gallons per day
MHMP	Multi-Jurisdictional Hazards Mitigation Plan
MM therms	million therms
MMBtu	million British thermal units
MMRP	mitigation monitoring and reporting program
MMT	million metric tons
MNA	Monitored natural attenuation
MOU	Memorandum of Understanding
MPOs	Metropolitan Planning Organizations
MRZ	mineral resource zone
msl	mean sea level
MT	metric tons
MUN	Municipal and domestic supply
MW	megawatt
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAAS	Naval Auxiliary Air Station

NAHC	Native American Heritage Commission
NALF	Naval Auxiliary Landing Field
NASA	National Aeronautics and Space Administration
Navy	U.S. Navy
NAWQA	National Water-Quality Assessment
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO_2	Nitrogen dioxide
NOI	notices of intent
NOP	Notice of Preparation
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge and Elimination System
NRCS	U.S. Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSDWRs	National Secondary Drinking Water Regulations
NTR	National Toxics Rule
NWR	National Wildlife Refuge
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
^oF	Fahrenheit
OPR	California Governor's Office of Planning and Research
OSHA	Occupational Health and Safety Administration
PFCs	perfluorocarbons
PG&E	Pacific Gas & Electric Company
PL	Public Law
PM_{10}	particulate matter with an aerodynamic diameter of 10 microns or less
Policy 22	Agricultural Preservation Policy
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1969
POTW	Publicly Owned Treatment Works
ppb	parts per billion
ppd	pounds per day
ppm	parts per million

PPV	peak particle velocity
PRC	California Public Resources Code
proposed project	Crows Landing Industrial Business Park
PUC	California Public Utilities Code
Q_{100}	100-year flood
R3	Refrigerant, Registration, and Reporting Tool
RACT SIP	Reasonably Available Control Technology – State Implementation Plan
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act of 1976
Reporting Rule	Greenhouse Gas Reporting Rule
RFS	Renewable Fuel Standard
RI	Remedial Investigation
RMP	Refrigerant Management Program
RMS	root-mean-square
ROD	Record of Decision
ROG	reactive organic gases
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
Rule 9510	San Joaquin Valley Air Pollution Control District's Indirect Source Review
RWDs	reports of waste discharge
RWQCB	Regional Water Quality Control Board
Sanitary Sewer Study	Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCS	Sustainable Communities Strategy
SCS	U.S. Soil Conservation Service
SEL	Sound Exposure Level
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SI	Site Investigation
SIP	state implementation plan
SJCOG	San Joaquin Council of Governments
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District

SJVDA	San Joaquin Valley Drainage Authority
SLDMWA	San Luis and Delta-Mendota Water Authority
SLF	Sacred Lands File
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act of 1975
SO_2	Sulfur dioxide
S-P	Specific Plan
S-P (2)	Specific Plan Area
Specific Plan	Crows Landing Industrial Business Park Specific Plan
SPTS	South Patterson Trunk Sewer
SR	State Route
StanCOG	Stanislaus County Council of Governments
SVE	Soil vapor extraction
SVP	Society of Vertebrate Paleontology
SWMP	Storm Water Management Program
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TAZ	traffic analysis zone
T-BACT	best available control technology for TACs
TDM	travel demand management
TDS	total dissolved solids
the County	Stanislaus County
the CSD	Community Services District
the proposed CLIBP	Crows Landing Industrial Business Park
TID	Turlock Irrigation District
TMDL	total maximum daily load
tpd	tons per day
TPH-d	total petroleum hydrocarbons as diesel
TPH-g	petroleum hydrocarbons as gasoline
TPY	tons per year
TRUs	transport refrigeration units
U.S.C.	United States Code
UBC	Uniform Building Code
UNAVCO	University NAVSTAR Consortium
UPRR	Union Pacific Railroad

USACE	U.S. Army Corps of Engineers
USBR	United States Bureau of Reclamation
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USTs	underground storage tanks
UWMP	Urban Water Management Plan
UXO	Unexploded Ordnance
VdB	vibration decibels
VDE	visible dust emissions
VDECS	Verified Diesel Emission Control Strategies
VMT	vehicle miles traveled
VOCs	volatile organic compounds
vpd	vehicles per day
Water Authority	San Luis & Delta-Mendota Water Authority
WDRs	waste discharge requirements
WHWD	Western Hills Water District
WKA	Wallace Kuhl & Associates, Inc.
WQCF	Water Quality Control Facility
WRCC	Western Regional Climate Center's
WSA	water supply assessment
µin/sec	micro-inch per second

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This executive summary discusses the primary components of the environmental analysis for the Crows Landing Industrial Business Park (hereafter: "the proposed CLIBP," "the proposed project," or "the Specific Plan"), as required by California Code of Regulations (CCR) Section 15123 of the California Environmental Quality Act (CEQA) Guidelines (CEQA Guidelines). As stated in *CEQA Guidelines*, Section 15123(a), "[a]n Environmental Impact Report (EIR) shall contain a brief summary of the proposed action and its consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the CEQA Guidelines, this executive summary includes (1) a summary description of the proposed project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), a summary description of cumulative impacts (Table ES-2), (3) identification of the alternatives evaluated, and (4) a discussion of the areas of controversy associated with the project.

ES.2 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The County of Stanislaus (County) is the lead agency for the proposed project under CEQA. Several local and regional agencies are serving as responsible agencies under CEQA because they will be carrying out or approving elements of the project (see Section 2.0, "Project Description," for a list of potential responsible agencies).

ES.3 TYPE OF ENVIRONMENTAL IMPACT REPORT

The County has prepared a "full-scope" EIR that evaluates all of the topics listed in Appendix G to the *CEQA Guidelines*, as well as energy, which is addressed in Appendix F to the *CEQA Guidelines*. The EIR evaluates all direct and reasonably foreseeable indirect impacts associated with implementation of the Specific Plan, on- and off-site infrastructure and roadway improvements to support project development, and associated actions. Specific end users of the project site are not yet known and other details are not available for certain elements of the proposed project at this time. The County will examine development projects proposed under the Specific Plan to determine what, if any, additional CEQA analysis and documentation may be required for approval for projects developed under the Specific Plan. The County will compare proposed development projects in the Specific Plan Area to the assumptions and guidelines in the Specific Plan and this EIR to determine the consistency of subsequent site-specific approvals.

ES.4 PROPOSED PROJECT COMPONENTS

The proposed project would be developed over an approximately 30-year timeframe and would include the following major components:

- Adoption of a Specific Plan and rezoning to support the development of various aviation-compatible land uses on the former military site;
- Planning and construction of initial "backbone" infrastructure (*e.g.*, water supply, wastewater, hydrology and drainage improvements, and dry utilities) to ready the site for long-term leaseholds and development;

- Planning and construction of internal roadways and phased improvements to off-site roads and intersections in the vicinity of the project site;
- Adoption of an Airport Layout Plan (ALP) and Narrative Report to support the development of a public-use, general aviation airport to support and complement the proposed CLIBP; and
- An amendment to the Stanislaus County Airport Land Use Compatibility Plan (ALUCP) to provide new policies specific to the new public-use airport.

ES.4.1 SPECIFIC PLAN AND REZONING

The Stanislaus County General Plan identifies Crows Landing as an agricultural area that has been used by the federal government for more than five decades, and it identifies the former Crows Landing Flight Facility as a targeted location for industrial use and job creation. The proposed project includes the development of a Specific Plan, which would implement the County's General Plan policies.

All individual development projects proposed within the boundaries of the approximately 1,528-acre project site would be subject to the policies, design guidelines, and development standards set forth in the Specific Plan. Topics addressed in the Specific Plan include:

- **Land Uses,** which describes the categories of permitted land uses and the character of development within the Plan Area, project phasing, and the goals and policies that inform the Specific Plan content.
- **Built Environment and Design,** which includes site-specific objectives and policies for the baseline design features that will define the built environment for the CLIBP.
- **Infrastructure,** which addresses the infrastructure required for development (i.e., facilities for potable and non-potable water, wastewater, stormwater management, transportation/circulation, and dry utilities).
- **Specific Plan Implementation,** which addresses the administration of the Specific Plan and construction costs associated with the infrastructure, airport, and multimodal transportation corridor for CLIBP development.

The draft Specific Plan is under separate cover, and is on file with the County Department of Planning and Community Development and available for review.

ES.4.2 OTHER AGENCIES

In addition to the authorizations from and approvals by the County that would be needed to implement the proposed project, permits and approval actions from other agencies may be required, including but not necessarily limited to:

- San Joaquin Unified Air Pollution Control District
- Western Hills Water District
- City of Patterson
- West Stanislaus County Fire Protection District
- Stanislaus County Local Agency Formation Commission

- Stanislaus County Airport Land Use Commission
- California Department of Fish and Wildlife (CDFW)
- Central Valley Regional Water Quality Control Board (RWQCB)
- California Department of Transportation
- California Department of Transportation, Division of Aeronautics
- State Water Resources Control Board's Division of Drinking Water
- U.S. Army Corps of Engineers
- U.S. Bureau of Reclamation

ES.5 PROJECT CHARACTERISTICS

ES.5.1 PROJECT LOCATION

The proposed CLIBP is a reuse project that would be constructed entirely within the boundaries of the former National Aeronautics and Space Administration (NASA) Crows Landing Flight Facility. The 1,528-acre project site is located in unincorporated western Stanislaus County (County), approximately 1 mile east of Interstate 5 (I-5) and south of the Patterson City limits and Patterson's Urban Services Boundary/Sphere of Influence. The project site is bounded by West Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west.

The project site is generally surrounded by agricultural land uses, with some rural residences in the vicinity, and the community of Crows Landing approximately 1.4 miles to the east. The Delta-Mendota Canal traverses the project site in a northwest-to-southeast direction. Regional access to the project site would be provided by I-5 and State Route 33 (Highway 33), with local access provided by West Marshall Road at the site's northern boundary and Ike Crow Road at its eastern boundary. Fink Road would provide access between the project site and I-5.

ES.5.2 PROJECT CHARACTERISTICS

The proposed Specific Plan identifies a suite of land uses, including Aviation, Aviation-compatible, Multimodal Access/Greenspace/Monument, Public Facilities, Logistics, Industrial, and Business Park. These uses would be developed in three 10-year phases to provide the opportunity for approximately 14,000 to 15,000 jobs at full build out.

ES.6 SUMMARY OF SIGNIFICANT AND POTENTIALLY SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Table ES-1 displays a summary of impacts and proposed mitigation measures that would avoid, eliminate, minimize, or reduce potential impacts. The level of significance of the impact following implementation of the mitigation measures is identified. Each impact and its significance conclusion are followed by the mitigation requirement. For detailed descriptions of project impacts and mitigation measures, please see Sections 3.1 through 3.15.

Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.1 Aesthetics			
3.1-1 Damage to scenic vista. There is a scenic vista overlook from I-5, approximately 2 miles northwest of the project site. The project site is only visible as a thin horizontal area in the middle ground from this vantage point. Changes on the project site would not significantly affect views from this observation point.	LTS	No mitigation is required.	LTS
3.1-2 Damage to scenic resources within a State Scenic Highway corridor. I-5 is a State Scenic Highway. Views of the project site are obscured along I-5 by orchards and road cuts.	LTS	No mitigation is required.	LTS
3.1-3 Damage or degrade visual character of the project site or surroundings. The development of the proposed project would convert approximately 1,528 acres of a decommissioned military airfield, which includes agricultural land, into an industrial business park. The change in visual character from a site developed with structures associated with the former airfield and agricultural cultivation to buildings and other improvements associated with the proposed project is not considered a substantial adverse change to the existing physical environment.	S	The proposed project will be implemented in accordance with the CLIBP Specific Plan development standards and design standards to minimize the visual contrast between the project site and its surrounding area. Specifically, the proposed project would be guided by the following design goals: D 1: Create a high-quality industrial business park that reuses the former Air Facility, to the extent practicable, and stimulates investment in Stanislaus County through attractive design, landscaping, building, and other design features. D 2: Provide an industrial business park that respects the rural nature of the surrounding areas by minimizing potential conflicts with adjacent land uses, to the extent feasible. 2.1: Focus development internally within the Plan Area. 2.2: Incorporate design features that provide visual separation and transition from adjacent land uses through use of vegetated berms and other landscaping, screening, building setbacks, and building articulation. D 4: Integrate the history of the former Crows Landing Air Facility into the Plan Area through design features and landscape themes that commemorate the site's former military use, including the use of monuments, signs, and structures. The proposed project would be guided by the following design policies: D 1: Landscape design themes within the Plan Area shall draw inspiration from the aviation theme present within the landscape and structures in the former Crows Landing Air Facility, while respecting the rural landscape and broad open space that characterizes the surrounding area. D 2: Landscaping shall employ a mix of trees, shrubs, and	SU

NI No Impact
LTS Less Than Significant
LTCC Less Than Cumulatively Considerable
PS Potentially Significant
S Significant
SU Significant and Unavoidable
CC Cumulatively Considerable

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Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		groundcover, as suggested by the plant palette in Figure 3-8. Water-conserving/drought-tolerant plants, including California natives and other climate appropriate trees, shrubs, and groundcover, shall be used to comply with state and County water-efficient landscape standards and to reduce maintenance costs. Xeriscape techniques are encouraged to achieve water conservation and low maintenance goals. Plants shall be native or adaptable to local climate conditions and require little or no supplemental irrigation water once established. D 3: Landscaping and groundcover shall be employed to reduce or prevent erosion on steep slopes or along drainage courses. D 4: Street trees, shrubs, and groundcover shall be selected to support the overall landscape theme within the Plan Area, such as accentuating entrances, landmarks, and common areas. D 5: Landscaping designs and the selection of planting materials must consider the presence of the on-site airport and must not be attractive to potentially hazardous wildlife (Refer to Design Goal 6 and the design and development standards in Appendix B for additional guidance). D 6: The plant palette for the Plan Area shall be chosen from the trees, shrubs, and groundcover types, or similar, identified in Figure 3-8. The plant palette considers the local climate conditions, planting heights, and other conditions to be compatible with on-site aviation use. Applicants who wish to propose similar alternative plant materials must receive approval from the County during site plan review and may be required to submit the proposed planting palettes for review and approval by an FAA-qualified Airport Wildlife Biologist, if requested. D 14: A landscaped corridor that includes aviation-compatible native and low-maintenance groundcover, shrubs, and other vegetation, and a bicycle/pedestrian trail shall be designed north of W. Ike Crow Road, along the Plan Area eastern boundary and west of the stormwater pond, to provide a visual screen between Plan Area buildings and adjacent agriculture use. D 15: Buildings located adjacent to the Plan Area boundaries shall include adequate setbacks from adjacent agricultural uses. Setback areas may consist of road right-of-ways, parking areas, and landscaping that provide a visual screen and separation from adjoining agricultural uses.	

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Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		D 31: Square, box-like structures with large, blank, unarticulated wall surfaces are not an acceptable development form. Building facades should be broken up by their structural bays and incorporate architectural features and patterns that provide visual interest at the scale of the pedestrian and reduce the appearance of mass. D 32: The height of new development should be compatible with and transition from the height of adjacent development, when designed to be two or more stories. D 34: Earth tone colors should be used as the base color for proposed structures, to be compatible with nearby agricultural uses. Brighter or more intense colors may be used as accents for trims, doors, window frames, etc., as long as they complement the colors of the overall structure. D 35: Exterior materials shall be selected to minimize any potential glare to surrounding development. D 36: Exterior materials for buildings should be of high quality and durability to support the overall high quality of design and development desired within the CLIBP. D 37: A variety of building materials and textures in combination with landscape and lighting treatments is encouraged to provide visual interest and activate the building development. D 41: The parking lot and vehicles should not be the dominant visual elements of the site. Large paved lots should be avoided in favor of multiple smaller parking areas, separated by landscaping, walkways, and buildings. Parking should be strategically located away from pedestrian traffic routes, when possible. D 43: The placement and design of loading and service areas should be avoided at building or leasehold (lot) street area frontages and designed in accordance with the design and development standards in Appendix B. D 44: Development should screen or conceal loading areas/docks, outdoor storage, and service areas for trash and utilities in view of a public space and roads, to the greatest extent possible. Screening materials should be designed to blend in with the landscape and architectural design of the development.	

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.1-4 Increase in nighttime lighting and daytime glare. The proposed project would require lighting of new buildings and could include facilities with reflective surfaces that could inadvertently cause glare for motorists on SR 33, Bell Road, Fink Road, and Interstate 5 (I-5). Residents near the project site could also experience impacts of nighttime lighting and daytime glare. In addition, the degree of darkness on the project site would diminish as a result of development, potentially diminishing views of stars and other features of the night sky.	S	The proposed project would be guided by design policies, which are intended to minimize potential incompatibilities of nighttime lighting of the proposed project to adjoining properties. The Specific Plan includes the following: D 12 Lighting fixtures and illumination shall be equipped with downward-facing shields and shall not conflict with aviation activities. D 19 Signs shall be constructed to be compatible with safe aviation in terms of their height, illumination, perching potential, etc.	SU
		The Specific Plan also includes the following design guidelines, which are intended to avoid adverse issues related to glare and light trespass: D 11 Illumination standards for roads shall respond to the right-of-way widths and road functions. D 35 Exterior materials shall be selected to minimize any potential glare to surrounding development.	LTS
3.2 Air Quality			
3.2-1 Generation of short-term construction and long-term operational emissions. Potential maximum annual emissions could exceed SJVAPCD thresholds. Following construction, annual operational emissions would exceed SJVAPCD thresholds of significance. Thus, construction and operational emissions of criteria air pollutants and precursors could violate an ambient air quality standard or contribute substantially to an existing or predicted air quality violation.	S	Construction Emissions **Mitigation Measure 3.2-1a: Comply with Current ISR and Use Current Phase Equipment for All Construction Equipment.** As applicable, based on the project size thresholds specified in Rule 9510 (Indirect Source Review), projects within the Specific Plan Area shall comply with SJVAPCD's Rule 9510 Indirect Source Review (ISR). Site developers/leaseholders/project applicants who wish to develop facilities in the Specific Plan area shall construct all facilities using current phase construction equipment (currently Tier 4).	SU
	S	Operational Emissions **Mitigation Measure 3.2-1b: Encourage Alternatives to the Single Occupant Vehicle Commute.** Policy Six of the Stanislaus County General Plan reads "The County shall strive to reduce motor vehicle emissions and vehicle trips by encouraging the use of alternatives to the single occupant vehicle." The project shall implement Policy Six through the incorporation of the following strategies or alternative strategies determined to be equally or more effective in reducing the rate of single-occupant vehicle commutes to the project site at buildout:	SU

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Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		▸ Prior to the occupancy of the first building within the Crows Landing Industrial Business Park, a TDM program or similar program shall be established or an existing program, such as the Commute Connection program, shall be designated to represent the project. This will be a comprehensive strategy to reduce solo occupant vehicle travel by employees, business vehicles including trucks, and visitors. The program shall have TDM goals for CLIBP, including a goal related to the reduction of daily travel and the reduction of daily travel within morning and afternoon peak demand periods. The CLIBP TDM organization shall include mandatory annual employee surveys with a required response of at least 90 percent of the employees. The surveys will include as a minimum mode and time of travel by employees. The CLIBP TDM organization shall prepare an annual report indicating status of compliance with the TDM goals established by the County. The individual companies and the CLIBP TDM organization shall consider the following items or other measures to reduce travel demand and achieve TDM goals: • Encourage employers to utilize flex-time • Carpool matching programs • Preferred parking for carpoolers • Van pool programs • On-site facilities such as break rooms and shower facilities • Establishment of employer sponsored shuttles from Turlock and Modesto • On-site secure bicycle racks • Bike share programs for employee usage at lunchtime • Other measures ▸ All employers operating within the Specific Plan Area shall participate in the TDM or Commute Connection program or future program providing the same services to allow employees to conveniently identify non-single occupancy vehicle methods to reach the proposed project site. Employers should not be considered as separate entities, but rather the entire site shall be considered collectively as a participating entity. This requirement to participate in the Commute Connection program shall be included in leases for Specific Plan developments. There shall be person(s) assigned representing CLIBP on an ongoing basis to coordinate with individual businesses.	

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		▸ New developments that anticipate 100 or more full-time equivalent employees shall coordinate participation in the Commute Connection program or similar future program with implementation of an employee commute trip reduction program to promote transportation other than the single passenger motor vehicle, including but not limited to carpools, vanpools, buspools, public transit, and bicycling. The employee commute trip reduction program should include incentives, services, and policies. This program shall include preferential parking in relatively more convenient locations for electric vehicles, carpools, vanpools and other vehicles carrying commuter passengers on a regular basis. ▸ The County shall identify and accommodate at least one transit stop or commuter shuttle serving the project site that would provide feasible commuter service for project employees.	
3.2-2 Consistency with air quality planning efforts. The proposed project would generate construction and operational emissions at levels that could conflict with or obstruct implementation of the applicable air quality plan.	S	Construction Emissions **Mitigation Measure 3.2-2a: Implement Mitigation Measure 3.2-1a.**	SU
		Operational Emissions **Mitigation Measure 3.2-2b: Implement Mitigation Measure 3.2-1b.**	SU
3.2-3 Exposure of sensitive receptors to emissions of toxic air contaminants. The proposed project would generate TAC emissions during construction and operational activities that could expose sensitive receptors to substantial pollutant concentrations.	PS	Construction Emissions **Mitigation Measure 3.2-3a: Implement Mitigation Measure 3.2-1a.**	LTS
		Operational Emissions **Mitigation Measure 3.2-3b: Assess TAC Emissions and Health Risks Associated with Operations.** Projects proposed within 1,000 feet of an existing daycare or an off-site residence shall be required to analyze and report on potential health risk impacts of PM2.5 and TAC concentrations from long-term operations in accordance with SJVAPCD-recommended methods prior to the issuance of a building permit for new construction, tenant improvement, or change of use. Factors that would affect the need for health risk analysis include, but are not limited to the proposed land use; types, intensity, and frequency of TAC emissions generated by operational activities; and other project parameters, such as heavy-duty truck traffic, number of loading docks, and manufacturing throughput. If health risk impacts are determined to exceed SJVAPCD thresholds of significance under any potential operational exposure scenario, projects shall implement Mitigation Measure 3.2-3c. The requirement to conduct health risk analysis may be waived if determined by the County's Planning Director that the proposed use has already been assessed and shown to	LTS

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		have no health risk impacts necessitating a project-specific health risk analysis or if the SJVAPCD determines that there is no further need for health risk analysis.	
		Mitigation Measure 3.2-3c: Reduce Exposure to Substantial Pollutant Concentrations from Operations. If it is determined that a proposed use could potentially generate health risk impacts that exceed SJVAPCD thresholds of significance, the proposed project shall identify and implement strategies to reduce impacts below applicable SJVAPCD thresholds of significance. A range of potential strategies is available to avoid exposure to substantial pollutant concentrations for sensitive receptors (daycare) and to avoid significant impacts. However, new technologies or methods for avoiding exposure to pollutant concentrations may emerge or become feasible in the future, and those technologies and methods would be implemented in addition to or instead of those identified in the EIR to reduce any potential health risk impacts below applicable SJVAPCD thresholds of significance. Strategies could include, but are not limited to placement of on-site daycare uses at a sufficient distance to avoid impacts associated with potential sources of TAC emissions, such as manufacturing facilities, loading docks, and distribution centers. Building space to be used for daycare could incorporate High Efficiency Particle Arresting (HEPA) filter systems at mechanical air intake points to the building to reduce the levels of PM that enter buildings and/or orient air intake away from areas generating emissions. Uses that generate TAC emissions could also use orientation away from sensitive receptors or controls on emissions concentrations. Commercial and industrial land uses that would host diesel trucks could incorporate technologies such as IdleAire, electrification of truck parking, and/or alternative energy sources for TRUs to allow diesel engines to reduce or avoid idling.	LTS
3.2-4 Exposure of sensitive receptors to emissions of odors. Construction equipment could generate odors. The proposed project includes commercial and light-industrial land uses that could generate odor emissions that expose nearby receptors to objectionable odors.	LTS	No mitigation is required.	LTS

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3.3 Agricultural Resources			
3.3-1 Loss of important farmland and conversion of agricultural land to nonagricultural urban uses. Implementation of the Specific Plan would result in the permanent conversion of agricultural land, including Important Farmland, to nonagricultural urban uses.	S	No feasible mitigation is available aside from Specific Plan phasing.	SU
3.3-2 Conflict with agricultural zoning or Williamson Act contracts. There are no Williamson Act contracts involving properties on the project site. Because rezoning will occur as a part of the project, there will be no conflict with on-site agricultural zoning. Off-site transportation improvements that may be required to serve the project could require additional right-of-way on land that has agricultural zoning and Williamson Act contracts.	LTS	No mitigation is required.	LTS
3.3-3 Conflict with existing off-site agricultural operations. Implementation of the Specific Plan would locate urban land uses adjacent to existing off-site agricultural lands, resulting in potential conflicts with adjacent on-site and off-site agricultural operations. The project does not include uses that would result in the conversion of farmland to non-agricultural use.	LTS	No mitigation is required.	LTS
3.4 Biological Resources			
3.4-1 Loss of special-status plants. Little Salado Creek and the willow scrub community provide marginally suitable habitat for two special-status plant species: Delta button celery and Sanford's arrowhead. These special-status plant species could be present and lost through habitat removal.	PS	**Mitigation Measure 3.4-1: Conduct Special-status Plant Surveys; Implement Compensatory Mitigation for Special-status Plants.** ▸ Retain a qualified botanist to conduct protocol-level preconstruction special-status plant surveys for potentially occurring species for each phase of construction. All plant species encountered on the project site shall be identified to the taxonomic level necessary to determine species status. The surveys shall be conducted no more than 5 years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground disturbing activities, including grubbing or clearing. ▸ Notify CDFW, as required by the California Native Plant Protection Act, if any special-status plants are found on the project site. Notify the USFWS if any plant species listed under the Endangered Species Act are found.	LTS

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		▸ Develop a mitigation and monitoring plan to compensate for the loss of any special-status plant species found during preconstruction surveys. The mitigation and monitoring plan shall be submitted to CDFW or USFWS, as appropriate depending on species status, for review and approval. The County shall consult with these entities, as appropriate depending on species status, before approval of the plan to determine the appropriate mitigation measures for impacts on any special-status plant population. On-site mitigation measures may include the creation of off-site populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating occupied habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Mitigation could also include purchase of an existing off-site area in Stanislaus County that is known to support the special-status species to be affected, as well as preserving the site in perpetuity. The preservation and enhancing of existing on-site populations shall not be considered as mitigation. ▸ If transplantation is a proven method for a species (i.e., information exists demonstrating that the affected species has been successfully transplanted or established from seed using a methodology that can be repeated) and relocation efforts are part of the mitigation plan approved by the County and CDFW or USFWS, as appropriate depending on species status,, the plan shall include a description and map of mitigation sites, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements, and sources of funding to purchase, manage, and preserve the sites. The following performance standards shall be applied: ▸ The extent of occupied area and the flower density in compensatory reestablished populations shall be equal to or greater than the affected occupied habitat and shall be self-producing. ▸ Reestablished populations shall be considered self-producing when: – plants re-establish annually for a minimum of 5 years with no human intervention, such as supplemental seeding; and	

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		– re-established habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types. ▸ If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, and other details, as appropriate to target the preservation of long term viable populations.	
3.4-2 Special-status raptors and other nesting raptors. Project implementation would result in loss of suitable nesting and foraging habitat for special-status raptors (Swainson's hawk, white-tailed kite, northern harrier, and burrowing owl) and common raptors protected under California Fish and Game Code and the Migratory Bird Treaty Act (MBTA). Project construction could disturb active nests on or near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs.	PS	**Mitigation Measure 3.4-2a: Avoid Direct Loss of Swainson's Hawk and Other Raptors** ▸ Tree and vegetation removal shall be completed during the nonbreeding season for raptors (September 1–February 28). ▸ To avoid, minimize, and mitigate potential impacts on Swainson's hawk and other raptors (not including burrowing owl) nesting on or adjacent to the project site and off-site improvement areas, retain a qualified biologist to conduct preconstruction surveys and identify active nests on and within 0.5 mile of the project site and off-site improvement areas for construction activities conducted during the breeding season (March 1–August 31). The surveys shall be conducted before the approval of grading and/or improvement plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction. Guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) or updated, current guidance shall be followed for surveys for Swainson's hawk. If no nests are found, no further mitigation will be required. ▸ Impacts on nesting Swainson's hawks and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. No project activity shall commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. CDFW guidelines recommend implementation of 0.25- or 0.5-mile-wide buffers for Swainson's hawk nests, but the size of the buffer may be decreased if a qualified biologist and the County, in consultation with CDFW, determine that such an adjustment would not	LTS

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		be likely to adversely affect the nest. ▸ The appropriate no-disturbance buffer for other raptor nests (*i.e.*, species other than Swainson's hawk) shall be determined by a qualified biologist based on site-specific conditions, the species of nesting bird, nature of the project activity, visibility of the disturbance from the nest site, and other relevant circumstances. ▸ Monitoring of all active raptor nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist.	
		Mitigation Measure 3.4-2b: Avoid Loss of Burrowing Owl ▸ To avoid, minimize, and mitigate potential impacts on burrowing owl, a qualified biologist shall be retained to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of the project site and off-site improvement areas. Surveys will be conducted prior to the start of construction activities for each project phase and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (2012) or updated, current guidance. ▸ If no occupied burrows are found, a letter report documenting the survey methods and results will be submitted to the County and CDFW and no further mitigation will be required. ▸ If an active burrow is found during the nonbreeding season (September 1 through January 31), owls will be relocated outside of the Specific Plan Area using passive or active methodologies developed in consultation with CDFW and may include active relocation to preserve areas if approved by CDFW and the preserve managers. No burrowing owls will be excluded from occupied burrows until a burrowing owl exclusion and relocation plan is developed by the project applicant and approved by CDFW.	LTS

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		▸ If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer will depend on the time of year and level of disturbance, as outlined in the CDFW Staff Report (2012, pg. 9). Once the fledglings are capable of independent survival, the owls will be relocated outside the Airport Influence Area in accordance with a burrowing owl exclusion and relocation plan developed in consultation with CDFW and the burrow will be destroyed to prevent owls from reoccupying it. No burrowing owls will be excluded from occupied burrows until a burrowing owl exclusion and relocation plan is approved by CDFW. Following owl exclusion and burrow demolition, the site shall be monitored by a qualified biologist to ensure burrowing owls do not recolonize the site prior to construction. ▸ If active burrowing owl nests are found on the project site or off-site improvement areas and these nest sites are lost as a result of implementing the project, the loss shall be mitigated through preservation of other known nest sites in Stanislaus County, at a minimum ratio of 1:1. A mitigation and monitoring plan shall be developed for the compensatory mitigation areas. ▸ The mitigation and monitoring plan will include detailed information on the habitats present within the preservation areas, the long-term management and monitoring of these habitats, legal protection for the preservation areas (*e.g.*, conservation easement, declaration of restrictions), and funding mechanism information (*e.g.*, endowment). All burrowing owl mitigation lands shall be preserved in perpetuity and incompatible land uses shall be prohibited in habitat conservation areas.	

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		▸ Burrowing owl mitigation land shall be transferred through either conservation easement or fee title, to a third-party, nonprofit conservation organization (Conservation Operator), with the CDFW named as third-party beneficiaries. The Conservation Operator shall be a qualified conservation easement land manager that manages land as its primary function. Additionally, the Conservation Operator shall be a tax-exempt nonprofit conservation organization that meets the criteria of Civil Code Section 815.3(a). CDFW and the Conservation Operator shall each have the power to enforce the terms of the conservation easement. The Conservation Operator shall monitor the easement in perpetuity to ensure compliance with the terms of the easement.	
		Mitigation Measure 3.4-2c: Prepare and Implement a Swainson's Hawk Foraging Habitat Mitigation Plan ▸ Before any ground-disturbing activities, suitable Swainson's hawk foraging habitat shall be preserved to ensure replacement of foraging habitat lost as a result of the project, as determined by a qualified biologist, in consultation with CDFW. ▸ The habitat value shall be based on Swainson's hawk nesting distribution and an assessment of habitat quality, availability, and use within the County. The mitigation ratio shall be consistent with the 1994 DFG Swainson's Hawk Guidelines included in the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks* (Buteo swainsoni) in the Central Valley of California. These guidelines specify that the mitigation ratio shall be 1:1 if there is an active nest within 1 mile of the project site, 0.75:1 if there is an active nest within 5 miles but greater than 1 mile away, and 0.5:1 if there is an active nest within 10 miles but greater than 5 miles away. If there is an active nest within 1 mile of the project site, the mitigation ratio can be reduced to 0.5:1 if all of the mitigation land can be actively managed for prey production. Such mitigation shall be accomplished through either the transfer of fee title or perpetual conservation easement. The mitigation land shall be located within the known foraging area within Stanislaus County.	LTS

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		▸ Before acceptance of such proposed mitigation, the County shall consult with CDFW regarding the appropriateness of the mitigation. If mitigation is accomplished through a conservation easement, then such an easement shall ensure the continued management of the land to maintain Swainson's hawk foraging values, including but not limited to, ongoing agricultural uses and the maintenance of all existing water rights associated with the land. The conservation easement shall be recordable and shall prohibit any activity that substantially impairs or diminishes the land's capacity as suitable Swainson's hawk foraging habitat. The conservation easement should not be located within 5 mils of the proposed on-site airport. ▸ Swainson's hawk mitigation land shall be transferred, through either conservation easement or fee title, to a third-party, nonprofit conservation organization (Conservation Operator), with the CDFW named as third-party beneficiaries. The Conservation Operator shall be a qualified conservation easement land manager that manages land as its primary function. Additionally, the Conservation Operator shall be a tax-exempt nonprofit conservation organization that meets the criteria of Civil Code Section 815.3(a). CDFW and the Conservation Operator shall approve the content and form of the conservation easement. CDFW and the Conservation Operator shall each have the power to enforce the terms of the conservation easement. The Conservation Operator shall monitor the easement in perpetuity to assure compliance with the terms of the easement.	
3.4-3 Disturbance of tricolored blackbird, loggerhead shrike, and common nesting birds. Project implementation would result in loss and disturbance of potential nesting habitat for tricolored blackbird, loggerhead shrike, and common birds. Project construction could disturb active nests on or near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs.	PS	**Mitigation Measure 3.4-3: Avoid Direct Loss of Tricolored Blackbird and Loggerhead Shrike and Protected Bird Nests** ▸ To the extent feasible, vegetation removal, grading, and other ground disturbing activities will be carried out during the nonbreeding season for protected bird species in this region (generally September 1–January 31). ▸ For any project activity that would occur during the nesting season (February 1–August 31), the project applicant shall conduct a preconstruction survey. The preconstruction survey shall be conducted by a qualified biologist before any activity occurring within 300 feet of suitable nesting habitat for any protected bird species. The survey shall be conducted within 14 days before project activity begins.	LTS

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		▸ If an active nest of loggerhead shrike, tricolored blackbird, or common bird species protected by the Migratory Bird Treaty Act or California Fish and Game Code is found, the qualified biologist shall establish a buffer around the nest. No construction activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active. The appropriate no-disturbance buffer shall be based on site-specific conditions, the species of bird, nature of the project activity, the extent of existing disturbance in the area, and other relevant circumstances, as determined by a qualified biologist in consultation with CDFW. ▸ Monitoring of all protected nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.	
3.4-4 Pallid bat. Project implementation would result in loss of human-made structures that may support pallid bat roosts. If these structures are used by bats as a day roost, hibernation roost, or maternity colony roost, implementation of the project could result in injury and mortality of pallid bat.	PS	**Mitigation Measure 3.4-4: Avoid, Minimize, and Mitigate Loss of Bat Roosts** ▸ Before rehabilitation of the former air traffic control tower, or any work on the East Las Palmas Avenue bridge over the San Joaquin River, the County shall have a qualified biologist conduct focused surveys for roosting bats in said structure. Surveys shall be conducted in the fall to determine if structures are used as hibernacula and in spring and/or summer to determine if they are used as maternity or day roosts. Surveys shall consist of evening emergence surveys to note the presence or absence of bats and could consist of visual surveys at the time of emergence. If evidence of bat use is observed, the number and species of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts, but are not required. If no bat roosts are found, then no further study is required.	LTS

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		▸ If bat roosts are determined to be present, the bats shall be excluded from the roosting site before the roost structure is removed. If roosts must be removed, a detailed mitigation program addressing compensation, exclusion methods, and roost removal procedures shall be developed, in consultation with CDFW, before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts will be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). ▸ Compensatory mitigation for the loss of each roost (if any) shall be developed, in consultation with CDFW, and may include construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. Roost replacement will be implemented before bats are excluded from the original roost site. Once compensation is implemented and it is confirmed that bats are not present in the roost site, the roost structure may be removed.	
3.4-5 Loss of federally protected waters of the United States. Implementing the proposed project would result in dredging or permanent fill of waters of the United States, including wetlands subject to USACE jurisdiction under the CWA.	PS	**Mitigation Measure 3.4-5: Compensate for Loss of Wetlands and Other Waters.** ▸ The County shall obtain a USACE Section 404 Individual Permit and Central Valley RWQCB Section 401 water quality certification before any groundbreaking activity within 50 feet of waters or discharge of fill or dredge material into any water of the United States. ▸ The County shall replace or restore on a "no-net-loss" basis the function of all wetlands and other waters that would be removed as a result of implementing backbone infrastructure to support project development. Wetland habitat will be restored or replaced at an acreage and location and by methods agreeable to USACE and the Central Valley RWQCB, depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes.	LTS

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		▸ Based on the presence of an on-site airport, all mitigation that has the potential to attract potentially hazardous wildlife must occur at an off-site location that is 10,000 feet or more from aircraft movement areas. Off-site mitigation methods may consist of the establishment of aquatic resources in upland habitats where they did not exist previously, reestablishment (restoration) of natural historic functions to a former aquatic resource, enhancement of an existing aquatic resource to heighten, intensify, or improve aquatic resource functions, or a combination thereof. The compensatory mitigation may be accomplished through purchase of credits from a USACE-approved mitigation bank, payment into a USACE-approved in-lieu fee fund, or through permittee-responsible off-site establishment, reestablishment, or enhancement, depending on availability of mitigation credits. ▸ Permittee-responsible mitigation shall be monitored for a minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.	
3.4-6 Conflicts with general plan policies protecting biological resources. Project implementation could conflict with General Plan policies that apply to sensitive species and habitats, including riparian habitats, waterways, and rare and endangered plants and wildlife.	PS	**Mitigation Measure 3.4-6: Implement Mitigation Measures 3.4-1, 3.4-2, 3.4-3, 3.4-4, and 3.4-5.**	LTS
3.4-7 Impede the use of native wildlife nursery sites. Project implementation would result in loss of human-made structures that may support maternity bat roosts. If these structures are used by bats as maternity colony roosts, implementation of the project could result in mortality of large numbers of bats and inability to reproduce young.	PS	**Mitigation Measure 3.4-7: Implement Mitigation Measure 3.4-4.**	PS
3.5 Cultural Resources			
3.5-1 Loss of or damage to known built environment resources. One built environment resource, a segment of the Delta-Mendota Canal that is listed on the CRHR, would be affected by implementation of the proposed project. However, the character-defining features of the canal, particularly its sloped concrete walls, would not be impaired. The addition of a proposed bridge would not alter or diminish the canal's location,	LTS	No mitigation is required.	LTS

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design, materials, workmanship, feeling and association.			
3.5-2 Substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5. The proposed project will include earth-moving activities and grading during the construction of site infrastructure, new structures and parking areas, and airport facilities. However, the project site has been disturbed by agricultural cultivation and the construction and operation of military facilities during its more than 50 years of operation, and the identification of surface prehistoric resources during project implementation is unlikely. The cultural records search did not identify any prehistoric resources at the project site or in its immediate vicinity. While it appears unlikely, it is possible that project construction could result in inadvertent damage to unknown unique, buried archaeological deposits.	PS	**Mitigation Measure 3.5-2: Avoid Potential Effects on Previously Undiscovered Resources, and Stop Work if Any Prehistoric or Historic Subsurface Cultural Resources are Discovered** In the event that any prehistoric or historic subsurface archaeological features or deposits, including locally darkened soil ("midden"), are discovered during construction-related earth-moving activities, all ground-disturbing activity within 150 feet of the resources shall be halted. The County shall consult with a qualified archeologist to assess the significance of the find. If the feature is determined to be significant by the qualified archaeologist (i.e., because it is determined to constitute either an historical resource or a unique archaeological resource), representatives of the County and the qualified archaeologist shall meet to determine the appropriate course of action. If the archaeologist determines that some or all of the affected resource qualifies as a historical resource or a Native American Cultural Place, including a Native American sanctified cemetery, place of worship, religious or ceremonial site, sacred shrine (California Public Resources Code Section 5097.9), or a Native American historic, cultural, or sacred site that is listed or may be eligible for listing in the California Register of Historical Resources pursuant to California Public Resources Code Section 5024.1, including any historic or prehistoric ruins, any burial ground, or any archaeological or historic site (California Public Resources Code Section 5097.993), the archaeologist shall recommend to the County potentially feasible mitigation measures that would preserve the integrity of the site or minimize impacts on it, including any or a combination of the following: ▸ Avoidance, preservation, and/or enhancement of all or a portion of the Native American Cultural Place as open space or habitat, with a conservation easement dedicated to the most interested and appropriate tribal organization. If such an organization is willing to accept and maintain such an easement, or alternatively, a cultural resource organization that holds conservation easements;	LTS

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		▸ An agreement with any such tribal or cultural resource organization to maintain the confidentiality of the location of the site so as to minimize the danger of vandalism to the site or other damage to its integrity; or ▸ Other measures, short of full or partial avoidance or preservation, intended to minimize impacts on the Native American Cultural Place consistent with land use assumptions and the proposed design and footprint of the development project for which the requested grading permit has been approved. After receiving such recommendations, the County shall assess the feasibility of the recommendations and impose the most protective mitigation feasible in light of land use assumptions and the proposed design and footprint of the development project. The County shall, in reaching conclusions with respect to these recommendations, consult with the most appropriate and interested tribal organization.	
3.5-3 The proposed project could disturb as-yet undiscovered human remains, including those interred outside of formal cemeteries. Oral history and local accounts suggest that a pioneer-period cemetery may have been located in the project vicinity, but geophysical research and a review of archaeological records on file at the CCIC did not substantiate its presence. The archaeological survey conducted for this project did not provide evidence of a cemetery. Compliance with California Health and Safety Code and California Public Resources Code would reduce potential impacts on previously undiscovered human remains because the above-listed procedures allow for the identification and proper treatment of human remains.	LTS	No mitigation is required.	LTS
3.6 Energy			
3.6-1 Consumption of energy. Implementation of the proposed project would increase the consumption of energy for the duration of the proposed project's construction in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). Implementation of the proposed project would also require energy for operational phases. The physical impacts associated with the generation and use of energy are documented in detail throughout this EIR.	LTS	No mitigation is required.	LTS

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3.6-2 Development in the vicinity of the Fink Road landfill and waste-to-energy plant. The proposed project could result in new land uses that could encroach on the Fink Road landfill and waste-to-energy plant that would adversely affect their operation or ability to expand.	LTS	No mitigation is required.	LTS
3.7 Greenhouse Gas Emissions			
3.7-1 Increases in greenhouse gas emissions. The proposed project would generate GHG emissions associated with construction and operational activities.	CC	**Mitigation Measure 3.7-1a: Reduce Construction-Related GHG Emissions** Development of the project shall incorporate measures to reduce GHG emissions associated with construction activities including, but not limited to construction equipment, haul trucks, material delivery trucks, and construction worker vehicles. Measures can include, but should not be limited to the following: ▸ Contractor shall use alternative-fuel (*e.g.*, compressed natural gas) or electric equipment, when feasible. ▸ Procure materials from providers from the closest feasible sources.	SU
		Mitigation Measure 3.7-1b: Reduce Operational GHG Emissions Projects proposed under the Specific Plan shall incorporate energy efficiency, conservation, and other GHG reduction strategies. The performance standard is to incorporate reduction strategies at a sufficient level to contribute each project's proportional share of the overall greenhouse gas reductions necessary to meet State GHG reduction targets. The following mitigation measures shall be implemented by the project applicant(s) of all project phases to reduce GHG emissions: ▸ Provide electric vehicle charging stations and priority parking nearest to buildings. ▸ Design roof top areas for proposed buildings to minimize the area occupied by heating, ventilation, and air conditioning (HVAC) systems and maximum the efficiency and area for solar PV systems that would be compatible with the proposed aviation facilities. ▸ Orient and design buildings to maximize natural lighting and install passive energy efficiency features such as louvres and shade structures to minimize the amount of air conditioning needed during summer months.	SU

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		▸ Building indoor lighting shall be automatically switched to motion sensor and area lighting after normal working hours. ▸ Provide all businesses with separate recycling containers for daily paper, plastic, cans, and glass generation and recycling pick up in coordination with general solid waste pick up. ▸ Provide monthly e-waste collection services for all business. Projects that do not incorporate the measures listed above, shall propose alternative measures that demonstrate an equal or greater decrease in annual operational GHG emissions and achieve the performance standard.	
		Mitigation Measure 3.7-1c: Implement Mitigation Measures 3.2-1a and 3.2-1b The referenced mitigation measures from Chapter 3.2, "Air Quality" would also help reduce GHG emissions.	SU
3.7-2 Consistency with the applicable GHG reduction plan. The proposed project would not result in cumulatively considerable impacts as a result of inconsistency with applicable strategies of the GHG reduction plans.	LTCC	No mitigation is required.	LTCC
3.8 Geology, Soils, Minerals, and Paleontological Resources			
3.8-1 Potential damage to proposed facilities from seismic hazards. Project-related facilities and off-site infrastructure could be subject to hazards from strong seismic ground shaking, liquefaction, and seismically-induced settlement.	PS	**Mitigation Measure 3.8-1a: Prepare Site-Specific Geotechnical Report(s) per CBC Requirements and Implement Associated Recommendations.** Prior to issuance of grading/building permits and prior to the construction of any off-site infrastructure improvements, a qualified civil engineer shall be retained to prepare a final geotechnical report for the proposed facilities, which shall be submitted for review and approval to the appropriate Stanislaus County Department(s). The final geotechnical engineering report may require site-specific subsurface soil borings and shall address and make recommendations on the following, as applicable:	LTS

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		▸ seismic design parameters; ▸ seismic ground shaking; ▸ surface fault rupture related to the proposed I-5 interchange improvements; ▸ liquefaction; ▸ expansive/unstable soils; ▸ site preparation; ▸ soil bearing capacity; ▸ structural foundations, including retaining-wall design; ▸ grading practices; and ▸ soil corrosion of concrete and steel. In addition to the recommendations for the conditions listed above, the geotechnical investigation shall determine appropriate foundation designs that are consistent with the version of the California Building Code (CBC) that is in force at the time of permit application. 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 CBC.	
		Mitigation Measure 3.8-1b: Monitor Earthwork during Earthmoving Activities. All earthwork, such as excavation, placement of fill, and disposal of materials removed from and deposited on both on-and off-site construction areas, shall be monitored by a qualified geotechnical or civil engineer.	LTS
3.8-2 Potential geologic hazards related to construction in unstable soils. Facilities constructed at the project site and the off-site infrastructure improvements could be subject to geologic hazards related to settlement from soil compression, subsidence, and perched groundwater during the winter months.	PS	**Mitigation Measure 3.8-2a: Implement Mitigation Measure 3.8-1a (Prepare Site-Specific Geotechnical Report(s) per CBC Requirements and Implement Associated Recommendations).**	LTS
		Mitigation Measure 3.8-2b: Implement Mitigation Measure 3.8-1b (Monitor Earthwork during Earthmoving Activities).	LTS
		Mitigation Measure 3.8-2c: Conduct Subsidence Monitoring. Subsidence monitoring shall be conducted and appropriate actions taken to prevent subsidence associated with the project. The County shall coordinate with the Groundwater Sustainability Agency on any monitoring of subsidence monuments conducted to implement the Groundwater Sustainability Plan for the vicinity of the Specific Plan Area. The exact	LTS

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		construction, placement, and monitoring methodology will be defined in a subsidence monitoring program in the Groundwater Sustainability Plan. Subsidence monitoring activities, findings, and reporting schedule will also be defined in the Groundwater Sustainability Plan, along with standards that dictate when investigation and intervention is required and what actions will be a part of intervention, if required, in order to avoid damage to infrastructure.	
3.8-3 Potential temporary, short-term construction-related erosion. Ground-disturbing activities associated with construction of proposed improvements could result in substantial soil erosion and loss of topsoil at construction sites.	PS	**Mitigation Measure 3.8-3a: Prepare and Implement a Grading and Erosion Control Plan.** Before grading permits are issued or earthmoving activities are conducted, a California Registered Civil Engineer shall be retained to prepare a grading and erosion control plan. The grading and erosion control plan shall be submitted to the Stanislaus County Public Works Department for review and approval. The plan shall be consistent with the County's NPDES permit, and shall include site-specific grading proposals. The plan shall include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, a description of measures designed to control dust and stabilize the construction-site road and entrance, and a description of the location and methods of storage and disposal of construction materials. Temporary construction-related erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion. Stabilization of construction entrances to minimize trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot.	LTS
		Mitigation Measure 3.8-3b: Implement Mitigation Measure 3.10-1 (Prepare and Implement a Stormwater Pollution Prevention Plan and Associated Best Management Practices).	LTS
3.8-4 Potential damage to proposed facilities from construction in expansive soils. The project site is composed of soils that have a moderate to high potential for expansion when wet and may result damage to structures and infrastructure.	PS	**Mitigation Measure 3.8-4: Implement Mitigation Measure 3.8-1 (Prepare Site-Specific Geotechnical Report[s] per CBC Requirements and Implement Associated Recommendations).**	LTS
3.8-5 Suitability of soils for use with septic systems. If septic systems are used on-site, they will be required to meet requirements of Stanislaus County, which were designed to prevent adverse water quality and public health effects.	LTS	No mitigation is required.	LTS

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3.8-6 Possible loss of availability of regionally or locally important known mineral resources. The project site and the off-site infrastructure improvement locations are not classified as MRZ-2, and have been rated by CGS with a relatively low potential to contain economically valuable deposits of mineral resources.	LTS	No mitigation is required.	LTS
3.8-7 Possible damage to or destruction of unique paleontological resources. The project site and most of the off-site infrastructure improvements are underlain by Holocene-age rock formations, which are considered to be of low paleontological sensitivity. However, the off-site infrastructure improvements associated with the I-5 interchange may occur in older rock formations that may be paleontologically sensitive.	Except the I-5 interchange – LTS I-5 interchange – PS	**Mitigation Measure 3.8-7: Avoid Paleontological Resources Impacts.** If paleontological resources (e.g., fossils) are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify the Stanislaus County Planning & Community Development Department. A qualified paleontologist shall be retained to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology Guidelines (1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the Stanislaus County Planning & Community Development Department to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.	LTS
3.9 Hazards and Hazardous Materials			
3.9-1 Accidental spills and routine use and transport of hazardous materials used during construction activities. Construction and operation of the proposed project would involve the storage, use, and transport of hazardous materials such as fuels, oils, lubricants, paints and other substances. Federal, State, and local hazardous materials regulations address the transport, storage, and use of these materials to reduce the risk of accidental spills to the maximum extent practicable.	LTS	No mitigation is required.	LTS

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3.9-2 Exposure of people and the environment to existing hazardous materials, including Cortese-listed sites. Remediation of contaminated soil has occurred. Groundwater remediation is ongoing and development in the vicinity of the groundwater plume is prohibited until the remediation goals are met. All but two of the former on-site structures have been demolished. However, construction workers could be exposed to presently unknown areas of soil or groundwater contamination, fuel from the existing ASTs used for agricultural production, petroleum-contaminated soils associated with former UST Cluster 2, and asbestos and lead-based paint in the ATCT and lighting vault. Finally, construction of some of the proposed off-site improvements could expose construction workers and the environment to known hazardous materials.	On-site soil contamination – LTS Site E – PS Site 17 – PS Lead-based Paint – PS Agricultural chemicals – PS Hazardous Materials off-site - PS	**Mitigation Measure 3.9-2a: Prepare and Implement a Worker Health and Safety Plan, and Implement Appropriate Measures to Minimize Potential Exposure to Hazardous Materials.** The following shall be implemented before and during construction to reduce potentially significant impacts associated with exposure to hazardous materials: ▸ Prepare and implement a worker health and safety plan before the start of construction activities that identifies, at a minimum, the potential types of contaminants that could be encountered during construction activity; all appropriate worker, public health, and environmental protection equipment and procedures to be used during project activities; emergency response procedures; the most direct route to the nearest hospitals; and a Site Safety Officer. The plan shall describe actions to be taken should hazardous materials be encountered on site, including the telephone numbers of local and state emergency hazmat response agencies. ▸ If, during site preparation and construction activities, evidence of hazardous materials contamination is observed or suspected (e.g., stained or odorous soil or groundwater), construction activities shall cease immediately in the area of the find. If such contamination is observed or suspected, the developer/contractor shall retain a qualified hazardous materials specialist to assess the site and collect and analyze soil and/or water samples, as necessary. If contaminants are identified in the samples, the developer/contractor shall notify and consult with the appropriate federal, State, and/or local agencies. Measures to remediate contamination and protect worker health and the environment shall be implemented in accordance with federal, State, and local regulations before construction activities may resume at the site where contamination is encountered. Such measures could include, but are not limited to, preparation of a Phase I and/or Phase II Environmental Site Assessment, removal of contaminated soil, and pumping and treating of groundwater. ▸ Properly abandon and remove the existing agricultural ASTs in accordance with Stanislaus County Department of Environmental Resources regulations.	LTS

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		Mitigation Measure 3.9-2b: Remove Asbestos-Containing Material and Lead-Based Paint in Accordance with Federal, State, and Local Regulations. The County shall retain a Cal-OSHA certified asbestos consultant before reuse, remodeling, or demolition of the control tower (building C101) and the airfield lighting vault (building C103) to investigate whether any asbestos-containing materials or lead-based paints are present, and could become friable or mobile during rehabilitation or demolition activities. If any materials containing asbestos or lead-based paints are found, they shall be removed by an accredited contractor in accordance with EPA, Cal-OSHA, and SJVAPCD standards. In addition, all activities (construction or demolition) in the vicinity of these materials shall comply with Cal-OSHA asbestos and lead worker construction standards. The materials containing lead shall be disposed of properly at an appropriate off-site disposal facility.	LTS
		Mitigation Measure 3.9-2c: Design the I-5/Fink Road Interchange Improvements to Avoid Contact with Landfill Materials. Interchange improvements shall be designed to avoid all contact with landfill materials. The boundaries of existing landfill materials shall be clearly marked as an avoidance area prior to the start of construction activities at the interchange.	
		Mitigation Measure 3.9-2d: Perform an Environmental Site Assessment of the AL Castle Site, and Implement Remediation if Necessary. Prior to the start of construction activities associated with the sewer pipeline along West Marshall Road, a licensed environmental professional shall be retained to perform a Phase I Environmental Site Assessment (ESA) of the AL Castle site. The Phase I ESA shall include consultation with the Stanislaus County Department of Environmental Resources, and DTSC and/or SWRCB, regarding the status and nature of contamination of the AL Castle site. If necessary, a Phase II ESA shall be performed to obtain soil and groundwater samples for laboratory analysis. The Phase I ESA (and Phase II ESA, if necessary) shall be submitted to the Stanislaus County Department of Environmental Resources for review. Any necessary remedial activities shall be performed, prior to the start of any construction activities within 0.25 mile of the AL Castle property. Remedial activities shall be coordinated with the Stanislaus County	LTS

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		Department of Environmental Resources (and DTSC and/or SWRCB, as necessary).	
3.9-3 Creation of safety hazards, including wildlife strikes, in the vicinity of a public or private airport. The land uses proposed in the CLIBP Specific Plan would be compatible with the Crows Landing Airport, and therefore would not result in a safety hazard to aircraft or to people working on the ground.	LTS	No mitigation is required.	LTS
3.9-4 Interference with emergency access or adopted emergency response plans. Although construction materials, equipment, and personnel would be stored and staged on site, local roadways would experience a higher traffic volume during construction that could slow emergency access. In addition, off-site roadway improvements and installation of the proposed sewer pipeline would result in traffic delays that could slow emergency access.	PS	**Mitigation Measure 3.9-4: Prepare and Implement a Construction Traffic Control Plan.** A traffic control plan shall be implemented for construction activities that may affect road rights-of-way, in order to facilitate travel of emergency vehicles on affected roadways. The traffic control plan must follow the applicable and current Stanislaus County Standards and Specifications, and must be approved and signed by a professional engineer. Measures typically used in traffic control plans include advertising of planned lane closures, warning signage, a flag person to direct traffic flows when needed, and methods to ensure continued access by emergency vehicles. During project construction, access to the existing surrounding land uses shall be maintained at all times, with detours used, as necessary, during road closures. The traffic control plan shall be submitted to the Stanislaus County Public Works Department for review and approval before the approval of all project plans or permits.	LTS
3.9-5 Specific Plan consistency with the Airport Land Use Compatibility Plan. The ALUCP states that the development of heavy or light industry must "avoid the bulk storage of hazards materials, and permitting agencies must evaluate the need for specific measures to minimize hazards." The County's proposed Specific Plan is consistent with the adopted ALUCP.	LTS	No mitigation is required.	LTS
3.10 Hydrology and Water Quality			
3.10-1 Potential temporary, short-term construction-related drainage and water quality effects. Construction activities during project implementation would involve extensive grading and movement of earth, which would substantially alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas and degrade local water quality.	PS	**Mitigation Measure 3.10-1a: Implement Mitigation Measure 3.8-3a (Prepare and Implement a Grading and Erosion Control Plan).**	LTS

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		Mitigation Measure 3.10-1b: Prepare and Implement a Stormwater Pollution Prevention Plan and Associated Best Management Practices. Prior to the start of earth-moving activities, leaseholders/developers/ contractors for each project within the Specific Plan Area and for each off-site infrastructure improvement required to serve development under the Specific Plan shall obtain coverage under any applicable State or local stormwater permit for general construction activity, including the preparation and submittal of a project-specific storm water pollution prevention plan (SWPPP). The leaseholders/developers/contractors shall also prepare and submit erosion and sediment control and engineering plans and specifications for pollution prevention and control to the Stanislaus County Public Works Department. The SWPPP shall identify and specify an effective combination of robust erosion and sediment control Best Management Practices (BMPs) and construction techniques accepted by the County for use at the time of construction that would reduce the potential for runoff and the release, mobilization, and exposure of pollutants from project-related construction sites. Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction activities and shall be used in all subsequent site development activities.	LTS
3.10-2 Potential increased risk of flooding and hydromodification from increased stormwater runoff. Project implementation would increase the amount of impervious surfaces, thereby increasing surface water runoff. This increase in surface runoff could result in an increase in both the total volume and the peak discharge rate of stormwater runoff, resulting in a greater potential for on- and off-site flooding. However, the project will include improvements in streambed conductance (infiltration) along Little Salado Creek resulting from construction of a proposed linear detention pond and implement low-impact development (LID) design standards to treat stormwater on-site to minimize those effects.	PS	**Mitigation Measure 3.10-2: Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan.** All development shall implement all applicable design details within the County's approved drainage plan and shall provide project-specific details showing design measures to (1) protect long-term water quality; (2) ensure that future development continues to contain the 100-year (0.01 AEP) flood flows to avoid risk to people or structures within or down gradient of the project site; and (3) avoid an increase in hydromodification compared to pre-development levels that could change existing stream geomorphology. Plans demonstrating compliance with County drainage standards and project-specific details meeting the County's requirements and performance standards of this mitigation measure shall be submitted to and approved by the Stanislaus County Public Works Department. Plans shall contain supporting calculations, as determined necessary by the Public Works Director.	LTS

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3.10-3 Create long-term operational water quality and hydrology effects as a result of agricultural and urban runoff. Project implementation would change the type, amount, and timing of potential long-term operational pollutant discharges in stormwater and other urban runoff discharged from the project site. Development would be phased, and some on-site agricultural operations would continue to contribute to agricultural discharges until the site is fully developed. The project will include improvements in streambed conductance (infiltration) along Little Salado Creek, the construction of a detention/retention pond, and the implementation of LID design standards to treat stormwater, with the incorporation of BMPs to treat runoff prior to discharging off-site. Site-specific methodologies to treat stormwater prior to off-site discharge will be identified and designed as projects are implemented under the Specific Plan.	PS	**Mitigation Measure 3.10-3a: Implement Mitigation Measure 3.10-2 (Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan).**	LTS
		Mitigation Measure 3.10-3b: Prepare and Implement a Long-Term Site-Specific Operational Stormwater Quality Management Plan. The County shall implement a site-specific long-term operational stormwater quality/drainage management plan and incorporate procedures into all leases, contracts, and/or permits. The plan shall be designed to meet the requirements of relevant permitting requirements, while acknowledging site-specific conditions and the presence of a nearby public-use airport. The plan shall outline the water quality improvements developed for the backbone infrastructure and provide detailed information about the structural and nonstructural BMPs proposed for phased project development. The plan shall include: ▸ A quantitative hydrologic and water quality analysis of proposed conditions incorporating the site-specific drainage design features (including LID features). ▸ Pre-development and post-development calculations demonstrating that the proposed water quality BMPs meet or exceed requirements established by Stanislaus County. ▸ The operational stormwater quality management plan shall contain a list of long-term operational BMPs that would be implemented throughout the project site to: ▸ eliminate non-stormwater discharges; ▸ educate future on-site employees about the stormwater program requirements and the penalties for non-stormwater discharges; ▸ reduce the amount of pollutants carried by on-site stormwater; and ▸ treat on-site stormwater prior to off-site discharge. ▸ Vegetation will be incorporated in to individual development plans in accordance with Specific Plan policies. In addition, the project site shall be developed to include stormwater management facilities that promote evapotranspiration, infiltration, harvest/use, and biotreatreament of stormwater and it shall include provisions to maintain these facilities in perpetuity. The facilities shall be designed using either volumetric or flow-based criteria as follows:	LTS

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		Volumetric Hydraulic Sizing Design Criteria ▸ The maximized capture stormwater volume for the tributary area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients as required by Stanislaus County (i.e., approximately the 85th percentile 24-hour storm runoff event); or ▸ The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology in Section 5 of the California Stormwater Quality Association (CASQA's) *Stormwater Best Management Practice Handbook, New Development and Redevelopment* (2003), using local rainfall data. **Flow-Based Hydraulic Sizing Design Criteria** ▸ The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or ▸ The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records. ▸ In addition, any future land use within the project site that includes a high-risk pollutant discharge source shall provide additional site-specific treatment to address pollutants of concern prior to the flow reaching the infiltration facility. The adequacy of site-specific source treatment shall be determined by the County, and may include facilities such as oil and grease separators and settling tanks. ▸ The operational stormwater quality management plan for each proposed leasehold development shall be submitted to the County for review and approval.	
		Mitigation Measure 3.10-3c: Implement an Agreement between Project Leaseholders and Stanislaus County to Provide Maintenance, Monitoring, and Funding for Long-Term Operational Stormwater Quality Control. Prior to issuance of building permits for proposed development in the Specific Plan Area, leaseholders shall be required to enter into an agreement with the County that specifies the long-term maintenance, monitoring, and funding for operational stormwater quality controls at the project site.	LTS

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3.10-4 Potential impacts on groundwater recharge and aquifer volume. The development of additional impervious surfaces and the use of groundwater for the project's water supply could affect groundwater levels.	PS	**Mitigation Measure 3.10-4a: Provide Setbacks for New Shallow Wells** New shallow groundwater extraction wells shall be located at least 250 feet from project site boundaries to minimize potential drawdown effects on shallow aquifer wells located on nearby properties.	LTS
		Mitigation Measure 3.10-4b: Conduct and Report Groundwater Level Monitoring The County shall coordinate with the Groundwater Sustainability Agency to prepare on groundwater monitoring conducted as a part of implementation of the Groundwater Sustainability Plan for the vicinity of the Specific Plan Area. The exact construction, placement, and monitoring methodology will be defined in a groundwater level monitoring program in the Groundwater Sustainability Plan. Groundwater level monitoring activities, findings, and reporting schedule will also be defined in the Groundwater Sustainability Plan, along with the Minimum Thresholds and Measurable Objectives required in a Groundwater Sustainability Plan that govern when investigation and intervention is required and what adjustments to well field operation or other actions are required to avoid effects to existing off-site wells. Groundwater level monitoring shall commence prior to project implementation to establish baseline conditions.	LTS
		Mitigation Measure 3.10-4c: Implement Mitigation Measure 3.10-2 (Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan).	LTS
		Mitigation Measure 3.10-4d: Implement Mitigation Measure 3.10-3b (Prepare and Implement a Long-Term Site-Specific Operational Stormwater Quality Management Plan).	LTS
		Mitigation Measure 3.10-4e: Implement Mitigation Measure 3.10-3c (Implement an Agreement between Project Leaseholders and Stanislaus County to Provide Maintenance, Monitoring, and Funding for Long-Term Operational Stormwater Quality Control).	LTS
		Mitigation Measure 3.10-4f: Implement Mitigation Measure 3.8-2c (Conduct Subsidence Monitoring).	LTS

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Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.10-5 Placement of structures that would impede or redirect flood flows within a 100-year flood hazard area. Incorporation of the proposed drainage improvements at the project site would reduce the 100-year floodplain to the area comprising the Little Salado Creek stream channel. On-site and off-site overcrossings of stream channels and the Delta-Mendota Canal could restrict flood flows within the floodplain.	PS	**Mitigation Measure 3.10-5: Prepare Site-Specific Hydraulic Studies to Appropriately Design Water Crossings to Pass 100-Year Flood Flows.** Prior to construction of any roadway crossings over any waterbodies (e.g., Little Salado Creek, or the Delta-Mendota Canal, a licensed civil engineer shall be retained to prepare a site-specific hydraulic analysis investigating the channel capacity of the waterbody above and below the proposed crossing structure. The report shall determine site-specific streamflow volume and velocity under 100-year flood stage conditions at the proposed stream crossing locations, as required by the Stanislaus County Standards and Specifications (Stanislaus County 2014). Overcrossings over the Delta-Mendota Canal shall be coordinated with the Delta-Mendota Water Authority and/or DWR, respectively. The analysis shall include runoff calculations for any upstream development that may have occurred between preparation of this EIR and the time of the site-specific hydraulic analysis, either off or on-site. The hydraulic analysis shall be used to determine the appropriate bridge or culverted crossing design, and the results of the hydraulic analysis shall demonstrate that the proposed creek crossing structure will not impair 100-year flood flows associated with the waterbody. The hydraulic report, along with the proposed bridge or culverted crossing design, shall be submitted to the Stanislaus County Departments of Public Works for review and approval. All bridge and culvert designs shall be in accordance with the California Department of Transportation's Bridge Design Specifications and Stanislaus County Standards and Specifications (Stanislaus County 2015). For example, current county specifications require that for pipe culverts, all headwalls or other appurtenant structures must be located adjacent to the right-of-way and the maximum fill slope over culverts must be 4 to 1 or flatter. The County also requires all fill placed within 2 feet above the 100-year flood (Q100) elevation be protected from erosion by slope protection.	LTS
3.10-6 Potential exposure of people or structures to a significant risk of flooding as a result of the failure of a levee or dam, including flooding from a seismic seiche. The proposed project includes elevating Davis Road to serve as a levee for flood protection. The height of the elevated roadway along with crown widths, side slopes, and appropriate construction techniques to provide stability have not been investigated or designed by licensed geotechnical and civil engineers.	PS	**Mitigation Measure 3.10-6: Prepare a Site-Specific Levee Design Report and Incorporate Appropriate Design and Engineering Recommendations.** Depending on the height of the Davis Road Levee, the project could be subject to Division of Safety of Dams (DSOD) jurisdiction. If so, the levee shall be designed, operated, and maintained according to applicable DSOD criteria. If not, the levee shall be designed according to standard geotechnical and civil engineering criteria by a California-licensed engineer, which may include specifications such as those contained in	LTS

NI No Impact
LTS Less Than Significant
LTCC Less Than Cumulatively Considerable
PS Potentially Significant
S Significant
SU Significant and Unavoidable
CC Cumulatively Considerable

Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		USACE Engineering Manual 1110-2-1913 Design and Construction of Levees (USACE 2000), Engineering Technical Letter (ETL) 1110-2-569, Design Guidance for Levee Underseepage (USACE 2005), and ETL 1110-2-555, Design Guidance on Levees (USACE 1997).	
3.11 Land Use, Population, and Housing			
3.11-1 Consistency with Stanislaus County Adopted Policies, Land Use Designations, and Zoning. With approval of the General Plan amendment, adoption of the Specific Plan, and rezoning of the project site, implementation of the Specific Plan would not conflict with adopted County General Plan policies, land use designations, and zoning.	LTS	No mitigation is required.	LTS
3.11-2 Consistency with Stanislaus County Airport Land Use Compatibility Plan (ALUCP). The proposed project is consistent with the current ALUCP policies associated with the former Crows Landing Navel Auxiliary Airfield. The proposed project includes the adoption of the Crows Landing ALP and an amendment to the County's ALUCP to include the proposed Crows Landing Airport. Following adoption of the ALP and ALUCP, the proposed project would be consistent with the Stanislaus County ALUCP policies.	LTS	No mitigation is required.	LTS
3.11-3 Temporary Increase in Employment and Subsequent Housing Demand during Construction. Implementation of the Specific Plan would generate a temporary increase in employment during construction. Based on the pool of available construction workers locally and the anticipated 30-year timeframe associated with project buildout, project-related construction is not anticipated to cause substantial population growth or cause substantial increase in housing demand in the region.	LTS	No mitigation is required.	LTS

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.11-4 Induce Population Growth. The proposed project would accommodate the development of employment-generating uses. Implementation of the proposed project would result in of new employment opportunities that could, in turn, encourage households to relocate to residences within Stanislaus County or some other location proximate to the project site. It cannot be determined if the proposed project would contribute to housing demand in the future that would result in a significant adverse physical impact to the environment.	S	There is no feasible mitigation to reduce this impact to a less-than-significant level without changing the purposes of the proposed Specific Plan.	SU
3.11-5 Jobs-Housing Balance. Implementation of the Specific Plan would result in the development of employment-generating uses and up to approximately 14,000 new jobs within Stanislaus County at buildout. These jobs could help to align the number of jobs in the County and the number of employed residents. It is anticipated that the proposed project could draw from the local employment pool, including residents of Stanislaus County that may have been unemployed prior to CLIBP development.	LTS	No mitigation is required.	LTS
3.11-6 Displace Substantial Numbers of People or Existing Housing. There is no housing on the project site and the project does not propose to remove existing housing. The proposed project includes the amendment of the 2016 County-wide ALUCP to guide future land use decisions in the vicinity of the proposed Crows Landing Airport. The ALUCP amendment would identify safety zones that could affect number of dwellings or prohibit new residential development on parcels located within safety zones associated with the proposed airport. However, the area in the CLIBP vicinity that would be overlaid by the new ALUCP safety zones is designated for agriculture. The density/intensity of residential development in areas zoned for agriculture is more restrictive than the densities/intensities of residential development specified by ALUCP policies.	NI	No mitigation is required.	NI

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.12 Noise and Vibration			
3.12-1 Potential exposure of noise-sensitive receptors to groundborne noise and vibration. Implementation of the project could result in exposure of sensitive noise receptors to groundborne noise and vibration.	PS	**Mitigation Measure 3.12-1: Implement Noise and Vibration Measures from Construction Traffic.** For construction traffic that could affect sensitive receptors: ▸ Prepare a truck route plan. For vibration impacts, the truck route plan will route heavily loaded trucks away from roads where residences are within 50 feet of the edge of the roadway. Heavily loaded trucks will not be routed on West Marshall Road and any other roads that are located within 50 feet of residential or any other vibration-sensitive buildings. For noise impacts, the truck route plan will route trucks away from residential streets where residences or noise-sensitive uses are within 640 feet of the roadway. ▸ Operate earthmoving equipment on the construction lot as far away from vibration-sensitive sites as possible. ▸ Phase earthmoving and other construction activities that would affect the ground surface so as not to occur in the same time period. ▸ Large bulldozers and other construction equipment that would produce vibration levels at or above 86 VdB shall not be operated within 50 feet of adjacent, occupied residences. Small bulldozers shall be used instead of large bulldozers in these areas, if construction activities are required. For any other equipment types that would produce vibration levels at or above 86 VdB, smaller versions or different types of equipment shall be substituted for construction areas within 50 feet of adjacent, occupied residences. ▸ Construction activities shall not occur on weekends or federal holidays and shall not occur on weekdays between the hours of 7 p.m. and 7 a.m.	LTS
3.12-2 Increase traffic noise levels at noise-sensitive receptors. Implementation of the proposed project would add traffic to the roadway network, increasing traffic noise levels.	PS	**Mitigation Measure 3.12-2: Surfacing the Pavement along the Impacted Roadway Segment with Rubberized Asphalt Material** Resurfacing of Bell Road from Fink Road to Ike Crow Road, and Fink Road from Bell Road to SR 33 shall use rubberized asphalt, in accordance with Chapter 1100 of the California Highway Design Manual.	LTS

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LTS	Less Than Significant	S	Significant	CC	Cumulatively Considerable
LTCC	Less Than Cumulatively Considerable				

Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3.12-3 Long-term exposure of sensitive receptors to non-transportation noise sources. Project implementation would result in development of on-site, noise-sensitive and on-site and off-site noise-producing uses. Noise levels at sensitive receivers could exceed levels required by applicable noise policies.	PS	**Mitigation Measure 3.12-3: Placement and Orientation of Day Care Uses.** Future day care uses shall be located and/or oriented so that noise-sensitive outdoor activity areas are not exposed to noise levels exceeding 65dB CNEL, the level of noise deemed acceptable in the vicinity of an airport according to the California Code of Regulations.	LTS
3.12-4 Short-Term Exposure of Sensitive Receptors to Construction Noise. Project implementation would result in temporary, short-term construction activities. Project-related construction activities could expose sensitive receptors to elevated noise levels.	PS	**Mitigation Measure 3.12-4: Implement Construction Equipment Noise Reduction Measures.** The following measures shall be implemented to minimize construction noise impacts for powered construction equipment operating within 500 feet of existing noise-sensitive uses: ▸ Construction activities shall not occur on weekends, federal holidays, or on weekdays between the hours of 7 p.m. and 7 a.m. ▸ Locate fixed/stationary equipment (e.g., generators, compressors) as far as possible from noise-sensitive receptors. Shroud or shield all impact tools, and muffle or shield all in-take and exhaust ports on powered construction equipment. ▸ Store and maintain equipment as far as possible from noise-sensitive receptors. ▸ Properly maintain and equip all construction equipment with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. ▸ Shut down all motorized construction equipment when not in use to prevent excessive idling noise.	SU
		Mitigation Measure 3.12-5: Implement Mitigation Measure 3.12-1.	LTS
3.12-5 Exposure of noise-sensitive receptors to aircraft noise. Project implementation would result in the reuse of a former military runway for the development of a public-use general aviation airport. Project-related aircraft noise would not expose sensitive receptors to elevated levels of aircraft noise.	LTS	No mitigation is required.	LTS
3.13 Public Services and Recreation			
3.13-1 Increased demand for fire protection facilities, systems, equipment, and services. Implementation of the	LTS	No mitigation is required.	LTS

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
proposed project would result in an increased demand for West Stanislaus Fire Protection District services and facilities. The project will be required to incorporate California Fire Code, County, and West Stanislaus Fire Protection District standards into project designs. Funding for additional fire facilities and equipment necessary to serve the proposed project would be provided through the payment of the Stanislaus County's Fire Protection Facilities Fee by site tenants.			
3.13-2 Increased demand for law enforcement facilities, services, and equipment. Implementation of the proposed project would increase the demand for Stanislaus County Sheriff's Department law enforcement facilities and services. The project will be required to incorporate all County and Stanislaus County Sheriff's Department standards into project designs and would provide funding for additional police facilities and equipment necessary to serve the proposed project through payment of the County's development impact fees.	LTS	No mitigation is required.	LTS
3.14 Traffic and Transportation			
3.14-1 Existing plus project – intersection operations. The additional traffic generated from the proposed project will degrade level of service at several intersections operating below jurisdictions' thresholds.	S	**Mitigation Measure 3.14-1: Off-site Traffic Signal or Roundabout Installations and Intersection Improvements.** The following intersections are expected to meet signal warrants during peak-hour periods when the project is in place. The impact can be alleviated by installing traffic signals at the intersections where LOS would be degraded in exceedance of relevant thresholds. The affected jurisdictions can consider roundabouts as an alternative to traffic signals. The project shall contribute on a fair-share basis to the following improvements. <u>Phase 1</u> ► Signalize Intersection 14. Sperry Avenue / SR 33 (City of Patterson) ► Signalize Intersection 24. West Ike Crow Road / SR 33 (Stanislaus County) ► Signalize Intersection 26. Fink Road / Bell Road (Stanislaus County) ► Signalize Project Entrance / Fink Road (Stanislaus County)	LTS for County facilities SU for facilities outside the County's control

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		Fink Road Interchange – Contribute on a fair-share basis to the improvement of the Fink Road interchange. Improvements recommended for the Fink Road interchange include signalizing the northbound ramps prior to completion of Phase 1 and widening the roadway beneath the freeway to create a westbound left turn lane at the southbound ramps intersection. Phase 2 ▸ Signalize Intersection 22. Marshall Road / SR 33 (Caltrans) ▸ Signalize Intersection 25. Fink Road at SR 33 (Stanislaus County)	
3.14-2 Existing plus project – roadway segment operations. The project-generated traffic in the existing plus project condition is expected to degrade some roadway segment LOS at different levels. Particularly, roadway segment 12, Marshall Road between SR 33 and Davis Road, is anticipated to operate at LOS E, which falls below County's current LOS threshold of D.	S	**Mitigation Measure 3.14-2: Off-site Street Widening to Four Lanes on Marshall Road from Project Entrance to SR 33.** Marshall Road between the project entrance and SR 33 shall be widened from two to four lanes to accommodate project-generated daily traffic.	LTS
3.15 Utilities and Service Systems			
3.15-1 Increased demand for water supplies and water treatment facilities. Implementation of the proposed project would result in an increased demand for groundwater supplies. The Water Supply (Potable and Non-potable) Infrastructure and Feasibility Study prepared for the proposed project concluded that sufficient groundwater supplies are present to serve the proposed project.	LTS	No mitigation is required.	LTS
3.15-2 Compliance with Senate Bill 1263. Depending on the water supply option that is selected, Stanislaus County may be required to apply for a drinking water permit from the SWRCB Division of Drinking Water to develop and operate new potable groundwater wells. In this case, the County would be required to comply with the requirements of SB 1263 and examine the feasibility of connecting to the Crows Landing CSD or the City of Patterson water service area..	LTS	No mitigation is required.	LTS
3.15-3 Increased demand for potable and non-potable groundwater supply wells, storage, and conveyance facilities. Implementation of the proposed project would require the construction of on-site water supply production wells, storage,	LTS	No mitigation is required.	LTS

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Table ES-1
Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
and conveyance facilities to serve the proposed project. The Specific Plan identifies the backbone infrastructure that will be provided by Stanislaus County. Proposed projects or leasehold development in the Specific Plan Area will need to demonstrate consistency with Specific Plan and County requirements as development occurs.			
3.15-4 Increased demand for wastewater collection and conveyance facilities. Implementation of the proposed project would require the construction of on-site wastewater collection and conveyance facilities. The Specific Plan identifies the backbone infrastructure that will be provided by Stanislaus County. Subsequent projects and leasehold development in the Specific Plan Area will be required to demonstrate consistency with Specific Plan and County requirements as development occurs.	LTS	No mitigation is required.	LTS
3.15-5 Increased demand at City of Patterson Water Quality Control Facility (WQCF). Implementation of the proposed project would result in an increase in wastewater flows that exceed the City of Patterson WQCF design capacity.	S	**Mitigation Measure 3.15-4. Demonstrate Adequate Wastewater Treatment Capacity.** Before the County will issue any building permit for a use proposing to connect to public sewer or construction of backbone sewer infrastructure connecting to the WHWD sewer line, the project applicant will be required to provide written documentation to verify that existing treatment capacity is, or will be, available to support the proposed development and that any physical improvements required to treat wastewater associated with the proposed development will be in place prior to occupancy.	SU
3.15-6 Increased generation of solid waste and compliance with solid waste regulations. Implementation of the proposed project would result in the increased generation of solid waste. The Fink Road Landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the proposed project, and the proposed project does not include any components that would violate any applicable federal, State, or local solid waste regulations.	LTS	No mitigation is required.	LTS
3.15-7 Required extension of electrical, natural gas, and telecommunications infrastructure. Implementation of the proposed project would require construction of new on-site electrical, natural gas, and telecommunications infrastructure. Electrical and natural gas infrastructure would be provided by	LTS	No mitigation is required.	LTS

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Summary of Impacts, Mitigation, and Findings

Impacts	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
TID and PG&E, respectively, and AT&T or Global Valley Networks would provide telecommunications infrastructure to the project site through augmentation of existing off-site facilities, as necessary, in the project vicinity and extend service into the project site. Indirect physical impacts associated with construction and operation of new electrical, natural gas, and communications infrastructure are evaluated throughout this EIR. The placement of these utilities has been considered in the other sections of this EIR.			

Source: Data compiled by AECOM in 2017

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Table ES-2
Cumulative Impact Summary

Topic	Significant Cumulative Impact?	Project Contribution
Aesthetics	Yes	Cumulatively considerable, significant and unavoidable.
Agricultural Resources	Yes	Cumulatively considerable, significant and unavoidable.
Air Quality	Yes	Cumulatively considerable, significant and unavoidable.
Biological Resources	Yes	Significant cumulative, less than cumulatively considerable with mitigation.
Cultural Resources	Yes	Significant cumulative, less than cumulatively considerable with mitigation.
Energy	No	No cumulatively considerable contribution.
Geology, Soils, Minerals, and Paleontological Resources	Yes	Less than cumulatively considerable with mitigation.
Greenhouse Gas Emissions	Yes (see Section 3.7)	Significant cumulative, less than cumulatively considerable with mitigation.
Hazards and Hazardous Materials	No	No cumulatively considerable contribution.
Hydrology and Water Quality	Yes	Less than cumulatively considerable with mitigation.
Land Use and Planning, Population, and Housing	Yes	Less than cumulatively considerable, significant cumulative
Noise	Yes	Less than cumulatively considerable with mitigation
Public Services and Recreation	Yes	Less than cumulatively considerable.
Transportation and Traffic	Yes	Cumulatively considerable, significant and unavoidable.
Utilities and Service Systems	No	Cumulatively considerable, significant and unavoidable.

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LTS	Less Than Significant	S	Significant	CC	Cumulatively Considerable
LTCC	Less Than Cumulatively Considerable				

ES.7 ALTERNATIVES

The CEQA Guidelines (Section 15126.6) require that an EIR describe a range of reasonable alternatives to the proposed project that could feasibly attain most of the basic objectives of the project and avoid and/or lessen any of the significant environmental effects of the project. See Section 4.0, "Alternatives" for additional detail.

ES.7.1 ALTERNATIVE 1: NO PROJECT (NO DEVELOPMENT)

State CEQA Guidelines Section 15126.6(e)(2) states that a discussion of the "No Project" alternative must consider "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans." The project site is zoned and designated by Stanislaus County for agricultural use, and the majority of the site is currently used for agriculture. Therefore, the No-Project Alternative for purposes of this analysis consists of continued agricultural use. The remnants of infrastructure from the former military base, including the runways, the former air traffic control tower, paved roads, and disturbed ground, former airfield pavements, would remain.

ES.7.2 ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Instead of an approximately 1,528-acre project site, this alternative represents the development of an estimated 810 acres of the project site. As shown in Exhibit 4-1, Alternative 2 would be similar to Phase 1 of the proposed project. The County anticipates that Alternative 2 would include on- and off-site infrastructure and some off-site roadway improvements. Runway 12-30 would be improved to facilitate the development of a public-use airport. A gateway entrance would be developed at the intersection of Ike Crow and Bell Roads. Additional gateway entrances would be constructed on Fink Road east of the Delta-Mendota Canal and at the site entrance on Marshall Road.

Development under Alternative 2 would be located south of the airport in two discrete areas identified as the Fink Road Corridor and the Bell Road Corridor.

ES.7.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Alternative 1: No Project Alternative would be environmentally superior to the proposed project and Alternative 2. This alternative provides the greatest opportunity for reduction in environmental effects of the proposed project. If the environmentally superior alternative is the "no project" alternative, CEQA requires the EIR to identify an environmentally superior alternative from among the other alternatives. CEQA Guidelines Section 15126.6(e)(2).

Alternative 2 would reduce the extent of potential environmental effects compared to the proposed project, even though Alternative 2 would not reduce a significant proposed project impact to a less-than-significant level. Therefore, the Environmentally Superior Alternative is Alternative 2.

ES.8 KNOWN AREAS OF CONTROVERSY

According to Section 15123 of the *CEQA Guidelines*, an EIR is required to identify possible "areas of controversy" known to the lead agency, including issues raised by agencies and the public. The following topics of interest were identified during circulation of the Notice of Preparation (NOP) and community meetings. Each

topic of interest that relates to a potential adverse physical environmental impact of the project is addressed in this EIR.

- Annette Smith: Human remains at Pioneer Cemetery. Request that the County conduct a thorough search at the Pioneer Cemetery for any human remains left from one grave after relocation (see Section 3.5).

- John B. Anderson for the Del Puerto Health Care District:

  - EIR should examine Public Services, Traffic and Circulation, Hazards and Hazardous Materials. Public Services: project will have significant impact on the Del Puerto Health Care District and require additional medical staff, facilities, and expansion of other medical services to provide medical assistance. Provide emergency services to all areas of the proposed project; include ambulance services; response times shall be evaluated (see Sections 3.13, 3.14, and 3.9).

  - EIR should evaluate Hazards. Evaluate impacts on the storage, disposal, and transport of hazardous materials; Evaluate impacts on hazards on the environment (see Section 3.9).

- California Department of Water Resources: EIR should evaluate environmental impacts of any future use of Fink Road Bridge; provide traffic and circulation analysis. Fink Road Bridge is the regional access route of the project to and from Interstate 5 (I-5). The bridge is located ½ mile from the proposed project site (see Section 3.14).

- Turlock Irrigation District (TID): Power could be provided during initial site development phase from an electrical substation near the intersection of Marshall Road and Davis Road [up to 4 megawatts (MW)]. Infrastructure is also available in the portion of the former airbase near Ike Crow Road, which could support Phase I activities near the proposed airport and public facilities area. Regarding water supply, the project site is outside of TID boundaries for irrigation water (see Section 3.15).

- Stanislaus County Local Agency Formation Commission (LAFCO): growth-inducing impacts, effect on the proposal on nearby communities and special districts, direct and indirect impacts on agricultural resources, available water supply, ability to provide services (see Chapter 5 and Sections 3.13, 3.3, and 3.15).

- Central Valley Regional Water Quality Control Board (RWQCB): discharge or fill materials in navigable waters A permit may be required from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (see Section 3.10).

- Ron West: There are no environmental issues, but more economic issues: provide jobs, small business opportunities, etc. Commenter does not support the idea of the proposed project. Would rather see it become an entertainment center with vehicle racing, concerts, air shows, etc. Doesn't want money to be wasted on the proposed project (see Chapter 4).

- San Joaquin Valley Air Pollution Control District (SJVAPCD): EIR should evaluate pollutant emissions: construction emissions, operational emissions; nuisance odors, health impacts: toxic air contaminants (TAC) (see Section 3.2).

- The City of Patterson:

- Would like an evaluation of all CEQA sections to address the impacts of the proposed project (see Chapter 3).
- Bike trail surrounded by aviation, railroad, and truck transportation, and land use is illogical.
- Aesthetics: consider impacts on views from I-5, impacts related to the change in visual character of the project site in a rural and agricultural context and adjacent to I-5and impacts related to sources of light glare (see Section 3.1).
- Agricultural Resources: conversion of land to non-agricultural land (see Section 3.3).
- Air Quality: Impacts from motor vehicles, railroad operations, air traffic: ozone, carbon monoxide, particulate matter creates toxic air (see Section 3.2).
- Biological Resources: impacts from modifications of special status plant and animal habitats. Impacts on wetlands. Commenter asks whether the proposed project would conflict with Habitat Conservation Plans (see Section 3.4.)
- Cultural Resources: impacts to historic, archeological, and paleontological resources (see Section 3.5).
- Geology and Soils: impacts from groundshaking, ground failure, landslides, or fault ruptures; soil erosion, liquefaction, suitability of soil (see Section 3.8).
- Greenhouse Gas Emissions: any impacts related to greenhouse gas emissions (See Section 3.7).
- Hazards and Hazardous Material: impacts from the transportation of hazardous materials, impacts on schools near the project site, risk of wildfires (see Section 3.9).
- Hydrology: impacts of recycled water as a substitute for potable water for irrigation (see Sections 3.10 and 3.15).
- Impacts to Salado Creek and Little Salado Creek; the potential for groundwater quality standards to be violated; the potential for the project to create runoff that exceeds the capacity of storm water drainage systems (see Sections 3.10 and 3.15).
- Land Use: The DEIR should assess project consistency with all relevant plans, laws, and regulations of federal, State, and local agencies (see Chapter 3).
- Noise: impacts associated with the exposure of persons to noise levels in excess of established standards, for both the County and the City. Impacts associated with temporary and periodic increases in noise levels, especially those related to air traffic (see Section 3.12).
- Population and Housing: assess the direct, indirect, and cumulative physical changes to the environment resulting from increased demand for housing, schools, parks, recreation, shopping, health care, and police and fire protection facilities (see Section 3.11).

- Public Services: Impacts on the City's Fire Department, police protection, school facilities, and increased demand for public parks and recreation facilities and programs in the project vicinity and the City (see Section 3.13).

- Parks, Recreation, and Open Space: Assess the project's direct and indirect impacts to the City's recreational resources (see Section 3.13).

- Transportation and Traffic: Assess the direct and indirect impacts for maintaining the four roadways and the 24 intersections listed. Assess the impacts associated with the change in air traffic patterns resulting from increased aircraft operations (see Section 3.14).

- Utilities: the proposed project would need to establish a new municipal water and wastewater system or connect to an existing system. Assess the impacts associated with wastewater treatment options (see Section 3.15).

ES.9 PUBLIC PARTICIPATION AND ADDITIONAL STEPS IN THE CEQA REVIEW PROCESS

The public review process required by CEQA for an EIR begins with the issuance of a NOP of a draft Environmental Impact Report (DEIR). The NOP informs responsible and trustee agencies, federal agencies, OPR and the public that a lead agency will prepare an EIR, provides a project description, and requests affected agencies and the public to provide input regarding the overall scope and content of the forthcoming EIR.

Prior to NOP circulation, the County held meetings (called "fingerprint" meetings) with the Stanislaus County Alliance Worknet, local developers, regulatory agencies, districts, and stakeholders to gain input and help inform the project description included in the NOP. Issues explored during the meetings included an overall site vision, project-related challenges, and opportunities for regional infrastructure planning and other synergies.

The County issued the NOP for the CLIBP Specific Plan on October 13, 2014, and comments were accepted for a 30-day period ending on November 13, 2014. The County held two public scoping meetings during the comment period: one meeting was held at the Crows Landing Fire Station, 22012 G Street in Crows Landing, on October 23, 2014, at 6:00 p.m.; and another was held at the Patterson City Hall Council Chambers, 1 Plaza in Patterson, on October 30, 2014, at 6:00 p.m. Comments made or submitted at the scoping meetings and received during the NOP comment period (scoping comments) are included in Appendix A.

Prior to the NOP, the County held "fingerprint" meetings with local developers and regulatory agencies, districts, and local stakeholders to help inform the forthcoming project description. Issues explored during the meetings included an overall site vision, project-related challenges, and opportunities for regional infrastructure planning and other synergies.

The purpose of EIR circulation is to disclose the potential effects of a proposed project on the physical environment and to solicit comments from the public regarding the adequacy of the EIR in identifying the potentially adverse physical effects of the proposed project. This EIR will be circulated to local, state, and federal agencies, and to interested organizations and individuals who may wish to review and comment on the report. A copy of the EIR is available for public review at Stanislaus County Planning & Community Development at the

address listed below. The document will also be available during the Draft EIR public review period on the County's website at: http://www.stancounty.com/planning/pl/act-projects.shtm.

The EIR will be circulated for public review for a 45-day period. Written comments must be submitted to Stanislaus County at the following address during the public review period:

Rachel Wyse, Senior Planner
Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

Comments may also be emailed to Rachel Wyse, Senior Planner at: planning@stancounty.com. If comments are provided via e-mail, please include the project title in the subject line and the commenter's U.S. Postal Service mailing address in the message.

Following the close of the public review period, the County will summarize the comments received and its responses to those comments, along with any necessary changes to the EIR. Stanislaus County is responsible for certifying that the EIR has been adequately prepared in compliance with CEQA. After certification, responsible agencies may use the EIR to determine whether to approve any discretionary actions for which they have jurisdiction.

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1 INTRODUCTION

1.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

Stanislaus County has prepared an environmental impact report (EIR) for the Crows Landing Industrial Business Park Specific Plan (hereafter "the proposed CLIBP," the "proposed project," or "the Specific Plan") in accordance with the California Environmental Quality Act (CEQA), as amended through California Public Resources Code Section 21000 *et seq.*) and the *CEQA Guidelines* (California Code of Regulations Section 15000 *et seq.*). Stanislaus County is the lead agency for this EIR under CEQA. According to the *CEQA Guidelines,* Section 15064(f)(1), a lead agency must prepare an EIR when a project may result in a significant environmental impact.

An EIR is composed of the draft EIR (DEIR), and volume containing the lead agency's written responses to comments on the DEIR, along with any text revisions to the DEIR. Together, these documents make up the final EIR (FEIR). This DEIR for the Crows Landing Industrial Business Park (CLIBP) evaluates the significant adverse effects on the physical environment (significant impacts) that may result from implementation of the proposed project, identifies feasible mitigation measures to minimize, reduce, or avoid potentially significant impacts, and identifies a range of reasonable alternatives to the project that could feasibly attain most of the project objectives and would substantially reduce or avoid any of the significant impacts of the project.

The DEIR will be available for review and comment by the public for a 45-day period. Following the close of the public review and comment period, the FEIR will be prepared, in which Stanislaus County will provide written responses to comments on environmental issues.

The purpose of the EIR is not to recommend the approval or denial of a project, but to disclose the potential significant impacts of the project so that the lead agency can consider them when determining whether to approve or deny a project. CEQA also requires each public agency to avoid or reduce to less-than-significant levels, wherever feasible, the significant environmental effects of a project it approves or implements. If a project would result in significant and unavoidable environmental impacts that cannot be fully and feasibly reduced to less-than-significant levels, the lead agency may still approve the project, but it must issue a "statement of overriding considerations," in writing, to explain the specific economic, social, or other benefits of the proposed project that outweigh the unavoidable adverse effects and make them acceptable.

1.2 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

Stanislaus County proposes to reuse the former Crows Landing Flight Facility property to develop the CLIBP as a regional employment center. To do so, the County must amend the site's General Plan designation from Agriculture to Specific Plan, and rezone the property from A-2 (General Agriculture) to S-P(2) (Specific Plan) to reflect the proposed land uses associated with the CLIBP Specific Plan. The County will consider the adoption of a Specific Plan for the 1,528-acre project site to provide objectives, goals, and policies that will further the County's vision for site development. The General Plan Amendment and rezoning to S-P(2) would allow tenants to develop portions of the CLIBP site to meet their diverse needs. To promote site development, the County will construct initial or "backbone" infrastructure at the site to provide water, sewer, stormwater management, and dry utility connections for future leaseholders. As part of the project, the County will also refurbish one of the former military runways to create a new public-use, general aviation (GA) airport to serve as an amenity to future tenants.

The proposed project includes the adoption of an Airport Layout Plan (ALP) and an amendment to the County's Airport Land Use Compatibility Plan (ALUCP) for the proposed on-site airport.

1.3 FUTURE ENVIRONMENTAL REVIEW

One of the County's goals in preparing the Specific Plan and EIR is to minimize the amount of new information that would be required to approve future projects that are consistent with the Specific Plan. Accordingly, the Specific Plan and this EIR anticipate the effects of subsequent projects proposed within the Specific Plan Area. Future projects that are consistent with the Specific Plan would either require no further environmental analysis or only focused, supplemental environmental analysis pursuant to CEQA and the CEQA Guidelines. The County will examine development projects proposed under the Specific Plan to determine whether additional CEQA analysis will be necessary.

Future site-specific project approvals may be streamlined pursuant to the rules for tiering set forth in Section 15152 of the *CEQA Guidelines:* "[T]iering is a process by which agencies can adopt programs, plans, policies, or ordinances with EIRs focusing on 'the big picture,' and can then use streamlined CEQA review for individual projects that are consistent with such…[first-tier decisions] and are…consistent with local agencies' governing general plans and zoning" (*Koster v. County of San Joaquin* [1996] 47 Cal.App.4th 29, 36).

CEQA Guidelines Section 15152 further provides that, where a first-tier EIR has "adequately addressed" the subject of cumulative impacts, such impacts need not be revisited in second- and third-tier documents. Furthermore, second- and third-tier documents may limit the examination of impacts to those that "were not examined as significant effects" in the prior EIR or "[a]re susceptible to substantial reduction or avoidance by the choice of specific revisions in the project, by the imposition of conditions, or other means." In general, significant environmental effects have been "adequately addressed" if the lead agency determines that:

- They have been mitigated or avoided as a result of the prior environmental impact report and findings adopted in connection with that prior environmental impact report; or

- They have been examined at a sufficient level of detail in the prior environmental impact report to enable those effects to be mitigated or avoided by site-specific revisions, the imposition of conditions, or by other means in connection with the approval of the later project.

The County anticipates that this EIR will be used for the tiering of later project-specific reviews. In examining the appropriate approach to providing CEQA analysis for subsequent project approvals, the County will assess, among other things, whether the significant environmental impacts identified in this EIR have been adequately addressed. Therefore, new or additional analyses performed for subsequent site-specific actions would focus on impacts that cannot be "avoided or mitigated" through policies, design guidelines, and development standards adopted as a part of the Specific Plan or mitigation measures identified in this EIR.

Future environmental review can also be streamlined pursuant to Public Resources Code Section 21083.3 and the *CEQA Guidelines,* Section 15183. The provisions of the Public Resources Code are similar, but not identical to the previously described tiering provisions. Public Resources Code Section 21083.3 limits the scope of necessary environmental review for site-specific approvals following the preparation of an EIR for a zoning action, community plan, or General Plan (including the Specific Plan). For later site-specific approvals, CEQA review is only required for impacts that are "peculiar to the parcel or to the project" and have not been previously disclosed,

except where "substantial new information" shows that previously identified impacts would be more significant than previously assumed. Notably, impacts are considered not to be "peculiar to the parcel or to the project" if they can be substantially mitigated pursuant to previously adopted, uniformly applied development policies or standards.

The policies, design guidelines, and development standards of the Specific Plan that would reduce impacts, as described in this EIR, along with mitigation measures included in this EIR, would generally be considered uniformly applied development standards for future projects entitled under the Specific Plan. This EIR demonstrates how these policies would substantially mitigate the effects of future projects (*CEQA Guidelines*, Section 15183[f]).

1.4 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

1.4.1 LEAD AGENCY

Stanislaus County is the lead agency for the proposed project. As defined in the *CEQA Guidelines*, Section 15367, the lead agency is the public agency that has the principal responsibility for certifying the EIR and carrying out, or approving the project. Additional agencies with potential permit or approval authority over the project, or elements thereof, will have the opportunity to review this document during the public review period, and these agencies will be able to use this information to consider the issuance of any permits required to implement the proposed project.

1.4.2 RESPONSIBLE AND TRUSTEE AGENCIES

Stanislaus County has prepared this EIR to provide responsible agencies, trustee agencies, and the public with information about the potential environmental effects of the proposed project. A responsible agency, as defined by Public Resources Code Section 21069 and *CEQA Guidelines* Section 15381, is a public agency, other than the lead agency, that would exercise some approval authority over aspects of the subject project. Responsible agencies will consider the certified FEIR in reaching their own conclusions on whether and how to approve the portions of project over which they have jurisdiction. A trustee agency, as defined by Public Resources Code Section 21070, is a State agency that has jurisdiction by law over resources affected by the project that are held in trust for the people of the state of California. Agencies that may have discretionary approval or may have jurisdiction over resources affected by the project may include, but are not necessarily limited to those listed below.[1]

LOCAL

- **San Joaquin Unified Air Pollution Control District:** Authority to Construct/Permit to Operate.
- **Western Hills Water District:** Approval to accommodate project wastewater flows and approve connection to wastewater conveyance facilities.

[1] If the project site is connected to the City of Patterson for water connection redundancy or to the Crows Landing Community Services District for water connection redundancy and potential blending additional approvals will be required.

- **City of Patterson:** Amend agreement with Western Hills Water District to accommodate project wastewater flows. Coordination for future wastewater and sewage treatment plant expansion to accommodate project-related needs.

- **West Stanislaus Fire Protection District:** Approval of project components needed for fire protection service (fire flow, access, etc.)

- **Stanislaus County Local Agency Formation Commission:** Approval of Community Service Area to manage the provision of services and maintenance of infrastructure for the Specific Plan Area (*e.g.*, potable and non-potable water, sewer, wastewater flows, lighting, roads, landscape maintenance, utilities, etc.).

- **Stanislaus County Airport Land Use Commission:** Adoption of an amendment to the County-wide ALUCP for the new Crows Landing airport.

STATE/REGIONAL

- **California Department of Fish and Wildlife (CDFW):** Section 1602 Streambed Alteration Agreement.

- **Central Valley Regional Water Quality Control Board (RWQCB):** National Pollutant Discharge and Elimination System (NPDES) stormwater permits for runoff, Section 401 Water Quality Certification, and Waste Discharge Requirements.

- **California Department of Transportation:** Carrying out improvements to State Route 33, Interstate 5, and other facilities over which Caltrans has jurisdiction that may be related to the Specific Plan.

- **California Department of Transportation, Division of Aeronautics:** Issuance of an Airport Operating Permit to the County.

- **State Water Resources Control Board's Division of Drinking Water** for permit approval of any proposed new drinking water system.

FEDERAL

- **U.S. Army Corps of Engineers:** Clean Water Act, Section 404 permit.

- **U.S. Bureau of Reclamation:** Approval of road and utility crossings of the Delta-Mendota Canal.

1.5 PUBLIC REVIEW

1.5.1 NOTICE OF PREPARATION

The public review process required by CEQA for an EIR begins with the issuance of a Notice of Preparation (NOP) of a DEIR. The NOP informs responsible and trustee agencies, federal agencies, California Governor's Office of Planning and Research (OPR) and the public that a lead agency will prepare an EIR, provides a project description, and requests affected agencies and the public to provide input regarding the overall scope and content of the forthcoming EIR.

Prior to NOP circulation, the County held meetings (called "fingerprint" meetings) with the Stanislaus County Alliance Worknet, local developers, regulatory agencies, districts, and stakeholders to gain input and help inform the project description included in the NOP. Issues explored during the meetings included an overall site vision, project-related challenges, and opportunities for regional infrastructure planning and other synergies.

The County issued the NOP for the CLIBP Specific Plan on October 13, 2014, and comments were accepted for a 30-day period ending on November 13, 2014. The County held two public scoping meetings during the comment period. One meeting was held at the Crows Landing Fire Station, 22012 G Street in Crows Landing on October 23, 2014, at 6:00 p.m. An additional scoping meeting was held at the Patterson City Hall Council Chambers, 1 Plaza in Patterson, on October 30, 2014, at 6:00 p.m. Comments made or submitted at the scoping meetings and received during the NOP comment period (scoping comments) are included in Appendix A of this EIR.

1.5.2 ENVIRONMENTAL IMPACT REPORT

The purpose of an EIR is to disclose the potential effects of a proposed project on the physical environment and solicit comments from the public regarding the adequacy of the EIR in identifying those effects. The DEIR will be available for public review and comment for a 45-day period.

Following the close of the public review period on the DEIR, the County will provide written responses to comments on environmental issues, and make any necessary changes to the EIR. The EIR volume containing the comments, responses to comments, and any EIR text revisions will comprise the FEIR. Written responses to each public agency's comments on the DEIR will be sent to that agency at least 10 days prior to certification of the EIR (CEQA Guidelines Section 15088[b]). Stanislaus County must certify that the FEIR has been adequately prepared in compliance with CEQA prior to approving the project.

1.5.3 AREAS OF CONTROVERSY

According to Section 15123 of the *CEQA Guidelines*, an EIR is required to identify possible "areas of controversy" known to the lead agency, including issues raised by agencies and the public. The following topics of interest were identified during circulation of the NOP and community meetings. Each topic of interest that relates to a potential adverse physical environmental impact of the project is addressed in this EIR.

- Annette Smith: Human remains at Pioneer Cemetery. Request that the County conduct a thorough search at the Pioneer Cemetery for any human remains left from one grave after relocation (see Section 3.5).

- John B. Anderson for the Del Puerto Health Care District:

    - EIR should examine Public Services, Traffic and Circulation, Hazards and Hazardous Materials. Public Services: project will have significant impact on the Del Puerto Health Care District and require additional medical staff, facilities, and expansion of other medical services to provide medical assistance. Provide emergency services to all areas of the proposed project; include ambulance services; response times shall be evaluated (see Sections 3.9, 3.13, and 3.14).

    - EIR should evaluate Hazards. Evaluate impacts on the storage, disposal, and transport of hazardous materials; Evaluate impacts on hazards on the environment (see Section 3.9).

- California Department of Water Resources: EIR should evaluate environmental impacts of any future use of Fink Road Bridge; provide traffic and circulation analysis. Fink Road Bridge is the regional access route of the project to and from Interstate 5 (I-5). The bridge is located ½ mile from the proposed project site (see Section 3.14).

- Turlock Irrigation District (TID): Power could be provided during initial site development phase from an electrical substation near the intersection of Marshall Road and Davis Road [up to 4 megawatts (MW)]. Infrastructure is also available in the portion of the former airbase near Ike Crow Road, which could support Phase I activities near the proposed airport and public facilities area. Regarding water supply, the project site is outside of TID boundaries for irrigation water (see Section 3.15).

- Stanislaus County Local Agency Formation Commission (LAFCO): growth-inducing impacts, effect on the proposal on nearby communities and special districts, direct and indirect impacts on agricultural resources, available water supply, ability to provide services (see Chapter 5 and Sections 3.13, 3.3, 3.10, and 3.15).

- Central Valley Regional Water Quality Control Board (RWQCB): discharge or fill materials in navigable waters. A permit may be required from the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (see Section 3.10).

- Ron West: There are no environmental issues, but more economic issues: provide jobs, small business opportunities, etc. Commenter does not support the idea of the proposed project. Would rather see it become an entertainment center with vehicle racing, concerts, air shows, etc. Doesn't want money to be wasted on the proposed project (see Chapter 4).

- San Joaquin Valley Air Pollution Control District (SJVAPCD): EIR should evaluate pollutant emissions: construction emissions, operational emissions; nuisance odors, health impacts: toxic air contaminants (TAC) (see Section 3.2).

- The City of Patterson:

    - Would like an evaluation of all CEQA sections to address the impacts of the proposed project (see Chapter 3).

    - Bike trail surrounded by aviation, railroad, and truck transportation, and land use is illogical.

    - Aesthetics: consider impacts on views from I-5, impacts related to the change in visual character of the project site in a rural and agricultural context and adjacent to I-5and impacts related to sources of light glare (see Section 3.1).

    - Agricultural Resources: conversion of agricultural land (see Section 3.3).

    - Air Quality: Impacts from motor vehicles, railroad operations, air traffic: ozone, carbon monoxide, and particulate matter creates toxic air (see Section 3.2).

    - Biological Resources: impacts from modifications of special status plant and animal habitats. Impacts on wetlands. Commenter asks whether the proposed project would conflict with Habitat Conservation Plans (see Section 3.4).

- Cultural Resources: impacts to historic, archeological, and paleontological resources (see Section 3.5).
- Geology and Soils: impacts from groundshaking, ground failure, landslides, or fault ruptures; soil erosion, liquefaction, suitability of soil (see Section 3.8).
- Greenhouse Gas Emissions: any impacts related to greenhouse gas emissions (see Section 3.7).
- Hazards and Hazardous Material: impacts from the transportation of hazardous materials, impacts on schools near the project site, risk of wildfires (see Section 3.9).
- Hydrology: impacts of recycled water as a substitute for potable water for irrigation (see Sections 3.10 and 3.15).
- Impacts to Salado Creek and Little Salado Creek; the potential for groundwater quality standards to be violated; the potential for the project to create runoff that exceeds the capacity of storm water drainage systems (see Sections 3.10 and 3.15).
- Land Use: The DEIR should assess project consistency with all relevant plans, laws, and regulations of federal, State, and local agencies (see Chapter 3).
- Noise: impacts associated with the exposure of persons to noise levels in excess of established standards, for both the County and the City. Impacts associated with temporary and periodic increases in noise levels, especially those related to air traffic (see Section 3.12).
- Population and Housing: assess the direct, indirect, and cumulative physical changes to the environment resulting from increased demand for housing, schools, parks, recreation, shopping, health care, and police and fire protection facilities (see Section 3.11).
- Public Services: Impacts on the City's Fire Department, police protection, school facilities, and increased demand for public parks and recreation facilities and programs in the project vicinity and the City (see Section 3.13).
- Parks, Recreation, and Open Space: Assess the project's direct and indirect impacts to the City's recreational resources (see Section 3.13).
- Transportation and Traffic: Assess the direct and indirect impacts for maintaining the four roadways and the 24 intersections listed. Assess the impacts associated with the change in air traffic patterns resulting from increased aircraft operations (see Section 3.14).
- Utilities: the proposed project would need to establish a new municipal water and wastewater system or connect to an existing system. Assess the impacts associated with wastewater treatment options (see Section 3.15).

1.6 DOCUMENT ORGANIZATION

The EIR is organized into seven chapters, as described below. Chapters are further divided into sections to address specific environmental resources or issues (*e.g.*, Section 3.1, "Aesthetics").

- The **Executive Summary** presents an overview of the proposed project, alternatives to the proposed project, and their associated environmental impacts/consequences. The Executive summary provides a list of project-related environmental impacts/consequences and mitigation measures, known areas of controversy, and a summary of the public review process.
- **Chapter 1, "Introduction,"** explains the environmental review process. Chapter 1 provides a brief summary of the project that is being evaluated; identifies the lead agency, responsible agencies that have discretionary authority over the project or specific project components, and trustee agencies that have jurisdiction by law over natural resources affected by the project; and provides information on public review of the EIR.
- **Chapter 2, "Project Description,"** identifies the project location, background, proposed actions, project characteristics (including project construction and proposed operations), and the project objectives.
- **Chapter 3, "Environmental Setting, Impacts, and Mitigation Measures,"** is divided into resource-specific sections to address specific environmental resources/issues. Each section of Chapter 3 describes the environmental baseline (*i.e.*, normally the existing conditions at the time of publication of the NOP) for the resource, the regulatory setting, and provides an analysis of potential impacts and mitigation measures that could be applied to avoid, minimize, or eliminate significant impacts or to reduce them to a less-than-significant level, where feasible and available.
- **Chapter 4, "Alternatives,"** describes a reasonable range of alternatives to the project. Consistent with *CEQA Guidelines* Section 15126.6[a], the alternatives must be feasible (*i.e.*, that may be accomplished in a successful manner within a reasonable period of time), taking into account economic, environmental, social, and technological factors.
- **Chapter 5, "Other CEQA Consideration,"** discusses cumulative impacts that could result from the project, when considered in combination with other past, present, and reasonably foreseeable future. Chapter 5 also addresses the potential for the project to foster economic or population growth or remove obstacles to growth; any significant and unavoidable adverse impacts that would result from project implementation; and any irreversible or irretrievable commitment of resources that could be caused by the project.
- **Chapter 6, "References,"** provides a bibliography of sources cited in the EIR and identifies the names and affiliations of persons who provided information used to prepare the document.
- **Chapter 7, "List of Preparers,"** identifies the individuals who contributed to the preparation of this EIR.
- **The Appendices** present project-related background studies, analytical data, or other the materials cited in the text of the EIR.

2 PROJECT DESCRIPTION

Chapter 2 presents a description of the proposed Crows Landing Industrial Business Park (hereafter: "the proposed CLIBP," the proposed project," or "the Specific Plan"), including the site location, background, and objectives; existing site characteristics, and the proposed project elements.

2.1 PROJECT LOCATION

The proposed CLIBP is a reuse project that would be constructed entirely within the boundaries of the former National Aeronautics and Space Administration (NASA) Crows Landing Flight Facility. The 1,528-acre project site is located in unincorporated western Stanislaus County (County), approximately 1 mile east of Interstate 5 (I-5) and south of the Patterson City limits and Patterson's Urban Services Boundary/Sphere of Influence. The project site is bounded by West Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west (Exhibits 2-1 and 2-2).

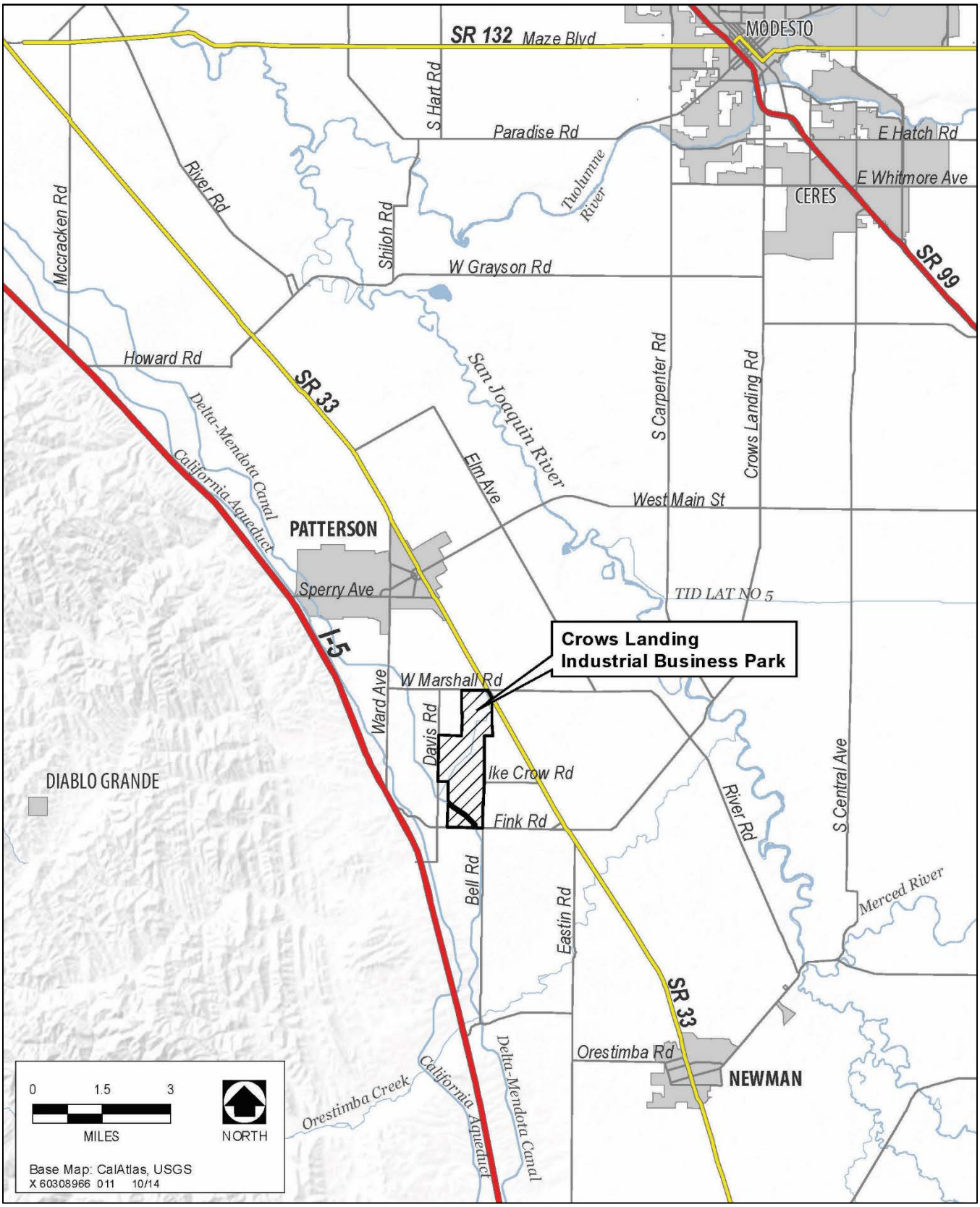
The project site is generally surrounded by agricultural land uses, with some rural residences in the vicinity, and the community of Crows Landing approximately 1.4 miles to the east. The Delta-Mendota Canal traverses the project site in a northwest-to-southeast direction. Regional access to the project site would be provided by I-5 and State Route 33 (Highway 33), with local access provided by West Marshall Road at the site's northern boundary and Ike Crow Road at its eastern boundary. Fink Road would provide access between the project site and I-5.

2.2 PROJECT BACKGROUND AND HISTORY

From its original commissioning in 1942 as a Naval Auxiliary Airfield to its decommissioning in the 1990s, the Crows Landing site was used intermittently by various branches of the military for a variety of missions. NASA assumed operation of the facility in 1994, and the facility was identified for closure soon thereafter pursuant to the U.S. Department of Defense's Base Closure and Realignment Act. Public Law (PL) 106-82, which was enacted by the U.S. Congress in 1999, directed NASA to convey the approximately 1,528-acre property to Stanislaus County following environmental remediation. The terms of the conveyance allow NASA to "retain the right to use the property for aviation activities, without consideration and on other terms and conditions mutually acceptable to NASA and Stanislaus County" (PL 106-82).

Under a 1992 Memorandum of Understanding (MOU) between NASA and the U.S. Navy (Navy), the Navy remains responsible for site cleanup activities with input from the California Department of Toxic Substances Control and the Central Valley Regional Water Quality Control Board (CVRWQCB). To date, 1,352 acres of land have been transferred to the County. Of the remaining 176 acres, approximately 165 acres have undergone soil remediation, were determined to be clean in accordance with industrial standards, and are suitable for conveyance.[1] Groundwater remediation on approximately 11 acres of the former military site is ongoing.

[1] Mr. Charles Duff, U.S Navy. Letter to Keith Boggs, Assistant CEO, Stanislaus County, dated May 4, 2016.



Source: Stanislaus County 2013

Exhibit 2-1. **Regional Location**

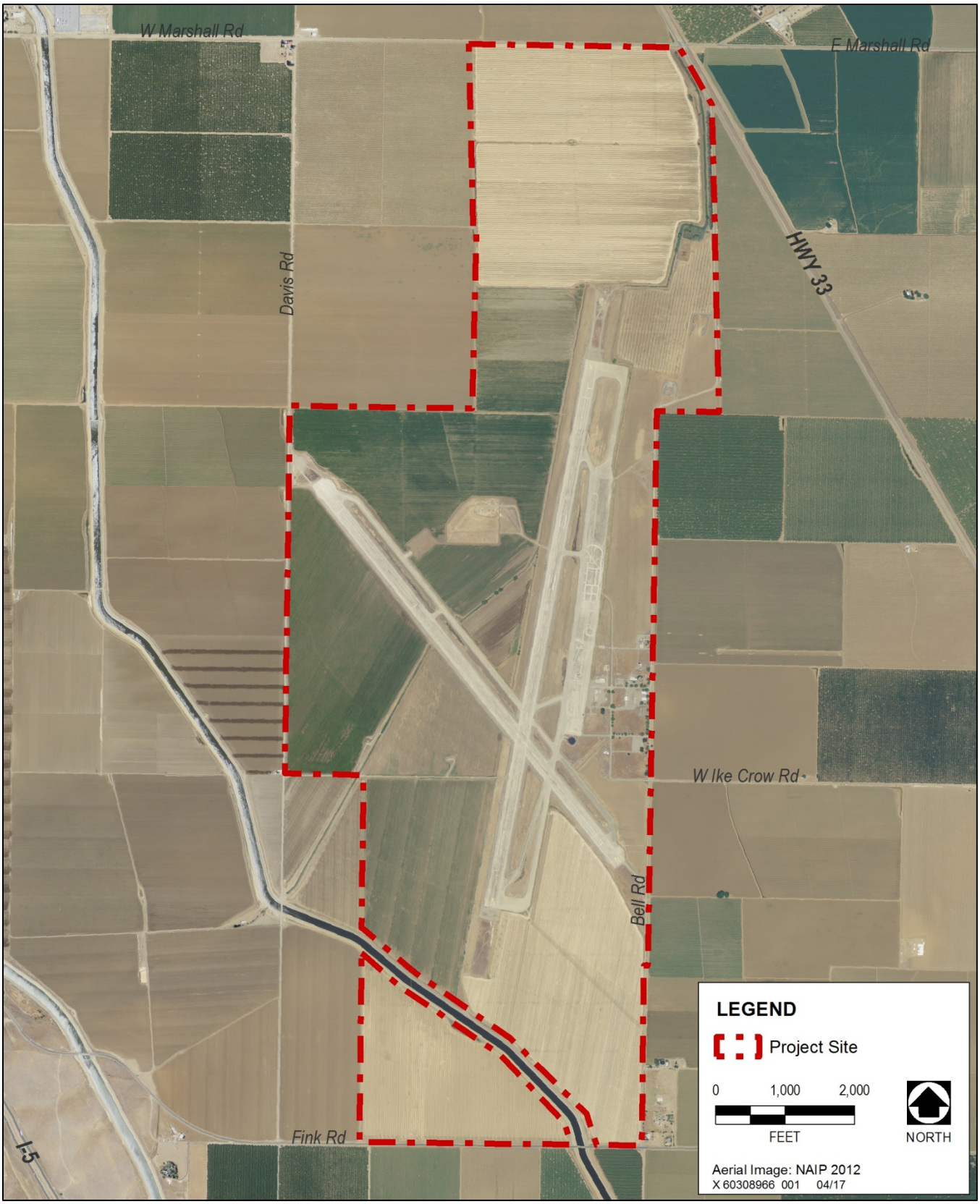


Exhibit 2-2. **Project Site**

Unemployment rates throughout the Central Valley, and Stanislaus County in particular, have historically exceeded unemployment rates throughout California and much of the nation. Between 2000 and 2014, local job growth remained challenged to keep pace with a 19.0-percent population increase. Payroll job creation has languished even as the population expanded. American Community Survey data averaged for the two years of 2012 and 2013 puts the Stanislaus unemployment rate at 16.6 percent of the labor force, compared to 8.9 percent for the nation as a whole. In July 2015, unemployment in the County remained at 9.4 percent, while California and total U.S. were at 6.5 percent and 5.6 percent, respectively. Rankings produced by the State Employment Development Department show Stanislaus County's unemployment rate as 49th out of 58 counties in California (Stanislaus County 2016, page 4).

In addition to its comparatively higher unemployment rate, many jobs within the County do not provide wages that are sufficient to sustain a household. Residents seeking sustainable-wage jobs must commute to the San Francisco Bay Area or other distant employment centers. The County has designated the former Crows Landing Flight Facility as the CLIBP for the purposes of industrial, logistics, aviation, and business park development. In addition, the proposed CLIBP would provide opportunities to support law enforcement and public safety services to support the County's West Side.

For more than a decade, Stanislaus County has pursued the development of a locally based, regional employment center on the approximately 1,528-acre former military site to improve its jobs-to-housing balance and provide locally based opportunities for sustainable-wage jobs that would not require distant commutes. The economic downturn of 2008 brought many development efforts to a halt. Based on the recent resurgence in the need for industrial sites—and especially the need for sites that can support development parcels greater than 1 million square feet of buildable area—the County has determined that economic conditions are favorable for the reuse of the former Crows Landing military property. The combination of available land for large-parcel development, nearby transportation infrastructure, regional connections to the I-5 corridor and San Francisco Bay Area, and an available local workforce provide the County and the development community with a unique opportunity for creative and profitable investment.

2.3 PROJECT OBJECTIVES

The County's primary goal in proposing the CLIBP is to reuse the former military property to create a regional employment center that would provide its residents and those living in nearby Central Valley communities with opportunities to obtain sustainable-wage jobs that do not require long commute distances. Development of the project site with employment-generating uses is supportive of the County's General Plan and Comprehensive Economic Development Strategy, the focus of which is to decrease the dramatic disparity between the employment rate in Stanislaus County and the employment rates in other California counties and the nation (Stanislaus County Economic Development Action Committee 2016, page 4).

Specific project-related objectives include the following:

- Create a regional employment center on the former Crows Landing Air Facility property that provides locally based, sustainable-wage employment, and promotes work force development through on-the-job training and support for locally based small businesses.

- Create an attractive location for industrial, manufacturing, distribution, and other aviation-compatible uses within the site boundaries that can capitalize on the site's proximity to I-5, Interstate 580, Highway 33, and

other regional, national, and international transportation facilities, while reducing commuter traffic/vehicle miles traveled (VMT) on regional roads.

- Offer a mix of land use classifications to accommodate aviation-compatible uses while remaining flexible in terms of the size and configuration of available parcels, vertical development, and compatibility with surrounding uses and infrastructure.

- Provide services for site workers, such as: transit and alternative transportation options, on-site food service, appropriately located day care facilities, and automated banking opportunities.

- Provide sufficient site infrastructure to enable "shovel-ready" development opportunities. Such infrastructure includes potable and non-potable water, sewer, stormwater management, dry utilities, and circulation improvements (*i.e.*, "backbone development").

- Repurpose former military runway 12–30 for the development of a public-use, general aviation airport to complement the proposed CLIBP and the terms of the property conveyance.

- Provide for an attractive, walkable industrial business park campus that makes a positive statement for the area and for Stanislaus County and respects the needs of its neighbors, adjacent landowners, and the agricultural character of the County's West Side.

- Honor the unique contributions of the former Crows Landing Air Facility and Stanislaus County to our nation's history, while looking ahead to improve the lives of current and future residents.

2.4 PROJECT SITE AND SURROUNDING AREA

The 1,528-acre CLIBP project site is generally surrounded by agricultural land uses with nominal rural residential land use. The community of Crows Landing is located approximately 1.4 miles to the east. The Stanislaus County General Plan (County General Plan) designates the project site as "Agriculture," and it is zoned for General Agriculture with a 40-acre minimum lot size (A-2-40).

The U.S. Navy razed all structures, with the exception of the decommissioned Air Traffic Control Tower. The site includes two decommissioned military runways and associated aprons and taxiways, internal roadways, an Air Traffic Control Tower, and remnants of the former airfield lighting and navigational aids (a segmented circle). The property conveyance also included avigation easements on off-site property adjacent to the runway ends.

In 2004, NASA transferred 1,352 acres of the property, known as Parcel A, to the County (see Exhibit 2-3). Approximately 176 acres, known as Parcels B through H, were not ready for transfer at that time because environmental remediation was required. Since 2004, the Navy has performed soil and groundwater remediation at the former military site, in accordance with the terms of property conveyance. The status of the remaining parcels follows (Duff 2016):

- Parcel B Disposal Pits (13.5 acres). Parcel B consisted of various small excavations containing small amounts of unexploded ordnance and construction debris. The Navy has completed the remediation of this site with concurrence of the State regulatory agencies.

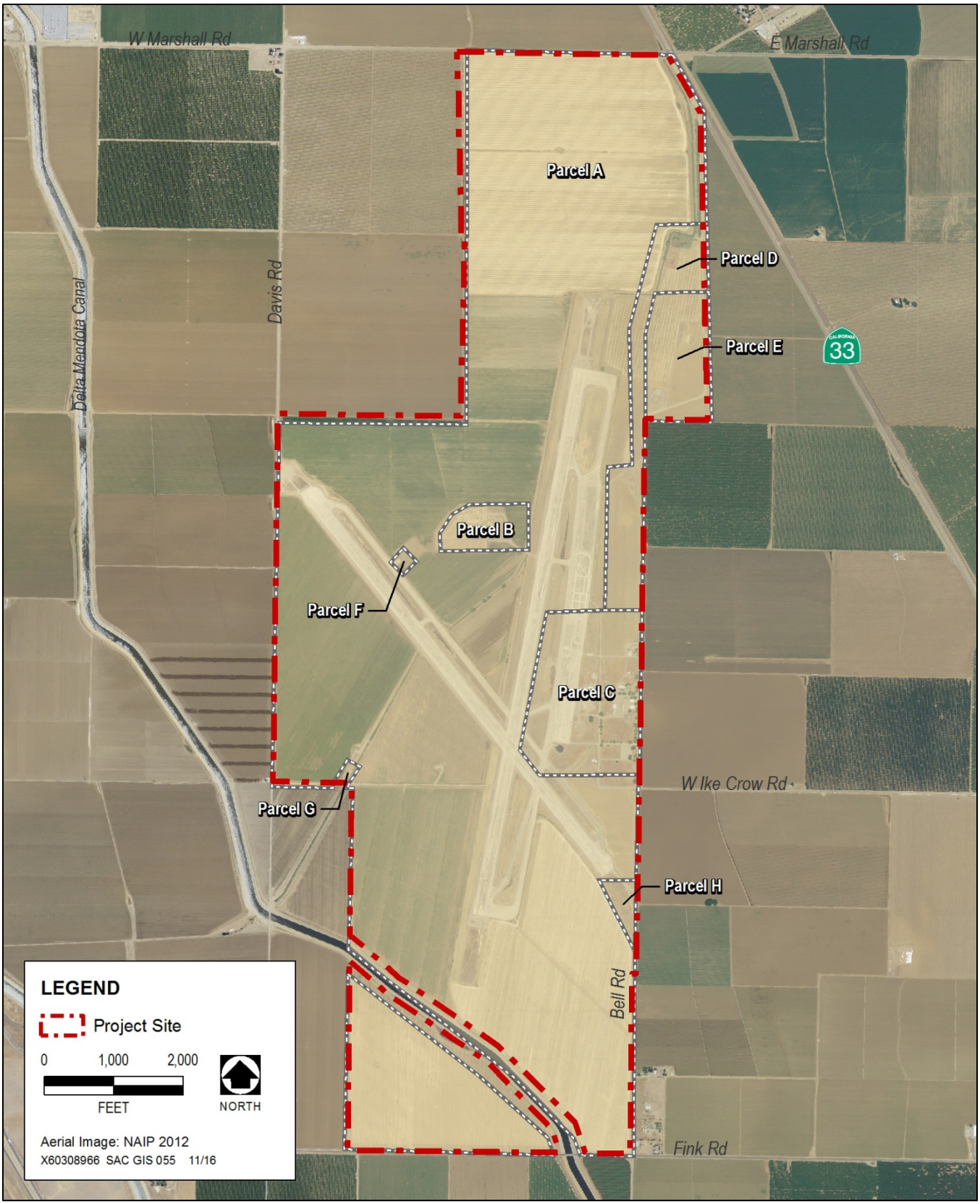


Exhibit 2-3. **Property Conveyance Parcels**

- Parcel C Administration Area (81.3 acres). Parcel C included contaminated groundwater due to releases of carbon tetrachloride and petroleum products. The Navy has installed a groundwater remediation system on 11 acres of Parcel C. Remediation has been completed on the remainder of the parcel, and all but 11 acres is ready for conveyance (Duff 2016).

- Parcel D Sanitary Sewer System (38.6 acres). The site's sanitary sewer system originally consisted of a septic tank and oxidation ponds. The original system was replaced, but the Navy discovered that the oxidation ponds had been used for the disposal of trash and construction material. The Navy has completed the remediation of this site with concurrence of the State regulatory agencies and no further remediation is needed.

- Parcel E Cluster 2 (35.15 acres). Cluster 2 consisted of three large underground fuel storage tanks, truck and rail unloading facilities, and a fuel truck loading stand. All facilities and tanks were removed by the Navy. The Navy has completed the remediation of this site with concurrence of the State regulatory agencies. It is possible that petroleum contamination may be encountered during subsurface work.

- Parcel F Firing Range (2.14 acres). The firing range consisted of a soil berm used for small arms practice, including the use of bullets containing lead. Soil samples did not detect exceedances of lead or unexploded ordnances at the site. The site was closed following concurrence from State agencies and no further remediation is needed.

- Parcel G Live Ammunition Area (1.39 acres). Parcel G was the location of an aircraft crash, which released several rounds of ammunition. The Navy conducted an investigation of the site. The site was closed with concurrence from State agencies and no further remediation is needed.

- Parcel H Abandoned Debris Disposal Site (3.33 acres). Parcel H was found to contain buried construction debris, scrap metal, glass, and spent rounds. A geophysical study was done to locate possible trash sites. The Navy conducted a time-critical remove action to excavate and remove the debris. The site was closed with concurrence from State agencies and no further remediation is needed.

Parcels B through H comprise the remaining approximately 176 acres that have not yet been transferred to the County. Recent correspondence from NASA indicates that 165 acres are suitable for conveyance, which is anticipated in 2017. Groundwater remediation infrastructure and facilities are present on an approximately 11-acre area adjacent to the eastern property boundary, and conveyance of the remaining 11 acres is not anticipated until Phase 3 of Specific Plan buildout. For more information on the potential hazards associated with the area, see Section 3.9, "Hazards and Hazardous Materials."

Since 2000, approximately 1,100 acres of the property have been leased for private agricultural use. As the Specific Plan Area develops, the County will not displace on-site agricultural activities until necessary, and the County holds the right to terminate the lease in the event of a proposal to develop areas that are used for agriculture.

The project site slopes to the northeast, with the highest elevation near the southwest corner of the project site. As shown in Exhibit 2-4, the Delta-Mendota Canal runs through the project site in a northwest-southeast direction. A ditch that flows northeast from a location near the intersection of Fink and Davis Roads serves as a tributary of the Delta-Mendota Canal. Both the canal and its tributary include rights-of-way that are excluded from the project site. The California Aqueduct flows in a north-south direction west of the Specific Plan Area.

Little Salado Creek, which is considered jurisdictional waters of the U.S., traverses the site. A double box culvert passes beneath the Delta-Mendota Canal southwest of the project site and is the only connection for surface drainage. The project site is divided into westerly and easterly drainage subareas (Exhibit 2-4). East of the Delta-Mendota Canal, Little Salado Creek serves as a tailwater irrigation drain ditch for the surrounding agricultural fields. From its terminus discharge point from the project site, the creek drains through a 24-inch diameter drain pipe that flows east along West Marshall Road for approximately 4.5 miles to its final discharge point at the San Joaquin River.

An estimated total of 4.66 acres of jurisdictional wetlands and waters of the U.S. are present in areas that could potentially be affected by project implementation, of which approximately 3.6 acres are associated with Little Salado Creek.[2] Jurisdictional wetlands have been identified on the project site. An approximately 0.05-acre basin was identified adjacent to Salado Creek near the runway intersection, and an approximately 1.01-acre willow scrub wetland is located in the northeastern portion of the site. Six ditches are located adjacent to former runway 16-34 and comprise approximately 2.02 acres of waters of the state. The ditches do not meet the criteria to qualify as jurisdictional waters of the U.S. Habitat types on the project site include primarily agricultural land, landscaped area, and disturbed or developed areas, with small areas of willow scrub and saltbush scrub. See Section 3.4 of the EIR, "Biological Resources" for details related to water features and Exhibits 3.4-1a and 3.4-1b, in particular.

The Delta-Mendota Canal is a portion of the Central Valley Project that spans the western San Joaquin Valley to provide essential irrigation water. The Delta-Mendota Canal is a historic resource pursuant to the National Register of Historic Places (NRHP) that is owned by the United States Bureau of Reclamation (USBR) and operated and maintained by the San Luis & Delta-Mendota Water Authority (Water Authority).

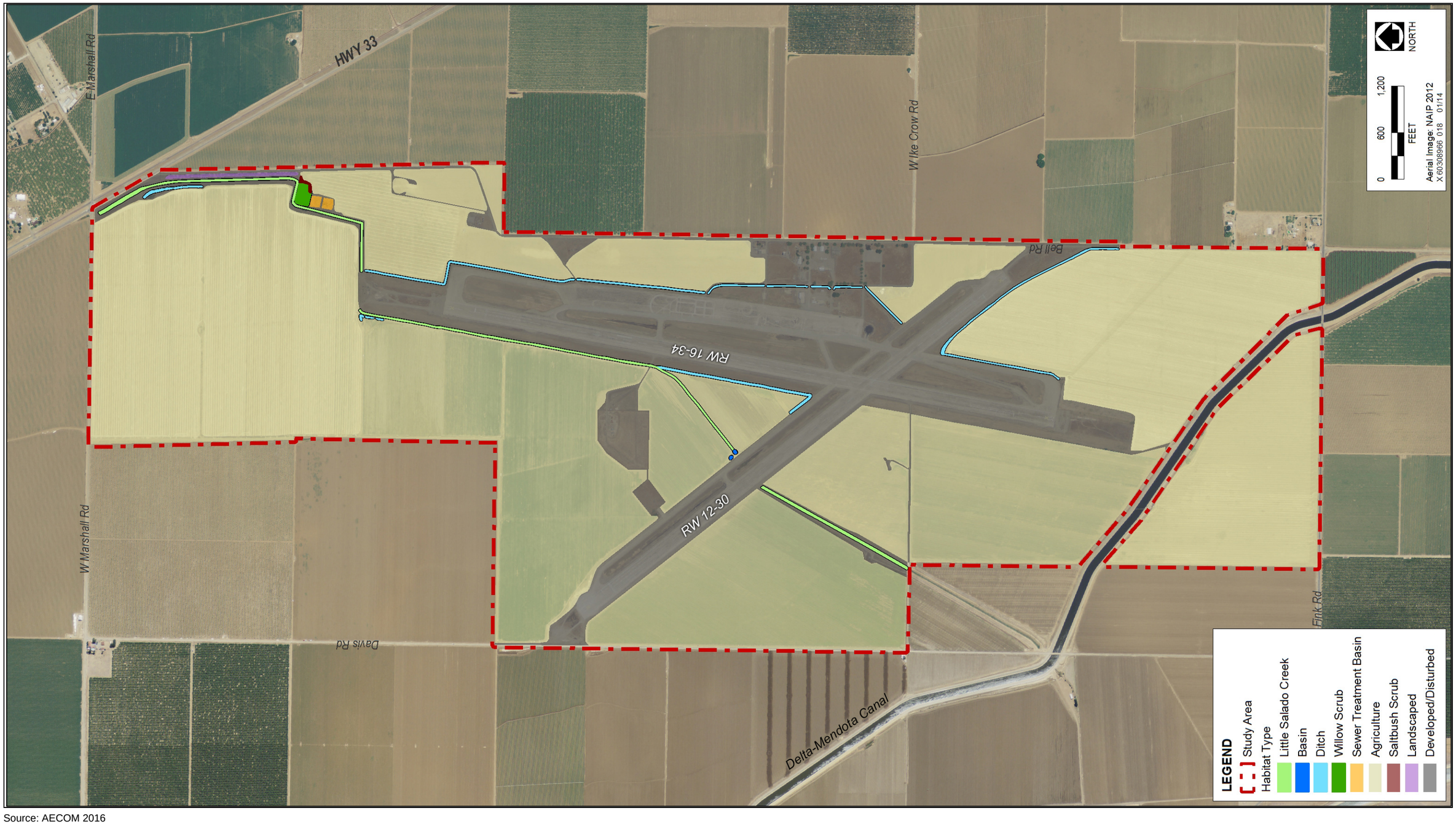
The Delta-Mendota Canal traverses the southern portion of the Specific Plan Area. It crosses Fink Road at the project site's southern boundary and forms the boundary between the Fink Road and Bell Road Corridor development areas. A new bridge over the canal will be necessary to accommodate internal circulation. Roadway construction and improvements will require coordination with the Water Authority, and subsequent project-related development will be required to respect Delta-Mendota Canal structures and right-of way-boundaries.

2.5 PROPOSED PROJECT COMPONENTS

The proposed project would be developed over an approximately 30-year timeframe and would include the following major components:

- Adoption of a Specific Plan and rezoning to support the development of various aviation-compatible land uses on the former military site;
- Planning and construction of initial "backbone" infrastructure to ready the site for long-term leaseholds and development (*e.g.*, water supply, wastewater, hydrology and drainage improvements, and dry utilities);

[2] This estimate of wetlands is for the entire 1,647-acre study area for the delineation, which consists of the Specific Plan Area and 119 acres of potential off-site infrastructure improvement areas.



Source: AECOM 2016

Exhibit 2-4. **Wetlands and Habitat Types**

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- Planning and construction of internal roadways and phased improvements to off-site roads and intersections in the vicinity of the project site;

- Adoption of an Airport Layout Plan (ALP) and Narrative Report to support the development of a public-use, general aviation airport to support and complement the proposed CLIBP; and

- An amendment to the Stanislaus County Airport Land Use Compatibility Plan (ALUCP) to provide new policies specific to the new public-use airport.

2.5.1 SPECIFIC PLAN AND REZONING

The Stanislaus County General Plan identifies Crows Landing as an agricultural area that has been used by the federal government for more than five decades, and it identifies the former Crows Landing Flight Facility as a targeted location for job creation. The proposed project includes the development of the *Crows Landing Industrial Business Park Specific Plan* (Specific Plan), which would implement the County's General Plan policies. Goal Three from the General Plan indicates that the County will, "Foster stable economic growth through appropriate land use policies." Under this Goal, Policy Eighteen commits the County to "Promote diversification and growth of the local economy." More specifically, Implementation Measure 9 states that the County will "Encourage reuse of the Crows Landing Air Facility as a regional jobs center." To do so, the County must amend the site's General Plan designation from Agriculture to Specific Plan and rezone the property from A-2 (General Agriculture) to S-P(2) (Specific Plan) to reflect the proposed land uses associated with the CLIBP Specific Plan Area.

All individual development projects proposed within the boundaries of the approximately 1,528-acre project site are subject to the policies set forth in the Specific Plan. Topics addressed in the Specific Plan include:

- **Land Uses,** which describes the categories of permitted land uses and the character of development within the Plan Area, project phasing, and the goals and policies that inform the Specific Plan content.

- **Built Environment and Design,** which includes site-specific objectives and policies for the baseline design features that will define the built environment for the CLIBP.

- **Infrastructure,** which addresses the infrastructure required for development (i.e., facilities for potable and non-potable water, wastewater, stormwater management, transportation/circulation, and dry utilities).

- **Specific Plan Implementation,** which addresses the administration of the Specific Plan and construction costs associated with the infrastructure, airport, and multimodal transportation corridor for CLIBP development.

PROPOSED LAND USES

The proposed Specific Plan identifies a suite of general land use types. As shown on Table 2-1, seven general land use categories were identified for development on the project site. These land uses would be developed in three 10-year phases to provide the opportunity for approximately 14,000 to 15,000 jobs at full buildout. (See the Specific Plan, which is on file with the County under separate cover for additional detail on project phases).

As shown on Table 2-1, approximately 83 percent of the site (or approximately 1,274 of the estimated 1,528 acres) has been identified for development. The remaining 254 acres would accommodate necessary infrastructure

and green space. Each broad land use category is described in the Specific Plan and summarized below. The Specific Plan also identifies several, more defined land uses that could be developed in the Specific Plan Area, in accordance with the broad categories presented in Table 2-1. Exhibit 2-5 illustrates the location of these proposed uses and project phasing. The proposed S-P(2) designation would not identify specific parcels for development; instead, this designation is intended to facilitate the creation of variably sized parcels that can be developed to meet the needs of individual leaseholders in accordance with the Specific Plan.

Table 2-1
Anticipated Development by Land Use Category (acres)

Land Use	Description	Total Use (acres)
Logistics/Distribution	Packaging, warehouse, and distribution, etc.	349
Light Industrial	Light industrial manufacturing, machine shops, etc.	350
Business Park	Research and development, business support services, etc.	78
Public Facilities	Municipal and County offices, professional offices, emergency services, etc.	68
General Aviation	Airport runways, aprons, hangars, etc.	370
Aviation Related	Parcel distribution, aviation classroom training, etc.	46
Green Space / Multimodal Transportation Corridor	Bicycle and pedestrian path, greenway, monument to military use.	13
All Uses by Phase		1,274
Infrastructure	Internal roadways, water and wastewater systems, stormwater drainage, etc.	254
Specific Plan Area Total		1,528

Industrial and Business Park Area Uses

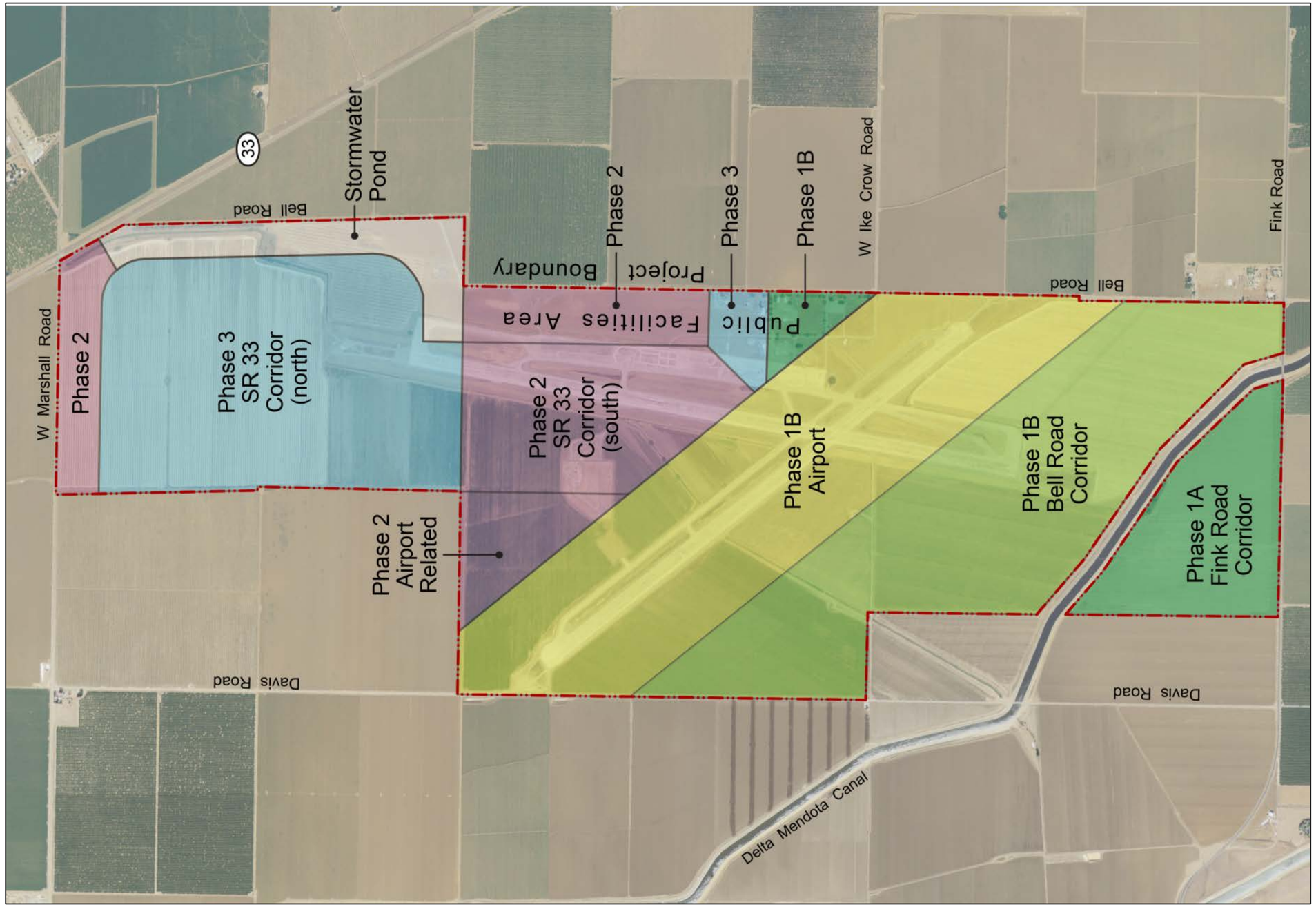
The majority of the Specific Plan Area is envisioned to consist of a broad range of industrial and business park uses, such as, logistics, warehouse, distribution, light industrial, and offices. Phasing of the Industrial Business Park Area is described in Section 2.6.

Logistics, Warehouse, and Distribution

The demand for distribution sites in the local area that are greater than one million square feet exceeds the available supply. Although logistics, warehouse, and distribution land uses are allowed throughout the Specific Plan Area, with the exception of the airport and Public Facilities area, it is anticipated that these uses will be developed primarily in the southern portion of the Specific Plan Area (Fink and Bell Road Corridors) based on the area's proximity to I-5 via Fink Road and the presence of similar nearby uses.

Light Industrial

In addition to logistics, warehouse, and distribution uses, the Specific Plan envisions light industrial uses, such as furniture, consumer electronics manufacturing, and machine shops.



Source: AECOM 2016

Exhibit 2-5. **Proposed Phasing**

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Business Park

Business park uses are envisioned within the Specific Plan Area and would include uses such as call centers, research and development, and business support uses. Business park uses may be developed in association with proposed logistics, warehouse, distribution, and light industrial uses, or as standalone facilities.

Public Facilities Area Uses

The primary gateway entrance to the CLIBP is envisioned at the intersection of Bell and West Ike Crow Roads, where a roundabout, transit stop(s), and directional signs will be constructed. An area northwest of this intersection has been designated for the development of public facilities and other uses or services to benefit Stanislaus County residents. Public facilities uses may include local and district government offices, professional offices, including medical and dental offices, and accessory uses, such as a small coffee shop, ATM, or other accessory services to support site workers. The Public Facilities area is also located near the airport entrance, which provides those agencies that require immediate response quick access to the airport. Such agencies may provide fire suppression, law enforcement, medical assistance, and other emergency service.

Greenspace/Multimodal Transportation (Bicycle/Pedestrian) Corridor

A multimodal (bicycle/pedestrian) transportation corridor is proposed along Bell Road, between Fink and West Ike Crow Roads, and extending north to West Marshall Road/State Route (SR) 33. The portion of Bell Road north of West Ike Crow Road will be abandoned as a public roadway, but access will be available to the private properties east of Bell Road. A greenway that includes a landscaped bike/pedestrian path will extend north of West Ike Crow Road on the eastern side of the Public Facilities area. The greenway and paths will extend along the eastern side of the stormwater pond to the intersection of West Marshall Road and SR 33. This multimodal transportation corridor, along with the stormwater pond, will provide a physical and visual barrier between the industrial business park and adjacent agricultural lands.

A one- to two-acre green space within the Public Facilities area will be constructed for visitor and employee use. Existing site features and attractive aviation-compatible landscaping will be installed to encourage use by visitors and CLIBP workers during breaks. The green space will include the former Air Traffic Control Tower structure. Although the tower will no longer be used for aviation purposes, the structure would serve as a focal point and monument to commemorate the site's five decades of military use. The proposed multimodal transportation corridor and green space are anticipated to be developed during Phases 1 and 2.

General Aviation Uses

The approximately 370-acre Crows Landing Airport will reuse pavement and infrastructure associated with former military runway 12-30, to the greatest extent practicable. The mix of land uses associated with CLIBP development are compatible with the airport following the application of appropriate guidance and design and development standards set forth in this Specific Plan, the Stanislaus County Airport Land Use Compatibility Plan (ALUCP), and applicable Federal Aviation Administration (FAA) regulations and guidance. Existing and proposed roads will serve as barriers between adjacent land uses and the airport, which will be enclosed by a security fence. Potential users include business travelers, recreational aviators, flight schools, and delivery services, as well as emergency services. A helipad will be constructed in the southeastern portion of the airport.

All improvements required by the California Department of Transportation, Division of Aeronautics, to obtain a permit to operate a general aviation airport will be carried out during Phase 1. Subsequent airport improvements will be constructed based on user demand during all three development phases.

Aviation-related Area Uses

Approximately 46 acres of land adjacent to the northwestern airport boundary are designated for aviation-related uses. Although light industrial, logistics, distribution, warehouse, and business park uses allowed throughout the Plan Area will also be permitted in this area, the area will be preserved during initial development, as feasible, for prospective tenants that require close access to the airport to support operations, such as airport-related cargo (parcel) distribution and emergency services.

INFRASTRUCTURE

Infrastructure will be required to support the proposed land uses. Stanislaus County undertook several infrastructure planning studies from 2015 to 2017 to better assess the feasibility of land uses proposed by the CLIPB Specific Plan, available infrastructure, and the demand for utilities associated with the proposed development. These studies are on file with the County and provided as appendices to the Specific Plan. Based on the results of these studies, the County will undertake initial infrastructure development at the CLIBP site to render it ready for development and to make the site more attractive to potential developers and tenants. Infrastructure will include the development of a reliable water supply (potable and non-potable), and connections for wastewater, storm drainage, and dry utilities. Both site-specific and regional infrastructure options were considered. The County anticipates the formation of a County Service Area (CSA) or the use of another long-term tool to manage the provision of services and maintenance of infrastructure for the Specific Plan Area. The EIR examines impacts associated with infrastructure required to support the Specific Plan.

Water Supply

Stanislaus County undertook a *Water System Infrastructure and Facilities Study* to determine the projected potable and non-potable water demands associated with the project, determine the overall preliminary potable and non-potable water system needs, and discuss potential water supply sources and treatment considerations.

The project will include the development of a non-potable water supply, using a combination of new wells and existing irrigation wells that derive water from the shallow aquifer beneath the site. The *Water System Infrastructure and Facilities Study* is on file with the County Planning and Community Development Department and available for review. Please refer to Figures 7.1 through 7.7 of this Study for a depiction of the planned infrastructure. The County is considering three water supply options at this time:

- Water Supply Option 1: Extending the Crows Landing Community Services District to provide a cooperative supply water and system improvements;
- Water Supply Option 2: Preparing a permit application to provide drinking water to the CLIBP in a stand-alone system without connecting to off-site systems, following the required evaluations with nearby systems, and
- Water Supply Option 3: Extending the City of Patterson's water service area to include the CLIBP under the City's existing drinking water supply permit.

Regardless of the option selected, the County will ensure that project-related water supply demands will be provided on site to meet project-related water supply demands. The proposed project will not rely on water supplies from either the City of Patterson's current water service area or the current Crows Landing Community Services District.

Wastewater

Connect to Patterson's Water Quality Control Facility Option

The County's preferred option would be to convey wastewater from the CLIBP Specific Plan Area off-site, and provide a connection to the existing Western Hills Water District (WHWD) wastewater conveyance system. The conveyance system would transport project-related effluent to the City of Patterson's Water Quality Control Facility for treatment.

During Phase 1, a gravity trunk main and two sewer lift stations would be constructed. A force main would be constructed in Marshall Road to convey effluent to the existing WHWD trunk main in Ward Avenue. During Phase 2, the County would construct a force main system to convey sewage from the CLIBP site to the City of Patterson Water Quality Control Facility. The County would contribute its fair share of the cost to connect to the South Patterson Trunk Sewer and necessary improvements to City's treatment facility to accommodate the additional CLIBP sewer flows. Site development during Phase 3 would utilize the newly constructed parallel force main system on Ward Avenue to convey flows to the City of Patterson Water Quality Control Facility. The *Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study* is under separate cover and available for review on file with the County Planning and Community Development Department, as an appendix to the Specific Plan. Please refer to Figure 4.3 of the Sanitary Sewer Infrastructure and Facilities Study for a depiction of the planned infrastructure. The County has coordinated extensively with the City of Patterson regarding the wastewater collection and treatment improvements needed to serve the project in addition to future growth within the City and other future development that will require wastewater treatment at the City's Water Quality Control Facility (Furuya 2017).

On-site Wastewater Treatment Option

If the City of Patterson cannot accommodate the projected wastewater flows from the project, then the *Stanislaus County's Guidelines for Septic System Design* could be implemented for individual development projects until the City can make provisions to accommodate additional sewer flows. This approach could be used for initial development during Phase I of CLIBP development, with new facility owners or tenants responsible for the design, construction, and maintenance of a system that is sufficient to accommodate their development parcel/site. The County would evaluate and approve individual systems on a case-by-case basis. Further studies would be required to determine the number, type, and extent of individual systems that could be allowed until construction of Phase I sewer infrastructure begins.

On-site Wastewater Treatment Systems (OWTS) range from traditional septic systems with leach fields to more advanced systems with biological filters. Such systems are regulated under the State Water Resources Control Board's OTWS policy and Stanislaus County standards. Each OWTS is subject to siting regulations and restrictions including soil type, percolation rates, depth to groundwater, and other limitations. The County would evaluate and approve each system on a site-specific basis.

Packaged or custom wastewater treatment systems that comply with California Title 22 recycled water regulations and State Water Resources Control Board wastewater discharge regulations could also be constructed on the CLIBP site. Modular treatment systems can be matched to the treatment capacity required for each phase and constructed as needed, not unlike the phased expansion projects that the City of Patterson is planning with its WQCF. A primary consideration in selecting an on-site treatment system is the reuse or disposal method selected for the treated effluent. Three effluent reuse and disposal assumptions were considered:

- Option 1: Reuse 100 percent of treated effluent for landscape irrigation and provide effluent storage during the non-irrigation wet season.
- Option 2: Reuse treated effluent for landscape irrigation to the extent practicable during the irrigation season, and provide limited storage and percolation to manage effluent generated during the wet season.
- Option 3: Dispose of treated effluent through percolation using a multi-use stormwater retention pond, as described in the CLIBP Drainage Study.

The amount of land needed to store effluent for any option should be less than 10 acres, including the area required to provide a small emergency storage reservoir with capacity to accommodate effluent for a period of 1 to 3 days should it fall out of compliance with Title 22 or State discharge permit limitations. For initial developments with OWTS for individual facilities, the County has permitting authority and mechanisms available to evaluate, approve, and permit such systems.

If the County selects an on-site wastewater treatment alternative, highly treated effluent could be discharged to the stormwater pond for infiltration into the upper aquifer. This would require evaluation of the area of pond bottom that would receive engineered improvements to enhance infiltration, which could exceed 20 percent of the pond bottom.

Irrigation and Percolation Option (Option 2)

Under this option, highly treated effluent will be discharged to land but not directly to surface waters. However, discharge will reach groundwater. The treatment plant owner will be required to obtain a waste discharge requirements (WDR) permit. The Regional Water Board will write WDRs that include effluent limitations designed to protect groundwater quality.

Discharge into Stormwater Detention Pond with Percolation Option (Option 3)

Under this treatment and disposal option, highly treated effluent will be discharged into the proposed multi-use stormwater detention pond and percolate into the upper unconfined groundwater aquifer. During storm events, effluent would blend with stormwater in the pond, which will be designed with a specially engineered bottom to enhance percolation in the otherwise slow percolating soil (revised November 30, 2017).

- The proposed stormwater pond is designed to contain all stormwater runoff up to a 2-year storm event. As noted in the Specific Plan Drainage Study, the pond is designed consistent with FAA guidance that open water features drain within 48 hours of a 10-year storm event.
- In the event that a storm event greater than the 2-year storm occurs, the pond could overflow at its north end with the overflow eventually making its way to the San Joaquin River. This is surface water discharge. The

County would be required to obtain a NPDES discharge permit in addition to State WDRs. The NPDES permit would likely have seasonal flow limitations, allowing discharge from the pond only during the wet season.

Further details regarding options for on-site wastewater treatment can be found in section 7.2 of the *Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study* (revised November 30, 2017).

Stormwater/Drainage Improvements

The project would be required to retain on-site flows for storms up to and including the 100-year storms, and, based on the presence of a nearby airport, all on-site drainage facilities must comply with FAA guidance, Specific Plan, and ALUCP policies pertaining to open water within the airport influence area.

The Specific Plan Area slopes generally to the northeast. To accommodate flows on Little Salado Creek during Phase 1, an existing channel south of the airport would be improved. The existing box culverts would be replaced by three 4-by-8 box culverts to convey flows beneath proposed runway 12–30. A linear detention basin would be constructed parallel to the eastern site boundary north of the intersection of Ike Crow and Bell roads. The basin would contain flows in accordance with the existing condition. The detention pond would be constructed in accordance with applicable FAA guidance and ALUCP policies pertaining to storage, slopes, and armoring.

The *Crows Landing Drainage Study* is available for review on file with the County Planning and Community Development Department, as an appendix to the Specific Plan. Please refer to Figure 6 of the Drainage Study for a depiction of the planned infrastructure.

Utilities (Electricity, Natural Gas, Communications)

Utility service would be provided by Pacific Gas & Electric Company (PG&E) (natural gas), Turlock Irrigation District (TID) (electricity), and AT&T (communications, such as phone, cable, and internet). Utilities would be located in joint trenches along the western or southern sides of on-site roadways.

ROADWAYS AND INTERSECTIONS

The County prepared a *Transportation Infrastructure Plan* to analyze needs related to the development of the proposed project. The purpose of the analysis was to determine the transportation infrastructure improvements that would be required to accommodate the proposed development, including: the construction of on-site backbone and secondary streets; the reconstruction or widening of off-site two lane streets; additional off-site traffic signals; and Fink Road interchange improvements. On-site transportation improvements, such as the construction of backbone and secondary roads, would be constructed as a part of the project. Off-site, two-lane roadways that would be rebuilt as a part of the project include portions of Bell Road, Davis Road, West Ike Crow Road, and Marshall Road. The portion of Marshall Road adjacent to the project site would be expanded from two to four lanes as part of the project. The project would contribute to other off-site road improvements on a fair-share basis.

The *Transportation Infrastructure Plan* also identifies the need for signalization at 11 intersections in the vicinity of the project site. The *Transportation Infrastructure Plan* is available for review on file with the County Planning and Community Development Department. As with the wastewater collection and treatment, the County

also undertook extensive coordination with the City of Patterson regarding potential travel demand impacts associated with the proposed project and the facilities needed to serve the project and other potential development in the site vicinity (Thnay 2017).

PUBLIC-USE AIRPORT

Approximately 370 acres of the approximately 1,528-acre CLIBP site have been designated for the development of a new public-use, general aviation airport that reuses a one of the former military runways, taxiways, and apron areas. The new airport would provide opportunities for recreational and business aviators and would serve as an amenity to the proposed CLIBP. The proposed airport would not provide commercial passenger service.

The proposed CLIBP project includes the adoption of an ALP and Narrative Report that describes the design of the new airport and presents a recommended ALP drawing. The primary purpose of the ALP and Narrative Report is to describe the extent, type, and approximate schedule of development needed to accommodate the opening of, and future aviation demand for, the proposed Crows Landing Airport. The ALP and Narrative Report also:

- Documents existing aviation facilities and generally describes future airport development plans;
- Provides data to help the County make decisions on how to best operate and develop the new airport to meet future demand; and
- Serves as the basis for amending the Stanislaus County ALUCP to include the proposed Crows Landing Airport and its anticipated use as a general aviation facility.

The proposed Crows Landing Airport would feature an approximately 5,175-foot-long runway to support business and recreational aircraft. A copy of the ALP and Narrative report are available as Appendix B.

The Crows Landing Airport will be developed over a 30-year period, but the phasing of the development will occur based on user demands. Initial infrastructure will be constructed during Phase 1 and focus on the rehabilitation of airfield pavements, pavement marking, and airfield signage, as well as an entrance road, office, and parking areas, and sign. From years 11 to 20, development will focus on additional aircraft tie-downs and hangar sites, airfield lighting, additional apron area, and heliport construction with an internal perimeter road. The ALP and Narrative report also identify facilities for development beyond the 30-year timeframe associated with the CLIBP, such as a 1,000-foot runway extension, although these facilities are speculative and are not proposed as a part of the CLIBP Specific Plan. Changes in aviation technology and available funding are uncertain, and these facilities would likely change over time in response to new technologies and user demands.

2.5.2 AIRPORT LAND USE COMPATIBILITY PLAN AMENDMENT

The Stanislaus County Airport Land Use Commission (ALUC) is responsible for the preparation of an ALUCP for each public-use airport in Stanislaus County. The creation of an ALUC and the preparation of compatibility plans for public-use airports are requirements of the California State Aeronautics Act (California Public Utilities Code [CPUC] Section 21670 *et seq.*).

The purpose of the ALUCP is to promote compatibility between a public-use airport and the land uses in its vicinity to the extent that the areas have not already been devoted to incompatible uses. To accomplish this, the

ALUCP establishes a set of compatibility criteria that the ALUC would use to evaluate the compatibility of land use and airport proposals within the ALUC-established Airport Influence Area (AIA).

The County and the jurisdictions with land use authority over areas within the AIA are expected to incorporate certain criteria and procedural policies from the proposed ALUCP into their general plan and zoning ordinances in an effort to ensure that future land use development in the airport vicinity would be compatible with long-term airport operations. Each agency also has the option of overruling the ALUC, in accordance with the steps defined by State law and summarized in the ALUCP.

The current ALUCP for Stanislaus County (adopted in 2016) provides policies for three airports: The Modesto City-County Airport, the Oakdale Municipal Airport, and the Crows Landing Naval Auxiliary Landing Field. The 2016 ALUCP addresses the most recent long-range airport plans available for both the Modesto City-County Airport and the Oakdale Municipal Airport. However, the policies associated with the Crows Landing Naval Auxiliary Landing Field reflect the dual-runway military airfield and military aircraft operations. The proposed ALUCP amendment addresses the long-range development of the new Crows Landing Airport as described in the ALP and ALP Narrative Report. Proposed compatibility policies and policy maps that would be used to amend the Stanislaus County ALUCP are provided in Appendix C.

The Countywide ALUCP includes procedural policies and compatibility policies that apply to all three county airports, and specific policies and compatibility maps for each airport. The compatibility policies associated with the Crows Landing Airport were developed in conjunction with the Specific Plan to avoid compatibility conflicts throughout CLIBP development. The proposed land uses, locations, and densities/intensities of use proposed in the CLIBP Specific Plan are compatible with ALUCP policies. The ALUCP is incorporated into the CLIBP Specific Plan by reference, and all proposed development will adhere to ALUCP policies.

2.6 PROJECT PHASING

The proposed project would be developed in three, 10-year phases for an overall 30-year timeframe, and it would provide backbone on- and off-site infrastructure and roadway improvements to meet the needs associated with Phase 1 and plans for subsequent phases (see Exhibit 2-5). However, the Specific Plan would provide flexibility for development based on demand following the completion of necessary infrastructure and necessary mitigation.

PHASE 1: INITIAL DEVELOPMENT (PRESENT TO 2026)

As shown on Exhibit 2-5, the County anticipates that Phase 1 development (Present to 2026) would include on- and off-site infrastructure and some off-site roadway improvements. Runway 12-30 would be rehabilitated and re-designated as runway 11-29 to develop a public-use airport. The primary gateway entrance would be developed at the intersection of Ike Crow and Bell roads, and the facilities would include attractive entrance signs. Additional gateway entrances would be constructed on West Marshall Road and on Fink Road east of the Delta-Mendota Canal.

Phase I would provide for approximately 764 acres of land for development that focuses on the area south of the airport in two discrete areas identified as the Fink Road Corridor and the Bell Road Corridor. Specific Phase 1 improvements include:

- **Fink Road Corridor.** The approximately 103-acre Fink Road Corridor extends northward from Fink Road to the southern bank of the Delta-Mendota Canal. The parcel is bounded to the north and east by the canal and to the west by an agricultural area. Industrial, logistics, and business park development are anticipated in this area, which is ideal for site developers requiring more than 1 million square feet of building space and proximity to I-5. Access to the parcel would be provided by I-5 and Fink Road.

- **Bell Road Corridor.** The approximately 276-acre Bell Road Corridor extends northward and eastward from the Delta-Mendota Canal to the southern airport boundary (fence), with a western boundary formed by Davis Road. Industrial, logistics, and business park development are anticipated in this area. Similar to the Fink Road Corridor, this area is ideal for site developers requiring more than 1 million square feet of building space. Access to the parcel would be provided by I-5, Bell Road, and Fink Road.

- **Public Facilities Area.** Approximately 15 acres in the southernmost portion of the Public Facilities are located northwest of the intersection of West Ike Crow and Bell Road would be available for the development of fire/and law enforcement facilities, including those that would benefit from the adjacent airport, municipal and County offices, and professional offices, including potential health care facilities. Access would be available from Bell Road and West Ike Crow Road.

- **General Aviation Airport.** A new 370-acre airport would provide opportunities for recreational and business flyers and would serve as an amenity to the proposed CLIBP. Phase 1 development would include repairing, resurfacing, and remarking of the existing runway and taxiways, providing tie-down and hangar areas, a wash rack, airfield signs, a security fence, entrance road, signs, and an airport office. Other facilities would be developed based on demand and available funding in accordance with the sequence provided in the proposed ALP. Access to the airport would be available from Fink and Bell roads or from SR 33 and the Ike Crow Road extension to Davis Road.

- **Road Improvements.** Roadway infrastructure provided during Phase 1 includes the construction of a new internal road that would extend northward from Fink Road to the southern airport boundary and west to Davis Road. Another internal road would be constructed east of the new internal road to provide a connection to Bell Road. Off-site road improvements constructed during Phase 1 would include improvements to Bell Road between Ike Crow Road and Fink Road and improvements to Ike Crow Road between Bell Road and SR 33. Intersection improvements and signalization would be required at four intersections: Sperry at SR 33, West Ike Crow Road at SR 33, Fink Road at Bell Road, and Fink Road at the southern entrance. The Fink Road/I-5 interchange will be improved by signalizing the northbound ramp and widening the road beneath the freeway to create a westbound left-turn lane at the southbound ramps. Other proposed improvements include the detention/storage of flows from each leasehold site and raising of the portion of Davis Road west of the Delta-Mendota Canal.

- **Infrastructure Improvements.** Phase I improvements would focus on the portion of the CLIBP that includes the proposed airport and the land south of the airport. Distribution piping, valves, a potable water storage tank, and a water well and booster pump station would be constructed. Sanitary sewer infrastructure required as part of Phase 1 improvements would include gravity trunk mains, two lift stations, and a force main within Marshall Road to convey effluent to the existing WHWD trunk main in Ward Avenue. Stormwater management improvements would include improvements to the Little Salado Creek channel, replacing/enhancing the on-site culverts that convey flows below the runway, and the construction of a

stormwater management pond in the northeastern corner of the site. During Phase 1, the County may allow use of new on-site systems until the permanent sewer system and ultimate connection to the City of Patterson Water Quality Control Facility has been completed for their area. If used, on-site wastewater treatment facilities will be required to meet Stanislaus County's Guidelines for Septic System Design and other relevant standards and other relevant standards.

PHASE 2: AIRPORT IMPROVEMENTS AND HIGHWAY 33 CORRIDOR DEVELOPMENT (2027 TO 2036)

Additional facilities would be developed on 190 acres north of the airport during Phase 2 in the Public Facilities area and the Highway 33 Corridor area, along with further development of the Public Facilities area, ongoing infrastructure improvements, and airport development. A public monument with associated greenspace and a multimodal transportation corridor would provide recreational amenities for site users and the local community.

- **Highway 33 Corridor.** Approximately 142 acres of land north of the proposed airport is identified as the Highway 33 Corridor, which would be developed for industrial, logistics, and business park uses following the completion of infrastructure and road improvements. Access would be provided by SR 33, West Marshall Road, or West Ike Crow Road.

- **Public Facilities Area.** An approximately 35-acre area north the airport and adjacent to Bell Road would be available for development during Phase 2, during which time additional interior roads and infrastructure would be completed to support the full buildout Public Facilities area. Public offices, small business support facilities, and on-site classroom training are envisioned for this area. A transit stop would also be constructed in the Public Facilities area during Phase 2. Groundwater remediation activities are anticipated to be completed on the remaining 11 acres of the Public Facilities area.

- **Green Space and Historical Monument.** A historic display would be constructed adjacent to the former Air Traffic Control Tower to commemorate the site's former contribution to our nation's history. The area would include a parking area, picnic tables, and maintained lawn. Bell Road and West Ike Crow Road would provide access to this area.

- **Multimodal Transportation Corridor/Green Space.** A pedestrian and bicycle trail would be constructed along Bell Road between its intersection with West Ike Crow Road and West Marshall Road. The trail would improve on-site circulation and provide both alternate transportation opportunities and recreation opportunities for site workers (walking and biking).

- **Aviation-Related Use.** Aviation-related uses include uses that may need to be located near the airport, but do not need to be located within airport boundaries. Approximately 46 acres would be available for such uses, which may include industrial or business park uses that have a strong aviation component. Access would be provided by the Ike Crow Road Extension.

- **Airport Improvements.** Airport improvements would occur as needed. Anticipated improvements include additional hangars and aircraft tie-down spaces, airfield lighting, the addition of non-precision navigation aids, heliport construction, and a perimeter road, as identified by the proposed ALP.

- **Road Improvements.** To support Phase 2 development, Bell Road would be improved, and additional on-site roadways would be constructed north of the airport, including an additional north-south road between the West Ike Crow Road Extension and West Marshall Road. A new internal road would be constructed north of West Ike Crow Road between the proposed Public Facilities area and the proposed Highway 33 Corridor Development Area. Additional or "secondary" internal roads would be constructed to provide access throughout the Highway 33 Corridor area. New signals or roundabouts would be provided at the intersection of Highway 33 and Marshall Road and at the intersection of SR 33 and Fink Road.

- **Infrastructure Improvements.** Infrastructure development will include the construction of distribution piping, valves, a potable water storage tank, and a water well and booster pump station. Sanitary sewer infrastructure improvements include the construction of gravity trunk mains to connect to the sanitary sewer infrastructure constructed with Phase 1.

PHASE 3: AIRPORT IMPROVEMENTS AND HIGHWAY 33 CORRIDOR BUILD OUT (2037 TO 2046)

Approximately 274 acres in the northernmost portion of the site would be developed during Phase 3. Development is envisioned on approximately 274 acres of the Highway 33 Corridor and approximately 11 acres of the Public Facilities area, along with ongoing infrastructure improvements and airport development.

- **Highway 33 Corridor Buildout.** The remaining approximately 256 acres of the Highway 33 Corridor would be developed for industrial, logistics, and business park uses. Access to this area would be provided primarily by Highway 33 and Marshall Road.

- **Public Facilities Buildout.** The remaining 11 acres of the Public Facilities area would be developed to provide opportunities for additional professional offices, small business/business support, and training facilities to serve the West Side and County as a whole.

- **Airport Improvements.** Airport improvements would occur as needed. Anticipated improvements include the construction of additional hangars and tie-down spaces on the south side of the airport.

- **Road Improvements.** Roadway improvements would occur on Marshall Road between the proposed northern entrance and SR 33, as well as at the Delta-Mendota Canal crossing. Traffic signals would be provided at the intersections of West Marshall Road at Ward Avenue and on Marshall Road near the site's northern entrance. Intersection improvements would also be provided approximately 4.5 miles east of the site at the intersection of Crows Landing Road and Marshall/River Roads. Additional or "secondary" roads would be constructed to provide access throughout the Highway 33 Corridor Area.

- **Infrastructure Improvements.** Distribution piping, valves, and a water well and booster pump station would be constructed. For wastewater, backbone infrastructure would be constructed to provide sanitary sewer service to the Phase 3 development area.

2.7 ACTIONS BY STANISLAUS COUNTY AND USE OF THE EIR

Discretionary actions to be considered by Stanislaus County that are related to the proposed project include, but are not necessarily limited to:

- Adoption of the CLIBP Specific Plan, amending the site's General Plan designation from Agriculture to Specific Plan, and rezoning the property from A-2 (General Agriculture) to S-P(2) (Specific Plan) to reflect the proposed land uses associated with the CLIBP Specific Plan Area.
- Adoption of the Crows Landing ALP and Narrative Report and the first 30 years of development within the ALP.
- Adoption of an ALUCP Amendment to include policies for the Crows Landing Airport.

The EIR analysis addresses the land uses types, densities, and intensities of land uses identified in the proposed CLIBP Specific Plan. The EIR analysis discloses potential direct and indirect environmental effects associated with the installation of the proposed backbone infrastructure, roadway improvements, airport development through 2046, as defined in the ALP, and revisions to the Stanislaus County ALUCP. The EIR also identifies available and feasible mitigation measures and performance standards, where required, to avoid, minimize, or reduce potentially significant and significant impacts on the physical environment. The County will use the data presented in the EIR to issue well permits with the determination of sustainable extraction for proposed site development.

Following certification of the EIR, approval of the project, and ALUC adoption of the ALUCP amendment, the County will submit a permit application to the Caltrans Division of Aeronautics to operate a public-use general aviation airport at the former Crows Landing Air Facility.

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3 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

The *California Environmental Quality Act Guidelines* (*CEQA Guidelines*) state that an environmental impact report (EIR) should include an evaluation of potentially significant effects on the physical environment associated with a proposed project and identify feasible mitigation for those effects. All phases of a proposed project, including planning, acquisition, development, and operation, must be evaluated in the analysis. California Code of Regulations (CCR) Title 14, Section 15126.2 (14 CCR Section 15126.2) states that:

> An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, and human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause by bringing development and people into the area affected.

An EIR must also discuss inconsistencies between the proposed project and applicable general plans and regional plans that would result in environmental effects (CEQA Guidelines Section 15125[d]).

According to *CEQA Guidelines*, Section 15126.4, an EIR must describe potentially feasible measures that could be implemented to avoid or minimize significant adverse impacts (Section 15126.4[a][1]) and feasible and practicable measures that are fully enforceable through permit conditions, agreements, or other binding process (Section 15126.4[a][2]). Mitigation measures are not required for impacts that are found to be less than significant.

SECTION CONTENTS AND DEFINITION OF TERMS

Each section of Chapter 3 (Sections 3.1 to 3.15) presents a discussion of a specific environmental resource or issue and generally corresponds to the environmental resource issues and topics presented in the CEQA Environmental Checklist (*CEQA Guidelines,* Appendix G, as amended). The specific assumptions, methodology, and thresholds of significance used to analyze a specific environmental resource and the potential impacts are described in that section. Each section of Chapter 3 follows the same format and addresses: environmental setting, regulatory framework, environmental impacts and mitigation measures.

ENVIRONMENTAL SETTING

The Environmental Setting discussion for each environmental resource or issue provides an overview of the baseline physical environmental conditions (*i.e.*, the environmental baseline) associated with the project study area and surrounding area, as appropriate and in accordance with the *CEQA Guidelines* (Section 15125), at the

time the notice of preparation (NOP) was published. The NOP for the proposed project was circulated to public agencies and the public on October 13, 2014.

REGULATORY FRAMEWORK

The Regulatory Framework discussion for each environmental resource or issue identifies the plans, policies, laws, regulations, and ordinances that are relevant to that resource or issue and describes the required authorizations, permits, and other approvals necessary to implement the project. *CEQA Guidelines*, Section 15125(d), recommends that an EIR "discuss any inconsistencies between the proposed project and applicable general plans and regional plans." Where inconsistencies occur, they are addressed as topical impacts within each applicable issue area in Chapter 3 of this EIR.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The Environmental Impacts and Mitigation Measures discussion associated with each environmental resource or issue identifies the potential impacts of the proposed project on the existing physical environment, in accordance with the *CEQA Guidelines* (Sections 15125 and 15143). The following discussions are included in this discussion.

- **Thresholds of Significance**, which identify the criteria used to define the level at which an impact would be considered significant, in accordance with CEQA. Thresholds may be quantitative or qualitative; they may be based on examples found in CEQA regulations or the *CEQA Guidelines*; scientific and factual data pertinent to the County's jurisdiction; legislative or regulatory performance standards of federal, State, regional, or local agencies relevant to the impact analysis; County goals, objectives, and policies (*e.g.*, County General Plan); views of the public in the affected area; the policy/regulatory environment of affected jurisdictions; or other factors. In general, this EIR incorporates into the thresholds of significance language from Appendix G of the *CEQA Guidelines*; factual or scientific information and data; and regulatory standards of federal, State, regional, and local agencies.

- **Methodology** describes the analytical methods, processes, procedures, and/or assumptions used to formulate and conduct the impact analysis.

- **Impact Analysis** provides an assessment of the potential impacts of the project, including the infrastructure and roadway improvements necessary to serve the project. This analysis also specifies why impacts are found to be significant and unavoidable, significant or potentially significant, or less than significant, or why there is no environmental impact. Each impact is identified numerically.

- **Mitigation Measures** are recommended to avoid, minimize, rectify, reduce, or compensate for each significant and potentially significant impact of the project, where feasible, in accordance with the *CEQA Guidelines* (Sections 15370, 15002[a][3], 15021[a][2], and 15091[a][1]). Each mitigation measure is identified numerically to correspond with the number of the environmental impact that would be reduced by the measure. For example, Impact 3.3-1 would be mitigated by Mitigation Measure 3.3-1. In some cases, feasible and available mitigation measures are not sufficient to reduce an impact to a "less-than-significant" level. Where no feasible mitigation is available to reduce significant impacts to a less-than-significant level, the impacts are identified as "significant and unavoidable."

- **Cumulative Impacts** are impacts of the project that would result from the incremental impact of the proposed project when compounded with other past, present, and reasonably foreseeable future projects. Information concerning the cumulative context for the analysis of impacts is provided in Chapter 5 of this EIR, with the exception of cumulative effects related to greenhouse gas emissions, which are addressed in Section 3.7.

TERMINOLOGY USED TO DESCRIBE IMPACTS

This EIR uses consistent language to describe the project-related impacts associated with each environmental issue, as explained below.

Impact Levels

This EIR uses the following terminology to denote the significance of environmental impacts of the project:

- **No impact** indicates that the construction, operation, and maintenance of the project would not have any direct or indirect effects on the environmental resource or issue discussed. No change from existing conditions would occur. This impact level does not need mitigation.

- A **less-than-significant impact** would not cause a substantial or potentially substantial adverse change in the physical environment. This impact level does not require mitigation, even if feasible.

- A **significant impact** is defined Public Resources Code Section 21068, is an impact that would cause "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project." Under CEQA, mitigation measures or alternatives to the proposed project must be identified, where feasible, to reduce the magnitude of significant impacts.

- A **potentially significant impact** is an impact that, if it were to occur, would be considered a significant impact as described above. A potentially significant impact is treated as if it were a significant impact.

- A **significant and unavoidable impact** is an impact that would result in a substantial or potentially substantial adverse effect on the environment and that could not be reduced to a less-than-significant level, even with the incorporation of feasible mitigation. Under CEQA, a project with significant and unavoidable impacts may be approved, but the lead agency is required to prepare a "statement of overriding considerations" in accordance with CEQA Guidelines Section 15093, explaining why the lead agency has decided proceed with the project in spite of the potential for significant impacts.

The EIR also includes a detailed evaluation of cumulative effects. Cumulative impacts do not refer to project-related impacts, but the impacts of a proposed project when considered with the impacts of past, present, and reasonably foreseeable future projects producing related impacts, as required by Section 15130 of the CEQA Guidelines. Other past, present, and future projects that would contribute to environmental impacts of the proposed project are referred to as "related projects." There are two primary steps in a cumulative impact analysis:

- first, to determine whether the overall long-term impacts of all such related projects, when considered together, would represent a significant cumulative impact; and

- second, to determine whether the project itself would cause a "cumulatively considerable" (and thus significant) incremental contribution to a significant cumulative impacts. (See CEQA Guidelines Sections 15130[a]-[b], Section 15355[b], Section 15064[h], and Section 15065[c]).

For the first step, Chapter 5 of the EIR identifies whether or not there is a **significant cumulative impact** to which project may contribute. If there is a significant cumulative impact, the EIR provides an assessment of whether the project would have a **less than cumulatively considerable** or a **cumulatively considerable** contribution to this significant cumulative impact.

Impact Mechanisms

An EIR must evaluate short- and long-term impacts, as well as direct and reasonably foreseeable indirect impacts. Project impacts fall into the following categories:

- A **temporary, short-term impact** would occur only during construction or demolition. The environmental analysis addresses potentially significant impacts due to the direct effects of construction at the project site, including but not limited to demolition of existing structures; site development and the construction of any necessary on- and any off-site infrastructure and roadway improvements; and indirect construction impacts associated with the proposed construction staging areas, fill activities, and construction traffic.

- A **long-term impact** is an effect that would continue beyond completion of construction. In some cases, a long-term effect could be considered a permanent effect.

- A **direct impact** is an effect that would be caused by the project and would occur at the same time and place.

- An **indirect impact** is an effect that would be caused by a project but would occur later in time, or at another location, yet is reasonably foreseeable.

In accordance with California Public Resources Code Section 21081.6(a), the County Board of Supervisors, if it approves the project, will adopt a mitigation monitoring and reporting program (MMRP) at the time that it certifies the EIR. The County will also be required to adopt findings that identify each significant effect of the project and the extent to which feasible mitigation measures have been adopted (Public Resources Code Section 21081).

PROJECT COMPONENTS AND MITIGATION MEASURES

The project analyzed in this EIR is the Crows Landing Industrial Business Park (CLIBP) Specific Plan, as described in Chapter 2 of this EIR. The project involves the reuse of a former military facility for a range of aviation-compatible land uses that would create employment opportunities over an approximately 30-year timeframe. The project includes a proposed amendment to the County's General Plan to include the CLIBP Specific Plan, which addresses site development through project buildout, the construction infrastructure improvements that would be necessary to accommodate the proposed land uses as described in the Specific Plan, the development of a public-use general aviation airport, and an amendment to the County's Airport Land Use Compatibility Plan. The site would be rezoned from General Agriculture to Specific Plan, S-P(2).

The EIR identifies feasible mitigation to address potentially significant impacts associated with the project. In some cases, the County will be the "project applicant," and will be responsible for implementing mitigation

measures. For example, the County will undertake initial infrastructure improvements including initial airport development. In other cases, individual leaseholders may be required to implement mitigation measures in association with the approval of specific projects within the CLIBP boundaries. The mitigation measures described throughout this EIR are intended to be flexible so that they may be implemented to address necessary infrastructure development and subsequent site-related development throughout the approximately 30-year timeframe associated with project buildout.

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3.1 AESTHETICS

Section 3.1 provides an evaluation of the potential aesthetic and visual resource impacts that would occur following implementation of the proposed project, such as impacts to scenic views and vistas, potential disturbance of scenic resources (*e.g.*, trees, rock outcroppings, etc.), the conversion of agriculture to other uses, and potential project-related impacts associated with development including light or glare.

3.1.1 ENVIRONMENTAL SETTING

The existing visual character, viewer sensitivity, and overall visual quality are described throughout the project site, accompanied by photographs of representative views taken during site visits on February 19, 2015, and November 13, 2015. The locations of the project site viewpoints are shown in Exhibit 3.1-1.

VISUAL CHARACTER OF THE PROJECT SITE

The majority of the project site is currently used for agriculture. The project site also contains two runways, associated aprons and taxiways, internal roadways, a decommissioned Air Traffic Control Tower, and remnants of airfield lighting and navigational aids (a segmented circle). Former support facilities included administrative office sites, fire and rescue facilities, former hangar sites, and underground fuel storage tanks located on the east side of the project site between Bell Road and the runways. All structures been razed except the Air Traffic Control Tower, leaving concrete and asphalt pads, paved roads, landscaping, and disturbed ground. A site that formerly housed ammunition bunkers and refuse disposal is located north of the runway intersection.

Site topography is relatively flat with an elevation that ranges from approximately 110 to 200 feet above mean sea level. The site slopes to the northeast, with the highest elevation near the southwestern corner of the project site. The Delta-Mendota Canal runs through the project site in a northwest-to-southeast direction. A channelized creek, Little Salado Creek, is east of the Delta-Mendota Canal and traverses the site. Multiple smaller ditches and basins are also present.

VISUAL CHARACTER OF THE SURROUNDING AREA

The project site is located within the San Joaquin Valley, just east of the topographical transition from valley floor to low lying foothills that gradually rise to the west towards the northern portion of the Diablo Mountain Range. The area is predominately agricultural, consisting of fallow land, orchards, and the cultivation of other agricultural products common to the San Joaquin Valley. Rural residences are interspersed throughout the area. The Sierra Nevada Mountain Range rises from the east end of the San Joaquin Valley approximately 70 miles east of Interstate 5 (I-5), but it is not highly visible from the vicinity of the project site because of the intervening distance.

VIEWS OF THE PROJECT SITE

Direct views of the project site are available from West Marshall Road, Fink Road, Bell Road, Ward Avenue, Davis Road, Oak Flat Road, I-5, and State Route 33 (SR 33).

Exhibit 3.1-1. **Key Observation Points**

Exhibit 3.1-1 shows the locations of eight key observation points from which the site was photographed. These viewpoints were chosen to represent public viewing areas of the project site that would be sensitive to visual change. Views of the project site are described from the observation points described below. Representative photographs follow in Exhibit 3.1-2.

Viewpoint 1 shows the project site as viewed looking southeast from the scenic vista point (overlook) located along northbound I-5. The immediate foreground view consists of grass, cattle fence, and the California Aqueduct. The middleground is dominated by an orchard and related agricultural production facilities. The Covanta Energy-from-Waste Facility is visible in the middle ground. The distant background consists of the project site, which is visible as a thin white line just below the horizon, trees located beyond the project site boundary, and haze associated with air pollutant emissions.

Viewpoint 2 shows the project site as viewed from the northeastern corner of the proposed project site at the intersection of East Marshall Road and SR 33. The foreground is dominated by SR 33. The middleground shows a telephone line and a berm, which is located along SR 33 and obstructs the view of the project site. Distant views are obscured by clouds in this image, but the Diablo Range would be visible from this vantage point on a clear day.

Viewpoint 3 is directed west toward the project site from SR 33. Views of the project site from this viewpoint are blocked by orchards. The foreground and background views are predominated by an orchard.

Viewpoint 4 shows the project site as viewed from a location near SR 33 and the northern edge of the unincorporated community of Crows Landing. The foreground is dominated by a fallow field with irrigation equipment. The middleground consists of an orchard associated with large-scale agricultural production and telephone line poles. The Diablo Range can be seen in the background.

Viewpoint 5 shows the project site as viewed looking northwest from a location west of the intersection of Bell and Fink Road and east of the Delta-Mendota Canal. Distant views are dominated by the Delta-Mendota Canal and its access road. The agricultural land east of the canal and in the background is located within the project site.

Viewpoint 6 shows the project site as viewed from a location slightly south of the intersection of Bell Road and a remnant road that provides access at the eastern site boundary. The foreground view is of oak trees and the access road. These trees partly block views of the project site.

Viewpoint 7 shows the project site as viewed from the west where Davis Road crosses the Delta-Mendota Canal. The foreground is dominated by a fallow field and a landscaped berm. The middleground is dominated by fallow agricultural fields located within the southwestern portion of the project site. Background views include remaining military features at the project site, such as the former Air Traffic Control Tower, which is located in the southern portion of the picture, and farm equipment that is currently used for agricultural operations (visible in the photograph as white and dark shaped objects). Distant views are dominated by orchards located east of the project site.

Viewpoint 8 shows the project site as viewed from Davis Road, adjacent to the project site boundary just past runway 12-30. Weeds are visible in the foreground, and the middleground is dominated by fallow agricultural land within the relatively flat project site. The background is dominated by trees and agricultural production facilities located beyond the project site.

Viewpoint 1: View southeast from I-5 Scenic overlook

Viewpoint 2: View southwest from Intersection of SR 33 and East Marshall Road

Exhibit 3.1-2. Existing Conditions Views of the Project Site

Viewpoint 3: View west from SR 33

Viewpoint 4: View northwest from near Crows Landing community

Exhibit 3.1-2. Existing Conditions Views of the Project Site

Viewpoint 5: View northwest from near Fink Road

Viewpoint 6: View from SR 33 looking west

Exhibit 3.1-2. Existing Conditions Views of the Project Site

Viewpoint 7: View northeast from near Davis Road

Viewpoint 8: View southeast from near Davis Road

Exhibit 3.1-2. Existing Conditions Views of the Project Site

Viewpoint 9: View east from Oak Flat Road and Ward Avenue

Exhibit 3.1-2. Existing Conditions Views of the Project Site

Viewpoint 9 shows the project site as viewed from the intersection of Oak Flat Road and Ward Avenue, looking east toward the project site. The foreground and middleground are dominated by agricultural crops within the relatively flat project site and its vicinity. The orchards that are visible in the background are located east of the project site.

VIEWER GROUPS AND VIEWER SENSITIVITY

An important viewer group is composed of travelers on public rights-of-way in the vicinity, including: SR 33, which is located east and northeast of the project site; Fink Road, which is adjacent to the southern site boundary; and I-5, which is located approximately 1 mile west of the project site within the valley floor transition zone. This viewer group includes those operating or riding in motor vehicles. Motorists traveling in the vicinity of the project site could have access to views of the project site for a duration that would depend on the speed of travel. However, orchards and topographic features along I-5 (*i.e.,* road cuts in the hills) consistently interrupt these views.

Rural residents on adjacent agricultural land represent another viewer group. This group would have longer-term views of the project site and would be aware of visual change taking place near their homes. Some residents of the Crows Landing community, which is located east of the project site, would have some visual access to the proposed project site.

STATE-DESIGNATED SCENIC HIGHWAYS AND SCENIC VISTAS

The segment of I-5 that passes through Stanislaus County, from the Merced County line to the San Joaquin County line, is a State-designated scenic highway (California Department of Transportation [Caltrans] 2015). The main views from I-5 include the Diablo Grande Range, the California Aqueduct, agricultural lands, occasional commercial uses that are oriented to travelers along the Interstate, and large industrial distribution facilities.

Approaching Patterson north of the vicinity of the project site, these occasional views of urban development become typical.

The project site is approximately 1 mile east of I-5, and views of the site are screened by landscaped road cuts at the edge of the interstate southwest, west, and northwest of the project site. These road cuts are several feet higher than the roadway and obscure the visibility of the surrounding natural topography and scenic character for all motorists and passengers, regardless of vehicle type. Furthermore, the duration of views from the I-5 is diminished by high-speed travel of approximately 70 miles per hour for most vehicles.

A "scenic vista" is defined as an area that is designated, signed, and accessible to the public for the express purposes of viewing and sightseeing. A scenic vista is located just past the Oak Flat Road exit, approximately 2 miles northwest project site. The scenic vista point provides views of agricultural land uses, the California Aqueduct, and the Delta-Mendota Canal.

LIGHT AND GLARE

Although the project site includes no nighttime lighting, several sources of nighttime lighting exist in the surrounding area, including rural residences east of Bell Road and north of West Marshall Road. Rural residences produce substantially less nighttime lighting than developed areas. The Covanta Energy-from-Waste Facility, which is southwest of the project site, across I-5, is a source of nighttime lighting.

The terms "glare" and "skyglow" are used to describe the visual effects of lighting. Glare is direct, indirect, or reflected exposure to bright lights. Skyglow is a glow that extends beyond a light source and above the horizon at night. Off-site light sources contribute to existing skyglow in the vicinity. Urban development – both in the city of Patterson and in the unincorporated community of Crows Landing – is a source of skyglow in the vicinity of the project site.

Roadways adjacent to the project site are a source of glare, which is produced by automobile headlights at night and reflections from metal surfaces during the day. Other broad expanses of reflective surface or light-colored surfaces in the vicinity of the project site could produce glare. Agricultural cultivation facilities in the vicinity of the project site may contribute glare to motorists passing on nearby roadways.

3.1.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to aesthetics apply to the proposed project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Scenic Highway Program

Caltrans manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to designated highways. I-5 is a State-designated scenic highway in portions of California, including the segment that traverses Stanislaus County and parallels the Delta-Mendota Canal and California Aqueduct (Caltrans 2015).

Public Utilities Code

The State's policy regarding utilities that would be visible from State Scenic Highways is provided in Public Utilities Code Section 320. This requires, whenever feasible, that electric and communication distribution facilities within 1,000 feet of a State Scenic Highway be placed underground. As noted elsewhere, the project site is not within 1,000 feet of any State Scenic Highway, and this code section would not pertain to the project. However, this information is provided for context.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

STANISLAUS COUNTY GENERAL PLAN

Stanislaus County General Plan

Pursuant to California Code Title 14, Section 65300 the 2015 Stanislaus County General Plan (General Plan) implicitly addresses aesthetics, light, and glare in the Land Use and Conservation/Open Space elements. The General Plan also references local, regional, State, and federal programs and regulations, and it provides a comprehensive set of guiding and implementing policies. The following goals and policies relate to aesthetics.

Land Use Element

- **GOAL ONE** – Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic and social concerns of the residents of Stanislaus County.
- **POLICY TWO** – Land designated Agriculture shall be restricted to uses that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation, and enjoyment of scenic beauty.

Conservation/Open Space Element

- **GOAL ONE** – Encourage the protection and preservation of natural and scenic areas throughout the County.
- **POLICY TWO** – Assure compatibility between natural areas and development.

Stanislaus County Code

The project site is proposed to be zoned as a Specific Plan Area (S-P[2]). Title 21 Chapter 21.38.030 (Specific Plans, Development Standards) requires that development standards, including those associated with landscaping, be established for that district in a Specific Plan and approved by the County. The proposed CLIBP Specific Plan includes design goals, policies, and design guidelines related to aesthetics and landscaping.

3.1.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The County conducted an analysis of potential project-related visual impact analysis based on field observations and a review of maps and aerial photographs. The analysis of the potential impacts was based on an evaluation of the changes to the existing visual resources that would result from project implementation. The methods used for

this analysis are similar to the methods developed by the Federal Highway Administration (FHWA 2015) to evaluate visual quality. Identification of the visual resources and aesthetics impacts of the proposed project were based on the following three steps:

1. An objective inventory (field observations and photography) of the visual features or visual resources that comprise the landscape including an assessment of the character and quality of the visual resources, in light of the extent to which places or features have been designated in plans and policies for protection or special consideration;

2. The extent to which the proposed project would change the perceived visual character and quality of the environment, including impacts on distinctive landscape features, the integrity of the landscape (the degree to which it is free from distracting features), and the consistency or "unity" of the landscape considered as a whole; and

3. A determination of the importance to viewers of the change, based on the number of viewers, their activities, and the extent to which these activities are related to the aesthetic quality of the environment which may be affected by the project.

Although these guidelines provide a framework for considering changes in visual quality, any assessment of visual quality is subjective and depends on perspective and opinions of viewers regarding an alteration of the visual character.

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the *CEQA Guidelines*, as amended. The proposed project would have a significant impact on aesthetics if implementation of the proposed project would:

- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources including, but not limited to, trees, rock outcrops, and historic buildings, within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

IMPACTS AND MITIGATION MEASURES

IMPACT 3.1-1 Damage to scenic vista. *There is a scenic vista overlook from I-5, approximately 2 miles northwest of the project site. The project site is only visible as a thin horizontal area in the middle ground from this vantage point. Changes on the project site would not significantly affect views from this observation point. The impact is considered* ***less than significant****.*

A scenic vista point is located on northbound I-5 approximately 2 miles northwest of the project site. The scenic vista has been identified as an area with high scenic quality. As shown in Exhibit 3.1-2, Viewpoint 1, the vista point affords extensive views of the orchards located in the immediate vicinity of the San Joaquin Valley (looking

east) and provides panoramic views of the undeveloped foothills of the Mount Diablo Range to the west. The view also includes industrial uses in the foreground, as well as the middle ground. Viewers of this scenic vista would be travelers along I-5.

Implementation of the proposed project would not affect the view from the scenic vista of either the foothills of the Diablo Mountain Range to the west or the foreground views of orchards and other agricultural features to the east. The proposed project would replace a decommissioned airfield and agricultural land with a 1,528-acre industrial business park and related features, as described in Chapter 2, "Project Description." The proposed project would include the construction of new structures. However, the project site is only visible as a thin white line just below the horizon to the viewer from this observation point. In addition, development standards and design guidelines to be included in the Specific Plan address building placement, design, and landscaping. The standards were prepared to promote development that is visually attractive. The proposed project would include the construction of a general aviation (GA) airport in the central portion of the former project site. The new airport is unlikely to alter existing views from I-5, as it would be constructed by reusing one of the existing former military runways, and the new airfield structures would be consistent with the context of the remaining airfield facilities.

Development of the project could affect existing views of the Diablo Mountain range from the Bell Road corridor east of the project site. However, there are very few residents and very little traffic along Bell Road (50 trips per day under existing conditions). Therefore, development of the project would not substantially affect existing views from areas east of the project site.

The impact to the viewshed from the scenic vista point along I-5 would be minimal based on the distance between the site and the scenic vista, the relatively low profile of future structures on the project site, and the post-project consistency of similar urban development that is visible from I-5. The views of the orchards and undeveloped foothills would not be substantially affected. Development of the project would not substantially affect existing views of the Diablo Range from areas east of the project site. The impact is considered **less than significant**. No mitigation is required.

IMPACT 3.1-2 *Damage to scenic resources within a State Scenic Highway corridor. I-5 is a State Scenic Highway. Views of the project site are obscured along I-5 by orchards and road cuts. The impact is considered less than significant.*

Views along I-5 are dominated by relatively flat topography occupied by agricultural production (*e.g.*, orchards, fallow fields) and interspersed with rural residences and also facilities associated with the production and cultivation of agricultural operations (*i.e.*, grain silos, warehouses). Views of the project site are obscured by existing features. Road cuts along the east side of I-5 create limited or only partial views of the project site by motorists traveling north or south on I-5. As previously mentioned, these road cuts are several feet higher than the roadway, prohibiting the visibility of the surrounding natural topography and scenic character for all vehicle passengers, regardless of vehicle type. Orchards adjoining I-5 south of the project site further obstruct views.

Viewers of the project site from the scenic highway would be motorists and travelers, who would have a low to moderate degree of sensitivity to changes in the visual character. The perspective of some viewers may be desensitized as a result of industrial and other urban developments in the city of Patterson (adjacent to I-5 both east and west) that presently dominate views within the I-5 viewshed. For example, the West Patterson Business

Park is located northwest of the project site, just east of I-5 and west of the city of Patterson. The Covanta Energy Corporation's waste-to-energy facility is located immediately southwest of I-5 and the project site. Both industrial developments are visible from within the I-5 State Scenic Highway corridor.

Off-site infrastructure improvements required to serve the project would not dominate views from I-5 and would not impact views available from this State Scenic Highway segment. Construction within the project site will be consistent with design guidance set forth in the CLIBP Specific Plan, which would minimize visual incongruities observed from the State Scenic Highway. Specifically, the proposed project would be guided by Chapter 3 of the CLIBP Specific Plan (Built Environment and Design). Relevant design guidelines include the following:

D 32: The height of new development should be compatible with and transition from the height of adjacent development, when designed to be two or more stories.

D 33: Building heights, including antennae and other appurtenances, should not conflict with navigable airspace as defined by FAA at 14 CFR Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace" and shown on the Airport Layout Plan (ALP).

D 34: Earth tone colors should be used as the base color of proposed structures, to be compatible with nearby agricultural uses. Brighter or more intense colors may be used as accents for trims, doors, window frames, etc., as long as they complement the colors of the overall structure.

D 36: Exterior materials for buildings should be of high quality and durability to support the overall high quality of design and development desired within the CLIBP.

D 37: A variety of building materials and textures in combination with landscape and lighting treatments is encouraged to provide visual interest and activate the building development.

In addition, the proposed project would include a relatively low profile (less than 260 above mean sea level) to prevent conflicts with navigable airspace, which would be consistent with the height of other buildings and structures that are visible from I-5. The context of the vicinity of the project site would be consistent with other urban and industrial development within the State Scenic Highway corridor.

The State's policy regarding utilities that would be visible from State Scenic Highways is provided in Public Utilities Code Section 320. This requires, whenever feasible, placing electric and communication distribution facilities within 1,000 feet of a State Scenic Highway (I-5) underground. As noted previously, the project site is more than 1,000 feet from a State Scenic Highway, and this code section does not apply to the proposed project. However, the proposed project will place electrical and communication infrastructure underground, consistent with the referenced code section.

Based on the presence of existing development along I-5 in the site vicinity, the presence of road cuts and orchards that obscure the project site from I-5, and the implementation of design standards that would limit building heights and reduce visual impacts, the impact is considered **less than significant**. No mitigation is required.

IMPACT 3.1-3 **Damage or degrade visual character of the project site or surroundings.** *The development of the proposed project would convert approximately 1,528 acres of a decommissioned military airfield, which includes agricultural land, into an industrial business park. The change in visual character from a site developed with structures associated with the former airfield and agricultural cultivation to buildings and other improvements associated with the proposed project is not considered a substantial adverse change to the existing physical environment. However, the proposed project would result in a change to the visual environment. The impact is considered* ***significant****.*

Natural scenic areas are valued for their visual quality under Stanislaus County's General Plan. Goal One of the Conservation/Open Space Element establishes that the County will "Encourage the protection and preservation of natural and scenic areas throughout the County." The General Plan identifies that the removal of natural vegetation could create an adverse aesthetic impact (see discussion of the appropriate location for Estate Residential development). As noted, on-site vegetation is predominately related to agricultural cultivation. The General Plan treats agriculture as a source of employment and economic development, and not as a visual resource that should be protected for aesthetic reasons.

Implementation of the proposed project is expected to result in a change in the visual character of the site through the development of industrial and other uses, as discussed in Chapter 2 "Project Description." The project would introduce some buildings and other improvements in an area that was previously developed with structures, including a former airfield and associated structures, as well as agricultural cultivation. The construction of off-site infrastructure improvements required to serve the project would temporarily change the visual character in focused locations within the vicinity of the project site. Construction of transportation improvements to serve the project would permanently change the visual character in portions of the existing road rights-of-way in the vicinity of the project site.

The proposed project will be implemented in accordance with the CLIBP Specific Plan development standards and design standards to minimize the visual contrast between the project site and its surrounding area. Specifically, the proposed project would be guided by the following design goals:

D 1: Create a high-quality industrial business park that reuses the former Air Facility, to the extent practicable, and stimulates investment in Stanislaus County through attractive design, landscaping, building, and other design features.

D 2: Provide an industrial business park that respects the rural nature of the surrounding areas by minimizing potential conflicts with adjacent land uses, to the extent feasible.

2.1: Focus development internally within the Plan Area.

2.2: Incorporate design features that provide visual separation and transition from adjacent land uses through use of vegetated berms and other landscaping, screening, building setbacks, and building articulation.

D 4: Integrate the history of the former Crows Landing Air Facility into the Plan Area through design features and landscape themes that commemorate the site's former military use, including the use of monuments, signs, and structures.

The proposed project would be guided by the following design policies:

D 1: Landscape design themes within the Plan Area shall draw inspiration from the aviation theme present within the landscape and structures in the former Crows Landing Air Facility, while respecting the rural landscape and broad open space that characterizes the surrounding area.

D 2: Landscaping shall employ a mix of trees, shrubs, and groundcover, as suggested by the plant palette in Figure 3-8. Water-conserving/drought-tolerant plants, including California natives and other climate appropriate trees, shrubs, and groundcover, shall be used to comply with state and County water-efficient landscape standards and to reduce maintenance costs. Xeriscape techniques are encouraged to achieve water conservation and low maintenance goals. Plants shall be native or adaptable to local climate conditions and require little or no supplemental irrigation water once established.

D 3: Landscaping and groundcover shall be employed to reduce or prevent erosion on steep slopes or along drainage courses.

D 4: Street trees, shrubs, and groundcover shall be selected to support the overall landscape theme within the Plan Area, such as accentuating entrances, landmarks, and common areas.

D 5: Landscaping designs and the selection of planting materials must consider the presence of the on-site airport and must not be attractive to potentially hazardous wildlife (Refer to Design Goal 6 and the design and development standards in Appendix B for additional guidance).

D 6: The plant palette for the Plan Area shall be chosen from the trees, shrubs, and groundcover types, or similar, identified in Figure 3-8. The plant palette considers the local climate conditions, planting heights, and other conditions to be compatible with on-site aviation use. Applicants who wish to propose similar alternative plant materials must receive approval from the County during site plan review and may be required to submit the proposed planting palettes for review and approval by an FAA-qualified Airport Wildlife Biologist, if requested.

D 14: A landscaped corridor that includes aviation-compatible native and low-maintenance groundcover, shrubs, and other vegetation, and a bicycle/pedestrian trail shall be designed north of W. Ike Crow Road, along the Plan Area eastern boundary and west of the stormwater pond, to provide a visual screen between Plan Area buildings and adjacent agriculture use.

D 15: Buildings located adjacent to the Plan Area boundaries shall include adequate setbacks from adjacent agricultural uses. Setback areas may consist of road right-of-ways, parking areas, and landscaping that provide a visual screen and separation from adjoining agricultural uses.

D 31: Square, box-like structures with large, blank, unarticulated wall surfaces are not an acceptable development form. Building facades should be broken up by their structural bays and incorporate architectural features and patterns that provide visual interest at the scale of the pedestrian and reduce the appearance of mass.

D 32: The height of new development should be compatible with and transition from the height of adjacent development, when designed to be two or more stories.

D 34: Earth tone colors should be used as the base color for proposed structures, to be compatible with nearby agricultural uses. Brighter or more intense colors may be used as accents for trims, doors, window frames, etc., as long as they complement the colors of the overall structure.

D 35: Exterior materials shall be selected to minimize any potential glare to surrounding development.

D 36: Exterior materials for buildings should be of high quality and durability to support the overall high quality of design and development desired within the CLIBP.

D 37: A variety of building materials and textures in combination with landscape and lighting treatments is encouraged to provide visual interest and activate the building development.

D 41: The parking lot and vehicles should not be the dominant visual elements of the site. Large paved lots should be avoided in favor of multiple smaller parking areas, separated by landscaping, walkways, and buildings. Parking should be strategically located away from pedestrian traffic routes, when possible.

D 43: The placement and design of loading and service areas should be avoided at building or leasehold (lot) street area frontages and designed in accordance with the design and development standards in Appendix B.

D 44: Development should screen or conceal loading areas/docks, outdoor storage, and service areas for trash and utilities in view of a public space and roads, to the greatest extent possible. Screening materials should be designed to blend in with the landscape and architectural design of the development.

CLIBP Specific Plan policies address landscaping in the public realm, which are intended to promote a positive visual environment within the project site and positive visual character of the project site when viewed from off-site locations. Policies address setbacks from adjacent agricultural uses to provide a visual screen and visual separation. The Specific Plan does not allow box-like structures that do not have any architectural articulation. Building heights are limited to that which would be compatible with adjacent development and that would avoid conflicts with aviation uses on-site. Building materials and finishes are to be selected for compatibility with adjacent development. The Specific Plan is designed such that parking lots, vehicles, loading areas, and service areas will not be dominant visual elements of the built environment. Each of these Specific Plan provisions will ensure against substantial damage or degradation of the visual character of the project site and surroundings.

There would be visual changes associated with the project. However, within the framework established by the Stanislaus County General Plan related to visual resources, the change from a site developed with structures associated with a former airfield and agricultural cultivation to a site developed with buildings and other structures associated with a planned employment-generating development is not considered a substantial adverse change in the visual environment. According to policies of the County's General Plan, these changes are not negative. However, the project would involve physical changes that would change the visual environment in the immediate vicinity of the project site. There is no feasible mitigation available that would avoid this impact without changing the fundamental purpose of the project. The impact is **significant and unavoidable**.

IMPACT 3.1-4 Increase in nighttime lighting and daytime glare. *The proposed project would require lighting of new buildings and could include facilities with reflective surfaces that could inadvertently cause glare for motorists on SR 33, Bell Road, Fink Road, and Interstate 5 (I-5). Residents near the project site could also experience impacts of nighttime lighting and daytime glare. In addition, the degree of darkness on the project site would diminish as a result of development, potentially diminishing views of stars and other features of the night sky. These impacts are considered* ***significant****.*

Night Sky

The project site is located approximately 1.4 miles northwest of the unincorporated community of Crows Landing and 1.5 miles south of the city of Patterson. The incorporated city of Modesto is located approximately 15 miles to the northeast, and the city of Turlock is located approximately 14 miles to the northeast. The unincorporated communities of Hilmar and Newman are located approximately 13 miles northeast and 7.5 miles south of the project site, respectively. All six communities contribute various intensities of skyglow within the vicinity of the project site. Existing industrial facilities nearby contribute, as well. The West Patterson Business Park is located approximately 4.5 miles northwest of the project site, just east of I-5 and west of the city of Patterson. The Covanta Energy waste combustion facility, is located immediately southwest of I-5, approximately 1 mile from the project site. Both of these facilities require nighttime lighting. Other sources of nighttime illumination in the vicinity of the project site include various residences that are interspersed throughout the surrounding agricultural lands adjoining the project site.

Agricultural lands do not generally contribute substantially to nighttime lighting. However, facilities associated with the production and cultivation of agricultural operations (*i.e.*, grain silos, warehouses) may contribute to nighttime lighting and can be found on adjoining properties to the project site. The foothills of the Diablo Mountain Range located west of the project site are undeveloped and do not contribute to any nighttime lighting.

Implementation of the proposed project would require lighting, which will contribute to the existing sources of nighttime lighting identified above. The project would require nighttime lighting of buildings, streets, and pedestrian paths for safety. Airfield lighting will be constructed along the runway edges – this type of lighting is focused and does not produce substantial light trespass that would contribute significantly to existing skyglow that is present in the vicinity of the project site. The airport will operate by Visual Flight Rules for the first 10 years, and include only intermittent lighting (pilot controlled) during years 11 to 20. All aviation-related lights would be installed at the ground level during the first 20 years of operation. In addition, traffic lights and roadways would be associated with off-site infrastructure improvements.

The proposed project could result in light trespass into the night sky and contribute a new permanent source of skyglow in that obscures the views of stars and other features of the night sky. Implementation of the proposed project would increase nighttime lighting on the project site. Depending on how off-site improvements are implemented, it is possible some roadway construction could occur at night, requiring lighting on temporary basis. This impact would be **significant**.

Mitigation Measures

The proposed project would be guided by design policies, which are intended to minimize potential incompatibilities of nighttime lighting of the proposed project to adjoining properties. The Specific Plan includes the following:

D 12: Lighting fixtures and illumination shall be equipped with downward-facing shields and shall not conflict with aviation activities.

D 19: Signs shall be constructed to be compatible with safe aviation in terms of their height, illumination, perching potential, etc.

Significance after Mitigation

Implementation of development standards and design guidelines described above, and included in the Specific Plan as features of the project, would reduce impacts to the night sky. Lighting that would generate glare could conflict with aviation activities and is not permitted. However, there is no feasible mitigation that would completely eliminate potential nightglow and also allow the County to achieve project objectives. Therefore, the impact is considered **significant and unavoidable**.

Glare

Glare is caused by light reflections from vehicles and building materials, such as reflective glass and polished surfaces. During daylight hours, the amount of glare emanated from a direct source is dependent on the intensity and direction of sunlight. Glare can create hazards for airport operations and motorists, and it can be a nuisance for pedestrians and other viewers. Implementation of the proposed project could include the construction of reflective surfaces that could cast daytime glare toward motorists on local roadways adjoining the project site along Marshall Road, Fink Road, Ward Avenue, Davis Road, Oak Flat Road, I-5, and SR 33. Glare could also create safety concerns and hazards for on-site users with implementation of the proposed project (*i.e.*, hazards that could affect vehicle safety and pedestrians).

The proposed project would be guided by the Specific Plan design standards and guidelines. Design objectives identified in the proposed Specific Plan would minimize potential incompatibilities of daytime glare to adjoining properties. The proposed project would be guided by design objectives in the Specific Plan, including landscaped berms and other measures that would provide visual screening of the project site from adjoining properties. Parking lots are another potential source of daytime glare, and would be minimized by setbacks for all parking areas to adequately provide a visual buffering and screen to adjoining uses.

Mitigation Measures

The Specific Plan also includes the following design guidelines, which would avoid adverse issues related to glare and light trespass:

D 11: Illumination standards for roads shall respond to the right-of-way widths and road functions.

D 35: Exterior materials shall be selected to minimize any potential glare to surrounding development.

Significance after Mitigation

While the proposed project would include sources of glare, implementation of development standards and design guidelines described above, and included in the Specific Plan as features of the project, would reduce those impacts to a **less-than-significant** level. No mitigation is required.

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3.2 AIR QUALITY

3.2.1 ENVIRONMENTAL SETTING

Section 3.2 of this EIR addresses air quality in the vicinity of the project site, as relevant to the proposed project. The analysis describes the existing environmental conditions, the methods used for assessment, and the potential environmental impacts associated with the construction and implementation of the proposed project.

The proposed project is located in the southwestern portion of Stanislaus County, which is part of the San Joaquin Valley Air Basin (SJVAB). The SJVAB includes all of Fresno, Kings, Madera, Merced, San Joaquin, and Tulare counties, and the valley portion of Kern County.

Ambient concentrations of air pollutant emissions are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Air quality is influenced by such factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

San Joaquin Valley Air Basin

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

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

The inland Mediterranean climate type of the SJVAB is characterized by hot, dry summers and cool, rainy winters. The climate is a result of the topography and the strength and location of a semi-permanent, subtropical high-pressure cell. During summer, the Pacific high-pressure cell is centered over the northeastern Pacific Ocean, resulting in stable meteorological conditions and a steady northwesterly wind flow. Upwelling of cold ocean water from below to the surface as a result of the northwesterly flow produces a band of cold water off the California coast. Daily summer high temperatures often exceed 100 degrees Fahrenheit (ºF), averaging in the low 90s in the north and high 90s in the south SJVAB. Near the proposed project site, daily summer (*i.e.*, June to August) high temperatures average 93º F (WRCC 2008). The area averages approximately 88 days per year with

temperatures over 90º F, with approximately 65 of those days occurring summer months (WRCC 2008). In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Historically, average high temperatures in the winter have been in the 50s, with lows in the 30s and 40s on days with persistent fog and low cloudiness. Lower daily low temperatures occur between mid-December and mid-February when there is a persistent winter high pressure pattern, clear night skies, and no wind. The average daily low winter temperature near the project site is 39º F (WRCC 2008).

A majority of the precipitation in the SJVAB occurs as rainfall during winter storms. The rare occurrence of precipitation during the summer is in the form of convective rain showers. Historically, the amount of precipitation in the SJVAB decreases from north to south. This is primarily due to the Pacific storm track that often passes through the northern part, while the southern part remains protected by the Pacific high-pressure cell. The City of Modesto, which is located approximately 12 miles northeast of the project site, has received about 11.4 inches of precipitation per year in prior decades (WRCC 2008). Average annual rainfall for the entire SJVAB has historically been about 9.25 inches on the valley floor.

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

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

EXISTING AIR QUALITY—CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutant emissions are used as indicators of ambient air quality conditions. These pollutants can harm human and environmental health, and, as a result, an assessment of criteria air pollutant emissions is a focus of air quality analysis and reporting. A brief description of each criteria air pollutant (source types, health effects, and future trends) is provided below, along with the most current attainment area designations and monitoring data applicable to the proposed project site.

Ozone

Ozone, which is the primary component of smog, is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight. Ozone is not emitted directly into the air, but is formed through complex chemical reactions between precursor emissions of ROG and NO_X in the presence of sunlight. ROG are volatile organic compounds that are photo chemically reactive. ROG emissions result

primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for ozone formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of their precursor emissions and make ozone a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry.

Ozone located in the upper atmosphere (stratosphere) shields the earth from harmful ultraviolet radiation emitted by the sun. However, ozone located in the lower atmosphere (troposphere) poses major health and environmental concerns. The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 parts per million (ppm) for 1 or 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone exceeding 0.12 ppm are linked to symptomatic responses that include throat dryness, chest tightness, headache, and nausea.

In addition to these adverse health effects, ozone exposure can cause an increase in the permeability of respiratory epithelia; leading to an increase in the respiratory system's responsiveness to challenges and the interference or inhibition of the immune system's ability to defend against infection (Godish 2004).

After significant investments from the private and public sector, the SJVAB has made drastic reductions from its historically high concentrations of ozone. In 2013, the SFVAB had zero violations of the hourly ozone standard established under the federal Clean Air Act (CAA), down from 281 hourly violations in 1996 and seven violations in 2012 (SJVAPCD 2014).

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, and poisonous gas produced by incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. In fact, 77 percent of the nationwide CO emissions are from mobile sources. The other 23 percent of CO emissions are from stationary sources such as wood-burning stoves, incinerators, and industrial sources.

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009).

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

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal-combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2009). The combined emissions of NO and NO_2 are referred to as NO_X, which is reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

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

Sulfur Dioxide

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

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2009). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less.

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (which is referred to as the “piggybacking effect”), or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2009). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

Lead

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

Historically, mobile sources were the main contributor to ambient lead concentrations in the air. The United States Environmental Protection Agency (EPA) banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009). As a result, emissions of lead from the transportation sector declined dramatically (95 percent between 1980 and 1999), and levels of lead in the air decreased by 94 percent between 1980 and 1999. Transportation sources, primarily aircraft, now contribute only 13 percent of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78 percent decrease in the levels of lead in human blood between 1976 and 1991. This dramatic decline can be attributed to the move from leaded to unleaded gasoline (EPA 2009).

Lead emissions and ambient lead concentrations have decreased dramatically in California over the past 25 years. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. All areas of the state are currently designated as in attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, the California Air Resources Board (ARB) has identified lead as a toxic air contaminant (TAC).

Monitoring Station Data and Attainment Area Designations

Concentrations of criteria air pollutants are measured at two monitoring stations in the Stanislaus County. The Turlock-S Minaret Street station is closest to the project site. Table 3.2-1 summarizes the air quality data from the most recent three years for which data are available.

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

[1] The current State and national attainment designations for the SJVAB are shown in Table 3.2-3 for each criteria air pollutant.

Table 3.2-1 Summary of Annual Ambient Air Quality Data (2011–2013)			
	2011	2012	2013
Ozone			
Maximum concentration (1-hour/8-hour average, ppm)	0.111/0.094	0.115/0.107	0.095/0.085
Number of days state standard exceeded (1-hour)	4	17	1
Number of days 8-hour standard exceeded (National/California)	17/34	35/56	14/24
Carbon Monoxide			
Maximum concentration (8-hour, ppm)	1.44	1.29	*
Number of days state standard exceeded	0	0	0
Number of days national standard exceeded	0	0	0
Nitrogen Dioxide			
Maximum concentration (1-hour, ppm)	54.0	61.0	54.0
Number of days state standard exceeded	0	0	0
Annual average (ppm)	*	*	11
Fine Particulate Matter ($PM_{2.5}$)			
Maximum concentration ($\mu g/m^3$) (National/California)	77.9/77.9	58.4/58.4	74.9/74.9
Number of days national standard exceeded (estimated/measured)	36.3/36	25.0/24	40.3/37
Annual average ($\mu g/m^3$) (National/California)	17.1/17.1	14.8/17	15.1/17
Respirable Particulate Matter (PM_{10})			
Maximum concentration ($\mu g/m^3$) (National/California)	69.0/73.3	102.8/103.8	79.2/82.9
Number of days state standard exceeded (estimated/measured)	*/7	54.8/9	73.7/13
Number of days national standard exceeded (measured/calculated)	0.0/0	0.0/0	0.0/0
Annual average ($\mu g/m^3$) (California)	*	31.0	35.9

Notes: $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million

* Insufficient data available to determine the value.

Sources: ARB 2015

Regional Emission Sources

Sources of criteria air pollutant emissions in Stanislaus County include stationary, area, and mobile sources. According to Stanislaus County's emissions inventory, mobile sources are the largest contributor to the estimated annual average air pollutant levels of NO_X, accounting for approximately 85 percent of the total emissions. Mobile sources also account for approximately 25 percent of the total ROG emissions for the County. Area-wide sources account for approximately 88 percent and 70 percent of the County's total PM_{10} and $PM_{2.5}$ emissions, respectively. With respect to ozone levels shown in Table 3.2-1, which are dependent on ROG and NO_X levels in the atmosphere, the SJVAB is considered a NO_X-limited area (SJVAPCD 2013). In other words, NO_X is the limiting factor (or precursor) in ozone production. Therefore, limiting the NO_X emissions shown in Table 3.2-2 will typically have a greater effect of reducing regional ozone levels in SJVAB.

Table 3.2-2 Summary of 2008 Estimated Emissions Inventory for Stanislaus County				
Source Type/Category	Estimated Annual Average Emissions (Tons per Day)			
	ROG	NO_X	PM_{10}	$PM_{2.5}$
Stationary Sources				
Fuel Combustion	0.18	2.81	0.32	0.32
Waste Disposal	3.34	-	0	0
Cleaning and Surface Coating	3.15	-	0.04	0.03
Petroleum Production and Marketing	0.91	0.00	0.00	0.00
Industrial Processes	1.26	0.61	1.13	0.48
Subtotal (Stationary Sources)	**8.84**	**3.45**	**1.53**	**0.85**
Area wide Sources				
Solvent Evaporation	5.64	-	-	-
Miscellaneous Processes	15.52	1.13	23.73	4.65
Subtotal (Area wide Sources)	**21.16**	**1.13**	**23.73**	**4.65**
Mobile Sources				
On-Road Motor Vehicles	6.28	16.94	1.09	0.64
Other Mobile Sources	3.67	9.52	0.57	0.53
Subtotal (Mobile Sources)	**9.95**	**26.46**	**1.66**	**1.17**
Grand Total for Stanislaus County	**39.94**	**31.04**	**26.92**	**6.67**

Notes: "-" = less than 0.1 Ton per day. 2008 data was the most recently available data at the time of writing.
Totals may not appear to add exactly due to rounding
Source: ARB 2013a

Existing Local Emission Sources

Agriculture is the predominant land use in the vicinity of the proposed project site. Sources of criteria air pollutants in the vicinity of the project site consist primarily of mobile sources. Mobile sources include on-road motor vehicles, such as trucks, cars, and agricultural equipment, such as tractors using area roadways. The proposed project site is bounded by Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west. Emission sources in the vicinity of the project site include automobiles on nearby roadways, agricultural equipment from on-site and adjacent farmland, the Covanta Resource Recovery Facility, and the Sheriff's Department use of the former north/south runway for vehicle training. Agricultural land preparation and movement of agricultural equipment on unpaved roadways, which may occur on-site and in the surrounding vicinity, is a source of fugitive dust (ARB 2003).

The project site is approximately 4,500 feet east of Interstate 5 (I-5) at its closest point. The project site boundary borders State Route 33 (SR 33) for a stretch of approximately 900 feet on its northeastern side. Both of these roadways have mobile emission sources.

EXISTING AIR QUALITY—TOXIC AIR CONTAMINANTS

Toxic Air Contaminants (TACs) are air pollutants 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 may pose a risk to public health even at low concentrations.

According to ARB, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM) (ARB 2013d). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal-combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Statewide, the annual average for on-road emissions sources accounts for approximately 2 percent of diesel PM_{10} emissions, while other off-road mobile sources, such as construction equipment, agricultural equipment, and transport refrigeration units account for an additional 3 percent of diesel PM emissions (ARB 2013b). Of the TACs for which data are available in California, diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risks.

Diesel PM emissions in the SJVAB decreased from 2000 to 2010 primarily as a result of reduced exhaust emissions from diesel mobile sources. Emissions from diesel mobile sources are projected to continue to decrease through 2035 (ARB 2013b).

Sensitive Land Uses

Sensitive land uses or sensitive receptors are people or facilities that generally house people (*e.g.*, schools, hospitals, residences) that may experience adverse effects from unhealthful concentrations of air pollutants. One residence is located approximately 750 feet northeast of the proposed project site boundary near the intersection of Marshall Road and SR 33. According to the County's GIS parcel data, four additional residences are located north of the intersection of Fink and Bell roads across from the project site. The nearest home is less than 100 feet east of the project site near the intersection of Fink Road and Bell Road.

EXISTING AIR QUALITY—ODORS

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

The ability to detect odors varies considerably among the population is subjective. In addition, people may have different reactions to the same odor. Unfamiliar odors are more easily detected than familiar odors and are more likely to cause complaints. Agricultural land surrounds the project on all sides, and it is possible that the fields adjacent to the proposed project site may receive manure application as source of fertilizer. This could present an objectionable odor within the immediate timeframe that it is applied. There are no other known sources of odors near the project site.

3.2.2 REGULATORY FRAMEWORK

Air quality is regulated at the federal level by EPA, at the State level by ARB, and at the local level by the San Joaquin Valley Air Pollution Control District (SJVAPCD). Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

CRITERIA AIR POLLUTANTS

Air quality regulations focus on the criterial pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. Because these are the most prevalent air pollutants known to be deleterious to human health, and extensive health-effects criteria documents are available, these pollutants are commonly referred to as "criteria air pollutants." The regulatory approach for criteria air pollutants is described in the material that follows.

Federal Plans, Policies, Regulations, and Laws

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal CAA, which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA required EPA to establish national ambient air quality standards (NAAQS). As shown in Table 3.2-3, EPA has established primary and secondary NAAQS for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, while the secondary standards protect the public welfare. Table 3.2-3 also shows the SJVAB attainment status for each standard. The project region is currently designated as attainment or unclassified for the State and federal CO, NO_2, and SO_2 standards. With respect to the California-specific ambient air quality standards (*i.e.,* visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride), the project region is designated as attainment or unclassified. The SJVAB is designated as nonattainment for the State and federal ozone and $PM_{2.5}$ standards and the state PM_{10} standard. Thus, the main pollutants of concern within SJVAB are ozone precursors, PM_{10}, and $PM_{2.5}$. See Table 3.2-3 for the attainment status for each pollutant and standard.

The CAA 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 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

Table 3.2-3
Ambient Air Quality Standards and Designations

Pollutant	Averaging Time	California		National Standards[1]		
		Standards[2,3]	San Joaquin Valley Attainment Status[4]	Primary[3, 5]	Secondary[3, 6]	San Joaquin Valley Attainment Status[7]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	N (Severe)	–	–	–
	8-hour	0.07 ppm (137 µg/m^3)	N	0.070 ppm (137 µg/m^3)	Same as Primary Standard	N (Extreme)
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	A/U	35 ppm (40 mg/m^3)	–	A/U
	8-hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	–	0.053 ppm (100 µg/m^3)	Same as Primary Standard	A/U
	1-hour	0.18 ppm (339 µg/m^3)	A	0.100 ppm (188 µg/m^3)	–	–
Sulfur Dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	A	0.14 ppm	–	A/U
	3-hour	–	–	–	0.5 ppm (1300 µg/m^3)	A/U
	1-hour	0.25 ppm (655 µg/m^3)	A	0.075 ppm (196 µg/m^3)	–	–
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N	-	Same as Primary Standard	A
	24-hour	50 µg/m^3		150 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	N	12.0 µg/m^3	15 µg/m^3	N
	24-hour	–	–	35 µg/m^3	Same as Primary Standard	
Lead	30-day Average	1.5 µg/m^3	A	–	–	–
	Calendar Quarter	–	–	1.5 µg/m^3	Same as Primary Standard	No designation
	Rolling 3-Month Average	–	–	0.15 µg/m^3	Same as Primary Standard	No designation
Sulfates	24-hour	25 µg/m^3	A	No National Standards		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	U			
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	A			
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) because of particles when the relative humidity is less than 70%.	U			

Notes for Table 3.2-3.

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

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

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

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

[4] Unclassified (U): A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Attainment (A): A pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period.

Nonattainment (N): A pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area.

Nonattainment/Transitional (NT): A subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.

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

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

[7] Nonattainment (N): Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Attainment (A): Any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Unclassifiable (U): Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Sources: ARB 2013c, SJVAPCD 2012a

State Plans, Policies, Regulations, and Laws

ARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California ambient air quality standards (CAAQS) (Table 3.2-3). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained through interpretation of the health-effects studies considered during the standard-setting process. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

Among ARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans, submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. California's adopted 2007 State Strategy for California's SIP for federal $PM_{2.5}$ and 8-Hour Ozone Standards (2007 SIP) was submitted to EPA as a revision to the SIP in November 2007 (ARB 2008). In July 2011, ARB approved revisions to the 2007 SIP that updated the ARB rulemaking calendar, made adjustments to transportation conformity budgets, revised reasonable further progress

tables and associated reductions for contingency purposes and updated actions to identify advanced emission control technologies for the San Joaquin Valley (ARB 2011).

Regional and Local Plans, Policies, Regulations, and Ordinances

San Joaquin Valley Air Pollution Control District

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

In March 2015, the SJVAPCD updated their previously adopted *Guide for Assessing and Mitigating Air Quality Impact* (2015 GAMAQI) (SJVAPCD 2015). The 2015 GAMAQI provides uniform procedures for addressing air quality in environmental documents. The thresholds of significance identified in the 2015 GAMAQI were used to evaluate the proposed project's air quality impacts.

Air Quality Plans

The SJVAPCD prepares and submits Air Quality Attainment Plans (AQAPs) in compliance with the requirements set forth in the CCAA. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plans must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. These milestone reports include compliance demonstrations that the requirements have been met for the nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO_X, and PM_{10} emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulations; enhancement of CEQA participation; implementation of a new and modified indirect source review program; adoption of local air quality plans; and stationary-, mobile-, and indirect-source control measures. Table 3.2-4 summarizes SJVAPCD's most current AQAPs.

Table 3.2-4
Summary of San Joaquin Valley Air Pollution Control District Air Quality Plans

Pollutant	Plan Title	Date	Status
Ozone	San Joaquin Valley Air Basin 8-Hour Ozone Plan (2008 EPA standard).	Pending	Due to EPA in 2016.
	San Joaquin Valley's 2013 Plan to attain the revoked federal 1-Hour Ozone standard.	November 2013	Submitted to EPA in December 2013.[1]
	Draft Staff Report, 8-hour Ozone Reasonably Available Control Technology – State Implementation Plan (RACT SIP) Analysis.	April 2006	Adopted by SJVAPCD in August 2006.
	2007 San Joaquin Valley 8-hour Ozone Plan.	March 2012	Approved by ARB in June 2007. Approved by EPA in March 2012.
Carbon Monoxide (CO)	2004 Revision to the California State Implementation Plan for Carbon Monoxide Updated Maintenance Plan For Ten Federal Planning Areas.	July 2004	Adopted by ARB July 2004.
Respirable and Fine Particulate Matter (PM_{10} and $PM_{2.5}$)	2007 PM_{10} Maintenance Plan and Request for Redesignation.	September 2007	Approved by EPA in November 2008.
	2012 $PM_{2.5}$ Plan to attain the federal 24-hour $PM_{2.5}$ standard.	January 2013	Submitted to EPA in November 2014.[2]
	2015 Plan for the 1997 $PM_{2.5}$ Standard.	April 2015	Approved by SJVAPCD in April 2015 and submitted to EPA.

Note:

[1] Effective June 15, 2005, EPA revoked in full the national 1-hour ozone ambient air quality standard, including associated designations and classifications. The 2013 Plan for the Revoked 1-Hour Ozone Standard was approved by the SJVAPCD's Governing Board on September 19, 2013. The plan demonstrates that the air basin will attain the revoked 1-hour ozone standard by 2017.

[2] SJVAPCD submitted a Supplemental Document for the 2012 $PM_{2.5}$ Plan demonstrating that attainment of the 2006 $PM_{2.5}$ standard by 2015 is not practical. The document requested a reclassification of the SJVAB to serious nonattainment.

Source: ARB 2013d, SJVAPCD 2012a

Rules and Regulations

All projects are subject to SJVAPCD rules and regulations in effect at the time of construction. Specific rules that may be applicable to the project include:

- Rule 2201 New and Modified Stationary Source Review
- Rule 2280 Portable Equipment Registration
- Rule 3135 Dust control Plan Fee
- Rule 4002 National Emission Standards for Hazardous Air Pollutants
- Rule 4101 Visible Emissions
- Rule 4102 Nuisance
- Rule 4103 Open Burning
- Rule 4601 Architectural Coatings
- Rule 4641 Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations
- Regulation VIII Fugitive PM_{10} Prohibitions includes the following rules:
  - Rule 8021: Construction, demolition, excavation, and extraction; and other earthmoving activities;
  - Rule 8031: Handling and storage of bulk materials;
  - Rule 8041: Trackout/Carryout of dirt and other materials onto paved public roads;
  - Rule 8051: Open Areas;
  - Rule 8061: Construction and use of paved and unpaved roads; and
  - Rule 8071: Use of unpaved vehicle and/or equipment traffic areas.

As applicable, future development within the project site would be required to comply with SJVAPCD's Rule 9510 Indirect Source Review (ISR), as well. This rule applies to discretionary approvals involving at least 2,000 square feet of commercial space, 25,000 square feet of light industrial space, or similar amounts (9,000 square feet) of other land use types.[2] Applicants subject to this rule are required to submit an Air Impact Assessment (AIA) application in coordination with final discretionary approvals. The AIA application includes a detailed project description, on-site emission reduction checklist, monitoring and reporting schedule, and an AIA. The AIA provides estimates of construction and operational NO_X and PM_{10} emissions associated with the project without and with mitigation for each applicable pollutant. The AIA also quantifies the off-site fee, if applicable. General mitigation requirements for applicable development within the project site, as contained in the ISR rule, would include the following:

- Exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project shall be reduced by 20 percent of the total NO_X and by 45 percent of the total PM_{10} emissions from the statewide average as estimated by ARB.
- An applicant may reduce construction emissions on-site by using less polluting construction equipment, which can be achieved by utilizing add-on controls, cleaner fuels, or newer lower emitting equipment.
- Applicants shall reduce 33.3 percent, of the project's operational baseline NO_X emissions over a period of 10 years as quantified in the approved AIA.
- Applicants shall reduce 50 percent of the project's operational baseline PM_{10} emissions over a period of 10 years as quantified in the approved AIA.
- The requirements listed above can be met through any combination of on-site emission reduction measures or off-site fees.

Stanislaus County General Plan

Stanislaus County's General Plan includes goals, policies, and implementation measures that address air quality.

Conservation/Open Space Element

- **GOAL SIX**– Improve Air Quality.
- **POLICY EIGHTEEN**– The County will promote effective communication, cooperation and coordination among agencies involved in developing and operating local and regional air quality programs.
- **IMPLEMENTATION MEASURE 1** – Refer discretionary projects under CEQA review to the San Joaquin Valley Air Pollution Control District (SJVAPCD), neighboring jurisdictions and other affected agencies for review and comment.
- **IMPLEMENTATION MEASURE 2** – Work with other agencies in the San Joaquin Valley to establish coordinated air quality programs and implementation measures.

[2] ISR is also triggered by projects that propose 50 or more dwelling units, although this is not applicable to the proposed project.

- **POLICY NINETEEN**– The County will strive to accurately determine and fairly mitigate the local and regional air quality impacts of proposed projects.
- **IMPLEMENTATION MEASURE 1** – Require all development proposals, where appropriate, to include reasonable air quality mitigation measures.
- **IMPLEMENTATION MEASURE 2** – Minimize case-by-case analysis of air quality impacts through the use of standard criteria for determining significant environmental effects, a uniform method of calculating project emissions, and standard mitigation methods to reduce air quality impacts.
- **POLICY TWENTY** – The County shall strive to reduce motor vehicle emissions by reducing vehicle trips and vehicle miles traveled and increasing average vehicle ridership.
- **IMPLEMENTATION MEASURE 1** – Through strategies identified in the Circulation Element, ensure that circulation systems are designed and maintained to minimize traffic congestion and vehicle emissions.
- **IMPLEMENTATION MEASURE 2** – Support a broad range of transportation modes, including public transit, bicycling and pedestrian travel, through the strategies identified in the Circulation Element.
- **IMPLEMENTATION MEASURE 3** – Help achieve a jobs/housing balance by working with appropriate organizations to attract employers to Stanislaus County.
- **POLICY TWENTY-ONE** – The County will support efforts to increase public awareness of air quality problems and solutions.
- **IMPLEMENTATION MEASURE 1** – Support and participate in the air quality education programs of the SJVAPCD to the greatest extent possible.
- **IMPLEMENTATION MEASURE 2** – Support education programs that increase public awareness of techniques to reduce particulate matter emissions.
- **IMPLEMENTATION MEASURE** 3 – Work with the local building industry, utilities, and the SJVAPCD to educate developers and builders on the benefits of energy-efficient designs and the use of low-emission equipment for new residential and commercial construction.

Land Use Element

The Land Use Element also includes goals, policies, and implementation measures that address air quality:

- **GOAL TWO**–Ensure compatibility between land uses;
- **GOAL THREE**–Foster stable economic growth;
- **POLICY EIGHTEEN**–Promote diversification and growth of the local economy.
- **IMPLEMENTATION MEASURE 1**–Stanislaus County shall continue to work with economic development entities to promote Stanislaus County as a profitable location for industry.

- **IMPLEMENTATION MEASURE 9**–Encourage reuse of the Crows Landing Air Facility as a regional jobs center.

TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs, or in federal parlance, hazardous air pollutants. Examples of TACs are discussed in detail in Section 3.2.1, "Existing Setting," under "Existing Air Quality—Toxic Air Contaminants" and SJVAPCD thresholds of significance are provided in "Regulatory Framework," under "San Joaquin Valley Air Pollution Control District."

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 3.2-3). Instead, EPA and ARB regulate hazardous air pollutants and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the SJVAPCD, establish the regulatory framework for TACs.

Federal Programs for Hazardous Air Pollutants

EPA has programs for identifying and regulating hazardous air pollutants. Title III of the CAAA directed EPA to promulgate national emissions standards for hazardous air pollutants. The national emissions standards for hazardous air pollutants are sometimes different for major stationary sources of hazardous air pollutants compared to the standards for area sources. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of hazardous air pollutants; all other sources are considered area sources. The emissions standards were promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health risk-based emissions standards, where determined to be necessary, to address risks remaining after implementation of the technology-based national emissions standards for hazardous air pollutants.

The CAAA also required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene.

State Programs for Toxic Air Contaminants

The California Health and Safety Code defines TACs as air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a present or potential hazard to human health. The State Air Toxics Program was established in 1983 by Assembly Bill (AB) 1807. A total of 243 substances have been designated TACs under California law; they include the 189 (federal) hazardous air pollutants adopted in accordance with AB 2728, which required the State to identify the federal hazardous air pollutants as TACs to make use of the time and costs the EPA had already invested in evaluating and identifying hazardous/toxic substances. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and

evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities must perform a health risk assessment and, if specific thresholds are violated, must communicate the results to the public in the form of notices and public meetings. The regulation of TACs is generally through statutes and rules that require the use of the MACT or BACT to limit TAC emissions.

According to the California Almanac of Emissions and Air Quality (ARB 2009), most of the estimated health risk from TACs is attributed to relatively few compounds, the most dominant being particulate matter exhaust from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and the presence or absence of an emission control system.

In 2000, ARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 85 percent decrease in Statewide diesel health risk in 2020 relative to the year 2000 diesel risk (ARB 2000). Additional regulations apply to new trucks and diesel fuel. Subsequent ARB regulations on diesel emissions include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-road Diesel Vehicle Regulation, and the New Off-road Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment.

ARB published the *Air Quality and Land Use Handbook: A Community Health Perspective*, which provides guidance concerning land use compatibility with TAC sources (ARB 2005). Although it is not a law or adopted policy, the handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities.

In 1991, the ARB identified Perchloroethylene as a TAC under California's Toxic Air Contaminant Identification and Control Program (Health and Safety Code section 39650 et. seq.). The Board adopted the Airborne Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations (Dry Cleaning ATCM) and the Environmental Training Program for Perchloroethylene Dry Cleaning Operations in 1993. In 2007, the State of California adoption amendments to the Dry Cleaning ATCM which requires for Perchloroethylene manufacturers and distributors to phase out the use of Perchloroethylene dry cleaning machines and related equipment by January 1, 2023. Additionally, new Perchloroethylene dry cleaning machines are prohibited from being installed anywhere in the State beginning January 1, 2008.

Airborne Toxic Control Measures to Limit Commercial Truck Idling

In July 2004, California Air Resources Board (ARB) adopted an Airborne Toxic Control Measure (ATCM) to limit motor vehicle idling within California.[3] The control measure was adopted as part of a program to reduce public exposure to diesel engine particulate matter (DPM). Diesel particulate matter has been listed as a human

[3] California Code of Regulations, Title 13, Chapter 10, Division 3, Section 2485, *Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling*, effective February 1, 2005.

carcinogen on the ARB's TACs list. The measure applies to all diesel-fueled vehicles over 10,000 pounds, regardless of the state in which they are registered. Effective February 1, 2005, the ATCM restricts idling of commercial trucks for more than 5 minutes at any location. It contained several exemptions, including when a primary engine is used to power a heater, air conditioner, or any ancillary equipment during sleeping or resting in a sleeper berth. However, starting in 2008, an ATCM prohibits heavy-duty trucks from idling to maintain comfortable sleeper berth conditions. Other exemptions were made for school buses, transport vehicles that must idle to keep their products intact, weather restrictions, and emergency or health emergency vehicles. Idling is not permitted in school areas or 100 feet from a restricted area for more than 5 minutes unless the vehicle is engaged in working activities.

Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units and Generator Sets

The ATCM for in-use diesel-fueled Transport Refrigeration Units (TRUs) and TRU generator sets targets for TRUs used on trailers to keep perishable goods such as produce, meats, and prescription drugs at proper conditions.[4] TRUs are trailer-mounted units, powered by small diesel-fueled engines, which provide chilled air to trailers carrying perishable goods. The measure regulates particulate matter emission rates from TRUs powered by diesel internal combustion engines that range from 9 to 36 horsepower. The proposed project is a distribution center; therefore, various TRUs would be in operation on the site. According to the regulation, facilities with over 20 loading dock doors must submit a detailed report specifying the types of models and quantities of TRUs that will occur on site. Given that the proposed project could include more than 20 loading docks serving TRU-equipped trailers, this ATCM would apply to the applicant's refrigerated trailers and TRUs. The project would be required to comply with the facility monitoring, recordkeeping, and reporting requirements as specified in the ATCM.[5] By January 31, 2009, owners and operators of California-based TRUs are required to submit an application for an ARB identification number as part of the ARB Identification Numbering Requirements. The ATCM also applies to operators and owners of the TRUs on supply trailers whether registered out-of-state or in California.

The chief control measure is a gradual phase-in of low- and ultra-low emission standard TRUs. The first phase—performance standards for low-emission TRUs—requires all TRUs under 25 horsepower to have an emission rate of 0.3 grams per horsepower-hour (g/hp-hr) of PM_{10} or less (Level 2), and TRUs 25 horsepower or more to have an emission rate of 0.22 g/hp-hr PM_{10} or less. All models 2001 and older must comply with the low-emission standard by December 31, 2008, and 2002 and later models must be in compliance by December 31, 2009. The ultra-low performance standard for in-use TRUs will apply to all future models. Compliance with the ultra-low standard will require engines with 25 horsepower or more to have emission rates of 0.02 g/hp-hr PM_{10} or less (Level 3). The ultra-low-emission standard for models with 25 horsepower or less has not yet been developed. Model years 2001 and older must comply with the ultra-low-emission standard by December 2015, while 2002 models must comply by December 2016, and 2003 models must comply by 2010. All subsequent models after 2003 will be given seven years from the model year to comply with the ultra-low in-use performance standards.

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4 California Code of Regulations, Title 13, Chapter 9, Division 8, Section 2477, *Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets, and Facilities Where TRUs Operate*, effective December 10, 2004.

5 Ibid, Section 2477(e)(1)(E).

Manufacturers and operators can meet these standards by producing and using engines that have been tested and certified by ARB. TRU operators can also comply by equipping TRU engines with the required level of Verified Diesel Emission Control Strategies (VDECS).[6] In addition to producing and purchasing cleaner TRU engines, the measure also encourages the use of alternative technologies to diesel-fueled TRUs, such as electric standby power, cryogenic temperature control systems (or a hybrid), alternative-fuel engines, fuel cell-powered temperature control systems, and more.

Regional and Local Programs for Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SJVAPCD Regulations II and VII, all sources that have the potential to emit TACs are required to obtain permits from the district. Permits may be granted to these sources if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The SJVAPCD limits emissions and public exposure to TACs through a number of programs. The SJVAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by the SJVAPCD (*e.g.*, health risk assessment) based on their potential to emit toxics. If it is determined that the project would emit toxics in excess of SJVAPCD's threshold of significance for TACs, as identified below, sources have to implement the best available control technology for TACs (T-BACT) in order to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the SJVAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs.

It is important to note that SJVAPCD's air quality permitting process applies to stationary sources; and properties, which are exposed to elevated levels of non-stationary type sources of TACs, and the non-stationary type sources themselves (*e.g.*, on-road vehicles) are not subject to air quality permits. Further, due to feasibility and practicality reasons, mobile sources (cars, trucks, etc.) are not required to implement T-BACT, even if they do have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (*e.g.*, vehicles) are subject to regulations implemented on the State and federal level.

ODORS

SJVAPCD has identified some common types of facilities that have been known to produce odors: wastewater treatment facilities, chemical manufacturing plants, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Because offensive odors rarely cause any physical harm, no requirements for their control are included in federal or State air quality regulations. While there is no specific rule or regulations against odors, SJVAPCD has developed Rule 4102 (Nuisance) prohibiting the discharge of air contaminants or other materials which may cause injury, detriment, nuisance or annoyance to the public.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources

[6] California Air Resources Board, *Regulation for the Verification Procedure for In-use Strategies to Control Emissions from Diesel Engines*, adopted May 16, 2002.

of odor. SJVAPCD recommends that when either of these situations occur, an evaluation of odor emissions should be conducted considering factors such as the nature of the odor source, frequency of odor generation, intensity of odor, distance of odor source to sensitive receptors, wind direction, and sensitivity of receptors.

3.2.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Construction-related emissions of criteria air pollutants (*e.g.*, PM_{10}) and ozone precursors (ROG and NO_X) were assessed in accordance with methodologies recommended by ARB and SJVAPCD. The proposed project's construction-related air quality emissions were estimated using California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (CAPCOA 2013). CalEEMod can model construction and operational emissions based on the types and amounts of land uses to be developed. Please see Appendix D of the EIR for model details, assumptions, inputs, and outputs.

Project-specific construction parameters (*e.g.*, construction schedule, total acres disturbed, amount of development per land use) were used as inputs in the air quality analysis. Currently, the proposed project site is anticipated to be developed in three phases; however, the precise buildout schedule within each one of the construction phases cannot be determined at the time of this analysis and would vary based on future market conditions. The total development anticipated for each phase is assumed to be evenly divided among each year in the phase, with infrastructure being completed at the beginning of each phase. For proposed sewer infrastructure (*i.e.*, pipelines), the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Roadway Construction Emissions Model (Version 7.1.5.1) was used to model annual construction emissions. The Roadway Construction Emissions Model contains construction assumptions for linear roadway projects; however, for the purposes of this analysis and in light of the lack of infrastructure construction parameters, the model was used to conservatively model sewer and roadway infrastructure construction emissions. When project-specific information was not available, default assumptions contained in CalEEMod were used to estimate construction emissions (*i.e.*, construction equipment use, construction workers, haul trucks). It should be noted that default assumptions in CalEEMod are typically conservative to avoid underestimating construction emissions when project-specific information is not available. Modeled construction-related emissions were compared with applicable SJVAPCD thresholds to determine significance.

Regional operational emissions of criteria air pollutants and precursors were also estimated using the CalEEMod Version 2013.2.2 computer model (CAPCOA 2013). Operational air quality emissions were modeled based on the proposed land uses contained in Chapter 2 "Project Description" and vehicle trip generation data from the traffic study prepared to support this EIR (TJKM 2015). Land use types and amounts were used to estimate area- and energy-related air quality emissions, while trip generation data were used to estimate mobile-source emissions. CalEEMod includes default area- and stationary-source activity assumptions associated with various land use types. For vehicle trips, CalEEMod includes trip distance and trip type assumptions based on the geographical area and the land use type. The vehicle miles traveled (VMT) estimated by CalEEMod was used to calculate mobile-source related air quality emissions using the ARB on-road mobile source emission inventory model, EMFAC. Because some of the potential future land uses (*e.g.*, distribution centers, light industrial) could involve vehicle fleets (*i.e.*, heavy duty trucks for operations) that differ from the Stanislaus County average vehicle fleet, the analysis summarized in this EIR adjusted the heavy-duty truck percentage of those land uses. CalEEMod suggests that for these types of uses, a higher percentage of heavy-duty trucks should be used for the vehicle fleet.

In addition to typical mobile source emissions and the increased percentage of heavy-duty trucks, because the proposed project could involve logistics and distribution centers that would likely involve refrigerated storage, it is anticipated that some of the heavy-duty trucks would be equipped with transport refrigeration units (TRUs). Air quality emissions associated with TRUs were estimated assuming that approximately 60 percent of heavy-duty truck trips for Refrigerated Warehouses and 20 percent of heavy-duty truck trips for General Light Industrial land uses, respectively, would be equipped with a TRU. Based on data from ARB, it was assumed that each trip or load would require approximately 2.4 hours during which the TRU would continue to operate on the project site. Emission factors for TRUs were obtained from ARB's OFFROAD model.

The proposed project would also involve redevelopment of the existing airport on project site. Aircraft would generate emissions as part of their landing and take-off (LTO) operations and cruise activities. Cruise activities would occur at a mixing height above 3,000 feet and are typically not included as part of an airport's operational emissions (FAA 2015). However, LTO activities would occur on or near ground level, and all LTO air pollutant emissions are included in this analysis. Projected aircraft activities such as annual LTOs by aircraft type for the buildout year were obtained from the Crows Landing Airport Layout Plan (Mead & Hunt 2016). Aircraft-related fuel use rates and emission factors for LTO activities were obtained from ARB and the Intergovernmental Panel on Climate Change (IPCC) (ARB 2014, IPCC 2001).

The proposed project's operational emissions at full buildout were modeled for the year 2035, which the latest year for operational emissions in CalEEMod. Annual operational emissions were compared with SJVAPCD thresholds of significance.

Other air quality impacts (*i.e.*, local emissions of CO, odors, and operation-related TACs) were assessed in accordance with methodologies recommended by SJVAPCD or other air districts that have applicable guidance.

The analysis presented in this section does not factor in existing emissions associated with on-site agricultural uses or use of the site by the County Sheriff. Accordingly, the results can be considered "conservative," meaning that the results would tend to *overestimate* the net change in emissions.

THRESHOLDS OF SIGNIFICANCE

An air quality impact is considered significant if the proposed project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS, including releasing emissions that exceed quantitative thresholds for ozone precursors (see Chapter 5 of this EIR for a discussion of cumulative impacts);
- Expose sensitive receptors to substantial pollutant concentrations, or
- Create objectionable odors affecting a substantial number or people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. As discussed above, air pollutant emissions in Stanislaus County are regulated by SJVAPCD. Therefore, thresholds of significance from the 2015 GAMAQI below are used to evaluate the proposed project's air quality impacts (Table 3.2-5). These are summarized under numbers 1 through 4 below.

1. Criteria Air Pollutants

Table 3.2-5
Thresholds of Significance for Criteria Pollutants

Pollutant/Precursor	Construction Emissions Emissions (tpy)	Operational Emissions Emissions (tpy)
CO	100	100
NO_X	10	10
ROG	10	10
SO_X	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15

Notes: tpy = tons per year; CO = carbon monoxide; NO_X = oxides of nitrogen; ROG = reactive organic gases; SO_X = sulfur oxides; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns.

Source: SJVAPCD 2015

2. Local CO Concentrations (also known as "CO Hotspots") Preliminary Screening

- If neither of the following criteria are met at all intersections affected by the project, the project will result in no potential to create a violation of the CO standard:
  - A traffic study for the project indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
  - A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity (SJVAPCD 2015, page 98 of 125).
- If one or both of the above criteria are met, the project should conduct an analysis using a protocol developed by the Institute of Transportation Studies at University of California, Davis entitled *Transportation Project-Level Carbon Monoxide Protocol*. If the results of this analysis demonstrate no potential for significance, the Lead Agency should include a description of the Protocol Analysis results in a report to the District. If the results demonstrate that the project will potentially have a significant effect on any intersection, the Lead Agency should conduct a CO analysis.

3. Odors

- Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. An 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.

4. Toxic Air Contaminants

Table 3.2-6
Thresholds of Significance for Toxic Air Contaminants

Carcinogens	Maximally Exposed Individual risk **equals or exceeds 10 in one million**
Non-carcinogens	**Acute:** Hazard Index **equals or exceeds 1** for the Maximally Exposed Individual
	Chronic: Hazard Index **equals or exceeds 1** for the Maximally Exposed Individual

Notes: Carcinogenic (cancer) risk is expressed as cancer cases per one million. Non-carcinogenic (acute and chronic) hazard indices (HI) are expressed as a ratio of expected exposure levels to acceptable exposure levels.

Source: SJVAPCD 2015

IMPACT ANALYSIS

IMPACT 3.2-1 Generation of short-term construction and long-term operational emissions**.** *Potential maximum annual emissions could exceed SJVAPCD thresholds. Following construction, annual operational emissions would exceed SJVAPCD thresholds of significance. Thus, construction and operational emissions of criteria air pollutants and precursors could violate an ambient air quality standard or contribute substantially to an existing or predicted air quality violation. The construction- and operation-related impacts are considered significant.*

Construction Emissions

Construction-related emissions are described as short term or temporary in duration, and have the potential to represent a significant impact with respect to air quality. Construction-related activities would result in emissions of criteria air pollutants (*e.g.*, PM_{10}, $PM_{2.5}$, CO) and precursors (*e.g.*, ROG and NO_X) from ground disturbance activities (*e.g.*, excavation, grading, and clearing); off-road equipment, material delivery vehicle, and worker commute vehicle exhaust; vehicle travel on paved and unpaved roads; and other miscellaneous activities (*e.g.*, building construction, asphalt paving, application of architectural coatings).

Exhaust- and fugitive dust-related emissions would be generated at varying levels depending on the type of construction activities for a particular day. These emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Cut and fill operations for the detention basin along with general site grading and ground disturbance activities for building foundations are the primary sources of fugitive PM dust emissions from construction activities. Movement of vehicles on

paved and unpaved roads also can generate fugitive PM dust emissions. Construction fugitive PM dust emissions can vary greatly, depending on the level of activity, the specific operations taking place, the number and types of equipment operated, vehicle speeds, local soil conditions, weather conditions, and the amount of earth disturbance (*e.g.*, site grading, excavation, cut-and-fill). At the time of this analysis, the exact cut/fill volumes and ground disturbance activities have not yet been determined. However, mass grading activities were assumed to be required for all portions of the project site. If grading is not required throughout the entire site, the actual emissions associated with buildout of the proposed project would be lower than those described in this EIR.

Emissions of ozone precursors are associated primarily with exhaust from off-road construction equipment. Worker commute trips and other construction-related vehicle activities (*e.g.*, material delivery trips, haul truck trips) also contribute to short-term increases in such emissions. Generation of these emissions vary as a function of vehicle trips per day associated with delivery of construction materials, the importing and exporting of soil, vendor trips, and worker commute trips, and by the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation.

Table 3.2-7 presents the total air pollutant emissions associated with each phase, along with the annual average emissions over the entire construction period. The modeling assumes that absorption would occur in a linear fashion. In other words, the total development anticipated for each phase is assumed to be evenly divided among each year in the phase, with infrastructure being completed at the beginning of each phase. However, the rate of construction could change based on market conditions. The analysis uses the project's maximum annual emissions to compare with the SJVAPCD thresholds of significance in order to ensure conservative results.

Table 3.2-7
Unmitigated Construction-Related Emissions

Construction Phase	Emissions (tons)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Phase 1	125.43	165.30	405.99	1.10	66.69	21.36
Phase 2	30.19	34.18	92.70	0.31	19.49	6.23
Phase 3	39.96	10.78	24.02	0.05	18.63	5.04
Total Construction Emissions	195.59	210.26	522.72	1.46	104.82	32.63
Annual Average Emissions (tons/year)[2]	6.52	7.01	17.42	0.05	3.49	1.09
Maximum Annual Emissions (tons/year)	15.31	25.80	58.11	0.15	8.36	2.64
SJVAPCD Thresholds (tons/year)	10	10	100	27	15	15
Exceeds Thresholds?[3]	Yes	Yes	No	No	No	No

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particular matter less than or equal 2.5 microns in diameter; ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District

[1] All emissions are shown in units of tons unless noted otherwise.

[2] Total construction emissions were averaged over the total construction schedule (*i.e.*, 30 years) to calculate annual average construction emissions.

[3] Significance is determined using the maximum annual emissions.

Source: AECOM 2016

As shown in Table 3.2-7, the proposed project's unmitigated maximum annual construction emissions would exceed the ROG and NO_X thresholds of significance. A majority of the development (*i.e.*, approximately 65 percent of development by acreage) is anticipated to occur in Phase 1. Construction during Phase 1 would also have the highest emissions rates for construction equipment and vehicles because emissions rates would decrease over time with improved emissions technology and fleet turnover. Therefore, future phases would result in substantially less emissions based on the relatively smaller amount of proposed development and decreased emission rates during the years of anticipated construction.

Compliance with the current regulatory requirements would reduce impacts. Specifically, SJVAPCD's Regulation VIII Fugitive Dust Prohibitions contain, but are not limited to the following current control measures:

- Pre-water site sufficient to limit visible dust emissions (VDE) to 20 percent opacity.
- Phase work to the extent feasible in a way that reduces the amount of disturbed surface area at any one time.
- During active operations, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity.
- During active operations, construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity.
- During active operations, apply water or chemical/organic stabilizers/suppressants to unpaved haul/access roads and unpaved vehicle/equipment traffic areas sufficient to limit VDE to 20 percent opacity and meet the conditions of a stabilized unpaved road surface.
- An owner/operator shall limit the speed of vehicles traveling on uncontrolled unpaved access/haul roads within construction sites to a maximum of 15 miles per hour.
- An owner/operator shall post speed limit signs that meet State and Federal Department of Transportation standards at each construction site's uncontrolled unpaved access/haul road entrance. At a minimum, speed limit signs shall also be posted at least every 500 feet and shall be readable in both directions of travel along uncontrolled unpaved access/haul roads.
- When handling bulk materials, apply water or chemical/organic stabilizers/suppressants sufficient to limit VDE to 20 percent opacity.
- When handling bulk material, construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity and with less than 50 percent porosity.
- When storing bulk materials, comply with the conditions for a stabilized surface as listed above.
- When storing bulk materials, cover bulk materials stored outdoors with tarps, plastic, or other suitable material and anchor in such a manner that prevents the cover from being removed by wind action.
- When storing bulk materials construct and maintain wind barriers sufficient to limit VDE to 20 percent opacity and with less than 50 percent porosity. If utilizing fences or wind barriers, apply water or chemical/organic stabilizers/suppressants to limit VDE to 20 percent opacity or utilize a 3-sided structure with a height at least equal to the height of the storage pile and with less than 50 percent porosity.

- Limit vehicular speed while traveling on the work site sufficient to limit VDE to 20 percent opacity.
- Load all haul trucks such that the freeboard is not less than 6 inches when material is transported across any paved public access road sufficient to limit VDE to 20 percent opacity.
- Apply water to the top of the load sufficient to limit VDE to 20 percent opacity.
- Cover haul trucks with a tarp or other suitable cover.
- Clean the interior of the cargo compartment or cover the cargo compartment before the empty truck leaves the site; and prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate; and load all haul trucks such that the freeboard is not less than 6 inches when material is transported on any paved public access road, and apply water to the top of the load sufficient to limit VDE to 20 percent opacity; or cover haul trucks with a tarp or other suitable cover.
- Owners/operators shall remove all visible carryout and trackout at the end of each workday.
- An owner/operator of any site with 150 or more vehicle trips per day, or 20 or more vehicle trips per day by vehicles with three or more axles shall take the actions for the prevention and mitigation of carryout and trackout.
- Prevent carryout and trackout, or immediately remove carryout and trackout when it extends 50 feet or more from the nearest unpaved surface exit point of a site.
- For sites with paved interior roads, an owner/operator shall prevent and mitigate carryout and trackout.
- Cleanup of carryout and trackout shall be accomplished by manually sweeping and picking-up; or operating a rotary brush or broom accompanied or preceded by sufficient wetting to limit VDE to 20 percent opacity; or operating a PM_{10}-efficient street sweeper that has a pick-up efficiency of at least 80 percent; or flushing with water, if curbs or gutters are not present and where the use of water would not result as a source of trackout material or result in adverse impacts on storm water drainage systems or violate any National Pollutant Discharge Elimination System permit program.
- An owner/operator shall submit a Dust Control Plan to the Air Pollution Control Officer (APCO) prior to the start of any construction activity on any site that will include 10 acres or more of disturbed surface area for residential developments, or 5 acres or more of disturbed surface area for non-residential development, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials on at least three days. Construction activities shall not commence until the APCO has approved or conditionally approved the Dust Control Plan. An owner/operator shall provide written notification to the APCO within 10 days prior to the commencement of earthmoving activities via fax or mail. The requirement to submit a dust control plan shall apply to all such activities conducted for residential and non-residential (*e.g.*, commercial, industrial, or institutional) purposes or conducted by any governmental entity.

In addition to compliance with Regulation VIII, any applicant proposing a project within the Specific Plan Area that meets the specified threshold requirements will need to demonstrate compliance with SJVAPCD's ISR (Rule 9510) as a condition of discretionary approval. Rule 9510 requires the applicant to provide an approved Air Impact Assessment (AIA) application to SJVAPCD. The AIA would quantify construction NO_X and PM_{10}

emissions. This assessment would include: an estimate of construction emissions prior to the implementation of mitigation measures; a list of the mitigation measures to be applied to the project; an estimate of emissions for each applicable pollutant for the project, or each phase thereof, following the implementation of mitigation; and a calculation of the applicable off-site fee, if required by Rule 9510. The general mitigation requirements in the assessment, as contained in the ISR rule, would include the following:

- Exhaust emissions for construction equipment greater than 50 horsepower used or associated with the development project shall be reduced by 20 percent of the total NO_X and by 45 percent of the total PM_{10} emissions from the statewide average as estimated by ARB.

- Methods employed by the applicant to reduce construction emissions to the degree noted above include using less polluting construction equipment, including the use of add-on controls, cleaner fuels, or newer lower emitting equipment. The emissions reduction targets listed above shall be met through any combination of on-site emission reduction measures or offset fees, including those required and other mitigation measures listed above.

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

However, the proposed project's construction-related emissions impact is considered **potentially significant**. Although maximum and annual average PM_{10} and $PM_{2.5}$ emissions would not exceed SJVAPCD thresholds of significance, the exact cut/fill volumes for the detention basin and ground disturbance activities for the entire site are not known at this time. Therefore, mitigation has been identified to address particulate matter emissions even though emissions are not anticipated at this time to exceed the relevant significance thresholds.

Over time, emission standards have been made more stringent for a variety of vehicles and equipment, including off-road construction equipment. In December 2004, ARB adopted a fourth *phase* of emission standards (Tier 4). Engines manufactured under this new phase of standards have substantially lower NO_X and PM compared to engines manufactured under previous standards. The term "phase," referring to these standards is used in the mitigation below.

> Mitigation Measure 3.2-1a: Comply with Current ISR and Use Current Phase Equipment for All Construction Equipment.
>
> As applicable, based on the project size thresholds specified in Rule 9510 (Indirect Source Review), projects within the Specific Plan Area shall comply with SJVAPCD's Rule 9510 Indirect Source Review (ISR). Site developers/leaseholders/project applicants who wish to develop facilities in the Specific Plan area shall construct all facilities using current phase construction equipment (currently Tier 4).
>
> **Implementation:** Leaseholder/developer/contractors.
>
> **Timing**: Demonstrate compliance prior to issuance of building permit.
>
> **Enforcement:** Stanislaus County and SJVAPCD.

Significance after Mitigation

Compliance with regulatory requirements and the implementation of Mitigation Measure 3.2-1a would reduce on-site construction-related air quality emissions. As shown on Table 3.2.8, the mitigation would not reduce the maximum annual emissions to be below SJVAPCD's threshold of significance, although the average annual emissions would not exceed any threshold. No additional feasible mitigation is available to further reduce emissions. This impact would be **significant and unavoidable**.

Table 3.2-8
Mitigated Construction-Related Emissions

Construction Phase	Emissions (tons) [1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Phase 1	123.42	136.96	404.15	1.10	64.18	19.50
Phase 2	28.99	21.99	94.36	0.31	18.24	5.42
Phase 3	38.79	4.34	27.21	0.05	17.67	4.54
Total Construction Emissions	191.20	163.29	525.72	1.46	100.09	29.46
Maximum Annual Emissions (tons/year)	15.05	23.35	58.15	0.15	8.19	2.49
Annual Average Emissions (tons/year) [2]	6.37	5.44	17.52	0.05	3.34	0.98
SJVAPCD Thresholds (tons/year)	10	10	100	27	15	15
Exceeds Thresholds? [3]	Yes	Yes	No	No	No	No

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particular matter less than or equal 2.5 microns in diameter; ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District

[1] All emissions are shown in units of tons unless noted otherwise.

[2] Total construction emissions were averaged over the total construction schedule (*i.e.*, 30 years) to calculate annual average construction emissions.

[3] Significance is determined using the maximum annual emissions.

Source: AECOM 2016

Operational Emissions

Operational emissions for land development projects can be distinguished according to their source, including mobile, energy, and area source emissions. Mobile-source emissions associated with the proposed project include vehicle trips for employees, visitors, and goods movement. In addition to the typical on-road mobile sources, the proposed project would also generate air pollutant emissions from TRUs associated with heavy-duty trucks and aircraft LTO activities. Area-source emissions are those associated with periodic architectural coatings and landscape maintenance activities. Energy use emissions are associated with building electricity and natural gas usage. Table 3.2-9 presents the proposed project's annual operational emissions and compares them with SJVAPCD thresholds of significance.

As shown in Table 3.2-9, the proposed project's annual long-term operational emissions would exceed the SJVAPCD thresholds of significance for ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$. The impact would be **significant**.

Table 3.2-9
Crows Landing Annual Operational Emissions (Full Buildout)

Construction Phase	Emissions (tons/year) [1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	103.49	0.00	0.21	0.00	0.00	0.00
Energy Sources	1.94	17.65	14.83	0.11	1.34	1.34
Mobile Sources	20.82	59.23	241.68	0.97	59.61	17.01
Transport Refrigeration Units	38.08	277.87	399.76	0.66	1.34	1.34
Aircraft LTO	11.46	44.97	-	-	-	-
Total Operational Emissions	175.79	399.72	656.48	1.74	62.29	19.69
SJVAPCD Thresholds (tons/year)	10	10	100	27	15	15
Exceeds Thresholds?	Yes	Yes	Yes	No	Yes	Yes

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particular matter less than or equal 2.5 microns in diameter; ROG = reactive organic gases; LTO = landing and take-off; SJVAPCD = San Joaquin Valley Air Pollution Control District. NOG and NO_X are the most critical emissions associated with aircraft and, as a result, other criteria air pollutants are not reported.

[1] All emissions are shown in units of tons unless noted otherwise.

Source: AECOM 2016

As noted elsewhere in this EIR, the unemployment rate in Stanislaus County has been higher than the statewide average for many years. Many residents commute to distant job centers outside of the County, frequently traveling to Sacramento and the San Francisco Bay Area (Bay Area). A 2014 analysis of commuting patterns in the northern San Joaquin Valley, which includes San Joaquin, Stanislaus, and Merced counties, indicated that approximately 23 percent of Stanislaus County's employed residents commute outside of the County, and 9 percent commute to San Francisco Bay Area communities (University of the Pacific 2014). The five employment sectors with the highest proportion of residents traveling outside of the County to work were construction; transportation, warehousing and utilities; public administration; wholesale trade; and manufacturing. This phenomenon is important to air quality in the San Joaquin Valley. Efforts to bring employment opportunities to the northern San Joaquin Valley, such as the project, could have benefits for mobile-source criteria air pollutant emission rates. The County will ensure that the Specific Plan could accommodate employment options in three of the five industries where there is the most out-commuting by residents: industrial uses, including manufacturing and assembly; transportation and warehousing (logistics); and public administration/facilities, including public administration offices, law enforcement, and public safety services. However, the transportation analysis that supports the Specific Plan and this EIR does not make specific assumptions regarding which distant commute trips would, following implementation of the Specific Plan, stay within Stanislaus County.

While the County's intent is to facilitate employment development, and while this could help to reduce commute traffic, where individual households choose to live and to work is beyond the County's control. Assuming that all the mobile source emissions attributable to development of the project are commute related, and that the project could reduce commute distances by 50 percent for 50 percent of the future employees of the project, this could reduce existing ROG emissions associated with commuting by Stanislaus County residents by approximately 0.8

ton per year, NO_X emissions by approximately 7 tons per year, and CO emissions by approximately 18 tons per year. While the project may provide air quality benefits by reducing the amount of commute-related VMT by Stanislaus County residents who would choose to work at the CLIBP instead of more distant locations, it is not possible to quantify these benefits for the purposes of the transportation, energy, greenhouse gas emissions, or air quality analysis presented in this EIR. Therefore, the operational air pollutant emissions results presented here might overestimate the actual impact of the project.

Estimated aircraft LTO emissions shown in Table 3.2-9 represent the opening year. Emissions are expected to increase as flight activity increases at the project site. By year 30, emissions would increase to approximately 97 tons per year of ROG and 382 tons per year of NO_X.

Compliance with SJVAPCD's ISR (Rule 9510) would reduce both construction-related and operational impacts. The County requires projects to comply with applicable SJVAPCD rules, including Rule 9510. Projects meeting the ISR thresholds are required to submit an AIA application to the SJVAPCD. The AIA would quantify operational NO_X and PM_{10} emissions associated with the project. This would include the estimated operational baseline emissions (*i.e.*, before mitigation), and the mitigated emissions for each applicable pollutant for the project, or each phase thereof, and would quantify the off-site fee, if applicable. General operational mitigation requirements, as contained in the ISR rule, include the following:

- Applicants shall reduce 33.3 percent of the project's operational baseline NO_X emissions over a period of 10 years, as quantified in the approved AIA.

- Applicants shall reduce 50 percent of the project's operational PM_{10} emissions over a period of 10 years, as quantified in the approved AIA.

The requirements listed above can be met through any combination of on-site emission reduction measures or offset fees, including those required and additional measures listed in below for criteria air pollutants and precursors in Mitigation Measure 3.2-3b. However, any on-site reductions of criteria air pollutants and precursors must be both quantifiable and verifiable to be credited toward the requirements of the ISR.

Mitigation Measure 3.2-1b: Encourage Alternatives to the Single Occupant Vehicle Commute.

Policy Six of the Stanislaus County General Plan reads "The County shall strive to reduce motor vehicle emissions and vehicle trips by encouraging the use of alternatives to the single occupant vehicle." The project shall implement Policy Six through the incorporation of the following strategies or alternative strategies determined to be equally or more effective in reducing the rate of single-occupant vehicle commutes to the project site at buildout:

- Prior to the occupancy of the first building within the Crows Landing Industrial Business Park, a TDM or similar program shall be established or an existing program, such as the Commute Connection program, shall be designated to represent the project. The program will provide a comprehensive strategy to reduce solo occupant vehicle travel by employees, business vehicles including trucks, and visitors. The program shall identify TDM goals for CLIBP, including goals to reduce daily travel and travel during morning and afternoon peak-demand periods. The CLIBP TDM program shall require mandatory annual employee surveys with a response of at least 90 percent. The surveys will include, as a minimum, mode and time of travel by employees. The

CLIBP TDM program shall prepare an annual report indicating status of compliance with the TDM goals established by the County. The individual companies and the CLIBP TDM program shall consider the following items or other measures to reduce travel demand and achieve TDM goals:

- Encourage employers to use flex-time
- Carpool matching programs
- Preferred parking for carpoolers
- Van pool programs
- On-site facilities such as break rooms and shower facilities
- Establishment of employer sponsored shuttles from Turlock and Modesto
- On-site secure bicycle racks
- Bike share programs for employee usage at lunchtime
- Other measures

- All employers operating within the Specific Plan Area shall participate in the TDM or Commute Connection program or future program providing the same services to allow employees to conveniently identify non-single occupancy vehicle methods to reach the proposed project site. Employers should not be considered as separate entities, but rather the entire site shall be considered collectively as a participating entity. The requirement to participate in the Commute Connection program shall be included in leases for Specific Plan developments. A person(s) shall be assigned to represent CLIBP on an ongoing basis to coordinate with individual businesses.

- New development projects that anticipate 100 or more full-time equivalent employees shall coordinate participation in the Commute Connection program or similar future program to reduce employee commute trips and to promote transportation other than the single passenger motor vehicle, including, but not limited to carpools, vanpools, buspools, public transit, and bicycling. The employee commute trip reduction program should include incentives, services, and policies. This program shall include preferential parking in relatively more convenient locations for electric vehicles, carpools, vanpools and other vehicles carrying commuter passengers on a regular basis.

- The County shall identify and accommodate at least one transit stop or commuter shuttle to serve the project site that would provide feasible commuter service for project employees.

Implementation: Stanislaus County and leaseholder/developer/contractors.

Timing: Demonstrate compliance prior to issuance of business license.

Enforcement: Stanislaus County.

Significance after Mitigation

Compliance with SJVAPCD's ISR (Rule 9510) would reduce operational impacts. The County requires projects to comply with applicable SJVAPCD rules, including Rule 9510. Compliance with regulations and implementation of Mitigation Measure 3.2-1b would help reduce long-term operational air quality emissions

associated with the proposed project. Mitigation Measure 3.2-1b would include measures to reduce VMT and vehicle trips, which would help reduce long-term operational exhaust-related ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions. Trip and VMT reduction would also reduce entrained PM_{10} and $PM_{2.5}$ road dust emissions. However, even with inclusion of these potential emissions reductions, it is anticipated that the proposed project's long-term emissions would continue to exceed SJVAPCD thresholds of significance. There is no additional feasible mitigation available to the County that would reduce this impact. Therefore, even with implementation of mitigation measures, the proposed project's operational emissions could violate or contribute substantially to an existing or projected air quality violation. As noted previously, the Specific Plan would accommodate employment options in three of the five industries where there is the most out-commuting by residents, which could provide some air quality benefit, although it is not possible at this time to quantify this potential benefit. This impact would be **significant and unavoidable**.

IMPACT 3.2-2 Consistency with air quality planning efforts. *The proposed project would generate construction and operational emissions at levels that could conflict with or obstruct implementation of the applicable air quality plan. The impact would be considered* ***significant****.*

SJVAPCD regulates regional air quality by enforcing rules and regulations, issuing air quality permits, and developing air quality plans. Air quality plans are developed to attain and maintain ambient air quality standards. The existing emissions profile and projected growth of a region (based on local general plans) are evaluated along with proposed mitigation measures to determine if the region would attain ambient air quality standards. SJVAPCD has developed regional thresholds of significance for construction and operation, which are considered the allowable emissions limit on a project level to help the region attain and maintain ambient air quality standards and comply with the regional air quality plan. The most current regional air quality plan is the 2015 Plan for the 1997 $PM_{2.5}$ Standard, 2012 $PM_{2.5}$ Plan (that addressed the EPA's 2006 24-hour $PM_{2.5}$ standard of 35 micrograms per cubic meter [$\mu g/m^3$]), and the 2013 Plan for the Revoke 1-Hour Ozone Standard (SJVAPCD 2015). Projects that would generate project-level emissions below the SJVAPCD regional thresholds of significance would be considered to be consistent with these regional air quality plans and would have less-than-significant impacts (SJVAPCD 2015, page 65). In addition, projects that are consistent with the development plans and goals in the Stanislaus County General Plan would be considered not to conflict or obstruct implementation of the applicable air quality plan.

Construction Emissions

As shown in Table 3.2-7, the proposed project's maximum construction emissions would exceed the ROG and NO_X thresholds of significance, and are assumed to potentially exceed the PM_{10} and $PM_{2.5}$ thresholds, as well. Because the proposed project's construction-related emissions would exceed SJVAPCD thresholds of significance, the proposed project's construction-related emissions could conflict with or obstruct implementation of the applicable air quality plan. This impact would be **significant**.

Mitigation Measure 3.2-2a: Implement Mitigation Measure 3.2-1a.

Significance after Mitigation

Compliance with regulatory requirements and the implementation of Mitigation Measure 3.2-1a would reduce on-site construction-related air quality emissions. However, this mitigation would not reduce emissions to a less-

than-significant level. There is no additional feasible mitigation. This impact would be **significant and unavoidable**.

Operational Emissions

As shown in Table 3.2-9, long-term operational emissions would exceed SJVAPCD thresholds of significance. Therefore, the proposed project's operational emissions could be considered to generate emission levels that would conflict with or obstruct implementation of the applicable air quality attainment plan. However, as described above, it is also important to consider how a project is consistent with the development goals and strategies of the County's General Plan, which is used in coordination with StanCOG's RTP/SCS to estimate emission levels for air quality attainment plans.

The proposed project site is currently zoned as A-2-40 General Agriculture and designated in the General Plan as Agriculture. The proposed project includes a General Plan amendment and rezoning. Although the amendment would result in a net increase in air quality emissions at the project site, the proposed project would be consistent the goals and policies set forth in the Land Use Element of the County's General Plan. Of the Land Use Element's seven goals, two goals apply directly to the proposed project:

- **GOAL TWO–**Ensure compatibility between land uses;
- **GOAL THREE–**Foster stable economic growth;
- **POLICY EIGHTEEN–**Promote diversification and growth of the local economy.
- **IMPLEMENTATION MEASURE 1–**Stanislaus County shall continue to work with economic development entities to promote Stanislaus County as a profitable location for industry.
- **IMPLEMENTATION MEASURE 9–**Encourage reuse of the Crows Landing Air Facility as a regional jobs center.

The proposed project directly supports the two goals of the County's General Plan Land Use Element. The proposed project would support Goal Three by supporting the creation of approximately 14,000 to 15,000 new job opportunities for County residents. The types of proposed land uses (*e.g.*, light industrial) would also be consistent with Goal Two, as the proposed Specific Plan includes specific design criteria for promoting compatibility between the CLIBP and adjacent agriculture. Furthermore, Policy Eighteen seeks to diversify and grow the local economy, with implementation measures that refer specifically to the need to promote industry and reuse the former Crows Landing Air Facility as a regional jobs center.

With respect to reducing regional air pollutant emissions, the proposed project would provide job opportunities for County residents that could reduce worker commute distances. The design and intent of the proposed project is consistent with the long-term goals of the current Stanislaus County General Plan.

Despite the proposed project's consistency with the County's General Plan, the total air pollutant emissions would continue to exceed SJVAPCD's operational thresholds of significance as shown in Table 3.2-6. Therefore, the proposed project's operational emissions could conflict with or obstruct implementation of the applicable air quality plan. This impact is considered **significant**.

Mitigation Measure 3.2-2b: Implement Mitigation Measure 3.2-1b.

Significance after Mitigation

Implementation of Mitigation Measure 3.2-1b would help reduce long-term operational air quality emissions associated with the proposed project. However, even with the reduction emissions, it is anticipated that the proposed project's long-term operational emissions would continue to exceed SJVAPCD thresholds of significance. Therefore, even though the proposed project would further promote the long-term goals and land use development strategies of the General Plan, the proposed project's operational emissions could conflict with or obstruct implementation of the applicable air quality plan. As noted previously, Specific Plan would accommodate employment options in three of the five industries where there is the most out-commuting by residents, which could provide some air quality benefit. Assuming all the mobile source emissions attributable to development of the project are commute related, and assuming the project could reduce commute distances by 50 percent for 50 percent of the future employees of the project, this could reduce ROG emissions by approximately 0.8 ton per year, NO_X emissions by approximately 7 tons per year, and CO emissions by approximately 18 tons per year. However, the County does not control household decisions regarding place of employment; therefore, it is not possible to quantify accurately the potential benefits of the project regarding reductions in commute distances. There is no additional feasible mitigation available to address this impact. This impact would be **significant and unavoidable**.

IMPACT 3.2-3 Exposure of sensitive receptors to emissions of toxic air contaminants. *The proposed project would generate TAC emissions during construction and operational activities that could expose sensitive receptors to substantial pollutant concentrations. This impact is considered* ***potentially significant****.*

Implementation of the proposed project would generate varying levels of TAC emissions from construction and operational activities that could expose existing and future sensitive receptors. In addition, the proposed project would generate vehicle trips that could contribute to congestion at intersections. The TAC emissions associated with the proposed project's construction and operational activities are evaluated separately below in relationship to the existing nearby land uses are evaluated separately. Under current conditions, there is one residence located approximately 750 feet northeast of the proposed project site boundary near the intersection of Marshall Road and SR 33. There is another residence located approximately 100 feet east of the southeastern portion of the project site near the intersection of Fink Road and Bell Road. These are the closest sensitive receptors to the project site.

There is one home approximately 50 feet east of the project site on Bell Road, just north of the intersection of Fink and Bell Road. Another home is approximately 400 feet east of the project site and approximately 90 feet north of Fink Road. Another home is approximately 270 feet east of the project site, approximately 400 feet north of Fink Road and east of Bell Road. These are the closest sensitive receptors to the project site.

Construction-Related Emissions

Construction-related activities would result in short-term emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment for site preparation (*e.g.*, excavation, grading, and clearing), building construction, and other miscellaneous activities. Diesel PM was identified as a TAC by ARB in 1998. The potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential for all other health impacts (ARB 2003).

Emissions from construction equipment throughout California and the United States will be reduced over time due to a final rule promulgated by EPA in January 2001 that reduces emissions for heavy-duty diesel engines in 2007 and subsequent model years. These emissions standards represented a 90 percent reduction in NO_X emissions, 72 percent reduction of nonmethane hydrocarbon emissions, and 90 percent reduction of PM emissions in comparison to the emissions standards for the 2004 model year. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after-treatment-based exhaust standards for NO_X and PM starting in 2011 that are more than 90 percent lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines. As construction equipment continues to turnover and/or be retrofitted over time, diesel PM emissions associated with construction will continue to decrease.

With respect to the health impacts, the dose to which receptors are exposed is the primary factor used to determine health risk (*i.e.*, potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time.

According to the California Office of Environmental Health Hazard Assessment, health risk assessments (HRA) that determine the exposure of sensitive receptors to TAC emissions should be based on a 30-year exposure period; however, such assessments should be limited to the period and duration of activities associated with the subject project. In the case of the proposed project, construction activities are anticipated to occur over an approximate 30-year construction period, which would be the equivalent of the exposure period required to complete an HRA. However, the exact nature, schedule, and intensity of specific construction activities cannot be determined at the time of this analysis. Construction emissions shown in Table 3.2-7 represent construction emissions using CalEEMod defaults and assume a linear buildout of land uses within each of the three construction phases. Table 3.2-8 presents construction emissions with implementation of Mitigation Measure 3.2-1a, which would help reduce diesel PM emissions. However, because construction activities would occur in later years when fleet turnover and incorporation of higher tier (less polluting) equipment into construction fleets has already occurred, reductions associated with Mitigation Measure 3.2-1a would not be as substantial in future years. It is anticipated that increased emissions control technology and standards will occur in the future; however, at the time of this writing and development of CalEEMod, these standards are not yet feasible to model. Thus, because there are sensitive receptors in the vicinity of the project site that could be exposed to the total proposed project's construction-related TAC emissions and the unknown nature of construction activities, it is conservatively assumed that construction activities could potentially expose receptors to substantial TAC concentrations and this impact is considered **potentially significant**.

Mitigation Measure 3.2-3a: Implement Mitigation Measure 3.2-1a.

Significance after Mitigation

Implementation of Mitigation Measure 3.2-1a requires the use of current phase construction equipment. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) and engine manufacturers are now required to meet after-treatment-based exhaust standards for NO_X and PM starting in 2011 that are more than 90

percent lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines. The impact is **less than significant with mitigation**.

Operational Emissions

The proposed project would accommodate commercial and light industrial land uses that could generate TAC emissions. Potential TAC emissions associated with the proposed land uses include stationary sources, manufacturing processes, and diesel-fueled heavy-duty trucks associated with goods distribution. To a lesser extent, proposed land uses could also involve visitors and employees coming to and from the project site in diesel-fueled vehicles.

Logistics- and distribution-related land uses are consistent with the proposed CLIBP Specific Plan. These types of uses could result in a higher proportion of diesel-fueled vehicles and/or heavy-duty trucks than the current baseline vehicle populations (*i.e.*, Stanislaus County average) on local roads and also increased total vehicle volumes in the vicinity of the project site. The proposed project does not propose residential uses, but it is possible that certain areas could include daycare centers for employees' children, which would be considered sensitive land uses. In addition, the existing sensitive receptors near the project site could be exposed to higher levels of diesel particulate matter (DPM) emissions from proposed operational traffic emissions.

It is anticipated that heavy-duty trucks leaving the project site from future logistics facilities, warehouses, and/or distribution centers would travel west to I-5 or east to SR 33. Therefore, it is possible that existing residential receptors located along Fink Road southwest and southeast of the project site could be exposed to increased project-related traffic, which would likely include a higher percentage of heavy-duty trucks than the existing County average. However, the large majority of traffic would travel west on Fink Road to I-5 rather than to the east. To the north of the project site, dwelling units located at the intersection of West Marshall Road and Davis Road and the intersection of West Marshall Road and Ward Avenue could also be exposed to similar operational traffic from heavy-duty trucks traveling to and from I-5. To the east toward SR 33, the community of Crows Landing includes sensitive receptors, including the Bonita Elementary School, located along Fink Road, which is a potential access route to SR 33. However, the large majority of traffic accessing the site from SR 33 would use Ike Crow Road. Residential receptors located at the northeast portion of the project would be located more than 500 feet away from the intersection of West Marshall Road and SR 33, which is another potential SR 33 access point for proposed vehicles and trucks. Lastly, another potential SR 33 access route would be along Ike Crow Road, which contains a single-family home located less than 500 feet from the road.

ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* provides guidance concerning land use compatibility with TAC sources, including the recommendation that sensitive receptors should not be located within 500 feet of an urban freeway with 100,000 vehicles per day or a rural road with 50,000 vehicles per day based on a synthesis of traffic and air quality studies along high-volume roadways (ARB 2005, Table 1-1, page 4). Even with full buildout of the Specific Plan Area, none of the roadways in the vicinity of the project site that have sensitive receptors within 500 feet of the roadway would approach 50,000 vehicles per day (TJKM 2016). In addition, diesel PM emissions are anticipated to decrease over time. ARB continues to develop regulatory and incentive programs to reduce diesel PM emissions throughout the state. On January 1, 2012, as part of its On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation, ARB began to require that heavy-duty trucks (gross vehicle weight ratings over 14,000 pounds) be retrofitted with PM filters and that older trucks must start to be replaced starting in January 2015. Therefore, no significant effect is anticipated from mobile sources.

On-site land uses could include manufacturing and light industrial land uses. It is possible, although unlikely that on-site uses could involve stationary sources. These types of land uses would contribute to the baseline level of TAC emissions depending on the specific process, fuel, and volume used for operational activities. It is anticipated that these uses could increase TAC concentrations in the vicinity of the project site. It is not possible as of the writing of this EIR to quantify operational TAC emissions associated with the proposed project because of the potential variability in uses and intensity of uses and the possibility of daycare centers on the project site. However, the mix of uses potentially accommodated within the project site could expose sensitive receptors to substantial pollutant concentrations. For the purposes of a conservative analysis, it is anticipated that the proposed project's operational activities would generate substantial TAC emissions that would expose nearby sensitive receptors to substantial TAC concentrations and this impact would be considered **potentially significant**.

Mitigation Measure 3.2-3b: Assess TAC Emissions and Health Risks Associated with Operations.

Projects proposed within 1,000 feet of an existing daycare or an off-site residence shall be required to analyze and report on potential health risk impacts of $PM_{2.5}$ and TAC concentrations from long-term operations in accordance with SJVAPCD-recommended methods prior to the issuance of a building permit for new construction, tenant improvement, or change of use. Factors that would affect the need for health risk analysis include, but are not limited to the proposed land use; types, intensity, and frequency of TAC emissions generated by operational activities; and other project parameters, such as heavy-duty truck traffic, number of loading docks, and manufacturing throughput. If health risk impacts are determined to exceed SJVAPCD thresholds of significance under any potential operational exposure scenario, projects shall implement Mitigation Measure 3.2-3c. The requirement to conduct health risk analysis may be waived if determined by the County's Planning Director that the proposed use has already been assessed and shown to have no health risk impacts necessitating a project-specific health risk analysis or if the SJVAPCD determines that there is no further need for health risk analysis.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of building permit, tenant improvement, or change in use.

Enforcement: Stanislaus County.

Mitigation Measure 3.2-3c: Reduce Exposure to Substantial Pollutant Concentrations from Operations.

If it is determined that a proposed use could potentially generate health risk impacts that exceed SJVAPCD thresholds of significance, the proposed project shall identify and implement strategies to reduce impacts below applicable SJVAPCD thresholds of significance.

A range of potential strategies is available to avoid exposure to substantial pollutant concentrations for sensitive receptors (daycare) and to avoid significant impacts. However, new technologies or methods for avoiding exposure to pollutant concentrations may emerge or become feasible in the future, and those technologies and methods would be implemented in addition to or instead of those identified in the EIR to reduce any potential health risk impacts below applicable SJVAPCD thresholds of significance.

Strategies could include, but are not limited to placement of on-site daycare uses at a sufficient distance to avoid impacts associated with potential sources of TAC emissions, such as manufacturing facilities, loading docks, and distribution centers. Building space to be used for daycare could incorporate High Efficiency Particle Arresting

(HEPA) filter systems at mechanical air intake points to the building to reduce the levels of PM that enter buildings and/or orient air intake away from areas generating emissions. Uses that generate TAC emissions could also use orientation away from sensitive receptors or controls on emissions concentrations. Commercial and industrial land uses that would host diesel trucks could incorporate technologies such as IdleAire, electrification of truck parking, and/or alternative energy sources for TRUs to allow diesel engines to reduce or avoid idling.

Implementation: Leaseholders/developers/contractors.

Timing: Identify strategies to reduce pollutant concentrations prior to issuance of building permit, tenant improvement, or change in use and implement strategies during operations.

Enforcement: Stanislaus County.

Significance after Mitigation

In addition to the potential application of above-mentioned strategies to avoid exposure of sensitive receptors to substantial pollutant concentrations, diesel-powered delivery trucks on the premises must be shut off when not in use for longer than 5 minutes to reduce idling emissions consistent with the ATCM to Limit Diesel-Fueled Commercial Motor Vehicle Idling. In addition, any new or modified source of toxic air contaminants for which no Authority to Construct or Permit to Operate has been issued by the SJVAPCD will be required to comply with SJVAPCD Regulation VII (Toxic Air Pollutants), Rule 4002 (National Emission Standards for Hazardous Air Pollutants), and Rule 3110 (Air Toxics Fees). Implementation of existing regulatory requirements and incorporation of the above mitigation would identify TAC impacts associated with operational activities and specific performance criteria to ensure that impacts is considered **less than significant with mitigation**.

CO Hot Spots

The primary mobile-source pollutant of localized concern is CO. Local mobile-source CO emissions and concentrations near roadway intersections are a direct function of traffic volume, speed, and delay. Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. However, under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to local sensitive land uses, such as residential units, hospitals, schools, and childcare facilities.

With respect to SJVAPCD's screening criteria, as determined in the project's traffic study, implementation of the proposed project under 2035 buildout conditions would reduce the LOS of several intersections to LOS E and F (TJKM 2016). SJVAPCD guidance clarifies that, although a project may exceed the screening criteria, it does not necessarily indicate that the proposed project would generate a CO hot spot at the affected intersection, and that further analysis should be conducted prior to performing full air dispersion modeling for affected intersection. The 2003 Transportation Project-Level Carbon Monoxide Protocol is suggested as a method to further evaluate the intersections' potential to generate a CO hot spot. However, more recently other neighboring air districts, such as Sacramento Metropolitan Air Quality Management District (SMAQMD) and Bay Area Air Quality Management District (BAAQMD), have developed screening thresholds based on air dispersion modeling to determine if a project would cause an intersection to potentially generate a CO hotspot. The screening thresholds have been developed with conservative assumptions to avoid underestimating CO concentrations. Therefore, a project that would not exceed the screening thresholds would be highly unlikely to generate a CO hotspot and

would not expose sensitive receptors to CO concentrations harmful to public health. According to these methodologies, projects would have the potential to generate a CO hotspot if it did contribute a substantial volume of vehicle trips to an intersection that exceeded 44,000 vehicles per hour and 31,600 vehicles per hour for BAAQMD and SMAQMD, respectively. For intersections located in areas where vertical and/or horizontal mixing is substantially limited, the screening threshold is 24,000 vehicles per hour. These screening methods are developed to be protective of the public health and are as applicable in the SJVAPCD jurisdiction area as in these other locations.

While this section is focused on project impacts rather than cumulative impacts, for the purposes of assessing CO impacts, the use of cumulative traffic data provides more conservative results, and these data are used here. Please see Chapter 5 of this EIR for a discussion of cumulative impacts.

The traffic study prepared for this EIR evaluated affected intersections under existing and cumulative conditions both with and without the proposed project. For a conservative analysis, cumulative (2035) plus project intersection volumes were used to compare with the aforementioned screening thresholds. The maximum average daily year 2035 plus project volumes on roadway segments impacting an intersection in the project vicinity would be approximately 32,663 average daily trips (ADT) along Marshall Road between SR 33 and Davis Road, and 5,006 ADT along Marshall Road between Davis Road and Ward Avenue (TJKM 2016). The intersection of Marshall Road and Davis Road would experience approximately 37,669 vehicles per day, which would be the maximally impacted intersection in the project vicinity. It is conservatively assumed that approximately 50 percent of the trips (18,835 vehicles) could occur in a single peak hour, which would be less than the most conservative screening threshold described above (*i.e.*, 24,000 vehicles per hour). In reality, the portion of daily trips that occur in the peak hour is between 5 and 15 percent. In addition, the project is largely flat and would not include any topographical features (*e.g.*, canyons) or transportation infrastructure (*e.g.*, tunnels) that would substantially limit vertical or horizontal mixing. Therefore, implementation of the proposed project is not expected to have the potential to generate CO hotspots. This impact is considered **less than significant**. No mitigation is required.

IMPACT 3.2-4 Exposure of sensitive receptors to emissions of odors. *Construction equipment could generate odors. The proposed project includes commercial and light-industrial land uses that could generate odor emissions that expose nearby receptors to objectionable odors. This impact would be considered less than significant.*

The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. Although offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and cause citizen's to submit complaints to local governments and regulatory agencies. Projects with the potential to frequently expose individuals to objectionable odors are deemed to have a significant impact. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities. Because the proposed project includes commercial, distribution, and light industrial land uses, which can be potential odor sources, this analysis evaluates the proposed project's operational activities' potential to expose a substantial number of people. In addition, although construction activities are short-term and temporary, diesel-fueled construction equipment and heavy-duty trucks have the potential to expose nearby residents to objectionable odors.

Construction

Construction activities would generate diesel PM exhaust from heavy-duty trucks and off-road construction equipment, which could be considered offensive to some individuals. In addition, VOC emissions associated with architectural coatings and asphalt paving could also generate odors offensive to some individuals. Construction activities and subsequent odor emissions would not occur at one single location for the entire construction period (*i.e.*, 30 years). Rather, as described above, the proposed project would be developed in three phases and construction-related odor emissions would move around the project site. Odor emissions occurring in proximity of a receptor in Phase 1 would gradually move away from that particular receptor as other phases are developed. In addition, construction equipment and construction-related haul truck trips would only occur during daytime hours and would cease each day at night. Therefore, even during the most equipment- and haul truck-intensive activities, there would not be a constant source of diesel PM generated from the project site throughout the day.

Several SJVAPCD rules and regulations would also limit VOC odor emissions from construction activities. Asphalt paving activities would be relatively short compared with total construction activities, and all asphalt material used for the proposed project would be required to comply with SJVAPCD Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt Paving, and Maintenance Operations). Rule 4641 limits the VOC content of asphalt used within SJVAPCD's jurisdiction, which would also limit potential odor emissions. In addition, architectural coatings for buildings would also generate VOC emissions that could be considered an odor source. SJVAPCD Rule 4601 (Architectural Coatings) limits the VOC content of coating uses within SJVAPCD's jurisdiction and limits potential odor impacts. Considering this information, the VOC sources of potential construction-related odor emissions would be controlled through SJVAPCD rules and regulations. All potential construction-related odor emissions would occur intermittently for a limited period of time each day, which would allow dilution and dispersion of any potential odor emissions and would cease completing following buildout of the proposed project.

Considering all these factors and the temporary nature of construction activities, the proposed project's construction activities are not expected to expose a substantial number of receptors to objectionable odor emissions, and this impact is considered **less than significant**. No mitigation is required.

Operation

Operation of the proposed project could generate odor emissions in the form of DPM exhaust and other miscellaneous odors associated with light industrial processes. DPM exhaust emissions would be dispersed throughout the regional roadway network; however, it is anticipated that haul truck routes to and from the project site could pass by existing and planned residents, which would increase the amount of odorous emissions. In addition, depending on the types and level of activity associated with light industrial land uses, existing and planned receptors could be exposed to a constant source of odor emissions from the project site.

Similar to construction activities, all operational activities associated with the proposed project would be required to comply with all SJVAPCD Rules and Regulations. Specifically, SJVAPCD Regulation IV includes several rules that limit and control emissions from various light industrial activities. In addition, Rule 4102 (Nuisance) would prohibit any operational activities from causing an odor nuisance through their emissions.

Considering the largely undeveloped nature of the vicinity of the project site and that the project does not propose a substantial number of sensitive receptors, and in light of Rule 4102, the project would not expose a substantial

number of receptors to objectionable odor emissions during operations, and this impact is considered **less than significant**. No mitigation is required.

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3.3 AGRICULTURAL RESOURCES

Section 3.3 addresses agricultural resources within the project site and surrounding areas. It describes Stanislaus County's agricultural land uses; identifies the extent of agricultural land on the project site and within the County, including Important Farmland and Grazing Land; and describes the factors contributing to the conversion of irrigated agricultural land to non-irrigated uses. This section also determines the significance and quality of agricultural land within the project site.

No forestry resources occur within project site boundaries as defined by Appendix G of the *CEQA Guidelines.* The project site is not zoned as forestland, timberland, and is not a Timberland Production Zone. Therefore, implementing the proposed project would not conflict with existing zoning for, or cause rezoning of, forestry resources, and this issue is not evaluated further in this EIR. Similarly, the project site does not contain timberland, as defined by Public Resources Code Section 4526, and does not contain 10 percent native tree cover that would be classified as forestland under Public Resources Code Section 12220(g). Therefore, implementation of the proposed project would not result in the conversion of forest land to non-forest use, and this issue is not evaluated further in this EIR.

3.3.1 ENVIRONMENTAL SETTING

Agriculture is a major economic activity throughout Stanislaus County, which is the state's sixth largest agricultural county in terms of agricultural production. Stanislaus County produces over 120 different crops, including more than 30 types of fruit and nuts; more than 50 types of vegetables; and more than 20 types of field crops; and nursery stock, livestock, poultry, dairy, and apiary products (Stanislaus County Agricultural Commissioner 2015).

The total gross valuation for all agricultural commodities produced in Stanislaus County in 2015 was approximately $3.8 billion, indicating a decrease of 14 percent from the all-time high value of $4.4 billion, which was recorded in 2014. This decrease is primarily attributed to a reduction in yields for many commodities due to the sustained drought and a decrease in the values of milk, walnuts, almond meats, silage, cattle and calves and turkeys. Milk posted the largest decrease at $304 million followed by walnuts at $127 million and almond meats at $100 million. Almonds had the highest crop value ($1.3 billion) and represent approximately one-third of Stanislaus County's production value. Milk production is the second largest commodity at $648 million, followed by cattle and calves ($350 million), and chickens ($304 million) (Stanislaus County Agricultural Commissioner 2015).

STANISLAUS COUNTY FARMLAND CONVERSION

The California Department of Conservation identifies four classifications for Important Farmland: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. (See Section 3.3.2, "Regulatory Framework," below, for detailed descriptions of each of the Important Farmland classifications as well as other land classifications.) Each classification identifies the land's suitability for agricultural production by considering physical and chemical characteristics of the soil, such as soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth. The classifications also consider location, growing season, and moisture available to sustain high-yield crops.

Table 3.3-1 summarizes acreages of agricultural land in Stanislaus County between 2004 and 2014 and shows the net change in acreage over the 11-year period.

Table 3.3-1
Summary of Agricultural Land Conversion in Stanislaus County

Farmland Category	Acres				Net Change (2008–2014)		Net Change (2010–2014)		Total Net Change (2004–2014)	
	2004	2008	2010	2014	Acres	%	Acres	%	Acres	%
Prime Farmland	262,045	256,165	253,434	252,700	-3,465	-1.4	-734	-0.3	-9,345	-3.6
Farmland of Statewide Importance	29,747	31,448	31,475	32,182	734	2.3	707	2.2	2,435	8.2
Unique Farmland	70,137	81,368	87,524	105,630	24,262	29.8	18,106	20.7	35,493	50.6
Farmland of Local Importance	35,050	31,159	31,366	28,144	-3,015	-10.7	-3,222	-11.4	-7,361	-26.2
Important Farmland Subtotal	**396,979**	**400,140**	**403,799**	**418,656**	**18,516**	**4.6**	**14,857**	**3.7**	**21,677**	**5.4**
Grazing Land	446,624	434,136	429,545	414,012	-20,124	-4.9	-15,533	-3.8	-32,612	-7.9
Agricultural Land Total	**843,603**	**834,276**	**833,344**	**832,668**	**-1,608**	**-0.2**	**-676**	**-0.08**	**-10,935**	**-1.3**

Source: DOC 2006a, 2008a, 2012a, 2014a

The Department of Conservation estimated that Stanislaus County included 843,603 acres of agricultural land in 2004, of which 396,979 acres were identified as Important Farmland and 446,624 acres were identified as Grazing Land (DOC 2006a). Overall, the total acreage of Important Farmland increased by approximately 5.4 percent over the 11-year period between 2004 and 2014, while the total acreage of agricultural land decreased by 1.3 percent (Table 3.3-1). A similar trend continued between 2008 and 2014, with the percent of Important Farmland increasing while the overall percentage of agricultural land decreased (Table 3.3-1).

The Department of Conservation field reports for Stanislaus County identify the factors contributing to changes in agricultural land uses. Between 2004 and 2008, most of the conversion of irrigated Important Farmland (*i.e.*, Prime Farmland, Farmland of Statewide Importance, or Unique Farmland) was to urban land uses (DOC 2006b, 2008b, 2012b). By 2010, the biggest decrease in irrigated farmland resulted from formerly irrigated Farmland of Local Importance and Grazing Land that was left land idle and land converted from irrigated to non-irrigated crops (DOC 2014b). The amount of Important Farmland that increased over the 10-year period was mainly from conversions to new orchards, vineyards, and field crops and expansions of potted plant nurseries (DOC 2006b, 2008b, 2012b, 2014b).

According to the Department of Conservation's most recent 2014 Field Report, most irrigated Important Farmland that had a change in status either was reclassified as Farmland of Local Importance, grazing land, idled land, or conversion to non-irrigated crops. Additional Important Farmland was converted to Urban and Built-Up Land because of construction. Conversion of Important Farmland to Other Land resulted from land that was left idle for three or more update cycles, the construction of rural residences and commercial uses, and the construction of a new sports field (DOC 2014c). Conversely, Important Farmland increased, mainly from the conversion of Grazing Land and Other Land to new orchards and vineyards along the eastern foothills and expansion of a potted plant nursery near the city of Ceres (DOC 2014c).

WILLIAMSON ACT

Under the California Land Conservation Act of 1965, also known as the Williamson Act, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. Stanislaus County had approximately 690,110 acres of land under Williamson Act contracts in 2010 (the most recent year for which data is available) (DOC 2013:26). The nonrenewal process is the most common mechanism for termination of Williamson Act contract lands, and most Williamson Act contracts are terminated through this process. In Stanislaus County as of 2010, approximately 44,077 acres were in some stage of the nonrenewal process, approximately 755 additional acres of land under Williamson Act contracts entered the nonrenewal process through nonrenewal initiations, and the amount of contract land terminated through nonrenewal expirations was approximately 576 acres (DOC 2013).

None of the project site is under a Williamson Act contract. However, the project site is adjacent to property that is currently held under Williamson Act contracts (Exhibit 3.3-1).

EXISTING AGRICULTURAL USES

Since acquiring the property in 2004, the County has leased approximately 1,100 acres for agricultural uses using three-year contracts with the option to renew for two additional one-year terms. The primary cultivated crop on the project site consisting of wheat, beans, oats, and tomatoes (Table 3.3-2). Other crops that have been grown on-site include sugar beets, grain sorghum, spinach, melons, and corn. The agricultural lands are harvested seasonally then tilled and replanted. Crops on the project site are irrigated with groundwater that is pumped through spray irrigation systems and temporary irrigation channels.

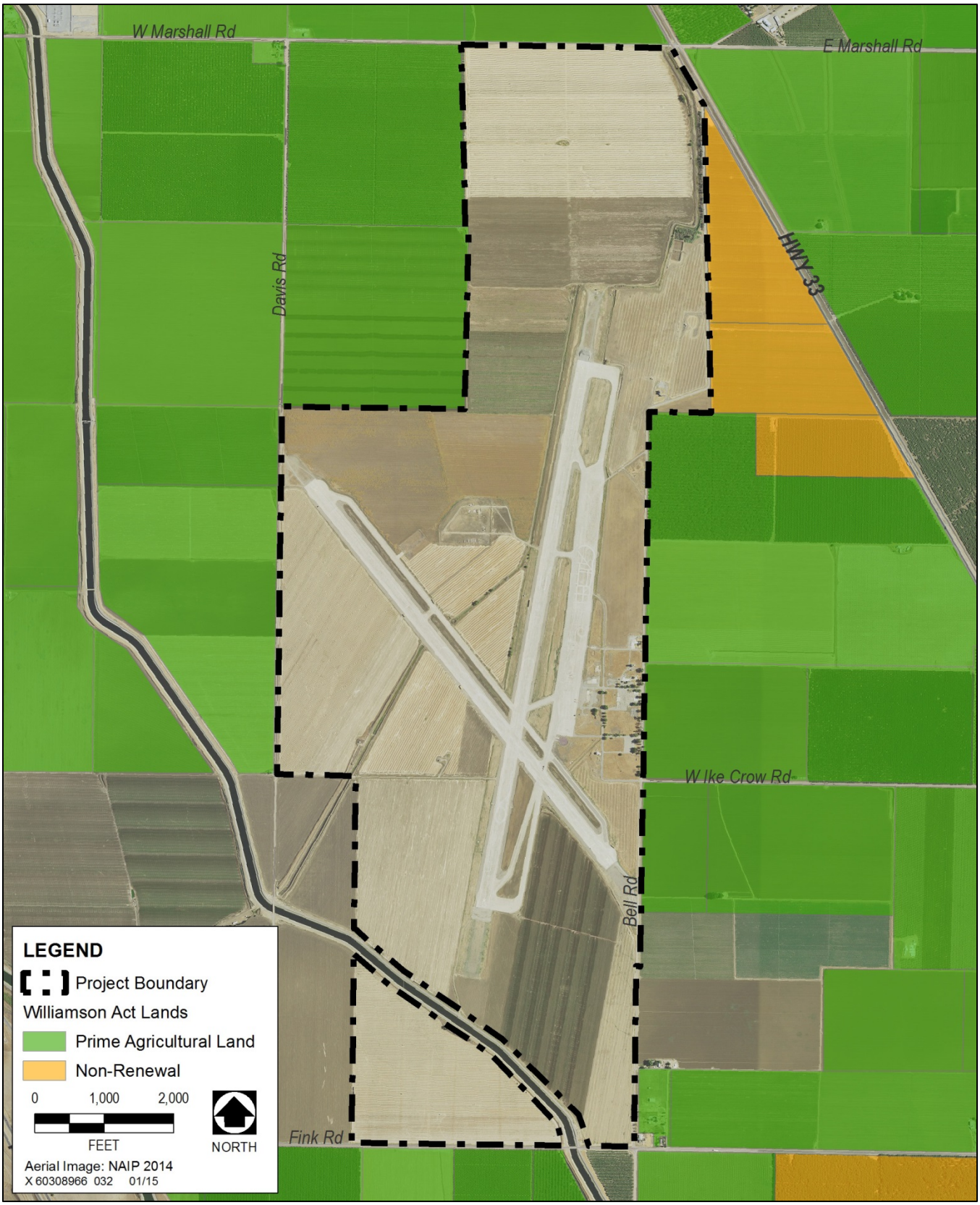
Table 3.3-2
Acreage of Crop Types Grown on the Project Site in 2014 and 2015

Year	Crop Type (acres)				Total (acres)
	Wheat	Beans	Oats	Tomatoes	
2014	749.25	58	249	83.75	1,140
2015	583	0	249	308	1,140

According to the Stanislaus County Important Farmland map published by the California Division of Land Resource Protection (DOC 2014d), approximately 1,178 acres of land within the project site is designated as Prime Farmland, and active agricultural land uses on the project site coincide with this farmland designation.[1] In addition, active agricultural fields and orchards are located adjacent to the project site and these agricultural lands are also designated as Prime Farmland (Exhibit 3.3-2).

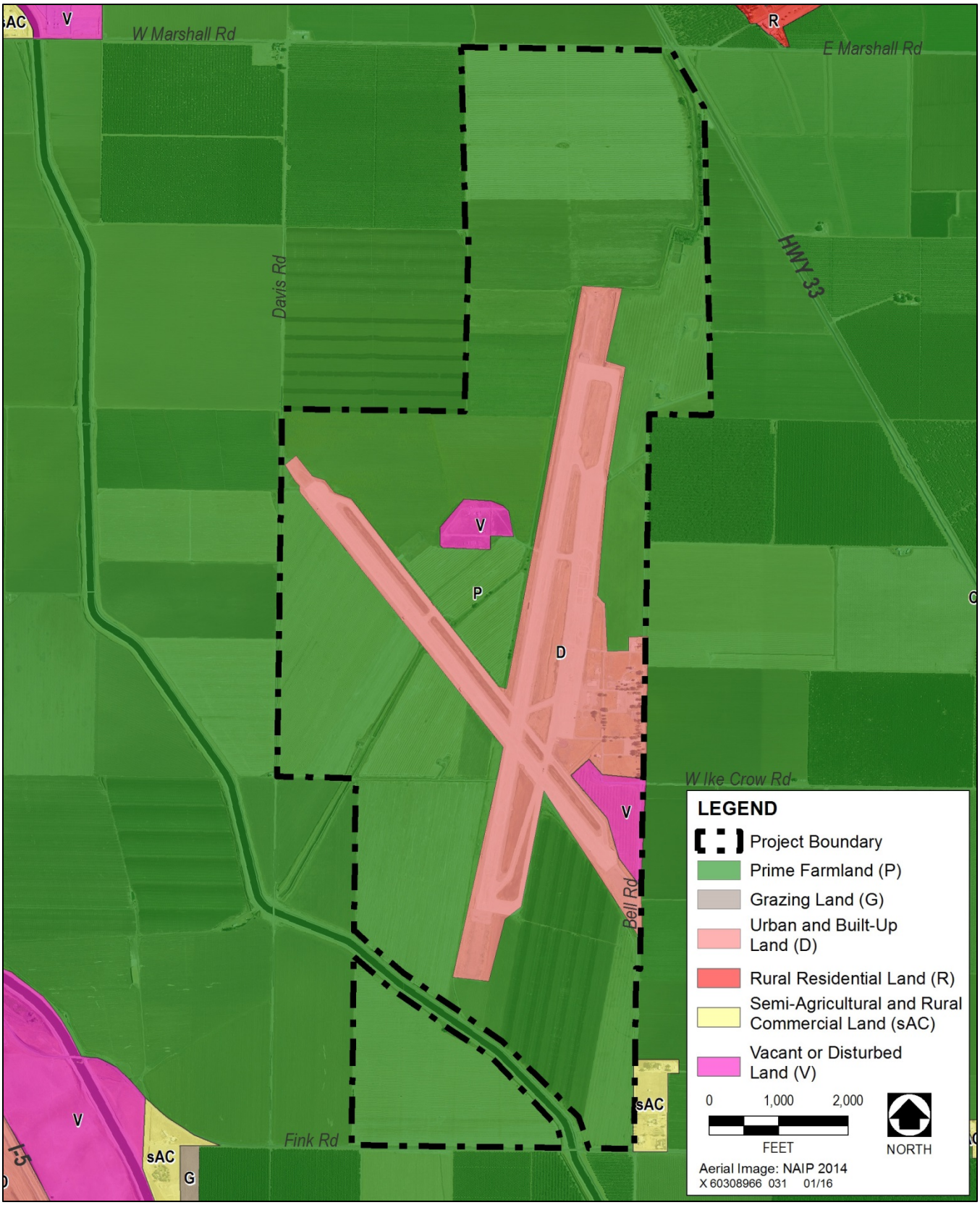
Approximately 312 acres of land within the project site is designated as Urban and Built-Up Land, and the former runways, roadways and former military facilities correspond to this designation. Approximately 33 acres of land is designated as "Other Land" and this area includes vacant parcels, one of which is being used for equipment storage.

[1] Using the Farmland Mapping and Monitoring Program GIS files from the Department of Conservation produces totals for the land area in the project site that are very slightly different from the totals reported elsewhere in this EIR. The difference is less than five acres.



Source: DOC 2009, DOC 2011

Exhibit 3.3-1. **Williamson Act Contracts**



Source: DOC FMMP 2014d

Exhibit 3.3-2. **Important Farmland**

Agricultural Zoning

The project site and adjacent parcels are zoned A-2-40 (General Agriculture) with a 40-acre minimum lot size. The A-2 zoning designation is intended to support and enhance agriculture as the predominant land use in the unincorporated areas of the county; to protect open space lands; and to ensure that all land uses are compatible with agriculture and open space, including natural resources management, outdoor recreation, and enjoyment of scenic beauty.

3.3.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to agricultural resources apply to this project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Important Farmland Inventory System and Farmland Mitigation and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the U.S. Soil Conservation Service (SCS) (now called the Natural Resources Conservation Service [NRCS], under the U.S. Department of Agriculture). The intent of the SCS was to produce agricultural resource maps, based on soil quality and land use across the nation. The Department of Conservation sponsors the FMMP and also is responsible for establishing agricultural easements, in accordance with California Public Resources Code Sections 10250–10255.

The Department of Conservation FMMP maps are updated every two years with the use of aerial photographs, a computer mapping system, public review, and field reconnaissance. The following list provides a comprehensive description of all the categories mapped by the Department of Conservation:

- **Prime Farmland**—Land that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields.
- **Farmland of Statewide Importance**—Land similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture.
- **Unique Farmland**—Land of lesser quality soils used for the production of the state's leading agricultural cash crops. This land is usually irrigated, but may include non-irrigated orchards or vineyards as found in some climatic zones in California.
- **Farmland of Local Importance**—Land that is of importance to the local agricultural economy, as defined by each county's local advisory committee and adopted by its board of supervisors.
- **Grazing Land**—Land with existing vegetation that is suitable for grazing.
- **Urban and Built-Up Lands**—Land that is used for residential, industrial, commercial, institutional, and public utility structures and for other developed purposes.

- **Land Committed to Nonagricultural Use**—Land that has a permanent commitment to development but has an existing land use of agricultural or grazing lands.

- **Other Lands**—Land that does not meet the criteria of any of the previously described categories and generally includes low-density rural developments, vegetative and riparian areas not suitable for livestock grazing, confined-animal agriculture facilities, strip mines, borrow pits, and vacant and nonagricultural land surrounded on all sides by urban development.

Important Farmland is classified by Department of Conservation as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Under CEQA, the designations for Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are defined as "agricultural land" or "farmland" (California Public Resources Code, Sections 21060.1 and 21095; *CEQA Guidelines*, Appendix G).

Williamson Act

The California Land Conservation Act of 1965 (the Williamson Act) is one of the State's primary agricultural conservation tools. Under this law, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. Williamson Act contracts are required to be a minimum initial term of 10 years, and are automatically extended each year for an additional year, unless either party (landowner or the contracting city or county) notifies the other of the intent not to renew the contract. In return, the landowner is guaranteed a relatively stable tax rate, based on the value of the land for agricultural/open space use, rather the potential value of the land for development.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Stanislaus Local Agency Formation Commission

Local Agency Formation Commissions (LAFCOs) are responsible for review and commenting on the boundaries of cities, special districts, and other types of service agencies. The statutes governing LAFCOs are in Section 56300 et seq. of the California Government Code. Stanislaus LAFCO has developed a Policies and Procedures document that explains how State guidance will be implemented locally.

Stanislaus LAFCO's Agricultural Preservation Policy (Policy 22) was amended in 2015. The current policy identifies that agencies may also adopt their own agricultural preservation policies, consistent with the LAFCO policy, to better meet the requirements of local conditions. For annexations of areas that include agricultural lands, LAFCO requires a plan for agricultural preservation. The Specific Plan would not require annexation, and therefore the LAFCO recommendation to develop a plan for agricultural preservation does not apply to the project. However, highlights of the LAFCO policy are presented below for context, and LAFCO policy is relevant to cumulative conditions for purposes of the discussion of cumulative impacts (please see Chapter 5 of this EIR).

Plan for Agricultural Preservation Requirement

Upon application for a sphere of influence expansion or annexation to a city or special district ("agency") providing one or more urban services (*i.e.*, potable water, sewer services) that includes agricultural lands, a Plan for Agricultural Preservation must be provided with the application to LAFCO pursuant to Policy 22. The purpose of a Plan for Agricultural Preservation is to assist the LAFCO in determining how a proposal meets the stated goals of this Policy.

The Plan for Agricultural Preservation shall specify the method or strategy proposed to minimize the loss of agricultural lands. LAFCO encourages the use of one or more of the following strategies:

1. Removal of agricultural lands from the existing sphere of influence in order to offset, in whole or in part, a proposed sphere of influence expansion or redirection.

2. An adopted policy or condition requiring agricultural mitigation at a ratio of at least 1:1. This can be achieved by acquisition and dedication of agricultural land, development rights and/or conservation easements to permanently protect agricultural land, or payment of in-lieu fees to an established, qualified, mitigation program to fully fund the acquisition and maintenance of such agricultural land, development rights or easements, consistent with Section B-2 of this Policy.

    a. In recognition of existing County policies applicable to agricultural land conversions in the unincorporated areas, as well as the goals of individual agencies to promote employment growth to meet the stated needs of their communities, an agency may elect to utilize a minimum of 1:1 mitigation for conversions to residential uses.

    b. Agricultural mitigation easements or offsets shall not be required for any annexations of land for commercial or industrial development.

3. A voter-approved urban growth boundary designed to limit the extent to which urban development can occur during a specified time period.

Stanislaus County General Plan

Both the Agricultural Element and the Land Use Element of the County's General Plan (Stanislaus County 2016) address agricultural resources. Relevant goals, policies, and implementation measures are outlined below.

Agricultural Element

- **GOAL ONE** – Strengthen the agricultural sector of our economy.
- **POLICY 1.10** – The County shall protect agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations.
- **IMPLEMENTATION MEASURE 1** – The County shall require buffers and setbacks for all discretionary projects introducing or expanding non-agricultural uses in or adjacent to an agricultural area consistent with the guidelines presented in Appendix "A."
- **GOAL TWO** – Conserve our agricultural lands for agricultural uses.
- **POLICY 2.7** – Proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to non-agricultural uses shall be approved only if they are consistent with the County's conversion criteria.

- **IMPLEMENTATION MEASURE 1** – Procedures for processing General Plan amendments shall incorporate the following requirements for evaluating proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to urban uses:

  - Conversion Consequences. The direct and indirect effects, as well as the cumulative effects, of the proposed conversion of agricultural land shall be fully evaluated.

  - Conversion Considerations. In evaluating the consequences of a proposed amendment, the following factors shall be considered: plan designation; soil type; adjacent uses; proposed method of sewage treatment; availability of water, transportation, public utilities, fire and police protection, and other public services; proximity to existing airports and airstrips; impacts on air and water quality, wildlife habitat, endangered species and sensitive lands; and any other factors that may aid the evaluation process.

  - Conversion Criteria. Proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to urban uses shall be approved only if the Board of Supervisors makes the following findings:

    A. Overall, the proposal is consistent with the goals and policies of the General Plan.

    B. There is evidence on the record to show a demonstrated need for the proposed project based on population projections, past growth rates and other pertinent data.

    C. No feasible alternative site exists in areas already designated for the proposed uses.

    D. Approval of the proposal will not constitute a part of, or encourage, piecemeal conversion of a larger agricultural area to non-agricultural uses, and will not be growth-inducing (as used in the California Environmental Quality Act).

    E. The proposed project is designed to minimize conflict and will not interfere with agricultural operations on surrounding agricultural lands or adversely affect agricultural water supplies.

    F. Adequate and necessary public services and facilities are available or will be made available as a result of the development.

    G. The design of the proposed project has incorporated all reasonable measures, as determined during the CEQA review process, to mitigate impacts to agricultural lands, fish and wildlife resources, air quality, water quality and quantity, or other natural resources.

- **POLICY 2.14** – When the County determines that the proposed conversion of agricultural land to non-agricultural uses could have a significant effect on the environment, the County shall fully evaluate on a project-specific basis the direct and indirect effects, as well as the cumulative effects of the conversion.

- **IMPLEMENTATION MEASURE 1** – The County will continue to evaluate each project on a case-by-case basis to determine whether the conversion of agricultural land will have a significant adverse effect on the environment.

- **IMPLEMENTATION MEASURE 2** – When it determines that the conversion of agricultural land will have a significant adverse effect on the environment, the County will continue to require preparation of an EIR to

fully assess the impacts of the conversion, propose mitigation measures, and consider alternatives to the proposed project.

- **POLICY 2.15** – In order to mitigate the conversion of agricultural land resulting from a discretionary project requiring a General Plan or Community Plan amendment from 'Agriculture' to a residential land use designation, the County shall require the replacement of agricultural land at a 1:1 ratio with agricultural land of equal quality located in Stanislaus County

(Although Policy 2.15 does not apply to the proposed project, since it does not propose any residential uses, it applies to the cumulative context detailed in Chapter 5 of this EIR).

- **IMPLEMENTATION MEASURE 1** – Mitigation shall be applied consistent with the *Farmland Mitigation Program Guidelines* presented in Appendix "B."

Land Use Element

Land Use goals, policies, and implementation measures are related to agricultural resources and the proposed uses of the project site.

- **GOAL ONE** – Provide for diverse land use needs.
- **GOAL TWO** – Ensure compatibility between land uses.
- **GOAL THREE** – Foster stable economic growth.
- **GOAL FOUR** – Ensure that an effective level of public service is provided.
- **POLICY SEVENTEEN** – Agriculture, as the primary industry of the County, shall be promoted and protected.
- **POLICY EIGHTEEN** – Promote diversification and growth of the local economy.
- **IMPLEMENTATION MEASURE 9** – Encourage reuse of the Crows Landing Air Facility as a regional jobs center.
- **POLICY THIRTY-TWO** –

  A. Any decision by the Board of Supervisors of the County of Stanislaus to approve the redesignation or rezoning of land from an agricultural or open space use to a residential use shall require, and be contingent upon, approval by a majority vote of the County voters at a general or special local election. In the event the Board approves the redesignation or rezoning of such land for a residential use, such approval shall not take effect unless and until that decision is approved by an affirmative majority vote of the voters of the County voting on the proposal.

  B. The requirement set forth in paragraph (A) shall apply to all such decisions affecting land that is designated for agricultural or open space use on the Land Use Map of the County's General Plan as of the effective date of this policy, even if the affected land is, after the effective date, redesignated or rezoned to a use other than an agricultural or open space use. The intent of this paragraph is to ensure that a

developer does not launder land by obtaining County approval for a non-residential use (*e.g.*, an industrial or commercial use), and then subsequently obtain County approval for a residential use.

C. The Board's decision to approve the redesignation or rezoning of land from an agricultural or open space use to a residential use constitutes the approval of a project for purposes of CEQA. For this reason, the County shall comply with CEQA prior to the Board's decision to approve the redesignation or rezoning, notwithstanding the requirement that the voters approve such redesignation or rezoning.

D. Once the voters have approved a land use map designation or land use entitlement for a property, additional voter approval shall not be required for: (1) subsequent entitlement requests that are consistent with the overall approved development project or land use designation and zoning; and (2) any requested modification to a land use or zoning designation that does not decrease the number of permitted dwellings, as specified in the exhibits and plans approved by the voters.

E. Exemptions. The requirement for voter approval set forth in this policy shall not apply to any of the following:

1. After notice and hearing as required by state law and after compliance with CEQA, the Board of Supervisors may, without a vote of the electorate of the County, approve residential development on land designated for agricultural or open space uses if the Board finds, based on substantial evidence in the record, and HCD certifies in writing, that all of the following circumstances exist: (a) the approval is necessary and required to meet the County's legal fair share housing requirement; and (b) there is no other land in the County or the cities in the County already designated for urban use that can accommodate the County's legal fair share housing requirement. The Board shall not redesignate more than ten (10) acres per year for residential use under this paragraph.

2. Additional acreage may be designated for residential use if the Board finds, and HCD certifies in writing, that the additional acreage is necessary to meet the Board's legal fair share obligation based on maximum multi-family densities. Any proposal approved under this subsection shall be required to have all housing units permanently affordable to persons or families of moderate, low and very low income. The intent of this exemption is to provide sufficient land for housing to accommodate moderate, low and very low income housing, as may be necessary over time under state law.

3. Any development project that has obtained a vested right pursuant to state law prior to the effective date of this policy.

4. Any development project consisting entirely of farm worker housing.

(*Although Policy Thirty-Two does not apply to the project because the project does not propose residential uses, it is presented for context and applies to the cumulative context*)

- **IMPLEMENTATION MEASURE 3** – Specific plans shall be encouraged when non-agricultural uses are proposed within areas designated for agriculture.

Stanislaus County Agriculture Buffer and Setback Guidelines

The Stanislaus County Agriculture Buffer and Setback Guidelines are intended to protect the long-term health of local agriculture by minimizing conflicts resulting from normal agricultural practices as a consequence of new or expanding uses approved in or adjacent to the A-2 (General Agriculture) zoning district. These guidelines establish standards for the development and maintenance of buffers and setbacks designed to physically avoid conflicts between agricultural and nonagricultural uses.

These guidelines apply to all new or expanding uses approved by discretionary permit in the A-2 zoning district or on a parcel adjoining the A-2 zoning district.[2] Buffer and setback requirements established by these guidelines should be located on the parcel for which a discretionary permit is sought and shall protect the maximum amount of adjoining farmable land.

Buffer Design Standards for New Uses

All projects must incorporate a minimum 150-foot-wide buffer setback. Projects which propose people intensive outdoor activities, such as athletic fields, shall incorporate a minimum 300-foot-wide buffer setback. Permitted uses within a buffer area could include: public roadways, utilities, drainage facilities, rivers and adjacent riparian areas, landscaping, parking lots, and similar low people intensive uses. Walking and bike trails are allowed within buffers setback areas provided they are designed without rest areas. Landscaping within a buffer setback area shall be designed to exclude turf areas, which could induce activities and add to overall maintenance costs and water usage.

A 6-foot-high fence of uniform construction shall be installed along the perimeter of the developed area of the use to prevent trespassing onto adjacent agricultural lands. Fencing shall not be required for uses that do not directly establish the potential for increased trespassing onto adjacent agricultural lands.

Buffer and Setback Design Standards for Expanding Uses

Where existing development on a project site will allow, accommodation of a buffer as required for new uses shall be provided. Where existing development on a project site will not allow a buffer as required for new uses, the expansion may be permitted only if it does not intensify on-site activities or an alternative buffer and setback design standard is approved for the expansion.

[2] For purposes of these guidelines discretionary permit shall mean any general plan amendment, community plan amendment, rezone, tentative map, parcel map, use permit (excluding single-family dwellings in the A-2 zoning district), or variance processed by the County Planning & Community Development Department. "Low people intensive" Tier One and Tier Two Uses (such as nut hulling, shelling, dehydrating, grain warehousing, and agricultural processing facilities) which do not serve the general public shall not be subject to compliance with these guidelines; however, conditions of approval consistent with these guidelines may be required as part of the project approval. The decision making body shall have the ultimate authority to determine if a use is "low people intensive." Low people intensive Tier One and Tier Two Uses (such as nut hulling, shelling, dehydrating, grain warehousing, and agricultural processing facilities) which do not serve the general public shall not be subject to compliance with these guidelines; however, conditions of approval consistent with these guidelines may be required as part of the project approval.

Stanislaus County Farmland Mitigation Program Guidelines

The purpose of the Farmland Mitigation Program is to aid in mitigating the loss of farmland resulting from residential development in the unincorporated areas of Stanislaus County by requiring the permanent protection of farmland based on a 1:1 ratio to the amount of farmland converted. The Farmland Mitigation Program is designed to utilize agricultural conservation easements granted in perpetuity as a means of minimizing the loss of farmland.

The intent of these guidelines is to establish standards for the acquisition and long-term oversight of agricultural conservation easements purchased in accordance with the Farmland Mitigation Program. Although this program does not apply to the project, which does not propose residential development, this information is provided for context.

Methods of Mitigation

Farmland mitigation at a 1:1 ratio shall be satisfied by using one of the following techniques:

- Where the total land area subject to a General Plan or Community Plan Amendment is less than 20-acres in size, farmland mitigation shall be satisfied by direct acquisition of an agricultural conservation easement or purchase of banked mitigation credits as set forth in these guidelines.

- Where the total land area subject to the General Plan or Community Plan Amendment is 20-acres or more in size, farmland mitigation shall be satisfied by direct acquisition of a farmland conservation easement as allowed by these guidelines and the Land Trust's program. It shall be the development interest's sole responsibility to obtain the required easement.

- Alternative methods may be authorized by the Board of Supervisors provided the land will remain in agricultural use consistent with these guidelines. Any request for consideration of an alternative Farmland Conservation Method shall be reviewed by the Planning Commission for consistency with these guidelines prior to a decision by the Board of Supervisors.

Agricultural Mitigation Lands Locations and Characteristics

1. **Location** – Agricultural mitigation land shall be: (A) located in Stanislaus County; (B) designated Agriculture by the Land Use Element of the Stanislaus County General Plan; (C) zoned A-2 (General Agriculture); and (D) located outside a Local Agency Formation Commission (LAFCO) adopted Sphere of Influence of a city.

2. **Allowable Uses** – Agricultural Mitigation land shall be in conformance with the A-2 zoning district.

3. **Parcel Size** – Agricultural mitigation land shall consist of legal parcel(s) of twenty (20) net acres or more in size. Parcels less than twenty (20) net acres in size shall only be considered if merged to meet the minimum size requirement prior to execution of the farmland conservation easement. Any building envelope allowed by the Land Trust shall not be counted towards the required parcel size.

4. **Soil Quality** – The agricultural mitigation land shall be of equal or better soil quality than the agricultural land whose use is being changed to nonagricultural uses. Priority shall be given to lands designated as 'prime farmland', 'farmland of statewide importance' and 'unique farmland' by the California Department of Conservation's Farmland Mapping and Monitoring Program.

5. **Water Supply** – The agricultural mitigation land shall have an adequate water supply to support the agricultural use of the land. The water rights on the agricultural mitigation land shall be protected in the farmland conservation easement.

6. **Previous Encumbrances** – Land already effectively encumbered by a conservation easement of any nature is not eligible to qualify as agricultural mitigation land.

3.3.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The potential impacts of the proposed project on agricultural resources were evaluated based on a review of field conditions, aerial photographs, and policy guidance from the *Stanislaus County General Plan* (Stanislaus County 1994).

The Important Farmland Map for Stanislaus County, produced by the Department of Conservation Division of Land Resource Protection (DOC 2014d), and Williamson Act Contract Map (DOC 2009) for Stanislaus County were used to evaluate the agricultural significance of the lands associated with the proposed project. Geographic information system (GIS) data were used to determine the potential acreage of designated farmland affected by implementation of the proposed project. Appendix G of the *CEQA Guidelines* focuses the analysis on conversion of agricultural land on Prime Farmland, Farmland of Statewide Importance, or Unique Farmland; therefore, any conversion of these lands would be considered a significant impact under CEQA.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, an impact on agricultural resources is considered significant if the proposed project would:

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

IMPACTS AND MITIGATION MEASURES

IMPACT 3.3-1 **Loss of important farmland and conversion of agricultural land to nonagricultural urban uses.** *Implementation of the Specific Plan would result in the permanent conversion of agricultural land, including Important Farmland, to nonagricultural urban uses. This impact would be* ***significant****.*

Implementation of the Specific Plan would permanently convert agricultural land, including Important Farmland, to nonagricultural uses. The existing agricultural uses on the project site include cultivation of wheat, beans, oats, and tomatoes (Table 3.3-2). Other crops that have been grown on the project site include sugar beets, grain sorghum, spinach, melons, and corn. The County leases property on the project site for agricultural uses until

development is imminent. All agricultural uses on the project site is assumed to be converted to urban uses at buildout of the proposed project.

Off-site infrastructure improvement areas are proposed to be located within and adjacent to road rights-of-way and property boundaries. Therefore, the construction of these improvements is anticipated to minimize the loss of active farmland. Off-site improvements to Marshall Road between the project entrance and SR 33, Fink Road along the southern side of the project site, and SR 33 between Marshall Road and Sperry Avenue could require additional right-of-way involving approximately 14 acres of Prime Farmland.

Stanislaus County evaluated the proposed conversion of agricultural land to urban uses based on conversion criteria identified in General Plan Policy 2.7, and its EIR analysis has considered all of the conversion criteria listed in that policy. The County's primary goal for the proposed project is to reuse the former military property to create a regional employment center that would provide locally based employment opportunities. There are no other feasible alternative sites in Stanislaus County to accommodate the proposed land uses. Specific impacts and project consistency with goals and policies of the General Plan are addressed in each resource section of this EIR, as appropriate. These resource sections have analyzed and identified mitigation measures to reduce potentially significant and significant impacts resulting from implementation of the proposed project. Adequate public services and facilities would be provided to serve the proposed project, and no impacts on agricultural water supplies in the project vicinity would occur (see Section 3.13, "Public Services and Recreation," and Section 3.15, "Utilities, Service Systems, and Energy," for further discussion). Adjacent parcels are designated by the County's General Plan and zoning code for agricultural uses. The proposed project was designed to minimize conflicts with and will not interfere with agricultural operations on surrounding agricultural lands (see Impact 3.3-3).

The Stanislaus County LAFCO, which would review the application for a new Community Services District, reviews proposals for, among other things, their impacts on agricultural lands. According to Government Code Section 56668, a LAFCO is responsible for reviewing organizational and boundary changes. As part of that review, it must consider, "the effect of a proposal on maintaining the physical and economic integrity of agricultural lands" (LAFCO 2015, page 3). LAFCO has recognized the acute need to promote employment development in Stanislaus County as a part of its Agricultural Preservation Policy (Policy 22) (LAFCO 2015, pages 15 through 19):

> "…In recognition of existing County policies applicable to agricultural land conversions in the unincorporated areas, as well as the goals of individual agencies to promote employment growth to meet the stated needs of their communities, an agency may select to utilize a minimum of 1:1 mitigation for conversions to residential uses."

The County envisions that the site will be developed over a 30-year period, and it intends to continue agricultural activities on portions of the Specific Plan Area until the land is needed for development. Short-term impacts could occur in portions of the Specific Plan Area that remain in agricultural production until future development phases. During construction of each development phase, all construction equipment storage, construction areas, and access roads would be sited within the portion of the Specific Plan Area undergoing development. Extensions of utility infrastructure would avoid encroaching on the remainder parcels, to the extent possible, to avoid creating a situation where ongoing cultivation would become difficult or infeasible.

Based on analysis of the Stanislaus County Important Farmland map (DOC 2014d), approximately 1,178 acres of Prime Farmland would be directly and permanently converted to nonagricultural, urban use. In 2014,

approximately 252,700 acres of Prime Farmland existed in Stanislaus County (Table 3.3-1). A conversion of approximately 1,178 acres of Prime Farmland would account for approximately 0.5% of this total. The total conversion of Important Farmland would be relatively small (*i.e.*, less than one percent) in the context of the county's entire agricultural land base and would not likely cause a substantial reduction in the county's total agricultural production. Off-site transportation improvements could involve conversion of another 14 acres of Prime Farmland. Implementation of the Specific Plan would contribute to the incremental decline of Important Farmland in the county, region, and state and result in the irreversible conversion of this agricultural land. Pursuant to Objective Number 2.4 of the County's Agricultural Element, under CEQA, the County has "discretion in determining whether the conversion of agricultural land will have a significant adverse effect on the environment." Although the County's policy approach in relation to agricultural conservation easements is particularly focused on residential development that converts agricultural land, and although the project proposes employment development instead, the impact is considered **significant**.

The County's agricultural policies are comprehensive – addressing both the function of the agricultural economy in the County and also conservation of agricultural lands.

Goal 1 policies are focused on marketing agriculture, storage and processing facilities, and agriculture-related business expansion and development within the County:

- Policies 1.4 through 1.11 refer to allowable land uses in agricultural areas and minimizing conflicts with ongoing agricultural use.
- Policies 1.12 through 1.15 address housing for farmworkers.
- Policies 1.16 through 1.20 provide for local training, education, and technical assistance intended to support agricultural economic development. The policies under Goal 2 are focused on conservation of agricultural lands.

The County has participated in the Williamson Act since 1970 (Stanislaus County General Plan Agricultural Element, page 7-14), and it remains committed to the Act, which is an effective tool to keep land in agricultural use throughout the County. As noted previously, none of the project site is under a Williamson Act contract, but there is land in the vicinity of the project site that is under Williamson Act contracts. The County's participation in the Williamson Act helps to reduce cumulative effects associated with the loss of agricultural resources.

General Plan Policy 2.15 in the Agricultural Element commits the County to mitigating the loss of agricultural land that is attributable to a project requiring a General Plan or Community Plan amendment to allow residential use through a conservation easement. Because the project does not propose residential use, this policy does not apply. Pursuant to General Plan Objective Number 2.4 (page VII-23 of the County's Agricultural Element), the County considered the cost of conservation easements, the certainty of methods for conservation easements, and the location and placement of easements.

While the County supports the establishment of agricultural conservation easements as a complement to its suite of policies that promote the agricultural economy and agricultural conservation, the County is also obligated to balance agricultural conservation strategies with other objectives, such as economic development (in non-agricultural sectors) and local job growth. The additional cost associated with agricultural conservation easements would represent a constraint to employment development, which is another policy priority of Stanislaus County.

The cost of agricultural conservation easements would depend on the size, location, quality, and other characteristics of the land being protected. The Central Valley Farmland Trust has presented information suggesting that the average cost per acre in Stanislaus County would be approximately $6,000 (Martin, pers. comm. 2016). However, this average is based on 2007 and 2010 appraisals and it is likely that costs have changed. In establishing the agricultural easements that would be used for residential, but not for non-residential projects, the County's General Plan policies indicate that this particular tool is not appropriate for use in projects that would result in employment.

As described in the General Plan Land Use Element, the County has recognized the opportunity for employment-generating uses at the project site. Congress conveyed the former military property to Stanislaus County in 2004 for the purpose of economic development (Public Law 106-82). Since that time, the County has embraced the opportunity to reuse of the former airfield to the benefit of County residents and the region as a whole.

As noted, the project will be developed using a phased approach. During each development phase, construction and equipment-storage areas would be sited within the portion of the Specific Plan Area undergoing development to the extent practicable to avoid the premature conversion of farm land to non-agricultural use. Other than the strategies included in the Specific Plan and the application of relevant General Plan policies countywide, there are no additional feasible mitigation measures available to reduce impacts associated with the permanent conversion of Important Farmland to a less-than-significant level. Therefore, this impact would remain **significant and unavoidable**.

IMPACT 3.3-2 Conflict with agricultural zoning or Williamson Act contracts. *There are no Williamson Act contracts involving properties on the project site. Because rezoning will occur as a part of the project, there will be no conflict with on-site agricultural zoning. Off-site transportation improvements that may be required to serve the project could require additional right-of-way on land that has agricultural zoning and Williamson Act contracts. This impact would be less than significant.*

The project site is zoned A-2-40 (General Agriculture) with a 40-acre minimum lot size. The A-2 zoning designation is intended to support and enhance agriculture as the predominant land use in the unincorporated areas of the county, to protect open space lands, and to ensure that all land uses are compatible with agriculture and open space. Implementation of the Specific Plan would change the zoning designation to Specific Plan [S-P(2)], which would permit development of industrial and business park uses and operation of a general aviation airport. With approval of the proposed project and associated zoning changes, the proposed project would not conflict with zoning for agricultural use (see Section 3.11, "Land Use and Planning, Population, and Housing," for further discussion).

No lands are under Williamson Act contract on the project site. Therefore, implementing the proposed project would not conflict with an existing Williamson Act contract. However, off-site improvements to Marshall Road between the project entrance and SR 33, Fink Road along the southern side of the project site, and SR 33 between Marshall Road and Sperry Avenue could require additional right-of-way involving approximately 15.8 acres of Williamson Act lands and 14.7 acres with A-2-40 zoning. As previously mentioned, 14 acres of this area is considered Prime Farmland.

The process for cancellation of a Williamson Act contract is described in California Government Code Sections 51280 through 51283. Findings and noticing for a cancellation are typically required, along with a cancellation

fee. The requirement of additional right-of-way would not conflict with ongoing agricultural use on the balance of the properties. As discussed elsewhere in this and other sections of this EIR, the project is consistent with, and promotes the County's General Plan and, as such, is in the public interest. The conflict with Williamson Act contracts and agricultural zoning is for a minor amount of land that would not disturb the ongoing used of subject properties for agriculture. The impact is considered **less than significant**. No mitigation is required.

IMPACT 3.3-3 Conflict with existing off-site agricultural operations. *Implementation of the Specific Plan would locate urban land uses adjacent to existing off-site agricultural lands, resulting in potential conflicts with adjacent on-site and off-site agricultural operations. The project does not include uses that would result in the conversion of farmland to non-agricultural use. Conflicts between urban land uses adjacent to existing off-site agricultural lands would be less than significant.*

Implementation of the Specific Plan would accommodate developed land uses adjacent to existing on-site and off-site agricultural lands, and result in potential conflicts with adjacent on-site and off-site agricultural operations. Agricultural-urban interfaces have the potential for conflicts between agricultural practices and adjacent urban land uses. Health risks and nuisances potentially created by agricultural operations in the vicinity of the project site include, but are not limited to, exposure to pesticide and herbicide applications, exposure to dust (from soil preparation), exposure to noise (from machinery and trucks), odors, and exposure to mosquitoes. Conversely, urban development could generate air pollution that could be harmful to crops and vandalism. Development would add vehicular traffic in areas where agricultural equipment uses roads, which could make it somewhat more difficult to move agricultural equipment. However, to reduce conflicts between urban and agriculture interfaces, the County requires all projects proposing new land uses to incorporate a minimum 150-foot-wide buffer setback between urban development and off-site agricultural uses (General Plan Agricultural Element Appendix A). Appendix B of the Specific Plan (Section B.6.7) addresses Site Edges and Agricultural Buffers.

The proposed Specific Plan proposes predominantly logistics and light industrial uses, and these land uses are not likely to encroach into off-site agricultural areas and result in pressure on farmers to convert land to urban use. Land uses within the Specific Plan would be set back from the off-site agricultural operations by the existing road rights-of-way along Marshall Road, Fink Road, Bell Road, and Davis Road, with some exceptions and by rights-of-way along new backbone roadways. In addition, a landscaped berm with a pedestrian/bike path would be located on the portion of Bell Road, extending north from Ike Crow Road north to the intersection of Marshall Road and State Route 33. The road and pedestrian/bike path will provide a setback of 150 feet or more from off-site agricultural operations.

A traffic infrastructure master plan was prepared for the proposed project that identified on-site and off-site roadway improvements (under separate cover and available for review on file with the County Planning and Community Development Department). The thresholds used in the master plan were adjusted to reflect the existing agricultural and rural environment and to consider the movement of agricultural equipment (TJKM 2016). Roadway improvements identified in the master plan include widening the portion of Marshall Road between Ike Crow Road and Fink Road, portions of Crows Landing Road, South Carpenter Road, and State Route 33 to four lanes in the vicinity of the project site, and installing traffic signals at intersections along Sperry Road, Fink Road, Marshall Road, Crows Landing Road, and Ike Crow Road. In addition, incorporation of the County's transportation standards and specifications would ensure that agricultural equipment and other vehicles can move safely.

Because the proposed project would not involve residential uses or other uses that would generate pressure to convert off-site agricultural land to nonagricultural use, and includes buffer areas, the impact related to conflict between urban land uses adjacent to existing off-site agricultural lands is considered **less than significant**. No mitigation is required.

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3.4 BIOLOGICAL RESOURCES

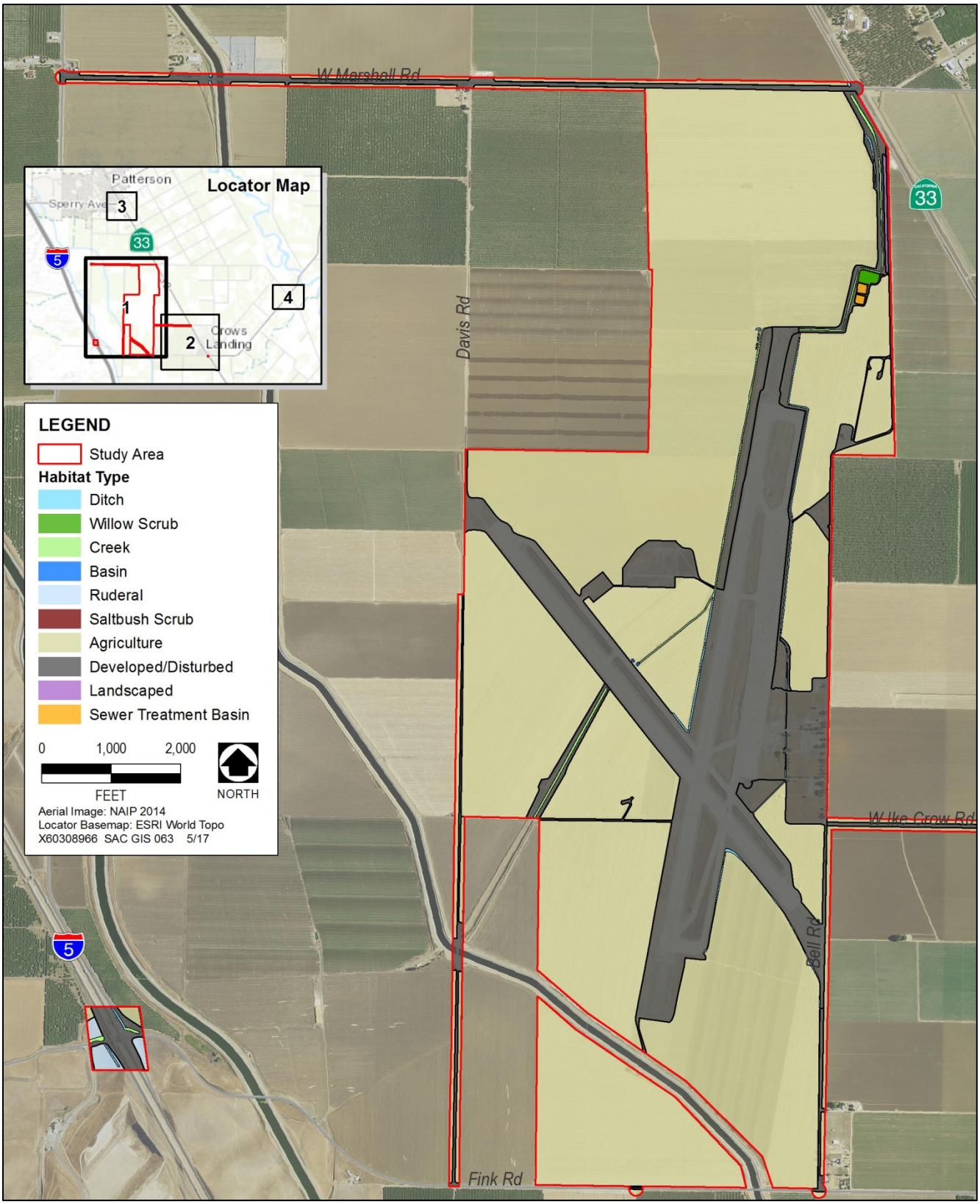
Section 3.4 addresses the biological resources that are known or have the potential to occur on the project site. The analysis includes a description of the existing environmental conditions at the time of the Notice of Preparation (NOP), the methods used for assessment, the impacts associated with implementing the proposed project, and the mitigation measures proposed to reduce potentially significant impacts. This section also includes a brief overview of the federal, State, and local laws and regulations pertaining to the protection of biological resources in Stanislaus County.

The biological resources information presented in this section is based on review of available background reports, previous studies conducted on or near the project site, biological resources databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB), Biogeographic Information and Observation System (BIOS), the California Native Plant Society (CNPS) Inventory, aerial photography interpretation, the Stanislaus County General Plan, and a jurisdictional delineation of waters of the United States, including wetlands, and a habitat assessment conducted on the project site by AECOM biologists on November 26 and December 26, 2013. Jurisdictional delineation of off-site roadway improvements was conducted on October 18, 2016 and site conditions have not changed since 2013 in a way that is relevant to biological resources. The jurisdictional delineations were conducted according to U.S. Army Corps of Engineers (USACE) protocol. The habitat assessment consisted of a combination of pedestrian and windshield surveys conducted on the project site concurrently with the jurisdictional delineation to identify and evaluate features of potential biological interest, such as wetlands, trees, elderberry shrubs, unusual soil conditions, and habitats that might support special-status species. The wetland delineation and habitat assessment field work were performed to describe the existing biological setting at the time of the NOP. All wildlife and plant species observed on the site were noted during the surveys.

3.4.1 ENVIRONMENTAL SETTING

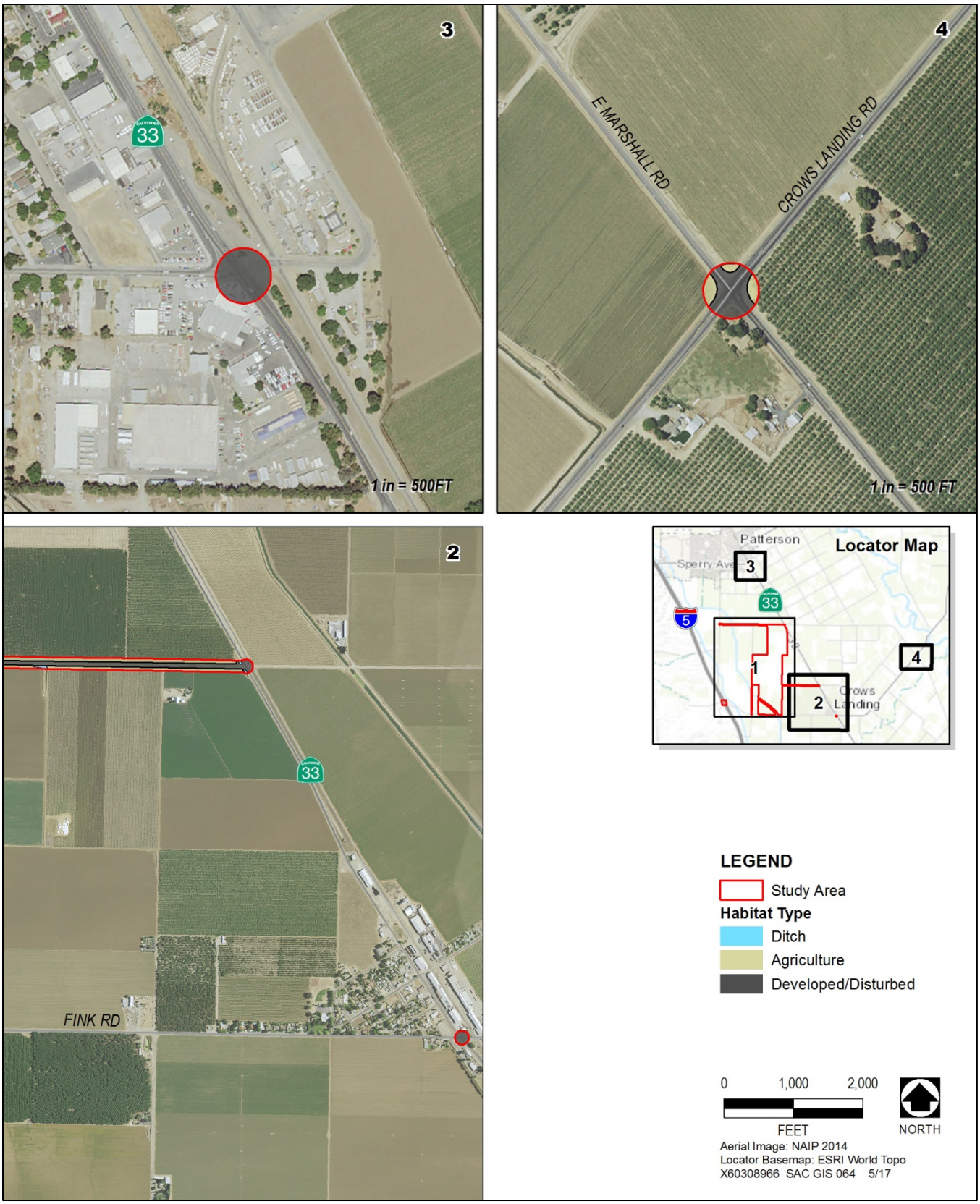
The 1,528-acre project site and off-site improvement areas are located in the San Joaquin Valley at the base of the Inner South Coast Range Mountains in an unincorporated area of western Stanislaus County. The San Joaquin Valley is composed primarily of agricultural lands.

A channelized creek, Little Salado Creek, traverses the site, and multiple smaller ditches are also present. Aside from agricultural fields, paved runways are the largest land cover on the site and the remainder of the site consists of developed and disturbed lands that formerly housed Naval support facilities. Defunct Naval facilities that were present during the 2013 site visit included an air traffic control tower, concrete pads associated with a former administrative office, storage, and maintenance sites, and former fire rescue facilities, which had been located on the east side of the project site between Bell Road and the runways, have been razed leaving concrete and asphalt pads, paved roads, landscaping, and disturbed ground (Yee 2015). Only the former air traffic control tower and former airfield lighting vaults remain. A site that formerly housed Navy ammunition bunkers and refuse disposal pits is located north of the runway intersection. Two excavated sewer treatment basins that were part of the Navy's sewer system are located in the northeast portion of the site, but they are no longer used and overgrown with ruderal vegetation. Habitat types present on the project site are shown in Exhibit 3.4-1.



Source: AECOM 2016

Exhibit 3.4-1a. **Habitat Map (Page 1)**



Source: AECOM 2016

Exhibit 3.4-1b. **Habitat Map (Page 2)**

The site is relatively flat and slopes to the northeast, with an elevation that ranges from approximately 110 to 200 feet above mean sea level. The project site is surrounded by agriculture with scattered rural residential properties. The community of Crows Landing is located approximately 1.4 miles to the southeast. The San Joaquin River is approximately 3.5 miles to the east and Interstate 5 (I-5) is approximately 1 mile to the west. The Delta-Mendota Canal bisects the project site in a northwest-southeast direction in a separate right-of-way that is excluded from the project site. The California Aqueduct flows in a north-south direction just west of the project boundary.

The off-site improvements consist of infrastructure (*i.e.*, sewer and road) improvements within existing roadway easements in the vicinity of the project site within an agricultural and rural residential setting. Off-site two-lane roadways would be rebuilt as a part of the project, including portions of Bell Road, Davis Road, Ike Crow Road, and Marshall Road. Marshall Road, West Main Street/Las Palms Avenue, and portions of State Route 33 (SR 33) would be expanded from two to four lanes within the existing roadway footprint. Turn lanes would be widened on Fink Road adjacent to the project site. Proposed improvements at the Fink Road- I-5 interchange include widening beneath the I-5 overpass to construct a left-turn lane to the southbound onramp. Signal lights would also be installed at the following off-site intersection locations:

- Sperry Avenue at SR 33
- Marshall Road at Ward Avenue
- Marshall Road at SR 33
- Marshall Road at project site entrance
- Ike Crow Road at SR 33
- Fink Road at Bell Road
- Fink Road at project site entrance
- Crow's Landing Road at Marshall Road
- Fink Road at SR 33
- Fink Road at I-5 northbound ramps

HABITAT

The site was actively farmed prior to the construction of the National Aeronautics and Space Administration (NASA) Crows Landing Flight Facility in 1943. Portions of the land outside of the runways, roads, and former building sites has been leased to private tenants and actively farmed since the facility was commissioned. The primary vegetation cover type on the project site is cultivated crops, such as wheat, beans, oats, and tomatoes. Other crops that have been grown on-site include sugar beets, grain sorghum, spinach, melons, and corn. The agricultural lands are harvested seasonally then tilled and replanted. Crops on the project site are irrigated with groundwater from on-site agricultural wells and pumped through spray irrigation systems and temporary irrigation channels.

Little Salado Creek supports patches of emergent wetland and riparian vegetation including narrow-leaf willow (*Salix exigua*), broad-leaved cattail (*Typha latifolia*), dotted smartweed (*Persicaria punctata*), and tall flatsedge (*Cyperus eragrostis*) (see Exhibit 3.4-1). An approximately 1-acre stand of willow scrub wetland vegetation dominated by narrow-leaf willow and Goodding's black willow (*Salix gooddingii*) is present in an excavated basin in the northeast portion of the site. A small patch (0.17 acre) of saltbush scrub habitat is present adjacent to the willow scrub habitat. The willow scrub wetland and saltbush scrub habitat was created in a cooperative effort by the Boy Scouts of America, the Navy, NRCS, and the Resource Conservation District to provide wildlife

habitat. Nearby along the eastern project boundary, a row of firethorn (*Pyracantha angustifolia*) and Russian olive (*Elaeagnus angustifolia*) grows between Bell Road and the east side levee of Little Salado Creek. It is likely that this row of trees and shrubs was planted as part of the wildlife habitat creation effort.

Developed and disturbed portions of the project site include areas covered by impervious surfaces, such as the former runways, access roads, and building foundations, as well as areas that were subjected to past intensive disturbances including complete removal of the native vegetation, soil disturbance, and topographic alteration. These disturbed areas are currently characterized by bare soil or ruderal vegetation cover. Ruderal vegetation found in developed/disturbed areas is dominated by weedy plants adapted for establishment on disturbed bare ground. Characteristic species in the ruderal vegetation communities on site include common oat (*Avena sativa*), ripgut brome (*Bromus diandrus*), rattail sixweeks fescue (*Festuca myuros*), bur clover (*Medicago polymorpha*), Italian thistle (*Carduus pycnocephalus*), and yellow star thistle.

Vegetation around the former Naval support facilities consists of remnant lawn grass dominated by tall fescue (*Festuca arundinacea*), Kentucky bluegrass (*Poa pratensis*), and Bermuda grass (*Cynodon dactylon*); landscaped trees and shrubs, including golden wattle (*Acacia longifolia*), firethorn, European privet (*Ligustrum vulgare*), and deodar cedar (*Cedrus deodara*); and ruderal herbaceous species.

The acreage of habitat types on the project site is provided in Table 3.4-1.

Table 3.4-1
Habitat Types on the Project Site

Habitat Type	Acres
Agriculture	1,146
Developed/Disturbed	372
Seasonal Stream (Little Salado Creek)	3
Ditches	2
Landscaped	2
Willow Scrub	1
Sewer Treatment Basin	1
Saltbush Scrub	0.17
Other	0.83
Total	**1,528**

Source: Data compiled by AECOM in 2014

Habitat in the off-site improvement areas consists of similar agricultural crops plus orchards and ruderal vegetation in disturbed areas along roadsides and the I-5 Interchange (Table 3.4-2). Little Salado Creek crosses through the off-site improvement area at the I-5-Fink Road interchange in a highly modified and fragmented channel. Flow in this portion of the creek is ephemeral and vegetation in the channel and on the banks is composed of weedy, primarily upland species including oat (*Avena* spp.), ripgut brome, blessed milkthistle (*Silybum marianum*), and common sunflower (*Helianthus annuus*).

Table 3.4-2 Habitat Types in the Off-site Improvement Areas	
Habitat Type	Acres
Agriculture	61
Developed/Disturbed	57
Seasonal Stream (Little Salado Creek)	0.34
Ditches	0.54
Total	**119**
Source: Data compiled by AECOM in 2016	

WILDLIFE

In general, the project site and off-site improvement areas provide low value habitat for most wildlife species because of an overall lack of native vegetation and natural communities, and a high level of disturbance from former military activities, agricultural activities, vegetation management on the levees of Little Salado Creek, and ongoing groundwater remediation efforts. The off-site infrastructure improvements are within and along active roadways traversing urban, residential, and agricultural areas that are highly disturbed.

The wildlife species most likely to use the project site and off-site improvement areas are primarily common species that are adapted to highly disturbed, ruderal, or agricultural environments. However, agricultural fields, provide high-value foraging opportunities for a number of raptor species, and several were observed on the site. Scattered trees that remain near the former facility sites and along Little Salado Creek and the created wildlife habitat provide nesting opportunities for raptors and other birds. Raptors and other wildlife species that were observed on the site during the reconnaissance survey and wetland delineation are noted in Table 3.4-3. Other common wildlife species known or expected to use the site include western toad (*Bufo boreas*), Pacific chorus frog (*Pseudacris regilla*), gopher snake (*Pituophis catenifer*), western kingbird (*Tyrannus verticalis*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*).

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources addressed in this section include those that are afforded consideration or protection under the California Environmental Quality Act (CEQA), California Fish and Game Code, California Endangered Species Act (CESA), federal Endangered Species Act (ESA), Clean Water Act (CWA), and the Porter-Cologne Water Quality Control Act (Porter-Cologne Act).

Table 3.4-3 Wildlife Species Observed During 2013 Field Reconnaissance Surveys	
Scientific Name	Common Name
Birds	
Accipiter cooperii	Cooper's hawk
Accipiter striatus	Sharp-shinned hawk
Aphelocoma californica	Western scrub-jay
Ardea alba	Great egret
Bubo virginianus	Great horned owl
Buteo jamaicensis	Red-tailed hawk
Callipepla californica	California quail
Cathartes aura	Turkey vulture
Circus cyaneus	Northern harrier
Columba livia	Rock pigeon
Corvus brachyrhynchos	American crow
Euphagus cyanocephalus	Brewer's blackbird
Elanus leucurus	White-tailed kite
Lanius ludovicianus	Loggerhead shrike
Mimus polyglottos	Northern mockingbird
Passer domesticus	House sparrow
Pica nuttalli	Yellow-billed magpie
Spinus psaltria	Lesser goldfinch
Sayornis nigricans	Black phoebe
Sturnella neglecta	Western meadowlark
Turdus migratorius	American robin
Zenaida macroura	Mourning dove
Mammals	
Canis latrans	Coyote
Lepus californicus	Black-tailed jackrabbit
Microtus californicus	California vole
Spermophilus beecheyi	California ground squirrel
Thomomys bottae	Botta's pocket gopher
Source: AECOM 2013	

Special-Status Species

Special-status species include plants and animals in the following categories:

- species officially listed by the State of California or the federal government as endangered, threatened, or rare;
- candidates for State or federal listing as endangered or threatened;
- taxa (*i.e.*, taxonomic categories or groups) that meet the criteria for listing, even if not currently included on any list, as described in California Code of Regulations (CCR) Section 15380 of the CEQA Guidelines;

- species identified by the California Department of Fish and Wildlife (CDFW) as species of special concern;
- species listed as fully protected under the California Fish and Game Code;
- species afforded protection under local or regional planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, or 2B.

The CDFW system includes six rarity and endangerment ranks for categorizing plant species of concern, which are summarized as follows:

- CRPR 1A – Plants presumed to be extinct in California;
- CRPR 1B – Plants that are rare, threatened, or endangered in California and elsewhere;
- CRPR 2A – Plants presumed to be extinct in California, but more common elsewhere;
- CRPR 2B – Plants that are rare, threatened, or endangered in California, but more common elsewhere;
- CRPR 3 – Plants about which more information is needed (a review list); and
- CRPR 4 – Plants of limited distribution (a watch list).

All plants with a CRPR are considered "special plants" by CDFW. The term "special plants" is a broad term that refers to all of the plant taxa inventoried in CDFW's CNDDB, regardless of their legal or protection status. Plants ranked as CRPR 1A, 1B, 2A, and 2B may qualify as endangered, rare, or threatened species within the definition of State CEQA Guidelines Section 15380. CDFW recommends that CRPR 1 and 2 species be addressed in CEQA projects. In general, CRPR 3 and 4 species do not meet the definition of endangered, rare, or threatened pursuant to State CEQA Guidelines Section 15380; however, these species may be evaluated by the lead agency on a case by case basis to determine significance criteria under CEQA.

The term "California species of special concern" is applied by CDFW to animals not listed under the federal ESA or CESA, but that are nonetheless declining at a rate that could result in listing, or that historically occurred in low numbers, or have limited ranges, and known threats to their persistence currently exist. "Fully protected" was the first state classification used to identify and protect animal species that are rare or facing possible extinction. Most of these species were subsequently listed as threatened or endangered under CESA or ESA. The remaining fully protected species that are not officially listed under CESA or ESA are still legally protected under California Fish and Game Code, as described below in the "Regulatory Framework" section, and qualify as endangered, rare, or threatened species within the definition of the *CEQA Guidelines*, Section 15380.

A list of special-status species that could potentially occur on the project site or immediate vicinity, provided suitable habitat conditions were present, was developed primarily through review of CNDDB (2015), BIOS (2015), and CNPS Inventory (2013) records of previously documented occurrences of special-status species in the Brush Lake, Ceres, Crows Landing, Gustine, Hatch, Newman, Orestimba Peak, Patterson, and Westley U.S. Geological Survey 7.5-minute quadrangles. The project site is located on the Crows Landing quadrangle. Exhibit 3.4-2 shows the location of special-status species occurrences recorded in the CNDDB, that are within 5 miles of the project site.

Special-Status Plants

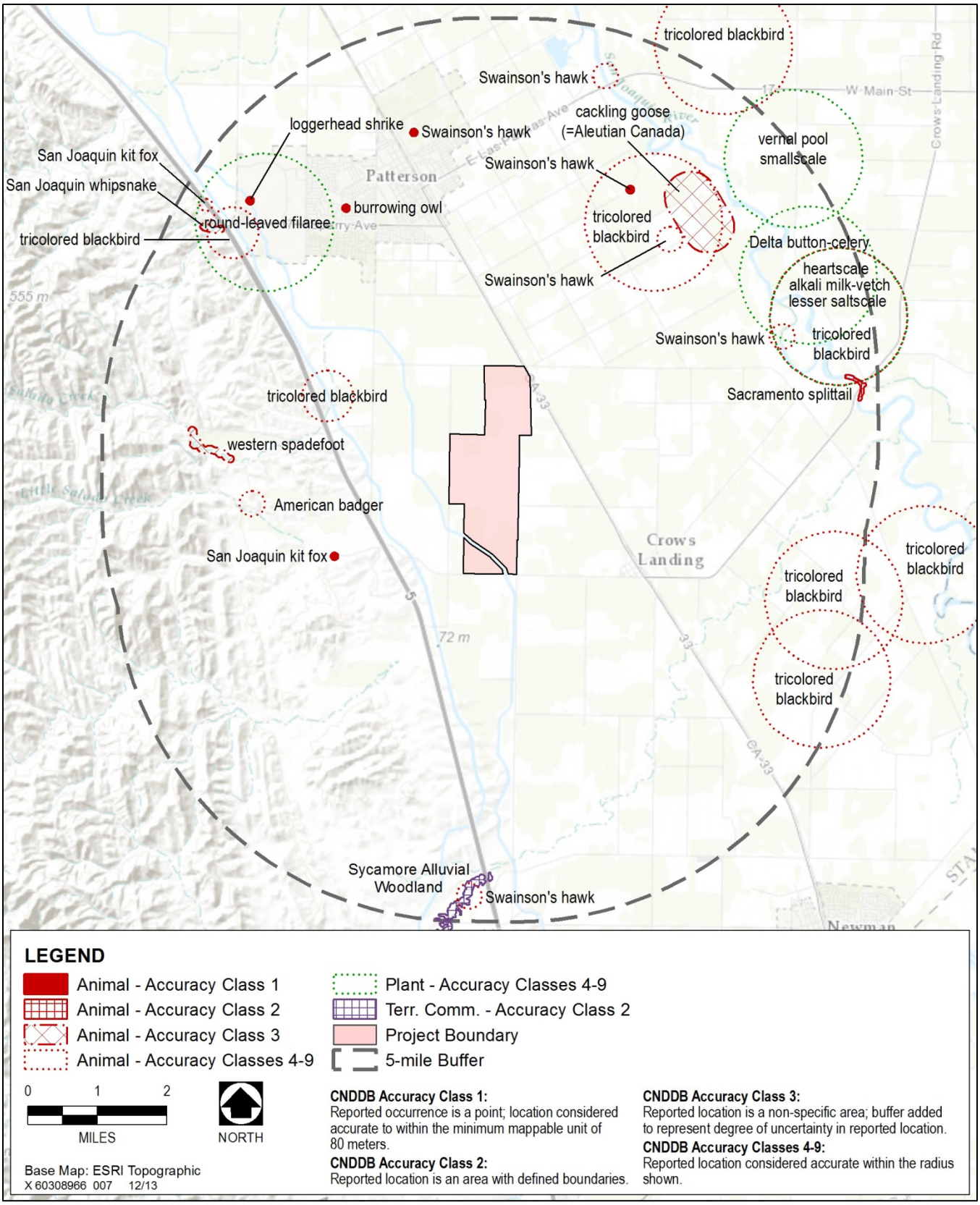
Sixteen special-status plant species have been documented in the CNDDB and CNPS Inventory nine-quadrangle search area. The potential for each of these species to occur on the project site was evaluated based on specific

habitat requirements, geographic distribution, and elevation range, as described in Table 3.4-4, which also provides the regulatory status, habitat, elevation range, and blooming period for each species. No special-status plant surveys have been conducted on the site, but virtually the entire project site and off-site improvement areas have been altered by human activities and are subject to ongoing vegetation management and surface soil manipulation. These activities, which include plowing, mowing, dredging, and hydrologic manipulation, preclude the establishment of natural plant communities on the majority of the site. The only exceptions are in Little Salado Creek, where a limited amount of emergent marsh and riparian vegetation has established and in the created willow scrub wetland habitat. Therefore, only special-status plants associated with ditches and canals or freshwater marsh and riparian habitats have potential to occur on the project site, as indicated in Table 3.4-4. The two plants that have the potential to occur on the site are Delta button-celery (*Eryngium racemosum*) and Sanford's arrowhead (*Sagittaria sanfordii*).

Special-Status Wildlife

In total, 28 special-status wildlife species have been documented in the CNDDB nine-quadrangle search area (Table 3.4-5). Of these species, 10 were eliminated from further evaluation in this document because they are restricted to particular habitat types (*e.g.*, vernal pools, perennial streams, rivers, and lakes) that are not present on the project site or off-site improvement areas:

- Conservancy fairy shrimp (*Branchinecta conservatio*)
- Longhorn fairy shrimp (*Branchinecta longiantenna*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- San Joaquin roach (*Lavinia symmetricus* ssp. *1*)
- Western spadefoot (*Spea hammondii*)
- Cackling goose (*Branta hutchinsii leucopareia*)
- Bald eagle (*Haliaeetus leucocephalus*)
- Steelhead – Central Valley DPS (*Oncorhynchus mykiss irideus*)
- Sacramento splittail (*Pogonichthys macrolepidotus*)



Source: CNDDB 2013

Exhibit 3.4-2. **Special-status Species and Natural Community Occurrences within 5-mile Search Radius of the Project Site**

Table 3.4-4
Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site

Species	Status[1]			Habitat and Blooming Period	Potential for Occurrence[2]
	USFWS	DFW	CRPR		
Alkali milk-vetch *Astragalus tener* var. *tener*	_	_	1B.2	Alkali flats, playas, or vernal pools in valley and foothill grassland; 0 to 450 feet elevation. Blooms March–June.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1940 record from east of the San Joaquin River near Crow's Landing Road bridge approximately 5 miles east of the project site. This occurrence is believed to be extirpated, but there are known occurrences in the North Grasslands Wildlife Area and San Luis NWR east of Gustine in Merced County.
Heartscale *Atriplex cordulata* var. *cordulata*	_	_	1B.2	Alkali flats and scalds with sandy soils in chenopod scrub, valley and foothill grassland; 0 to 1,800 feet elevation. Blooms April–October.	Unlikely to occur; no suitable habitat is present. Nearest documented occurrence is a 1965 record of an extirpated population approximately 4.5 miles northeast of the project site near the San Joaquin River.
San Joaquin spearscale *Atriplex joaquiniana*	_	_	1B.2	Seasonal alkali wetlands or alkali sink scrub below 3,000 feet elevation. Blooms April–September.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrences are in the San Luis National Wildlife Refuge (NWR) near Gustine in Merced County.
Lesser saltscale *Atriplex minuscula*	_	_	1B.1	Alkali sink or sandy, alkaline soils in chenopod scrub, playas, and valley and foothill grassland; 60 to 850 feet elevation. Blooms May–October.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1965 record from approximately 4.5 miles northeast of the project site near the San Joaquin River.
Vernal pool smallscale *Atriplex persistens*	_	_	1B.2	Alkaline vernal pools; 0 to 300 feet elevation. Blooms June–October.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1965 record from approximately 5 miles northeast of the project site near the San Joaquin River. This occurrence is believed to be extirpated.
Subtle orache *Atriplex subtilis*	_	_	1B.2	Saline depressions in valley and foothill grassland below 250 feet elevation.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1936 record from approximately 13 miles northeast of the project site.
Big tarplant *Blepharizonia plumosa*	_	_	1B.1	Dry hills and plains in valley and foothill grassland, usually on clay or clay loam soils; generally found on slopes and often in burned areas50 to 4,000 foot elevation. Blooms July–October.	Unlikely to occur; there is no suitable habitat on the project site. Nearest documented occurrences are in Del Puerto Canyon west of Patterson.
Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae*	_	_	1B.1	Sandy or gravelly openings in chaparral and cismontane woodland; 1,000 to 5,000 feet elevation. Blooms May–August.	Unlikely to occur; no suitable habitat is present and the project site is lower than the species known elevation range. The nearest known occurrence is on Black Mountain approximately 12 miles southwest of the project site.
Round-leaved filaree *California macrophylla*	_	_	1B.1	Clay soils in cismontane woodland and valley and foothill grassland; 30 to 4,000 feet elevation. Blooms March–May.	Unlikely to occur; no suitable habitat is present. The nearest known occurrence is a 1940 record from 2 miles west of Patterson and approximately 5 miles northwest of the project site.

Table 3.4-4
Special-Status Plant Species Known to Occur or with Potential to Occur on the Project Site

Species	Status[1] USFWS	DFW	CRPR	Habitat and Blooming Period	Potential for Occurrence[2]
Lemmon's jewelflower *Caulanthus lemmonii*	_	_	1B.2	Pinyon-juniper woodland, valley and foothill grassland; 250 to 4,000 feet elevation. Blooms March–May.	Unlikely to occur; no suitable habitat is present and the site is lower than the species' known elevation range. The nearest documented occurrence is a 1938 record from Del Puerto Canyon approximately 5.5 miles northwest of the project site.
Hispid bird's-beak *Chloropyron molle* ssp. *hispidum*	_	_	1B.1	Damp alkaline soils, especially in alkaline meadows and alkali sinks and playas; 30 to 500 feet elevation. Blooms June–September.	Unlikely to occur; no suitable habitat is present. The nearest occurrence records are from the San Luis NWR in Merced County.
Delta button-celery *Eryngium racemosum*	_	_	1B.1	Seasonally inundated floodplains on clay soils in riparian scrub; 65 to 1,300 feet elevation; blooms June–October.	Could occur, Little Salado Creek and the willow scrub wetland may provide marginally suitable habitat. The nearest record is an extirpated occurrence from the San Joaquin River approximately 5 miles northeast of the project site. There are extant occurrences in the North Grasslands Wildlife Area approximately 10 miles southeast of the project site.
Spiny-sepaled button celery *Eryngium spinosepalum*	_	_	1B.2	Vernal pools and swales; 250 to 2,000 feet elevation; blooms April–June.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1935 record from approximately 5 miles south of the project site south of Orestimba Creek.
Diamond-petaled California poppy *Eschscholzia rhombipetala*	_	_	1B.1	Alkaline clay slopes and flats in valley and foothill grassland; 0 to 3,200 feet elevation. Blooms March–April.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is a 1940 record from north of Del Puerto Canyon approximately 7 miles northwest of the project site.
Prostrate vernal pool navarretia *Navarretia prostrata*	_	_	1B.1	Seasonal alkali wetlands and alkaline vernal pools; 50 to 2,300 feet elevation. Blooms April–July.	Unlikely to occur; no suitable habitat is present. The nearest documented occurrence is in the San Luis NWR approximately 13 miles southeast of the project site.
Sanford's arrowhead *Sagittaria sanfordii*	_	_	1B.2	Shallow freshwater marshes and swamps in standing or slow-moving ponds and ditches; below 2,200 feet elevation; blooms May–October.	Could occur; the Little Salado Creek channel provides potentially suitable habitat. The nearest documented occurrence is a 1948 record from 1 mile east of Gustine and approximately 12 miles southeast of the project site.
Prairie wedge grass *Sphenopholis obtusata*	_	_	2B.2	Open, moist sites along rivers and springs, ponds, wet meadows and alkaline desert seeps; 1,100 to 8,000 feet elevation. Blooms April–July.	Unlikely to occur; no suitable habitat is present and the project site is lower than the species known elevation range. The nearest occurrence record is from 1969 in the Modesto area, which also is not within the species' reported elevation range.

Notes: USFWS = U.S. Fish and Wildlife Service; DFW = California Department of Fish and Wildlife; CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database; ESA = Federal Endangered Species Act; CESA = California Endangered Species Act

[1] Legal Status Definitions

U.S. Fish and Wildlife Service:
E Endangered (legally protected)
T Threatened (legally protected)

California Department of Fish and Game:
E Endangered (legally protected)

California Rare Plant Rank Categories:
[1B] Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)
[2B] Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

CNPS Extensions:
[1] Seriously endangered in California (>80% of occurrences are threatened and/or high degree and immediacy of threat)
[2] Fairly endangered in California (20 to 80% of occurrences are threatened)

Sources: CNDDB 2015; BIOS 2015; CNPS 2013; data compiled by AECOM in 2015

Table 3.4-5
Special-Status Wildlife with Potential to Occur in the Specific Plan Area

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	T/PD	–	Below 3,000 feet in elderberry shrubs, especially in elderberry within riparian habitats.	Unlikely to occur; there are no elderberry shrubs on the project site. The nearest known record is from the San Joaquin River approximately 10 miles northwest of the project site.
Amphibians and Reptiles				
California tiger salamander *Ambystoma californiense*	T	C	Fishless, seasonal and semi-permanent ponds, vernal pools, and seasonal wetlands with a minimum 10-week inundation period and surrounding uplands, primarily grasslands, with burrows and other belowground refugia (*e.g.*, rock or soil crevices). Generally uses uplands within 1.3 miles of breeding habitat.	Unlikely to occur; no suitable aquatic habitat is present and agricultural disturbance makes uplands unsuitable. Nearest documented occurrence is a 1992 record from vernal pools west of Modesto approximately 13 miles northwest of the project site.
Western pond turtle *Emys marmorata*	–	SC	Forage in ponds, marshes, slow-moving streams, sloughs, and irrigation canals with aquatic vegetation; nest in nearby uplands with low, sparse vegetation.	Unlikely to occur; Little Salado Creek does not support permanent aquatic habitat suitable for this species and there is no permanent aquatic habitat in the project vicinity. Nearest CNDDB record is from Orestimba Creek approximately 7 miles southwest of the project site.
San Joaquin whipsnake *Masticophis flagellum ruddocki*	_	SC	Valley grassland and saltbush scrub. Open, dry habitats with little or no tree cover. Needs mammal burrows for refuge and oviposition.	Unlikely to occur; agricultural habitat is generally unsuitable. The only documented occurrence in the nine-quad search area is a 1998 record of a dead individual on Del Puerto Canyon Road approximately 5 miles northwest of the project site.
California red-legged frog *Rana aurora draytonii*	T	SC	Foothill streams with dense shrubby or emergent riparian vegetation, minimum 11–20 weeks of water for larval development, and upland refugia for aestivation.	Unlikely to occur due to poor habitat quality, presence of bullfrogs, and distance from known breeding populations. The ditches and Little Salado Creek do not provide suitable aquatic habitat conditions to support breeding populations. This species is believed to be extirpated from the valley floor. The nearest known records are from Orestimba Creek approximately 8 miles southwest of the project site and a 1993 record of a single frog in a stock pond along the Delta-Mendota Canal approximately 10 miles south of the project site.

Table 3.4-5
Special-Status Wildlife with Potential to Occur in the Specific Plan Area

Species	Listing Status[1] Federal	State	Habitat	Potential for Occurrence[2]
Giant garter snake *Thamnophis gigas*	T	T	Slow-moving streams, sloughs, ponds, marshes, inundated floodplains, rice fields, and irrigation/drainage ditches on the Central Valley floor with mud bottoms, earthen banks, emergent vegetation, abundant small aquatic prey and absence or low numbers of large predatory fish. Require adequate water supply through active season (early spring through late fall). Also require upland refugia not subject to flooding during the snake's inactive season.	Unlikely to occur due to lack of permanent water during the active season, vegetation management on the creek banks (levees), periodic dredging of the creek channel, and isolation from known populations. The species' current distribution is very fragmented with 13 known populations occurring in the following areas: Butte Basin, Colusa Basin, Sutter Basin, American Basin, Yolo Basin-Willow Slough, Yolo Basin-Liberty Farms, Sacramento Basin, Badger Creek-Willow Creek, Caldoni Marsh, East Stockton Diverting Canal and Duck Creek, North and South Grasslands, Mendota, Burrell-Lanare (58 FR 54053, Oct. 20, 1993). The Burrell-Lanare and Liberty Farms populations are believed to be extirpated as of the 2011 species status review. There is a large gap in recorded occurrences between White Slough Wildlife Area (a.k.a. Caldoni Marsh) in San Joaquin County and the Grasslands Ecological Area in Merced County. The project site falls within this distribution gap and there are no documented occurrences in Stanislaus County. The nearest known record is a 1997 record from the San Luis NWR area near Gustine approximately 12.5 miles southeast of the project site.
Birds				
Tricolored blackbird *Agelaius tricolor* (nesting colony)	–	C	Forages in agricultural lands and grasslands; nests in marshes, riparian scrub, and other areas that support cattails or dense thickets of shrubs or herbs. Requires open water and protected nesting substrate, such as flooded, spiny, or thorny vegetation (Shuford and Gardali 2008: 439).	Could occur; the agricultural land provides foraging opportunities and willow thickets and cattails in Salado Creek may provide suitable nesting habitat. There are numerous nesting colony records within 10 miles of the project site; however, the majority of these are from the 1970s and 1980s and the nesting habitat appears to have been eliminated for some. The nearest more current nesting records (2000–2005) are from the Newman area and North Grasslands Wildlife Area 5 to 7 miles east of the project site.
Golden eagle *Aquila chrysaetos* (year round)	–	FP	Forages in large open areas of foothill shrub and grassland habitats and occasionally croplands.	Could forage on the project site, but no suitable nesting habitat is present. Nearest known nest location is along Orestimba Creek approximately 7 miles southwest of the project site.
Burrowing owl *Athene cunicularia* (burrow sites)	–	SC	Nests and forages in grasslands, agricultural lands, open shrublands, and open woodlands with existing underground rodent burrows or friable soils, and open, well-drained terrain.	Could occur; habitat is suitable and numerous active ground squirrel burrows were observed on site. Evidence of burrowing owl use was observed during surveys conducted in 2002 (NASA 2003). The nearest documented occurrences are from the Patterson area near Salado Creek approximately 4.5 miles northwest of the project site.

Table 3.4-5
Special-Status Wildlife with Potential to Occur in the Specific Plan Area

Species	Listing Status[1]		Habitat	Potential for Occurrence[2]
	Federal	State		
Swainson's hawk *Buteo swainsoni* (nesting)	–	T	Forages in grasslands and agricultural lands; nests in riparian forests or woodlands and isolated trees.	Likely to occur; row crops on the project site and surrounding areas provide suitable foraging habitat and potential nesting trees are present. There are six nesting records within 5 miles of the project site.
Northern harrier *Circus cyaneus* (nesting)	–	SC	Nests and forages in grasslands, agricultural fields, and marshes. Nests on the ground within patches of dense, often tall, vegetation in undisturbed areas (MacWhirter and Bildstein 1996).	Known to occur; observed foraging on site during reconnaissance surveys. Could nest in emergent marsh vegetation in the canals or ruderal vegetation. There are no CNDDB records of this species in the nine-quad search area.
White-tailed kite *Elanus leucurus* (nesting)	–	FP	Forages in grasslands and agricultural fields; nests in riparian zones, oak woodlands, and isolated trees.	Known to occur; observed foraging on the project site during reconnaissance surveys and potential nest trees are present. There are no CNDDB records of this species in the nine-quad search area.
Loggerhead shrike *Lanius ludovicianus* (nesting)	–	SC	Forages and nests in grasslands, shrublands, and open woodlands.	Known to occur; observed roosting on the project site during reconnaissance surveys and suitable nesting and foraging habitat is present. There is one CNDDB nesting record of this species in the nine-quad search area from approximately 2.3 miles west of Patterson.
Song sparrow (Modesto population) *Melospiza melodia* (year round)	_	SC	Emergent marsh and riparian habitats. Ecological requirements are largely undescribed, but primary habitat elements appear to include standing or flowing water, moderately dense vegetation with emergent marsh and riparian plant associations, and exposed ground or leaf litter for foraging (Shuford and Gardali 2008: 402).	Unlikely to occur; this species has a very limited range extending from Little Butte Creek in Butte County to the Tuolumne River in Stanislaus County. The project site is outside this species' limited range.
Least Bell's vireo *Vireo bellii pusillus*	E	E	Thickets of willow or other low riparian shrubs, usually near water, but also along dry segments of intermittent streams.	Unlikely to occur; the only known breeding records of this species in the Central Valley in the last 50 years are from a restored riparian habitat on the San Joaquin River National Wildlife Refuge approximately 13 miles northwest of the project site. Habitat on the project site is not typical of habitats where this species is known to occur and the site is outside the species' current limited range.
Mammals				
Pallid bat *Antrozous pallidus*	_	SC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts in rock crevices, oak hollows, bridges, or buildings.	Maternity and roosting colonies could potentially be present in abandoned air station buildings such as the old flight tower. The only record in the nine-quad search area is a 1999 record from the San Joaquin River at George J. Hatfield State Recreation Area in Merced County approximately 8 miles southeast of the project site.

Table 3.4-5
Special-Status Wildlife with Potential to Occur in the Specific Plan Area

Species	Listing Status[1] Federal	State	Habitat	Potential for Occurrence[2]
Western red bat *Lasiurus blossevilli*	–	SC	Roosts primarily in dense tree foliage, especially in cottonwood, sycamore, and other riparian trees or orchards. Prefers habitat edges and mosaics with trees that are protected from above and open below and open areas for foraging.	Maternity and roosting colonies unlikely to occur on-site because of lack of suitable habitat. The only record in the nine-quad search area is a 1999 record from the San Joaquin River at George J. Hatfield State Recreation Area in Merced County approximately 8 miles southeast of the project site.
Riparian brush rabbit *Sylvilagus bachmani riparius*	E	E	Mixed riparian forests with dense, brushy understory vegetation. Typical habitat includes thickets of wild rose, blackberry, willow, coyote brush and other successional trees and shrubs (USFWS 2010). Needs dense shrubby vegetation for protective cover and herbaceous vegetation, such as grasses, sedges, and clovers, for forage.	Unlikely to occur, only two known natural populations of this species remain, one approximately 18 miles north at Caswell Memorial State Park and one along the San Joaquin River approximately 28 miles northwest of the project site. A captive bred population has been introduced at the San Joaquin River National Wildlife Refuge approximately 13 miles northwest of the project site. Habitat on the project site is not typical of habitats where this species is known to occur because there is no dense, brushy riparian cover available and there is a general lack of herbaceous forage.
American badger *Taxidea taxus*	_	SC	Drier open shrub, forest, and herbaceous habitats with friable soils for digging burrows. Needs friable soils and open, uncultivated ground.	Unlikely to occur, agricultural habitats are generally unsuitable for this species. Nearest documented occurrence is a 1989 record of a foraging adult from approximately 2.25 miles west of the project site (west of I-5).
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	Annual grasslands or grassy open areas with scattered shrubs. Needs loose-textured, sandy soils for burrowing and suitable prey base.	Individuals could pass through and forage on the site, but dens on site are unlikely; agriculture is not suitable habitat and soils on site are dense-textured clay and clay loam. No den sites have ever been documented in Stanislaus County. Nearest known breeding population is in the San Luis Wildlife Refuge in Merced County, but individuals have been found on the west side of I-5 less than 2 miles from the project site and in the Patterson area (also west side of I-5) within 5 miles of the project site.

Notes: CNDDB = California Natural Diversity Database; USFWS = U.S. Fish and Wildlife Service

[1] Legal Status Definitions

Federal:
PD Proposed for Delisting
D Delisted (no ESA protection)
E Endangered (legally protected)
T Threatened (legally protected)

State:
C Candidate for listing (legally protected)
FP Fully protected (legally protected)
SC Species of special concern (no formal protection other than CEQA consideration)
T Threatened (legally protected)

[2] Potential for Occurrence Definitions

Source: CNDDB 2015, BIOS 2015, Shuford and Gardali 2008, NASA 2003; data compiled by AECOM in 2015

The remaining species were evaluated further based on specific habitat requirements and current geographic distribution.

In October 1993, San Francisco State University and the Navy conducted surveys on the project site focused on identifying tricolored blackbird, blister beetle, and giant garter snake (NASA 2003). No evidence of these species was found, but the methodology used to conduct these surveys was not described in the source document. In March 2002, NASA conducted a survey for burrowing owl on the project site. Although evidence of possible burrowing owl use was found, no burrowing owls were observed during the survey (NASA 2003). No specific evidence of burrowing owl use was found during 2013 surveys; however, numerous active ground squirrel burrows, which provide potential habitat for burrowing owl, were observed along the banks of Little Salado Creek and at the edges of agricultural fields.

Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, Section 404 of the CWA, and the State's Porter-Cologne Act, as discussed under "Regulatory Framework" below. Sensitive natural habitat may be of special concern to these agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species.

Special-status Natural Communities

CDFW maintains a list of plant communities that are native to California. Within that list, CDFW identifies special-status natural communities (or sensitive natural communities), which they define as communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects (CDFW 2015: xii). These communities may or may not contain special-status species or their habitat. Special-status natural communities are ranked by CDFW from S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable. Known occurrences of special-status natural communities are included in the CNDDB, a statewide inventory of the locations and status of the state's rarest plant and animal taxa and vegetation types; however, no new occurrences of natural communities have been added to the CNDDB since the mid-1990s. Sycamore alluvial woodland is a special-status natural community that has been mapped within 5 miles of the project site, but this community does not occur on the project site. The channelized creek (Little Salado Creek) supports emergent marsh vegetation within the project site. While not designated as a special-status natural community, the emergent marsh vegetation is associated with a stream and provides potential habitat for wildlife species. It is, therefore, subject to regulation under Section 1602 of the California Fish and Game Code and is considered a sensitive habitat.

Wetlands and Other Waters of the United States and Waters of the State

AECOM identified 3.26 acres of channelized creek (Little Salado Creek), 2.02 acres of ditches, 0.05 acre of excavated basins, and 1.01 acre of willow scrub wetland during the wetland delineation conducted in November and December of 2013 (Exhibit 3.4-1, Table 3.4-1). An additional 0.34 acre of Little Salado Creek and 0.54 acre of agricultural ditches were identified during the jurisdictional delineation of off-site roadway improvements conducted on October 18, 2016. Little Salado Creek, the excavated basins, and the willow scrub wetland were delineated as potential waters of the United States either because they meet the three criteria (*i.e.*, hydrophytic

vegetation, hydric soils, and wetland hydrology) to qualify as USACE jurisdictional wetlands or because they convey flow from a natural drainage channel upstream, have an ordinary high water mark, and are ultimately connected to the San Joaquin River. Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, and do not drain wetlands generally do not qualify as waters of the United States. Because all of the ditches on-site and in the off-site improvement areas were created in uplands and drain only uplands, they do not qualify as waters of the United States. Therefore, the total acreage of jurisdictional waters of the United States on the project site and off-site improvement areas, including wetlands, is approximately 4.32 acres. The total acreage of jurisdictional waters of the United States in the off-site improvement areas is 0.34 acre of Little Salado Creek. These features would be considered waters of the State and subject to regulation under the Porter-Cologne Act. In addition to these jurisdictional features, there are two sewer treatment basins comprising approximately 0.89 acre that are exempt from regulation under the CWA and Porter-Cologne Act and do not meet the definitions of waters of the United States or waters of the State. While the on-site and off-site ditches do not qualify as waters of the United States, they are subject to regulation under the Porter-Cologne Act as waters of the State.

Little Salado Creek is a seasonal stream that runs from the eastern foothills of the Diablo Range west of the project site, crosses under I-5 then the Delta Mendota Canal through box culverts, and then flows in a modified channel through agricultural fields and onto the project site. On the east side of the Delta-Mendota Canal, Little Salado Creek serves as a tailwater irrigation drain ditch for the surrounding agricultural fields. The channel was straightened, deepened, and confined within earthen levees through the project site beginning in 1943 when the air facility was constructed. At its terminal discharge point from the project site, Little Salado Creek drains through a single 24-inch diameter drain pipe (the Marshall Drain) that flows east along Marshall Road for about 4.3 miles to its final discharge point at the San Joaquin River. This connection to the San Joaquin River establishes Little Salado Creek as a jurisdictional water of the United States.

3.4.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Endangered Species Act

Pursuant to the ESA (16 United States Code [U.S.C.] Section 1531 *et seq.*), U.S. Fish and Wildlife Service (USFWS) has regulatory authority over species that are listed or proposed for listing as endangered or threatened. USFWS and the National Marine Fisheries Service have authority over projects that may result in take of a species listed as threatened or endangered under ESA (*i.e.*, a federally listed species). In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under Federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

The take prohibition of ESA Section 9 applies only to listed species of fish and wildlife. Section 9(a)(2)(B) describes federal protection for endangered plants. In general, ESA does not protect listed plants located on nonfederal land (*i.e.*, areas not under federal jurisdiction), unless such species are protected by state law.

Section 7 of the ESA outlines procedures for federal interagency cooperation to protect and conserve federally listed species and designated critical habitat. Critical habitat identifies specific areas that have the physical and

biological features essential to the conservation of a listed species and that may require special management considerations or protection. Section 7(a)(2) requires federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroying or adversely modifying designated critical habitat.

For projects where federal action is not involved and take of a listed species may occur, a project proponent may seek an incidental take permit under section 10(a) of the ESA. Section 10(a) of ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a habitat conservation plan that ensures minimization and mitigation of impacts associated with the take.

Section 404 of the Clean Water Act

Section 404 of the Federal CWA requires a project applicant to obtain a permit from USACE before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material is material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land, or changing the bottom elevation of any portion of a water of the United States. Waters of the United States include navigable waters of the United States; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; tributaries to any of these waters, and wetlands adjacent to these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Potentially jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending review by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA).

As part of the review of a project, USACE must ensure compliance with applicable federal laws, including EPA's Section 404(b)(1) Guidelines. USACE regulations require that impacts to waters of the United States are avoided and minimized to the maximum extent practicable, and that unavoidable impacts are compensated (Title 33 Code of Federal Regulations [CFR] 320.4(r).

In 2008, USACE and EPA issued regulations governing compensatory mitigation for activities authorized by permits issued by USACE (33 CFR 332). The rule establishes a preference for the use of mitigation banks because they provide established wetland habitats that have already met success criteria, thereby reducing some of the risks and uncertainties associated with compensatory mitigation involving creation of new wetlands that cannot yet demonstrate functionality at the time of project implementation. The rule also establishes a preference for providing compensatory mitigation within the affected watershed. Ideally, compensatory mitigation would take place at a mitigation bank within the same watershed as the waters to be replaced. If mitigation banks are not available within the affected watershed, then compensatory mitigation involving creation or restoration within the affected watershed may be preferable to using a mitigation bank outside the affected watershed.

Section 401 Water Quality Certification

Under Section 401 of the federal Clean Water Act (CWA), an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is

delegated by the State Water Resources Control Board to the nine Regional Water Quality Control Boards (RWQCBs).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. Section 703, et seq.), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA can be found in Title 50 50 CFR 10.13. The list includes nearly all birds native to the United States.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code Section 2050, *et seq.*) directs state agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that reasonable and prudent alternatives shall be developed by CDFW, together with the project proponent and any state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible. Under CESA, project-related impacts of the authorized take must be minimized and fully mitigated, and adequate funding to implement those mitigation measures and monitor compliance with and the effectiveness of the measures must be ensured. Standard CESA issuance requirements can include land acquisition, permanent protection and management, and/or funding in perpetuity of compensatory lands.

A “take” of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include “harm” or “harass” as is included in the Federal act. As a result, the threshold for a take under CESA may be higher than under ESA because habitat modification is not necessarily considered take under CESA. The take of State-listed species incidental to otherwise lawful activities requires a permit, pursuant to Section 2081(b) of CESA. The State has the authority to issue an incidental take permit under California Fish and Game Code Section 2081, or to coordinate with USFWS during the Section 10(a) process to make the federal permit consistent with CESA.

As under federal law, listed plants have considerably less protection than fish and wildlife under California State law. The California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.) allows landowners to take listed plant species from, among other places, a canal, lateral ditch, building site, or road, or other right-of-way, provided that the owner first notifies CDFW and gives the agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed. The project site is a “building site” within the meaning of the applicable statute (Fish and Game Code section 1913).

Section 1602 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the

California Fish and Game Code. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by CDFW, or use any material from the streambeds, without first notifying DFG of such activity and obtaining a final agreement authorizing such activity.

"Stream" is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any project that would result in an impact on a river, stream, or lake.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act (California Water Code Section 13000, *et seq.*) requires that each of the state's nine RWQCBs prepare and periodically update basin plans for water quality control (See Section 3.10 "Hydrology and Water Quality" for more information about the latest basin plan covering the project site). Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally regulated under Section 401 provided they meet the definition of waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

California Fish and Game Code – Fully Protected Species

Four sections of the California Fish and Game Code (Fish and Game Code Sections 3511, 4700, 5050, and 5515) list 37 fully protected species. These statutes prohibit take or possession at any time of fully protected species. CDFW is unable to authorize incidental take of fully protected species when activities are proposed in areas inhabited by those species. CDFW has informed nonfederal agencies and private parties that they must avoid take of any fully protected species in carrying out projects.

California Fish and Game Code – Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (*i.e.*, species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal and failure of nesting attempts, resulting in loss of eggs and/or young. These violations can be caused by disturbance of nesting pairs by nearby human activity.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Stanislaus County General Plan

The Conservation/Open Space Element of the Stanislaus County General Plan emphasizes conservation and management of natural resources and the preservation of open space (any parcel or area of land or water that is

essentially unimproved) and contains several biological resources goals (Stanislaus County 2016). Policies and associated implementation measures aimed at preserving and protecting biological resources in the County, including sensitive habitats and special-status species and the habitats that support them, are provided in the General Plan to achieve the specified conservation goals. The following General Plan policies and implementation measures are related to biological resources.

- **POLICY TWO** – Assure compatibility between natural areas and development.
- **IMPLEMENTATION MEASURE 2** – Review all development requests to ensure that sensitive areas (*e.g.*, riparian habitats, vernal pools, rare plants) are left undisturbed or that mitigation measures acceptable to appropriate state and federal agencies are included in the project.
- **POLICY THREE** – Areas of sensitive wildlife habitat and plant life (*e.g.*, vernal pools, riparian habitats, flyways and other waterfowl habitats, etc.) including those habitats and plant species listed by state or federal agencies shall be protected from development and/or disturbance.
- **IMPLEMENTATION MEASURE 2** – In known sensitive areas, the State Department of Fish and Wildlife [CDFW] shall be notified as required by the California Native Plant Protection Act; the U.S. Fish and Wildlife Service also shall be notified.
- **IMPLEMENTATION MEASURE 3** – All discretionary projects that will potentially impact riparian habitat and/or vernal pools or other sensitive areas shall include mitigation measures for protecting that habitat.
- **POLICY SIX** – Preserve natural vegetation to protect waterways from bank erosion and siltation.
- **IMPLEMENTATION MEASURE 1** – Development proposals and mining activities including, or in the vicinity of, waterways and/or wetlands shall be closely reviewed to ensure that destruction of riparian habitat and vegetation is minimized. This shall include referral to the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service (USFWS), the State Department of Fish and Wildlife (CDFW), and the State Department of Conservation.
- **POLICY TWENTY-NINE** – Habitats of rare and endangered fish and wildlife species, including special status wildlife and plants, shall be protected.
- **IMPLEMENTATION MEASURE 1** – The County shall utilize the California Environmental Quality Act (CEQA) process to ensure that development does not occur that would be detrimental to fish, plant life, or wildlife species.
- **IMPLEMENTATION MEASURE 2** – The County shall utilize the California State Department of Fish and Wildlife's California Natural Diversity Data Base and the California's Native Plant Society plant lists as the primary sources of information on special status wildlife and plants.
- **IMPLEMENTATION MEASURE 3** – The County shall protect sensitive wildlife habitat and plant life through the strategies identified under Policy Three of this element.

3.4.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Potential impacts on biological resources resulting from implementation of the proposed project were determined by mapping and quantifying common and sensitive habitats (*i.e.*, wetlands and other waters) and by evaluating potential effects to common and special-status species that could result from loss of these habitats and other potential direct and indirect effects. In order to provide conservative results, it is assumed for purposes of this analysis that all existing vegetation on the project site would be removed and that project build out would result in loss of all existing habitat. The term "conservative" in this context means that the analysis would tend to overestimate impacts.

THRESHOLDS OF SIGNIFICANCE

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the *CEQA Guidelines*. The project would result in a significant impact related to biological resources if it would do any of the following:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW;
- have a substantial adverse effect on federally protected waters of the United States, including wetlands, as defined by Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

ISSUES NOT DISCUSSED FURTHER

Wildlife movement or migratory routes: No established migratory routes have been identified on the project site. According to the California Essential Habitat Connectivity Project, the project site is not located within a Natural Landscape Block or Essential Habitat Connectivity area (Spencer *et al.* 2010). Project development would not interfere substantially with the movement of any native resident or migratory wildlife species because the

project site does not currently provide an important connection between any areas of natural habitat that would otherwise be isolated. Therefore, project implementation would not have an impact on wildlife movement. Wildlife nursery sites are addressed under Impact 3.4-7.

Habitat conservation plan: The project site is not located within the plan area of any habitat conservation plan or natural community conservation plan. Therefore, project implementation would not conflict with the provisions of an adopted habitat conservation plan.

Survival of species: The project site provides limited value to most wildlife species due to the high level of agricultural disturbance and development of the site would not eliminate any habitat important to the long-term survival of any species or community and would not substantially restrict the range or reduce the numbers of any species below self-sustaining levels.

IMPACT ANALYSIS

IMPACT 3.4-1 Loss of special-status plants. *Little Salado Creek and the willow scrub community provide marginally suitable habitat for two special-status plant species: Delta button celery and Sanford's arrowhead. These special-status plant species could be present and lost through habitat removal. This impact is considered potentially significant.*

Project implementation would result in removal or disturbance of approximately 4 acres of stream (Little Salado Creek) and willow scrub habitats (see Habitat Map, Exhibit 3.4-1) that have a low potential to support special-status plant species, as described in Table 3.4-4. This potential is considered low because the creek and wetland vegetation is heavily disturbed due to altered hydrology, periodic channel dredging, and vegetation management. However, Sanford's arrowhead is known to occur in artificial and disturbed waterways in the region. The created willow scrub habitat and Little Salado Creek may also provide suitable habitat conditions for Delta button-celery, a species associated with seasonally inundated riparian scrub habitats on clay soils. Therefore, the possibility of special-status plants being found on the site cannot be dismissed. Waterways traversed by the off-site improvements consist of disturbed agricultural ditches and disturbed fragments of Little Salado Creek at the I-5 interchange that do not provide suitable habitat for Sanford's arrowhead or other special-status plants. Project construction could result in direct mortality of special-status plants if they are present. Loss of special-status plants would be a **potentially significant** impact.

Mitigation Measure 3.4-1: Conduct Special-status Plant Surveys; Implement Compensatory Mitigation for Special-status Plants.

The following measures shall be implemented:

- Retain a qualified botanist to conduct protocol-level preconstruction special-status plant surveys for potentially occurring species for each phase of construction. All plant species encountered on the project site shall be identified to the taxonomic level necessary to determine species status. The surveys shall be conducted no more than 5 years prior and no later than the blooming period immediately preceding the approval of a grading or improvement plan or any ground disturbing activities, including grubbing or clearing.

- Notify CDFW, as required by the California Native Plant Protection Act, if any special-status plants are found on the project site. Notify the USFWS if any plant species listed under the Endangered Species Act are found.

- Develop a mitigation and monitoring plan to compensate for the loss of any special-status plant species found during preconstruction surveys. The mitigation and monitoring plan shall be submitted to CDFW or USFWS, as appropriate depending on species status, for review and approval. The County shall consult with these entities, as appropriate depending on species status, before approval of the plan to determine the appropriate mitigation measures for impacts on any special-status plant population. On-site mitigation measures may include the creation of off-site populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating occupied habitat in sufficient quantities to achieve no net loss of occupied habitat or individuals. Mitigation could also include purchase of an existing off-site area in Stanislaus County that is known to support the special-status species to be affected, as well as preserving the site in perpetuity. The preservation and enhancing of existing on-site populations shall not be considered as mitigation.

- If transplantation is a proven method for a species (i.e., information exists demonstrating that the affected species has been successfully transplanted or established from seed using a methodology that can be repeated) and relocation efforts are part of the mitigation plan approved by the County and CDFW or USFWS, as appropriate depending on species status,, the plan shall include a description and map of mitigation sites, details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements, and sources of funding to purchase, manage, and preserve the sites. The following performance standards shall be applied:

    - The extent of occupied area and the flower density in compensatory reestablished populations shall be equal to or greater than the affected occupied habitat and shall be self-producing.

    - Reestablished populations shall be considered self-producing when:

        - plants re-establish annually for a minimum of 5 years with no human intervention, such as supplemental seeding; and

        - re-established habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types.

- If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, and other details, as appropriate to target the preservation of long term viable populations.

Implementation: Leaseholders/developers/contractors.

Timing: Before any ground disturbing activities, including grubbing or clearing.

Enforcement: Stanislaus County, USFWS, and CDFW; as appropriate depending on species status.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1 would reduce the potentially significant impacts on potentially-occurring special-status plant species to a **less-than-significant** level, because each phase of development would be required to identify special-status plant populations and provide compensation for the loss of special-status plants through establishment of new populations, conservation easements, or other appropriate measures. It is important to conduct surveys at the appropriate time since the distribution and abundance of plant species can fluctuate from year to year due to environmental variables. This mitigation will ensure that surveys occur at the appropriate time ahead of construction of components of the proposed project.

IMPACT 3.4-2 Special-status raptors and other nesting raptors. *Project implementation would result in loss of suitable nesting and foraging habitat for special-status raptors (Swainson's hawk, white-tailed kite, northern harrier, and burrowing owl) and common raptors protected under California Fish and Game Code and the Migratory Bird Treaty Act (MBTA). Project construction could disturb active nests on or near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. This impact is considered* ***potentially significant****.*

Implementing the project would result in removal of approximately 1,146 acres of cropland that provides suitable foraging habitat for Swainson's hawk and white-tailed kite. The site provides suitable foraging habitat for the northern harrier, which could nest in patches of emergent marsh vegetation within Salado Creek or ruderal vegetation. Trees that provide suitable nest sites for Swainson's hawk, white-tailed kite, and common raptors would also be removed. Small mammal burrows, culverts, and debris piles that provide potentially suitable nesting and cover habitat for burrowing owl were also observed during the reconnaissance survey. Swainson's hawk is listed as threatened under CESA, white-tailed kite is a fully protected species, and northern harrier and burrowing owl are California species of special concern. White-tailed kite and northern harrier were observed foraging on the project site during the biological reconnaissance surveys conducted in winter 2013 and evidence of burrowing owl use was observed on the project site in 2002.

All raptors and their active nests, including common species, are protected under Section 3503.5 of the California Fish and Game Code. Common raptors that could nest on or near the project site include red-tailed hawk, great horned owl, and Cooper's hawk; and these species were observed foraging on the project site during reconnaissance surveys.

Vegetation removal, grading, and other construction activities could result in mortality of individuals and nest abandonment. If trees are to be removed during the raptor breeding season (March–August), mortality of eggs and chicks of tree nesting raptors could result if an active nest were present. In addition, project construction could disturb active nests near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. Ground disturbance or vegetation removal during the breeding season could result in loss of active northern harrier nests.

Burrowing owls need burrows at all times to survive, and displacing individuals from their burrows can result in indirect impacts such as predation, increased energetic costs, increased stress, and risks associated with having to find and compete for burrows, all of which can lead to take or reduced reproduction.

Swainson's hawks generally nest within 2 miles of suitable foraging habitat, which consists of alfalfa, disced fields, fallow fields, dry-land pasture, beets, tomatoes, irrigated pasture, grains, other row crops, and uncultivated grasslands (Estep 1989, Estep pers. comm. 2007, Estep 2009). There are six nesting Swainson's hawk records within 5 miles of the project site, and the loss of 1,146 acres of foraging habitat could affect nesting success, survival rates, and availability of prey for the local population or result in displacement of nesting pairs. Therefore, the loss of Swainson's hawk foraging habitat resulting from project implementation would be a **potentially significant** impact.

Project construction could result in direct destruction of an active Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, or common raptor nests or disturb nesting raptors located on or near the project site and off-site improvement areas, resulting in nest abandonment by adult birds and abandonment of chicks and eggs, causing mortality. Direct and indirect impacts on active raptor nests or burrows are considered **potentially significant**.

Mitigation Measure 3.4-2a: Avoid Direct Loss of Swainson's Hawk and Other Raptors

The following measures shall be implemented:

- Tree and vegetation removal shall be completed during the nonbreeding season for raptors (September 1–February 28).

- To avoid, minimize, and mitigate potential impacts on Swainson's hawk and other raptors (not including burrowing owl) nesting on or adjacent to the project site and off-site improvement areas, retain a qualified biologist to conduct preconstruction surveys and identify active nests on and within 0.5 mile of the project site and off-site improvement areas for construction activities conducted during the breeding season (March 1–August 31). The surveys shall be conducted before the approval of grading and/or improvement plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction. Guidelines provided in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in the Central Valley* (Swainson's Hawk Technical Advisory Committee 2000) or updated, current guidance shall be followed for surveys for Swainson's hawk. If no nests are found, no further mitigation will be required.

- Impacts on nesting Swainson's hawks and other raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. No project activity shall commence within the buffer areas until a qualified biologist has determined, in coordination with CDFW, the young have fledged, the nest is no longer active, or reducing the buffer would not result in nest abandonment. CDFW guidelines recommend implementation of 0.25- or 0.5-mile-wide buffers for Swainson's hawk nests, but the size of the buffer may be decreased if a qualified biologist and the County, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest.

- The appropriate no-disturbance buffer for other raptor nests (*i.e.*, species other than Swainson's hawk) shall be determined by a qualified biologist based on site-specific conditions, the species of nesting bird, nature of the project activity, visibility of the disturbance from the nest site, and other relevant circumstances.

- Monitoring of all active raptor nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined appropriate by a qualified biologist.

Implementation: Leaseholders/developers/contractors.

Timing: Before any vegetation removal, grading, and on an ongoing basis throughout construction, as applicable.

Enforcement: Stanislaus County and CDFW.

Mitigation Measure 3.4-2b: Avoid Loss of Burrowing Owl

The following measures shall be implemented:

- To avoid, minimize, and mitigate potential impacts on burrowing owl, a qualified biologist shall be retained to conduct focused breeding and nonbreeding season surveys for burrowing owls in areas of suitable habitat on and within 1,500 feet of the project site and off-site improvement areas. Surveys will be conducted prior to the start of construction activities for each project phase and in accordance with Appendix D of CDFW's Staff Report on Burrowing Owl Mitigation (2012) or updated, current guidance.

- If no occupied burrows are found, a letter report documenting the survey methods and results will be submitted to the County and CDFW and no further mitigation will be required.

- If an active burrow is found during the nonbreeding season (September 1 through January 31), owls will be relocated outside of the Specific Plan Area using passive or active methodologies developed in consultation with CDFW and may include active relocation to preserve areas if approved by CDFW and the preserve managers. No burrowing owls will be excluded from occupied burrows until a burrowing owl exclusion and relocation plan is developed by the project applicant and approved by CDFW.

- If an active burrow is found during the breeding season (February 1 through August 31), occupied burrows will not be disturbed and will be provided with a 150- to 1,500-foot protective buffer unless a qualified biologist verifies through noninvasive means that either: (1) the birds have not begun egg laying, or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. The size of the buffer will depend on the time of year and level of disturbance, as outlined in the CDFW Staff Report (2012, pg. 9). Once the fledglings are capable of independent

survival, the owls will be relocated outside the Airport Influence Area in accordance with a burrowing owl exclusion and relocation plan developed in consultation with CDFW and the burrow will be destroyed to prevent owls from reoccupying it. No burrowing owls will be excluded from occupied burrows until a burrowing owl exclusion and relocation plan is approved by CDFW. Following owl exclusion and burrow demolition, the site shall be monitored by a qualified biologist to ensure burrowing owls do not recolonize the site prior to construction.

- If active burrowing owl nests are found on the project site or off-site improvement areas and these nest sites are lost as a result of implementing the project, the loss shall be mitigated through preservation of other known nest sites in Stanislaus County, at a minimum ratio of 1:1. A mitigation and monitoring plan shall be developed for the compensatory mitigation areas.

- The mitigation and monitoring plan will include detailed information on the habitats present within the preservation areas, the long-term management and monitoring of these habitats, legal protection for the preservation areas (*e.g.*, conservation easement, declaration of restrictions), and funding mechanism information (*e.g.*, endowment). All burrowing owl mitigation lands shall be preserved in perpetuity and incompatible land uses shall be prohibited in habitat conservation areas.

- Burrowing owl mitigation land shall be transferred through either conservation easement or fee title, to a third-party, nonprofit conservation organization (Conservation Operator), with the CDFW named as third-party beneficiaries. The Conservation Operator shall be a qualified conservation easement land manager that manages land as its primary function. Additionally, the Conservation Operator shall be a tax-exempt nonprofit conservation organization that meets the criteria of Civil Code Section 815.3(a). CDFW and the Conservation Operator shall each have the power to enforce the terms of the conservation easement. The Conservation Operator shall monitor the easement in perpetuity to ensure compliance with the terms of the easement.

Implementation: Leaseholders/developers/contractors.

Timing: Before any vegetation removal, grading, and on an ongoing basis throughout construction, as applicable.

Enforcement: Stanislaus County and CDFW.

Mitigation Measure 3.4-2c: Prepare and Implement a Swainson's Hawk Foraging Habitat Mitigation Plan

The following measures shall be implemented:

- Before any ground-disturbing activities, suitable Swainson's hawk foraging habitat shall be preserved to ensure replacement of foraging habitat lost as a result of the project, as determined by a qualified biologist, in consultation with CDFW.

- The habitat value shall be based on Swainson's hawk nesting distribution and an assessment of habitat quality, availability, and use within the County. The mitigation ratio shall be consistent with the 1994 DFG Swainson's Hawk Guidelines included in the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California*. These guidelines

specify that the mitigation ratio shall be 1:1 if there is an active nest within 1 mile of the project site, 0.75:1 if there is an active nest within 5 miles but greater than 1 mile away, and 0.5:1 if there is an active nest within 10 miles but greater than 5 miles away. If there is an active nest within 1 mile of the project site, the mitigation ratio can be reduced to 0.5:1 if all of the mitigation land can be actively managed for prey production. Such mitigation shall be accomplished through either the transfer of fee title or perpetual conservation easement. The mitigation land shall be located within the known foraging area within Stanislaus County.

- Before acceptance of such proposed mitigation, the County shall consult with CDFW regarding the appropriateness of the mitigation. If mitigation is accomplished through a conservation easement, then such an easement shall ensure the continued management of the land to maintain Swainson's hawk foraging values, including but not limited to, ongoing agricultural uses and the maintenance of all existing water rights associated with the land. The conservation easement shall be recordable and shall prohibit any activity that substantially impairs or diminishes the land's capacity as suitable Swainson's hawk foraging habitat. The conservation easement should not be located within 5 mils of the proposed on-site airport.

- Swainson's hawk mitigation land shall be transferred, through either conservation easement or fee title, to a third-party, nonprofit conservation organization (Conservation Operator), with the CDFW named as third-party beneficiaries. The Conservation Operator shall be a qualified conservation easement land manager that manages land as its primary function. Additionally, the Conservation Operator shall be a tax-exempt nonprofit conservation organization that meets the criteria of Civil Code Section 815.3(a). CDFW and the Conservation Operator shall approve the content and form of the conservation easement. CDFW and the Conservation Operator shall each have the power to enforce the terms of the conservation easement. The Conservation Operator shall monitor the easement in perpetuity to assure compliance with the terms of the easement.

Implementation: Leaseholders/developers/contractors.

Timing: Before any vegetation removal, grading, and on an ongoing basis throughout construction, as applicable.

Enforcement: Stanislaus County and CDFW.

Significance after Mitigation

Implementing Mitigation Measures 3.4-2a, 3.4-2b, and 3.4-2c would reduce significant impacts on Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, and other raptors to a **less-than-significant** level because it would ensure that these species are not disturbed during nesting so that project construction would not result in nest abandonment and loss of eggs or young. These measures would also ensure that Swainson's hawk and burrowing owl habitat would be preserved at the appropriate ratio of habitat value lost.

IMPACT 3.4-3 **Disturbance of tricolored blackbird, loggerhead shrike, and common nesting birds.** *Project implementation would result in loss and disturbance of potential nesting habitat for tricolored blackbird, loggerhead shrike, and common birds. Project construction could disturb active nests on or near the construction area, potentially resulting in nest abandonment by the adults and mortality of chicks and eggs. This impact is considered* ***potentially significant****.*

Implementing the project would result in removal and disturbance of stands of emergent marsh, willow scrub, and saltbush scrub vegetation that provide suitable nesting habitat for tricolored blackbird, loggerhead shrike, and common nesting birds. Other trees and shrubs that provide potential nest sites for loggerhead shrike would also be removed. Removal or disturbance of potentially suitable habitat during construction could result in nest abandonment and loss of eggs or young if an active tricolored blackbird nesting colony or loggerhead shrike nest were to be present during ground-disturbing activities. Tricolored blackbird recently became a candidate for listing under CESA as an endangered species and take of this species must be avoided or an incidental take permit from CDFW under CESA Section 2081 would be required.

Vegetation removal and ground disturbances associated with project implementation could result in direct destruction of active nests of common birds protected under the MBTA or California Fish and Game Code. Project construction and off-site improvements could also result in indirect disturbance of breeding birds causing nest abandonment by the adults and mortality of chicks and eggs. Loss of nests of common bird species (those not meeting the definition of special-status as provided above) would not be a significant impact under CEQA because it would not result in a substantial effect on their populations locally or regionally; however, destruction of bird nests is a violation of the MBTA and Section 3503 of the California Fish and Game Code and mitigation to avoid the loss of active nests of these species is required for compliance with these regulations.

Loss of an active tricolored nesting colony or an active loggerhead shrike nest would be a **potentially significant** impact.

Mitigation Measure 3.4-3: Avoid Direct Loss of Tricolored Blackbird and Loggerhead Shrike and Protected Bird Nests

The following measures shall be implemented:

- To the extent feasible, vegetation removal, grading, and other ground disturbing activities will be carried out during the nonbreeding season for protected bird species in this region (generally September 1–January 31).

- For any project activity that would occur during the nesting season (February 1–August 31), the project applicant shall conduct a preconstruction survey. The preconstruction survey shall be conducted by a qualified biologist before any activity occurring within 300 feet of suitable nesting habitat for any protected bird species. The survey shall be conducted within 14 days before project activity begins.

- If an active nest of loggerhead shrike, tricolored blackbird, or common bird species protected by the Migratory Bird Treaty Act or California Fish and Game Code is found, the qualified biologist shall establish a buffer around the nest. No construction activity shall commence within the buffer area

until a qualified biologist confirms that the nest is no longer active. The appropriate no-disturbance buffer shall be based on site-specific conditions, the species of bird, nature of the project activity, the extent of existing disturbance in the area, and other relevant circumstances, as determined by a qualified biologist in consultation with CDFW.

- Monitoring of all protected nests by a qualified biologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by a qualified biologist.

Implementation: Leaseholders/developers/contractors.

Timing: Before approval of any ground-disturbing activity within 300 feet of suitable nesting habitat, as applicable.

Enforcement: Stanislaus County and CDFW.

Significance after Mitigation

Implementing Mitigation Measure 3.4-3 would reduce potentially significant impacts on tricolored blackbird and loggerhead shrike to a **less-than-significant** level because it would ensure these birds are not disturbed during nesting so that project construction would not result in nest abandonment and loss of eggs or young.

IMPACT 3.4-4 Pallid bat. *Project implementation would result in loss of human-made structures that may support pallid bat roosts. If these structures are used by bats as a day roost, hibernation roost, or maternity colony roost, implementation of the project could result in injury and mortality of pallid bat. This impact is considered potentially significant.*

The U.S. Navy razed most structures at the project site in 2013, and the only structure that remains is the former air traffic control tower. The County plans to rehabilitate the tower as part of a park and historical monument to former site use. The former air traffic control tower provides potential roosting habitat for the pallid bat. In addition, any work on the East Las Palmas Avenue bridge over the San Joaquin River could also disturb roosting bats. Roosting habitat is typically a limiting factor to bat distribution. Day roosts are used throughout the spring and summer and maternity colony roosts can be active from approximately early April until mid-October. Hibernation roosts may be used from approximately November to early March. If a day roost, hibernation roost, or maternity colony roost of pallid bat were present in the air traffic control tower, rehabilitation of the tower could result in direct mortality of bats or abandonment of a maternity, nursing, or wintering colony. This impact would be **potentially significant**.

Mitigation Measure 3.4-4: Avoid, Minimize, and Mitigate Loss of Bat Roosts.

The following measures shall be implemented:

- Before rehabilitation of the former air traffic control tower, or any work on the East Las Palmas Avenue bridge over the San Joaquin River, the County shall have a qualified biologist conduct focused surveys for roosting bats in said structure. Surveys shall be conducted in the fall to determine if structures are used as hibernacula and in spring and/or summer to determine if they are used as maternity or day roosts. Surveys shall consist of evening emergence surveys to note the presence or absence of bats and could consist of visual surveys at the time of emergence. If evidence of bat use is observed, the number and species of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts, but are not required. If no bat roosts are found, then no further study is required.

- If bat roosts are determined to be present, the bats shall be excluded from the roosting site before the roost structure is removed. If roosts must be removed, a detailed mitigation program addressing compensation, exclusion methods, and roost removal procedures shall be developed, in consultation with CDFW, before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter), or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts will be restricted during periods of sensitive activity (*e.g.*, during hibernation or while females in maternity colonies are nursing young).

- Compensatory mitigation for the loss of each roost (if any) shall be developed, in consultation with CDFW, and may include construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. Roost replacement will be implemented before bats are excluded from the original roost site. Once compensation is implemented and it is confirmed that bats are not present in the roost site, the roost structure may be removed.

Implementation: Stanislaus County.

Timing: Before rehabilitation of the former air traffic control tower.

Enforcement: Stanislaus County and CDFW.

Significance after Mitigation

Implementing Mitigation Measure 3.4-4 would reduce potentially significant impacts on pallid bat to a **less-than-significant** level because it would ensure roosting bats are not disturbed during roosting so that project construction would not result in bat mortality or abandonment and loss of young and would provide replacement roosts to compensate for loss of existing roosts.

IMPACT 3.4-5 Loss of federally protected waters of the United States. *Implementing the proposed project would result in dredging or permanent fill of waters of the United States, including wetlands subject to USACE jurisdiction under the CWA. This impact is considered potentially significant.*

Developing the proposed project would result in removal (fill) or dredging and alteration of approximately 4.37 acres of jurisdictional waters of the United States consisting of 3.31 acres of seasonal stream (Little Salado Creek), 0.05 acre of basins, and 1.01 acre of willow scrub wetland on the project site. There is 0.34 acre of jurisdictional waters of the United States, consisting of two fragmented segments of Little Salado Creek, is present in the off-site improvement areas.

In addition to direct impacts described above, downstream waters could be indirectly affected by creation of impervious surfaces and increased runoff from the project site. Potential indirect effects to downstream waters include reduction in water quality caused by urban runoff, erosion, and siltation, and increased flow volumes/altered hydrology. However, indirect effects would be reduced to a less-than-significant level through implementation of best management practices, and creation of stormwater drainage plans and erosion and sediment control plans, which include creation of vegetated swales and an on-site detention pond as described in Section 3.10, "Hydrology and Water Quality." Therefore, direct and **potentially significant** impacts on waters of the United States and waters of the State would result from implementation of the proposed project, but indirect impacts would be **less than significant**.

Mitigation Measure 3.4-5: Compensate for Loss of Wetlands and Other Waters.

The following measures shall be implemented:

- The County shall obtain a USACE Section 404 Individual Permit and Central Valley RWQCB Section 401 water quality certification before any groundbreaking activity within 50 feet of waters or discharge of fill or dredge material into any water of the United States.

- The County shall replace or restore on a "no-net-loss" basis the function of all wetlands and other waters that would be removed as a result of implementing backbone infrastructure to support project development. Wetland habitat will be restored or replaced at an acreage and location and by methods agreeable to USACE and the Central Valley RWQCB, depending on agency jurisdiction, and as determined during the Section 401 and Section 404 permitting processes.

- Based on the presence of an on-site airport, all mitigation that has the potential to attract potentially hazardous wildlife must occur at an off-site location that is 10,000 feet or more from aircraft movement areas. Off-site mitigation methods may consist of the establishment of aquatic resources in upland habitats where they did not exist previously, reestablishment (restoration) of natural historic functions to a former aquatic resource, enhancement of an existing aquatic resource to heighten, intensify, or improve aquatic resource functions, or a combination thereof. The compensatory mitigation may be accomplished through purchase of credits from a USACE-approved mitigation bank, payment into a USACE-approved in-lieu fee fund, or through permittee-responsible off-site establishment, reestablishment, or enhancement, depending on availability of mitigation credits.

- Permittee-responsible mitigation shall be monitored for a minimum of 5 years from completion of mitigation, or human intervention (including recontouring and grading), or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.

Implementation: Stanislaus County.

Timing: Before any ground-disturbing activities for any project development in areas containing wetland features or other waters of the United States and on an ongoing basis, as appropriate.

Enforcement: Stanislaus County, USACE, Central Valley RWQCB, as appropriate.

Significance after Mitigation

Implementing Mitigation Measure 3.4-5 would reduce significant impacts wetlands and other waters to a **less-than-significant** level because it would ensure no net loss of functions of wetlands, other waters of the United States, and waters of the State.

IMPACT 3.4-6 Conflicts with general plan policies protecting biological resources. *Project implementation could conflict with General Plan policies that apply to sensitive species and habitats, including riparian habitats, waterways, and rare and endangered plants and wildlife. This impact is considered* ***potentially significant****.*

The Stanislaus County Code does not contain specific ordinances protecting biological resources, such as a tree preservation ordinance. However, the Stanislaus County General Plan includes several policies that call for protection of sensitive species and habitats. As discussed in Impacts 3.4-1 through 3.4-5, project implementation would result in removal of habitat that has potential to support special-status plants and wildlife, Swainson's hawk foraging habitat, and wetlands and waterways. This habitat removal would conflict with General Plan policies unless mitigated. This impact is considered **potentially significant**.

Mitigation Measure 3.4-6: Implement Mitigation Measures 3.4-1, 3.4-2, 3.4-3, 3.4-4, and 3.4-5.

Significance after Mitigation

Implementing Mitigation Measures 3.4-1, 3.4-2, 3.4-3, 3.4-4, and 3.4-5 would reduce potentially significant impacts from conflicts with General Plan policies protecting biological resources to a **less-than-significant** level because it would ensure impacts on sensitive species and habitats are mitigated consistent with Stanislaus County General Plan policies and implementation measures.

IMPACT 3.4-7 Impede the use of native wildlife nursery sites. *Project implementation would result in loss of human-made structures that may support maternity bat roosts. If these structures are used by bats as maternity colony roosts, implementation of the project could result in mortality of large numbers of bats and inability to reproduce young. This impact is considered* ***potentially significant****.*

The U.S. Navy razed most structures at the project site in 2013, and the only structures that remains are the former air traffic control tower and the remnants of the former airfield lighting vault and navigational aids. The County plans to rehabilitate the tower as part of a park and historical monument to former site use. The former air traffic control tower provides potential maternity roosting habitat for bat species. In addition, any work on the nearby East Las Palmas bridge over the San Joaquin River could disturb roosting bats. Roosting habitat is typically a limiting factor to bat distribution. Many bat species roost in large colonies during maternity and maternity colony roosts can be active from approximately early April until mid-October. If a maternity bat roost were present in the air traffic control tower or the bridge over the San Joaquin River, rehabilitation of the tower or work on the bridge could result in loss of a maternity colony. This impact would be **potentially significant**.

Mitigation Measure 3.4-7: Implement Mitigation Measure 3.4-4.

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3.5 CULTURAL RESOURCES

Section 3.5 includes an evaluation of potential impacts to cultural resources that could result from implementation of the proposed project and off-site infrastructure improvement areas. Cultural resources may include historical and prehistoric archaeological remains, historic-era buildings and structures, and locations of importance to Native Americans. Paleontological resources are discussed in Section 3.8, "Geology, Minerals, and Paleontological Resources."

3.5.1 ENVIRONMENTAL SETTING

PREHISTORIC CONTEXT

Following Frederickson (1974) and Moratto (1984), a cultural chronology has been developed for the Central California region, based largely on discrete cultural traits observed in the stratigraphic sequence. These periods include the Paleo-Indian (10,000 to 6,000 BC); the three-staged Archaic, including the Lower (6,000 to 3,000 BC), Middle (3,000 to 1,000 BC), and Upper (1,000 BC to AD 500); and the Emergent Periods (AD 500 to 188).

Paleo-Indian Period (10,000 to 6,000 BP)

The Paleo-Indian Period marks the first entry of humans into California and has been described in terms of big-game hunters occupying a multitude of environments. However, subsequent data have illustrated that California's Paleo-Indians practiced varied resource exploitation (not just large mammals) and may have been more sedentary and with a wider trade network than previously believed (Arnold and Walsh 2010). Although this period is primarily marked by a generalized tool kit, (chopping tools, core bifaces, and scrapers), more specialized tools (drills, fluted projectile points, and gravers) have been noted from later sites of the period (Chartkoff and Chartkoff 1984; EDAW/AECOM 2009). Paleo-Indian sites in California consist of workshops, occupation sites, burials, butcher sites, and isolated finds (Chartkoff and Chartkoff 1984). No sites dating to the Paleo-Indian Period have been identified in Stanislaus County to date, and it has been suggested that sites dating to this period may be either deeply buried or have previously weathered away (Moratto 1984).

The Archaic Period

Although the early years of the Archaic Period are not easily discernible from the preceding Paleo-Indian Period, certain themes began to emerge. These include the utilization of new ecological niches, specialized technologies and tool kits, and diffuse economies. Characteristic of the Archaic Period are the increased reliance on processed plant foods, elaborate burials with grave goods, and the development of more complex trade relationships. Archaic groups, however, still were highly mobile and practiced a more seasonal migration than is seen in later periods. In addition to multiple new tool types and ground stone technology, ritual objects and personal ornamentation developed during the Archaic Period. The period can be further subdivided into the Lower, Middle, and Upper Archaic Periods (Chartkoff and Chartkoff 1984).

Lower Archaic (6,000 to 3,000 BP)

The beginning of the Lower Archaic corresponds to the middle Holocene climactic adaptation resulting in overall drier conditions and the subsequent disappearance of pluvial lakes[1](EDAW/AECOM 2009). Archaeological materials dating to this period were largely obtained from isolated finds and consist of stemmed points, chipped stone crescents, and concave base points (Arnold and Walsh 2010; Chartkoff and Chartkoff 1984; Moratto 1984). The early part of the Lower Archaic is marked by still high residential mobility with temporary sites located in higher mountain elevations and adjacent to river banks. Sites of this period are rare, and evidence is typically characterized by isolated finds that are particularly susceptible to private collecting and "questionable provenance" (Arnold and Walsh 2010:94). Therefore, the Lower Archaic may be underrepresented in the cultural sequence.

Middle Archaic Period (3,000 to 1,000 BP)

The Middle Archaic Period was a continuation of the warming trend that began in the Early Archaic. During this time oaks thrived, and acorn exploitation flourished. Broad regional subsistence patterns gave way to more intensive procurement practices, and economies became more diversified. Although acorns were an abundant resource that became increasingly exploited throughout the Middle Archaic, they are labor intensive and likely remained a secondary resource. An abundance of faunal remains recovered from sites dating to this period indicate that hunting remained an important food source during this period. Middle Archaic sites are marked by the appearance of the mortar and pestle, as well as the continued use of large points (EDAW/AECOM 2009). Sedentism became more developed as evidenced by a specialized tool assemblage, non-utilitarian implements, and plant and animal stuffs indicative of a year-round home base. Populations increased, and, small trade networks with local partners likely becoming more established (Chartkoff and Chartkoff 1984; Moratto 1984).

Upper Archaic Period

During the Upper Archaic, climate conditions stabilized and became cooler and wetter, resulting in a renewed floodplain deposition (Chartkoff and Chartkoff 1984; Moratto 1984). New types of bone tools, shell ornaments, and ceremonial blades appeared during this period. Also present were features associated with long-term habitation (fire-affected rock piles, hearths, and residential debris). Complex exchange systems were formalized, and regular, sustained trade between groups was practiced. This was a time of a still-increasing use of acorns as a food source with mortars and pestles observed in the archaeological assemblage, but nearly no manos or metates (Arnold and Walsh 2010). Status distinctions and other indicators of socio-political complexity developed, such as burials that were primarily placed in flexed positions and often included red ochre (Arnold and Walsh 2010).

The Emergent Period (1,300 to 200 BP)

The Emergent Period was a time of both technological and social changes. Territorial boundaries between groups become more defined, and it was increasingly common for an individual's social status to be linked with acquired, personal wealth (Arnold and Walsh 2010). During the latter portion of the period (500 to 200 before present [B.P.]) sophisticated exchange relations were regularized with specialists governing the various aspects of production and exchange. During the Emergent Period, the clamshell disk bead as a monetary unit developed, the

[1] Pluvial lakes are rain-created water bodies that would have contributed to settlement and land use patterns.

bow and arrow replaced the dart and atlatl, and territorial boundaries were well defined and resembled those of the ethnographic period (EDAW/AECOM 2009).

ETHNOGRAPHIC SETTING

The project area is located in the traditional territory of the Northern Valley Yokuts, whose territory included land on either side of the San Joaquin River, extending from the Sacramento – San Joaquin Delta to south of Mendota, California, and from the Diablo Range to the Sierra Nevada foothills (EDAW/AECOM 2009). Moratto (1984) suggests that the occupation of this vicinity by the Yokuts may have been a relatively late development in prehistory with the linguistic evidence indicating an earlier Miwok presence. By the time the Spanish arrived in the area, however, the Yokuts were possibly the largest ethno-linguistic group in California.

The primary political organizational group was the tribelet, which was composed of extended family (kin) groups with members numbering between 100 and a few thousand individuals (EDAW/AECOM 2009). Village life included both single and multi-family communal dwellings, sweathouses, and ceremonial lodges. Kin group chiefs were elected, but these kin group chiefs could also elect additional chiefs to govern at the tribelet level and who would preside over ceremonies (EDAW/AECOM 2009). Significant contact with nonnatives occurred in the 19th century as Spanish, Mexican, and American explorers began to move into the area. Those individuals who were not killed by the diseases carried by the Europeans were forced from their lands by intimidation and violence.

HISTORIC CONTEXT

California Delta

Following the Gold Rush on 1849, settlement in the California Delta region increased dramatically, largely as a result of the passage of the Swamp and Overflow Act in 1850. The law transferred swamplands from the federal government into the control of the State of California. As a result of this act, approximately 500,000 acres of newly acquired California swampland located in the Delta were sold to private citizens. By the turn of the 20th century, transportation improvements, such as the construction of Union Pacific Railroad and Western Pacific Railroad alignments in the Delta region connecting the Delta to populated centers such as Sacramento and San Francisco, encouraged the movement of agricultural products from the Delta to outlying markets. By the 1920s, crops, such as asparagus, barley, celery, corn, and alfalfa for local dairy farms, were introduced to the area. Throughout the twentieth century, the South Delta region continued to be used for agricultural purposes (Bureau of Reclamation 2009).

Delta-Mendota Canal

The Delta-Mendota Canal was constructed between 1946 and 1952 and was an essential component of the Central Valley Project (CVP). The origins of the CVP can be traced back as far as the 1870s, but a substantial statewide plan for a water system was not truly developed until 1919 after concern over declining water tables in the state led Robert B. Marshall, Chief Geographer at the U.S. Geological Survey (USGS), to propose the Marshall Plan. In his plan, Marshall proposed building a large dam on the upper Sacramento River to create an enormous reservoir. Two large aqueducts, linked to the reservoir, would run along either side of the Central Valley and convey water south. Although California voters rejected Marshall's plan several times, it nevertheless laid the foundation for the construction of the CVP (Bureau of Reclamation 2009).

Despite the failure of Marshall's plan at the ballot box in the 1920s, the California State Legislature became interested in the state's systemic water problems and began to seek a resolution. In order to complete the project, the state approached the federal government for funding in the late 1920s. During the Great Depression, the State proposed the CVP as a jobs program that would be part of Franklin Roosevelt's New Deal. After a series of negotiations, the federal government opted to make the project a federal reclamation undertaking, making Reclamation the lead agency on the project. Reclamation saw the CVP as several components operating as a single system. The Delta-Mendota Canal, designed to convey Sacramento River water south from a pumping plant near Tracy, was a key component of the system. In 1935, the federal government released the first funds to begin construction of the CVP; however, construction of the Delta-Mendota Canal portion of the project was delayed because of the onset of World War II. In 1946, construction began on the Delta-Mendota Canal and Reclamation finally completed it in 1952 (Bureau of Reclamation 2009).

Crows Landing Community

The community of Crows Landing, located along Highway 33 in Stanislaus County's West Side, traces its origins to a pioneer family from Missouri that arrived during the Gold Rush. Walter Crow and two of his sons arrived in the area in 1849 and started working in local mines. After an attempt at mining, they moved back to Missouri, but returned to the area with more family members and 800 head of cattle. During the overland trip back to California, Walter Crow fell ill and passed away. His family pushed on to the San Joaquin Valley, eventually setting on 160 acres owned by the federal government in 1865. By 1891, the Crow family were farmers and ranchers in the area today known as Crows Landing. During this period, the San Joaquin River was navigable most of the year, and the area developed as a transportation center for shipping cattle and agricultural goods. The Crow family then established a ferry to transport passengers, as well as a wharf and loading dock near present-day River Road and Crows Landing Road. A post office was established in 1870, and the Union Pacific railroad arrived in 1888, bringing new settlers and commerce opportunities.

Crows Landing Naval Auxiliary Air Station/ Naval Auxiliary Landing Field

The air strip and associated facilities constructed at Crows Landing were constructed in 1942 and commissioned in 1943 as a Naval Auxiliary Air Station (NAAS). The Crows Landing airfield was built approximately two miles northwest of the community of Crows Landing, and the Crows Landing NAAS was similar in function and design to other NAAS facilities commissioned elsewhere in California including Arcata, Santa Rosa, Vernalis, Watsonville, and Hollister. The U.S. Navy used Crows Landing for its Fleet Air Units of the Twelfth Navy District. At the peak of use, the facility housed more than 2,000 enlisted men and 345 officers.

The U.S. Navy reactivated the base in 1950 during the Korean War as the Naval Auxiliary Landing Field (NALF). The purpose of the landing field was to provide an airfield to be used for refueling aircraft for field carrier landing practice and/or rearming the aircraft for ordnance training. The NALF also provided barracks, mess facilities, air traffic control, communications, crash and rescue, aircraft refueling, and security facilities. During this period funds were appropriated to extend the runway and build a control tower, transformer vault, radio tower and radio receiver among other structures. By 1955 it was necessary to operate Crows Landing NALF on a 12 hour a day schedule. In 1961, the Navy built an air station in Lemoore and reduced activities at Crows Landing NALF. By 1965, there was a reduction in force at Crows Landing NALF, and several parts of the facility were closed (SAIC 1999:20–21).

The buildings and structures associated with the facility were concentrated north and east of the intersecting runway and east of Bell Road. These properties primarily supported the airfield operations. In total, approximately 24 buildings and structures were located within this area, most of which were constructed between 1944 and 1965 (SAIC 1999:41). The historic uses of the properties were varied and included radio beacon towers, public works buildings, pump houses/water tanks, maintenance shops, swimming pool, pilot ready rooms, bunkers, and exchange clubs. The architectural style and property types of the buildings were primarily utilitarian, devoid of stylistic details, and similar to the functional buildings found at numerous installations. The military favored cost-effective, flexible, and all-purpose engineering and construction methods; as a result, many of the buildings and structures were examples of Quonset huts, corrugated metal sheds, concrete block buildings, or lattice towers (SAIC 1999).

During the early 1990s, Naval operations at the facility were terminated as part of the Base Closure and Realignment (BRAC) program. As part of the BRAC program, Crows Landing was turned over to NASA Ames Research Center (NAVFAC 2015). This transfer included all land, buildings, and infrastructure, and ultimately led to the termination of NASA research operations at Crows Landing. On October 27, 1999, Congress passed Public Law 106-82, which directed NASA to convey to Stanislaus County all right, title, and interest of the United States in and to Crows Landing. The transfer process to the County was assessed through an Environmental Assessment, Finding of No Significant Impact, Environmental Baseline Survey, and a Finding of Suitability to Transfer. The land transfer would occur over several phases through dividing the property into seven smaller parcels (Parcels A through G). Dividing the property into smaller parcels facilitated the determination of the parcels that were suitable for transfer to the County and which parcels could not be transferred due to environmental concerns (NASA 2003). Ultimately, 1,352 acres of the 1,528-acre property were transferred to the County, with the remaining 176 acres remaining in the federal government's possession. The majority of extant buildings and structures were located within the 176 acres. Due to the threat of vandalism, the U.S. Navy demolished the remaining structures in 2013, leaving only the air traffic control tower and an ancillary structure at the request of Stanislaus County (*Patterson Irrigator* 2013).

3.5.2 METHODS

The County's cultural resources investigation for the proposed CLIBP project included:

- Background research including the completion of a records search at the Central California Information Center of the California Historical Resources Information System (CHRIS);
- Supplemental research completed with federal, state, and local agencies, including NASA, U.S. Navy, California Department of Toxic Substances Control, and County of Stanislaus.
- Contacting the California Native American Heritage Commission (NAHC) to perform a search of the Sacred Lands File and conduct outreach to local Native American groups and individuals who may have knowledge and/or concerns for the area as identified by the NAHC;
- Conducting archaeological and historic architecture inventory surveys; and
- Documenting the cultural resources inventory efforts within a technical report for submittal to the Central California Information Center.

RECORDS SEARCH

A cultural resources records search was conducted at the Central California Information Center (CCIC) on January 22, 2015 (CCIC file number 9202N). The records search revealed the presence of 26 previously identified cultural resources within the project site, all of which were composed of elements of the built environment. Of the 26 previously identified cultural resources in the project area, only two are still extant: a former air traffic control tower and a segment of the Delta-Mendota Canal (Delta-Mendota Canal). No archaeological sites were identified within the project area or within the 0.5-mile search area. A total of 27 previously conducted studies had occurred at locations within the project site and within a 0.5-mile radius of the project site.

In addition to the formal records search, questions received on a Notice of Preparation (NOP) for a previously proposed project (2008) suggested that there may have been a small pioneer-period cemetery in the vicinity of the Specific Plan Area. A similar question was received in 2014 on the NOP for the proposed project. Geophysical testing using ground-penetrating radar was conducted (Damiata 2010) in an attempt to locate the purported cemetery, but no evidence of a potential cemetery was identified. Based on historical maps and archival data, Damiata (2010) concluded that a cemetery may have been located near the intersection of Ike Crow and Bell Roads, near the southeastern boundary of the project site. However, piled headstone fragments were observed northeast of the intersection of Ike Crow and Bell Road during the 1940s. Damiata concluded that if the cemetery had been located in the vicinity of the Specific Plan Area, it had been considerably impacted by the 1940s.

Neither the 1860 nor 1862 Bureau of Land Management, General Land Office (BLM GLO) survey maps indicate structures or features in the project area or its immediate vicinity. Although features later appear within Section 17 of the 1916 Crows Landing 7.5-minute series topographic map, there is no further indication that these features are associated with a cemetery. One of these features, located in the southeast corner of the project area (SE 1/4, SE 1/4, Sec. 17, T.6S, R.8E), north of Ike Crow Road and near the boundary between Sections 16 and 17, is visible on the 1952 Crows Landing topographic map. Because the Naval Auxiliary Landing Field and its associated structures were well developed by this date and no depiction of a formal or informal cemetery appears on that map, the feature shown on the 1916 map is not likely attributable to a cemetery building. A second feature was identified on the 1916 Crows Landing 7.5-minute series topographic map (SE 1/4, NW 1/4, Sec. 17, T.6S, R.8E) in the area that would become the landing strip. There is no further suggestion as to the feature's purpose.

A review of available data (site records and previous survey reports) on file at the Central California Information Center, nineteenth-century BLM GLO survey maps, and historic topographic maps did not indicate the presence of or heightened sensitivity for a cemetery in the immediate vicinity of the proposed project. However, such a cemetery may have been unmarked and, therefore, undocumented during historic survey. It is possible that unmarked and unrecorded burials or resources may be present.

FIELD SURVEYS

On February 12, 2015, an archaeologist who meets the Secretary of the Interior's Qualifications Standards for archaeology performed a reconnaissance-level survey of the project site. The project site is largely paved and previously disturbed, but exposed ground surfaces were visually inspected. No archaeological resources were identified as a result of this effort.

On February 12, 2015, an architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards for architectural history and history conducted a survey of the project site. Three

historic-era built environment resources were identified and evaluated: a former air traffic control tower, aircraft runways, and the portion of the Delta-Mendota Canal that traverses the site. Two of these built environment resources, the former air traffic control tower and a portion of the Delta-Mendota Canal, were previously recorded and evaluated in 1998 and 2005, respectively (SAIC 1999; Bureau of Reclamation 2009). This project revalidates those past determinations of eligibility, and includes a new eligibility determination for the runways.

CONSULTATION

On December 1, 2015, a letter was submitted to the NAHC to request a review of their Sacred Lands File (SLF) and to obtain a list of local Native American tribes and individuals who may have knowledge of the project area. In their response (received December 22, 2015), the NAHC stated that the search of the sacred lands files failed to identify any known sacred sites within the project site or immediate vicinity. The NAHC identified seven tribes and individuals having potential interest in the project site. Letters were sent to these parties on November 7, 2016 and no response has been received as of the writing of this document.

3.5.3 SUMMARY OF CULTURAL RESOURCES INVESTIGATION RESULTS

The following section describes known archaeological and architectural resources in the vicinity of the Specific Plan Area.

ARCHAEOLOGICAL RESOURCES

The records search did not result in the identification of previously recorded archaeological resources within the project site or a 0.5-mile search radius. No archaeological resources were identified during the archaeological reconnaissance survey, and no evidence of a pioneer cemetery was observed.

Based on oral history cited by Damiata (2010), residents in the vicinity believe that a pioneer cemetery may be located on, or within the immediate vicinity of the project site. Damiata's (2010) geophysical testing did not result in the identification of the purported cemetery. However, he suggested that the purported cemetery may have been located adjacent to the intersection of Ike Crow and Bell Roads (Damiata 2010). No archival information has been identified to support the belief that a cemetery is located in the vicinity of the Specific Plan Area (*e.g.,* historic maps, photographs). This location for the cemetery was largely based on a report that headstones were once piled in this area. Available data (records search results and historic survey and topographic maps) do not confirm this potential resource's location nor did they indicate an increased potential for historic-period resources in the vicinity of the Specific Plan Area.

Based on the previously disturbed nature of the site, encountering surface prehistoric resources during project construction and operation is unlikely. Although there remains the potential for buried prehistoric sites to be in the area, available archaeological literature and site records suggest that no such sites have been recorded in the vicinity of the project site. Those prehistoric resources in the general vicinity tend to be positioned on elevated land farther west along Salado Creek near Diablo Grande.

BUILT ENVIRONMENT

Delta-Mendota Canal

Description

The segment of the Delta-Mendota Canal in the project area is a concrete-lined, 100-footwide canal flanked by gravel maintenance access roads. The segment in the project area is approximately 3 miles long and contains a control structure and road crossings at Davis Road and Fink Road. Construction on the resource commenced in 1946 and was completed in 1952. The Delta-Mendota Canal draws water from the Jones Pumping Plant, located 12 miles northwest of Tracy, and conveys it south to a point 30 miles west of Fresno on the San Joaquin River. Approximately 95 miles of the canal is concrete-lined, and 18 miles of it is earthen.

Evaluation

The Delta-Mendota Canal, as part of the larger CVP, and it was recommended previously as eligible for inclusion on the National Register of Historic Places (NRHP) under Criteria A and C. The Delta-Mendota Canal has exceptional significance for its key role in the original CVP, and was assigned NR Status Code 2S2. In 2005, the State Historic Preservation Officer (SHPO) concurred that the canal as a whole is eligible for listing in the NRHP, based on an assessment completed by the Bureau of Reclamation. As part of the analysis completed for this project, the segment of the Delta-Mendota Canal appears to retain its historic integrity aspects of location, design, setting, feeling, workmanship, and association to continue to be a contributing portion of the larger canal; thus, the segment in the project area is eligible for listing in the NRHP.

Therefore, due to its NRHP eligibility, the segment of the Delta-Mendota Canal in the project area is also eligible for listing in the CRHR under Criteria 1 and 3, and is also considered a historical resource under CEQA.

Air Traffic Control Tower

Description

The former ATCT is a four-story concrete tower, featuring originally fixed and transom windows in metal sashes. A single-story flat-roof wing with an overhanging roof extends from the south side. An octagonal control window with canted metal frames tops the tower. The glazing has been replaced with wood. All other windows and entrances are boarded over. The tower was built in 1953, as part of the improvements to the Crows Landing NALF during the Korean War period and the Cold War.

Evaluation

The control tower was previously evaluated in 1998 as part of the *Inventory and Evaluation of Cold War Era Historical Resources, NASA Crows Landing* (SAIC 1999). As a result of this assessment, NASA found that the control tower was not eligible for listing to the NRHP and assigned it NR Status Code 6Z. The property was described as a support building, a type found at any type of military installation regardless of mission, and did not represent a significant association with Cold War thematic or patterns of events, or a distinctive design. Since the tower was not yet 50 years old (the general age-threshold for built environment resources) at the time it was recorded and owing to the facility's use during the Cold War, it was evaluated against NRHP Criterion Consideration G, "Properties Having Achieved Significance within the Last 50 Years." The tower did not meet the criterion and was thus determined ineligible for listing on the NRHP.

Similar to the previous NRHP evaluation, the control tower presently does not meet the criteria for the CRHR or as a historical resource for purposes of CEQA because it lacks integrity. The important aspects of integrity for the control tower are design, setting, materials, feeling and association; which are aspects that are no longer extant due to extensive alterations and changes in mission at the facility.

The control tower is not eligible for listing in the CRHR and is not considered a historical resource under CEQA.

Runways

Description

Two intersecting concrete runways remain at the site that run roughly in a north/south and east/west direction. The north/south runway is approximately 1.5 miles long and the east/west is 1.3 miles long. The paved area associated with both runways and their associated aprons and taxiways is approximately 0.5 mile wide. The runways were built when the site was established as a NAAS; however, it was most likely not paved. The runways first appear on historic topographic maps taken between 1943 and 1954, which suggests that the runways may have been paved and enlarged during this period to support larger aircraft.

Evaluation

The runways have not been previously evaluated for eligibility to a federal, State, or as historical resources for purposes of CEQA. The evaluation performed as part of this analysis indicates that the runways do not meet the criteria for listing in the CRHR or as historical resources for purposes of CEQA.

The runways were originally built as part of Naval Auxiliary Air Station Crows Landing during World War II, and were later improved with other site facilities at the Crows Landing NALF during the Korean War period and the Cold War. Overall, evidence does not suggest that the air station, and particularly the runways, played a significant role in the history or pattern of events associated with World War II, the Korean War, or the Cold War, and the runways do not meet CRHR Criterion 1. Similarly, the runways not associated with individuals that played a significant role in history, and they do not meet Criterion 2. As engineering features, the runways do not possess distinctive characteristics for their type, period or method of construction. The runways are simple concrete paved runways that do not reflect any challenges, constraints, or innovative changes in military airfield design during the 1940s and 1950s, and they do not meet CRHR Criterion 3. The runways are not likely to yield information important to history and do not meet CRHR Criterion 4.

In addition to lacking historical and engineering significance, the runways also have lost those aspects of integrity that would convey significance, such as its integrity of feeling, setting, workmanship, and association. The demolition of nearly all other properties associated with the facility has affected its aesthetic and historic sense of a past period, and no longer illustrates the character of the property. Overall, while the property has integrity of location, design, and materials, its integrity has been impaired by the changes that have occurred to the World War II, Korean War, and Cold War resources located at the former airbase. While still set in a rural area of Stanislaus County, without the airbase, which was functionally related to the runways, the setting is not intact. There is also a loss of feeling and association because there is little evidence that an auxiliary airfield existed here, which the runways served. In summary, the runways are not eligible for listing in the CRHR and are not considered a historical resource under CEQA.

As discussed above, the runways and air traffic control towers are the only remaining elements from the Crows Landing NALF, with nearly all other buildings and structures demolished in 2013. Therefore, the two properties do not possess a significant concentration or linkage of buildings and structures united historically and aesthetically to be considered a historic district. In addition to their lack of individual distinction, they also lack a combined significance centered on a geographic or thematic grouping or context. The two remaining resources lack integrity of design, setting, feeling, materials, and workmanship to qualify as a historic district eligible for listing in the CRHR or considered a historical resources for purposes of CEQA. In addition, the properties at Crows Landing constructed between 1945 and 1989 were evaluated in 1998, and none were considered eligible for listing in the NRHP either individually or as a district. As a result, there is not an intact historic district at the Crows Landing NALF.

3.5.4 REGULATORY FRAMEWORK

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

CEQA and the *CEQA Guidelines* include procedures to identify, analyze, and disclose potential adverse impacts on cultural resources, which include all resources listed in or formally determined eligible for listing in the NRHP, the CRHR, or local registers.

CEQA requires a lead agency to consider the effects of a project on cultural resources and to determine whether any identified cultural resource is a historical resource (*i.e.*, if the archaeological resource meets the criteria for listing in the CRHR) (CEQA Guidelines Sections 15064.5[a][1] and [3] and [c][1] and [2]). An cultural resource that qualifies as a historical resource under CEQA generally qualifies for listing under Criterion 4 of the CRHR (CEQA Guidelines Section 15064.5[a][3][D]) (National Register Criterion D). A cultural resource may qualify for listing under Criterion 4 when it can be demonstrated that the resource has the potential to significantly contribute to questions of scientific or historical importance.

For archaeological resources, those that are not historical resources according to the definitions above may be "unique archaeological resources," as defined in California Public Resources Code Section 21083.2, which generally provides that "non-unique archaeological resources" are not analyzed under CEQA. If an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of a project on those resources are not considered significant.

CEQA defines a historical resource as a resource that meets any of the following criteria:

- A resource listed in, or determined to be eligible for listing in, the NRHP or CRHR.
- A resource included in a local register of historical resources, as defined in Public Resources Code Section 5020.1(k), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- A resource identified as significant (*e.g.*, rated 1 through 5) in a historical resource survey meeting the requirements of Public Resources Code Section 5024.1(g) (California Department of Parks and Recreation Form 523), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

- Any object, building, structure, site, area, place, record, or manuscript that 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, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing in the CRHR (CEQA Guidelines Section 15064.5).

- A resource that is determined by a local agency to be historically or culturally significant even though it does not meet the other four criteria listed here.

According to the CEQA Guidelines (Section 15064.5[a][3]), a resource is generally considered historically significant if it meets the criteria for listing in the CRHR (Public Resources Code Section 5024.1, California Code of Regulations, Title 14, Section 4852). A historical resource is defined as any site that:

- Is listed in or determined to be eligible by the State Historical Resources Commission for listing in the CRHR, or is determined to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California; and

- Is eligible for listing in the CRHR (criteria noted above); or

- Is included in a local register of historical resources, as defined by Public Resources Code Section 5020.1(k) or is identified as significant in a historical resource survey meeting the requirements of Public Resources Code Section 5024.l(g).

Archaeological resources are considered historical resources under CEQA, and Traditional Cultural Properties may be eligible for listing in the CRHR under Section 15064.5[a][3]. CEQA Guidelines Section 15064.5 provides that, in general, a resource not listed in State or local registers of historical resources shall be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR. Section 15064.5(b) states that "a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment." The section also provides standards for determining what constitutes a "substantial adverse change" to archaeological or historical resources, including physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (CEQA Guidelines Section 15064.5[b][1]). The significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those characteristics that convey its historical significance and that justify its inclusion on a historical resource list (CEQA Guidelines 15064.5[b][2]).

With respect to an historical resource that is archaeological in nature, Section 15126.4 of the CEQA Guidelines provides that:

> …preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. Preservation in place may be accomplished by, but is not limited to, four factors:
>
> (1) Planning construction to avoid archaeological sites;
>
> (2) Incorporation of sites within parks, greenspace, or other open space;

(3) Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site; or

(4) Deeding the site into a permanent conservation easement.

However, when data recovery through excavation is the only feasible mitigation, the CEQA Guidelines require that a data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resource, be prepared and adopted prior to any excavation being undertaken.

California Register of Historical Resources

The California Register of Historical Resources (CRHR) includes resources that are listed in, or are formally determined eligible for, the NRHP, as well as some California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resources inventory may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise (Public Resources Code Section 5024.1, 14 California Code of Regulations Section 4850). A cultural resource may be eligible for listing in the CRHR if it:

1 It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or

2 It is associated with the lives of persons important to local, California, or national history; or

3 It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or

4 It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

The CRHR definition of integrity and its special considerations for certain properties are slightly different from those for the NRHP. Integrity is defined as “the authenticity of a historical resource’s physical identity evidenced by the survival of characteristics that existed during the resource’s period of significance” (California Office of Historic Preservation 2014). CRHR guidance further states that eligible resources must “retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance.” The same aspects of integrity are used for evaluating properties under the CRHR as the NRHP criteria. The CRHR’s special considerations for certain property types are limited to: (1) moved buildings, structures, or objects; (2) historical resources achieving significance within the past 50 years; and (3) reconstructed buildings.

Public Resources Code

Section 5097 of the Public Resources Code addresses archaeological resources. Archaeological resources that are not “historical resources” may be “unique archaeological resources” as defined in Public Resources Code Section 21083.2, which also generally provides that “non-unique archaeological resources” are not analyzed under CEQA. Public Resources Code Section 21083.2, subdivision (g), defines “unique archaeological resource” as an

archaeological artifact, object, or site that does not merely add to the current body of knowledge, but has a high probability of meeting any of the criteria identified in this section. If an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on that resource will not be considered a significant effect for CEQA purposes. It is sufficient that the resource and the effects on it be noted in an EIR, but the resource need not be considered further in the CEQA process.

Additional sections of the Public Resources Code that are applicable to the proposed project are as follows:

- **Section 5097.5:** Provides that any unauthorized removal or destruction of archaeological or paleontological resources on sites located on public lands is a misdemeanor. As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the State, or any city, county, district, authority, or public corporation, or any agency thereof.

- **Section 5097.98:** Prohibits obtaining or possessing Native American artifacts or human remains taken from a grave or cairn, and sets penalties for such acts.

Native American Heritage Commission

The NAHC identifies and catalogs places of special religious or social significance to Native Americans and known graves and cemeteries of Native Americans on private lands. The NAHC performs other duties regarding the preservation and accessibility of sacred sites and burials and the disposition of Native American human remains and burial items.

Public Resources Code Section 5097.9-5097.991, Native American Historical, Cultural and Sacred Sites, Guides Native American policies and practices. This law discusses the NAHC and its responsibilities and requires a state or local agency to cooperate in carrying out its duties with respect to Native American resources.

Health and Safety Code

Health and Safety Code Section 7050.5 states, "Every person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law is guilty of a misdemeanor, except as provided in Section 5097.99 of the Public Resources Code." Public Resources Code Section 5097.98, as amended by Assembly Bill 2641 (AB 2641), states:

a) Whenever the commission receives notification of a discovery of Native American human remains from a county coroner pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, it shall immediately notify those persons it believes to be most likely descended from the deceased Native American. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site.

b) Upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section, with the most likely descendants

regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants on all reasonable options regarding the descendants' preferences for treatment.

California State Senate Bill 18

California State Senate Bill 18 (SB 18), signed into law in September 2004 and implemented March 1, 2005, requires cities and counties to notify and consult with California Native American Tribes about proposed local land use planning decisions for the purpose of protecting Traditional Tribal Cultural Places (also referred to as Traditional Cultural Properties). The Governor's Office of Planning and Research was mandated to amend its General Plan Guidelines to include the stipulations of SB 18 and to add advice for consulting with California Native American Tribes. According to the Tribal Consultation Guidelines, SB 18 "requires local governments to involve California Native Americans in early stages of land use planning, extends to both public and private lands, and includes both federally recognized and non-federally recognized tribes."

Assembly Bill AB 52, Public Resources Code Section 21074

With the adoption of Assembly Bill (AB) 52 (effective July 1, 2015), impacts to tribal cultural resources must also be addressed under CEQA. As defined in Public Resources Code Section 21074, a tribal cultural resource is a site, feature, place, cultural landscape, sacred place, or object with cultural value to a "California Native American tribe," that is either on, or eligible for inclusion in, the California Register of Historic Resources or a local historic register, or is a resource that the lead agency (in this case Stanislaus County), at its discretion and supported by substantial evidence, determines should be treated as a tribal cultural resource. AB 52 also provides both federal and non-federally recognized tribes the right to formal consultation with project lead agencies. AB 52 does not apply to the Specific Plan or Specific Plan EIR because the process was initiated in 2014.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Stanislaus County General Plan

The following goals, policies, and implementation measures from Conservation/Open Space Element of the County's General Plan are related to cultural resources.

Conservation/Open Space Element

- **GOAL EIGHT** – Preserve areas of national, state and regional and local historical importance.
- **POLICY TWENTY-FOUR** – The County will support the preservation of Stanislaus County's cultural legacy of historical and archaeological resources for future generations.
- **IMPLEMENTATION MEASURE 3** – The County shall work with the County Historical Society, and other organizations and interested individuals to study, identify and inventory archaeological resources and historical sites, structures, buildings and objects.
- **IMPLEMENTATION MEASURE 4** – The County will cooperate with the State Historic Preservation Officer to identify and nominate historical structures, objects, buildings and sites for inclusion under the Historic Preservation Act.

- **IMPLEMENTATION MEASURE 5** – The County shall utilize the CEQA process to protect archaeological or historic resources. Most discretionary projects require review for compliance with CEQA. As part of this review, potential impacts must be identified and mitigated.

- **IMPLEMENTATION MEASURE 6** – The County shall make referrals to the Office of Historic Preservation and the Central California Information Center as required to meet CEQA requirements.

- **POLICY TWENTY-FIVE** – "Qualified Historical Buildings" as defined by the State Building Code shall be preserved.

- **IMPLEMENTATION MEASURE 1** – Whenever possible, the County Building Inspection Division shall utilize the provisions of the State Building Code that allow historical buildings to be restored without damaging the historical character of the building.

3.5.5 Environmental Impacts and Mitigation Measures

Methods

The following analysis is based on a combination of background research, archaeological pedestrian surveys, an assessment of historic-era buildings/structures, and application of established thresholds of significance for determining impacts to cultural resources.

Thresholds of Significance

In accordance with Appendix G of the CEQA Guidelines, impacts to cultural resources would be considered significant if the project would:

- cause a substantial adverse change in the significance of a unique archaeological resource or a historical resource as defined in Public Resources Code Section 21083.2 and Section 15064.5 of the CEQA Guidelines, respectively; or

- disturb any human remains, including those interred outside formal cemeteries.

Section 15064.5 of the CEQA Guidelines defines "substantial adverse change" as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The significance of a historical resource is materially impaired when a project results in demolition or material alteration in an adverse manner of those physical characteristics of a resource that:

- convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR;

- account for its inclusion in a local register of historical resources pursuant to Public Resources Code 5020.1(k) or its identification in a historical resources survey meeting the requirements of Public Resources Code 5024.1(g), unless the public agency reviewing the effects of the proposed project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

- convey its historical significance and that justify its eligibility for inclusion in the CRHR, as determined by a lead agency for purposes of CEQA.

IMPACTS AND MITIGATION MEASURES

IMPACT 3.5-1 **Loss of or damage to known built environment resources.** *One built environment resource, a segment of the Delta-Mendota Canal that is listed on the CRHR, would be affected by implementation of the proposed project. However, the character-defining features of the canal, particularly its sloped concrete walls, would not be impaired. The addition of a proposed bridge would not alter or diminish the canal's location, design, materials, workmanship, feeling and association. The impact is considered* ***less than significant****.*

A segment of the Delta-Mendota Canal is in the project site. The proposed project would require the construction of a new bridge over the canal to improve circulation inside the site. In addition, the portion of Fink Road that includes a bridge over the Delta-Mendota Canal would be improved to facilitate projected increases in traffic. However, the character-defining features of the canal, particularly its sloped concrete walls, would not be impaired as a result of the project construction. The County will coordinate with the U.S. Bureau of Reclamation to construct a new bridge over the Delta-Mendota Canal and to improve the segment of Fink Road that currently crosses the canal. Although a bridge would be added and an existing crossing improved, the canal would still be able to convey its significance. The canal is more than 100 miles long and many bridges cross the canal already. The addition of the proposed bridge would not alter or diminish the canal's location, design, materials, workmanship, feeling and association. Therefore, it would retain its integrity. The impact would be **less than significant**. No mitigation is required.

IMPACT 3.5-2 **Substantial adverse change in the significance of an archaeological resource as defined in CEQA Guidelines Section 15064.5.** *The proposed project will include earth-moving activities and grading during the construction of site infrastructure, new structures and parking areas, and airport facilities. However, the project site has been disturbed by agricultural cultivation and the construction and operation of military facilities during its more than 50 years of operation, and the identification of surface prehistoric resources during project implementation is unlikely. The cultural records search did not identify any prehistoric resources at the project site or in its immediate vicinity. While it appears unlikely, it is possible that project construction could result in inadvertent damage to unknown unique, buried archaeological deposits. The impact is* ***potentially significant****.*

The proposed project will include earth-moving activities and grading during the construction of site infrastructure, new structures and parking areas, and airport facilities. However, the project site has been disturbed by agricultural cultivation and the construction and operation of military facilities during its more than 50 years of operation, and the identification of surface prehistoric resources during project implementation is unlikely. No archaeological resources were encountered during the survey of the project site.

The cultural records search did not identify any prehistoric resources at the project site or in its immediate vicinity. Rather, such resources in the general area tend to be positioned on elevated land more than 1 mile west of the site along Salado Creek near Diablo Grande. The records search and a review of historic maps did not indicate an increased potential for historic-period resources in the vicinity of the project area. Although there have been reports of a potential pioneer cemetery in or near the project site, a records search performed at the Central California Information Center in Turlock, a review of historical data (survey maps and topographic maps) and the results of a geophysical study did not confirm its presence. Similarly, the February 2015 archaeological pedestrian

survey performed as part of this analysis did not result in the identification of artifacts, features, or landscapes indicative of a pioneer cemetery. Because the project site has been previously developed, there is a reduced likelihood that undocumented archaeological resources would be present on the project site. However, previous development does not always preclude the possibility of an inadvertent discovery, especially if that development did not include grading to any considerable depth. While it appears unlikely, it is possible that project construction could result in inadvertent damage to unknown unique, buried archaeological deposits. This would be a **potentially significant** impact.

Mitigation Measure 3.5-2: Avoid Potential Effects on Previously Undiscovered Resources, and Stop Work if Any Prehistoric or Historic Subsurface Cultural Resources are Discovered

In the event that any prehistoric or historic subsurface archaeological features or deposits, including locally darkened soil ("midden"), are discovered during construction-related earth-moving activities, all ground-disturbing activity within 150 feet of the resources shall be halted.

The County shall consult with a qualified archeologist to assess the significance of the find. If the feature is determined to be significant by the qualified archaeologist (*i.e.*, because it is determined to constitute either an historical resource or a unique archaeological resource), representatives of the County and the qualified archaeologist shall meet to determine the appropriate course of action.

If the archaeologist determines that some or all of the affected resource qualifies as a historical resource or a Native American Cultural Place, including a Native American sanctified cemetery, place of worship, religious or ceremonial site, sacred shrine (California Public Resources Code Section 5097.9), or a Native American historic, cultural, or sacred site that is listed or may be eligible for listing in the California Register of Historical Resources pursuant to California Public Resources Code Section 5024.1, including any historic or prehistoric ruins, any burial ground, or any archaeological or historic site (California Public Resources Code Section 5097.993), the archaeologist shall recommend to the County potentially feasible mitigation measures that would preserve the integrity of the site or minimize impacts on it, including any or a combination of the following:

- Avoidance, preservation, and/or enhancement of all or a portion of the Native American Cultural Place as open space or habitat, with a conservation easement dedicated to the most interested and appropriate tribal organization. If such an organization is willing to accept and maintain such an easement, or alternatively, a cultural resource organization that holds conservation easements;

- An agreement with any such tribal or cultural resource organization to maintain the confidentiality of the location of the site so as to minimize the danger of vandalism to the site or other damage to its integrity; or

- Other measures, short of full or partial avoidance or preservation, intended to minimize impacts on the Native American Cultural Place consistent with land use assumptions and the proposed design and footprint of the development project for which the requested grading permit has been approved.

After receiving such recommendations, the County shall assess the feasibility of the recommendations and impose the most protective mitigation feasible in light of land use assumptions and the proposed

design and footprint of the development project. The County shall, in reaching conclusions with respect to these recommendations, consult with the most appropriate and interested tribal organization.

Implementation: Stanislaus County and leaseholders/developers/contractors.

Timing: During the construction of any on-site developments and off-site infrastructure improvements and ongoing, as applicable.

Enforcement: Stanislaus County.

Significance after Mitigation

The likelihood of encountering undiscovered cultural resources at the project site is low, since prior trenching related to Base activities, as well as previous geophysical investigations did not identify any cultural resources within the project site (Damiata 2010), and review of historic maps did not indicate the presence of a cemetery on or near the project site. Although it is unlikely, there is the potential that unknown cultural or resources could be discovered during construction activities. Implementing Mitigation Measure 3.5-2 will ensure that any cultural resources encountered during construction, including archaeological features or potential human remains, would be treated in an appropriate manner under CEQA and other applicable laws and regulations. Mitigation Measure 3.5-2 would reduce the potential for a significant impact resulting from inadvertent damage or destruction of presently undocumented cultural resources because if an inadvertent discovery of cultural materials (including human remains) is made during project-related construction activities, disturbances in the area of the find must be halted and appropriate treatment and protection measures must be implemented, all in consultation with a professional archaeologist and in accordance with CEQA Guidelines Section 15126.4 if the resource is an historic resource of an archaeological nature and/or with Public Resources Code Section 21083.2 if the resource is a unique archaeological resource. If the discovery could potentially be human remains, compliance with Health and Safety Code Section 7050 et seq. and Public Resources Code Section 5097.9 et seq. would be required. If previously unknown cultural resources are discovered at the project site, Mitigation Measure 3.5-2 would reduce the potential impact. The impact is **less than significant with mitigation**.

IMPACT 3.5-3 The proposed project could disturb as-yet undiscovered human remains, including those interred outside of formal cemeteries. *Oral history and local accounts suggest that a pioneer-period cemetery may have been located in the project vicinity, but geophysical research and a review of archaeological records on file at the Central California Information Center did not substantiate its presence. The archaeological survey conducted for this project did not provide evidence of a cemetery. Compliance with California Health and Safety Code and California Public Resources Code would reduce potential impacts on previously undiscovered human remains because the above-listed procedures allow for the identification and proper treatment of human remains. The impact is considered less than significant.*

Oral history and local accounts suggest that a pioneer-period cemetery may have been located in the vicinity of the Specific Plan Area, but geophysical research and a review of archaeological records on file at the Central California Information Center did not substantiate its presence. The archaeological survey conducted for this project did not provide evidence of a cemetery within project boundaries. Research indicates that, if such a cemetery had existed, its potential location would have been near the intersection of Ike Crow and Bell Roads, but

this is also unconfirmed. However, in the unlikely event that human remains are discovered during subsurface activities, they could be inadvertently damaged.

California law recognizes the need to protect historic-era and Native American human burials, skeletal remains, and items associated with Native American interments from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and Section 7052 and California Public Resources Code Section 5097. In accordance with California law, if human remains are uncovered during future ground-disturbing activities, all potentially damaging excavation in the area of the burial would be stopped and the applicant or their contractor would notify the County Coroner and a professional archaeologist to determine the nature of the remains. The coroner would be required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or State lands (California Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the NAHC by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.9. Following the coroner's findings, the property owner, contractor or project proponent, an archaeologist, and the NAHC-designated Most Likely Descendant will determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed.

Upon the discovery of Native American remains, the applicant and/or their contractors would be required to ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards and practices) is not damaged or disturbed by further development activity until consultation with the Most Likely Descendant has taken place. The Most Likely Descendant would have 48 hours to complete a site inspection and make recommendations after being granted access to the site. A range of possible treatments for the remains, including nondestructive removal and analysis, preservation in place, relinquishment of the remains and associated items to the descendants, or other culturally appropriate treatment may be discussed. California Public Resources Code Section 5097.9 suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. Protection measures that could include recordation of the site with the NAHC or the appropriate Information Center, use of an open-space or conservation zoning designation or easement, and recordation of a document with the county in which the property is located.

If the NAHC is unable to identify a Most Likely Descendant or the Most Likely Descendant fails to make a recommendation within 48 hours after being granted access to the site, the Native American human remains and associated grave goods would be reburied with appropriate dignity on the subject property in a location not subject to further subsurface disturbance.

Compliance with California Health and Safety Code and California Public Resources Code would reduce potential impacts on previously undiscovered human remains to a **less-than-significant** level because the above-listed procedures allow for the identification and proper treatment of human remains.

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3.6 ENERGY

Section 3.6 of this EIR considers the primary energy uses needs for the proposed project; the benefit of existing regulations that require energy-efficient construction and operation; and the potential for the proposed project to result in the wasteful, inefficient, and unnecessary consumption of energy. Section 3.15 of this EIR addresses electricity- and natural gas-related infrastructure needed to serve the proposed project.

3.6.1 ENVIRONMENTAL SETTING

ELECTRICAL SERVICE

The Turlock Irrigation District (TID) generates, transmits, and distributes electrical service to approximately 220,000 customers through its approximately 662-square mile service area, which includes northern Merced County, southern Stanislaus County, and small sections of Tuolumne and Mariposa counties (VVH Consulting Engineers 2015). TID's service area currently includes approximately 98,000 residential, farm, business, industrial, and municipal accounts (TID 2015).

TID operates overhead transmission and distribution lines that currently serve the project site. A TID substation at the northeast corner of Marshall Road and Davis Road, which is fed from a double circuit 115 kilovolt (kV) line with a 12kV underbuild (attached at a lower point on the same poles), is located along Marshall Road. TID is able to generate approximately 505 megawatts (MW) of electricity using its own resources. In 2014, TID delivered approximately 2,064 kilowatt-hours (kWh) of electricity to its customers (CEC 2015a).

TID generates power internally from a variety of sources. Forty-nine percent of TID's total electricity portfolio is provided by three natural gas power plants (Walnut Energy Center, Walnut Power Plant, and Almond Power Plant), 20 percent is provided by hydroelectric facilities (the Don Pedro Dam and Powerhouse facility), 8 percent is from the Boardman coal-fired power plant, 23 percent is from eligible renewable resources (e.g., biomass, solar, wind, geothermal, and small hydroelectric [less than 30 MW]), and less than 0.1 percent is from unspecified power sources (TID 2014). See Section 3.15, "Utilities and Service Systems" for additional details regarding electricity service in the project area.

NATURAL GAS SERVICE

Natural gas service is provided to Stanislaus County by Pacific Gas and Electric Company (PG&E) through portions of PG&E's approximately 46,000 miles of natural gas distribution pipelines. During winter, most natural gas resources are imported from Canada on a supply and demand basis, and the balance is supplied from California production wells. During summer, when gas prices are lower, gas is stored in underground holders for use during winter peak-use periods.

In 2013, PG&E delivered approximately 4,807 million therms (MM therms) of natural gas throughout its service area (CEC 2015b). Approximately 4.0 percent or 188 MM therms of PG&E's total natural gas deliveries are provided to users in Stanislaus County (CEC 2015c).

Table 3.6-1 shows PG&E's average historic natural gas consumption and forecasts of future consumption. CEC has determined that the decrease in natural gas consumption between 2005 and 2010 resulted from both greater energy conservation and the slowdown in construction of new homes and businesses (CEC 2009:220). The

average annual growth in natural gas consumption in PG&E's service area is anticipated to increase through 2024. By 2024, natural gas consumption is estimated to range between approximately 4,870 MM therms and approximately 4,909 MM therms with the average natural gas consumption anticipated to be approximately 4,888 MM therms (CEC 2013a:52).

Table 3.6-1
PG&E Service Area Average Natural Gas Consumption and Forecast

Year	Consumption (MM Therms)
1990	5,275
2000	5,291
2005	4,724
2010	4,186
2015	4,761
2020	4,894
2024	4,888

Notes: PG&E = Pacific Gas and Electric Company;
MM therms = million therms; CEC = California Energy Commission
Source: CEC 2013a:52

ENERGY USE FOR TRANSPORTATION

Transportation is, by far, the largest energy consuming sector in California, accounting for approximately 38 percent of all energy use in the state (U.S. Energy Information Administration 2014). Since transportation accounts for more energy consumption than heating, cooling, and powering of buildings, powering industry, or any other use, the travel demand reducing features of the project site and design are important for consideration in an assessment of energy efficiency (Lawrence Berkeley National Laboratory 2013).

Transportation fuel has diversified and will continue to diversify in California and elsewhere. While gasoline and diesel fuel accounted for nearly all demand historically, numerous options are now available, including ethanol, natural gas, electricity, and hydrogen. Currently, gasoline and diesel are the primary fuels used for transportation in California, where 14.7 billion gallons of gasoline and 3.8 billion gallons of diesel fuel were consumed in 2014 (CEC 2016).

Based on data provided by the Stanislaus County Council of Governments (StanCOG) and shown in Table 3.6-2, the population and total vehicle miles traveled (VMT) in Stanislaus County are anticipated to increase from 2012 to 2040. The region is anticipated to experience an approximate 4.8 percent increase in weekday VMT per capita from 2012 to 2040, and the County is anticipated to experience an approximate 51 percent increase in total weekday VMT (StanCOG 2014a, StanCOG 2014b). Despite anticipated improvements in vehicle fuel efficiency over this same time period, on-road, mobile source-related energy/fuel use is still anticipated to increase during this period.

Table 3.6-2
Existing and Projected Transportation-Related Energy Consumption in Stanislaus County (2012 to 2040)

	Year			
	2012	2020	2030	2040
VMT (1,000 VMT)[1]	7,692	8,865	10,999	11,611
Population[2]	530,000	594,000	722,000	764,000
VMT/capita	14.5	14.9	15.2	15.2

Note: VMT = vehicle miles traveled

[1] VMT is regional-wide weekday 1,000 VMT. Year 2012. 2020, 2035 and 2040 VMT were obtained from the 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Program EIR (Table 4.6-3).

[2] Population information was obtained from the 2014 RTP/SCS (Table 2.1 Regional Growth Forecast). Year 2012 was interpolated between StanCOG's 2010 and 2020 population estimates.

Source: StanCOG 2014a, StanCOG 2014b

3.6.2 REGULATORY SETTING

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Environmental Protection Agency and National Highway Traffic Safety Administration

The U.S. Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) are implementing national greenhouse gas (GHG) emission and fuel economy standards for light-duty cars and trucks in model years 2012 to 2016. The second phase of the standards includes GHG and fuel economy standards for model years 2017 to 2025. The 2017 to 2025 standards are anticipated to save approximately 4 billion barrels of oil and 2 billion metric tons of GHG emissions. In 2025, if all standards are met through fuel efficiency improvements, the average industry fleetwide fuel efficiency for light-duty cars and trucks would be approximately 54.5 miles per gallon (EPA 2012).

In addition to standards for light-duty cars and trucks, EPA and NHTSA are also currently implementing Phase 1 of the Medium- and Heavy-Duty Vehicle GHG Emissions and Fuel Efficiency Standards, which apply to model years 2014 to 2018. It is anticipated that medium- and heavy-duty vehicles built to these standards from 2014 to-2018 will reduce carbon dioxide (CO_2) emissions by approximately 270 million metric tons (EPA 2011). Phase 2 of these standards will apply to model years 2021 to 2027, and is anticipated to reduce GHG emissions by 1 billion metric tons (EPA 2015). In addition to the GHG reduction and fuel efficiency, the standards are anticipated to generate development and research jobs focused on advanced cost-effective technology for cleaner and more efficient commercial vehicles.

Renewable Fuel Standard Program

The 2005 Renewable Fuel Standard Program (RFS) established requirements for volumes of renewable fuel used to replace petroleum-based fuels. The four renewable fuels accepted as part of RFS are biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. The 2007 Energy Independence and Security Act (EISA) expanded the program and its requirements to include long-term goals of using 36 billion gallons of renewable fuels and extending annual renewable fuel volume requirements to year 2022. The four renewable fuels

have specific renewable fuel-blending requirements for obligated parties such as refiners and importers of gasoline or diesel fuel.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bills 1078 (Chapter 516, Statutes of 2002) and 107 (Chapter 464, Statutes of 2006), Executive Orders S-14-08 and S-21-09, and Senate Bill 350

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Executive Order S-14-08 expanded the State's Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewable Portfolio Standard applies to all electricity retailers in the State, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. Consequently, PG&E, which would be the electricity provider for the proposed project, must meet the 33 percent goal by 2020. SB 350 (2015) increased the renewable requirement to 50 percent by 2030.

These requirements reduce the carbon content of electricity generation, and would reduce GHG emissions associated with existing development, as well as new development, including new development within the Planning Area.

In January 2016, the California Public Utilities Commission (CPUC) reported that California's three largest investor-owned utilities (IOUs) (i.e., Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas and Electric Company) collectively provided 26.6 percent of their 2014 retail electricity sales using renewable sources and are continuing progress toward future 2020 requirements (CPUC 2016).

California Building Energy Efficiency Standards

The proposed project would be required to comply with Title 24 of the California Code of Regulations related to energy efficiency. Title 24 provides energy efficiency standards for both residential and nonresidential buildings. The Building Standards were most recently revised in 2016, and the standards went into effect January 1, 2017.

California Green Building Code

The Green Building Code (Part 11, Title 24) was developed to enhance the design and construction of buildings and sustainable construction practices through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality. The current (2016) California Green Building Code requires mandatory inspections of energy systems (e.g., heat furnace, air conditioner, and mechanical equipment) for non-residential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. In addition, the Green Building Code includes Nonresidential Voluntary Measures that address building energy efficiency, water efficiency and conservation, and material/resource efficiency. Energy efficiency measures for the Nonresidential Voluntary

Measures are related to lighting systems, water heating in restaurants, renewable energy, and operation of elevators, escalators, and equipment. The proposed project would be required to comply with the energy performance standards that are in effect at the time of construction. Compliance with these standards would reduce energy demand.

CEQA and CEQA Guidelines

Public Resources Code Section 21100(b)(3) requires EIRs to evaluate the wasteful, inefficient, and unnecessary consumption of energy. CEQA Guidelines Section 15126.4(a)(1) suggests that an EIR describe feasible mitigation that could minimize significant adverse impacts, including, where relevant, inefficient and unnecessary consumption of energy, when relevant. CEQA Guidelines, Appendix F, requires the potentially significant energy implications of the project to be considered in an EIR to the extent feasible, and provides a list of energy impact possibilities and potential conservation mitigation measures.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Stanislaus County General Plan

The Stanislaus County General Plan's Conservation/Open Space Element includes the following goals, policies, and implementation measures that address energy (Stanislaus County 2016).

- **POLICY TWENTY-ONE** – The County will support efforts to increase public awareness of air quality problems and solutions.
- **IMPLEMENTATION MEASURE 3** – Work with local building industry, utilities, and the [San Joaquin Valley Air Pollution Control District] SJVAPCD to educate developers and builders on the benefits of energy-efficient designs and the use of low-emission equipment for new residential and commercial construction.
- **POLICY TWENTY-THREE** – The County will protect existing solid waste management facilities, including the waste-to-energy plant and the Fink Road landfill, against encroachment by land uses that would adversely affect their operation or their ability to expand.
- **IMPLEMENTATION MEASURE 1** – Do not approve any discretionary projects within 1,000 feet of existing solid waste management facilities, including the Fink Road landfill and the waste-to-energy plant, unless such projects will have no adverse impact on those facilities or vice versa.
- **GOAL ELEVEN** – Conserve resources through promotion of waste reduction, reuse, recycling, composting, ride-sharing programs and alternative energy sources such as mini-hydroelectric plants, gas and oil exploration, and transformation facilities such as waste-to-energy plants.
- **POLICY THIRTY-ONE** – New construction by the County shall meet or exceed code requirements for energy conservation.

3.6.3 IMPACTS AND MITIGATION

METHODS OF ANALYSIS

The County conducted an evaluation of potential energy impacts using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2, the *California Energy Demand 2010–2020, Adopted Forecast* (CEC 2009), as well as documents and regulations pertaining to the proposed project. Future energy demand was calculated based on proposed land uses and modeling conducted by AECOM for the greenhouse gas inventory using the CalEEMod, Version 2013.2.2. (See Section 3.7, "Greenhouse Gas Emissions," for further discussion of CalEEMod). Impacts related to energy demand that would result from implementation of the proposed project were identified by evaluating the proposed project's total demand at full buildout.

The CLIBP would support several general uses including light industrial, warehouse/distribution, office, and public facilities, and general aviation. Table 3.6-3 provides an estimate of the proposed project's electrical and natural gas demands.

Table 3.6-3
Estimated Electrical and Natural Gas Demand from Implementation of the Proposed Project

Land Use Type	Electrical Demand (kWh/year)	Natural Gas Demand (kBtu/year)
General Light Industrial	130,197,000	293,281,000
Government Office Building/Public Facilities	6,810,760	9,233,560
Refrigerated Warehouse	151,197,000	952,800
Office	30,134,700	55,685,100
Total	**318,339,460**	**359,152,460**

Notes: kWh = kilowatt-hours; kBtu = thousand British thermal unit
Source: Data compiled by AECOM in 2015

The project would also consume transportation energy for employee trips, deliveries, and other purposes. Future transportation energy demand estimates depend on a variety of factors that are not currently known, including fuel prices, vehicle technologies and prices, regulatory requirements, consumer demand and preferences, economic growth, and other factors. Transportation energy use attributable to the project at buildout could require between 5.2 and 8.2 million gallons of gasoline and diesel fuel. Using California Climate Action Registry methods and estimates of electric vehicle energy demand from the California Council on Science and Technology, and including electric vehicle transportation demand, transportation energy demand attributable to the project could require more than 680,000 million British thermal units per year (Btus) (CCAR 2008, CEC 2016, CCST 2011). At full buildout, aircraft could require more than 1 million additional gallons of aviation fuel.

THRESHOLDS OF SIGNIFICANCE

Appendix F of the *CEQA Guidelines* provides guidance for assessing impacts related to energy supplies, focusing on the goal of conserving energy by ensuring that projects use energy wisely and efficiently. Because Appendix F does not include specific significance criteria, the following thresholds are based on the goal of Appendix F. Energy impacts are considered significant if the proposed project would:

- Develop land uses and patterns that cause wasteful, inefficient, and unnecessary consumption of energy.
- Encroach on the Fink Road landfill and waste-to-energy plant in a way that would adversely affect operations or ability to expand.

Section 3.15 of this EIR addresses electricity- and natural gas-related infrastructure needed to serve the proposed project.

IMPACTS AND MITIGATION MEASURES

IMPACT 3.6-1 Consumption of energy. *Implementation of the proposed project would increase the consumption of energy for the duration of the proposed project's construction in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). Implementation of the proposed project would also require energy for operational phases. The physical impacts associated with the generation and use of energy are documented in detail throughout this EIR. Based on the analysis below, the impact is considered* ***less than significant****.*

Construction-Related Energy Consumption

Implementation of the proposed project would increase the consumption of energy for the duration of the proposed project's construction in the form of electricity, natural gas, and fossil fuels (*e.g.*, gasoline, diesel fuel). The primary energy demands during construction would be associated with construction equipment and vehicle fueling. Energy in the form of fuel and electricity would be consumed during this period by construction vehicles and equipment operating on-site, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site.

The proposed project does not include unusual characteristics that would necessitate the use of construction equipment that would be less energy-efficient than at comparable construction sites. Therefore, it is expected that construction fuel consumption associated with the proposed project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region. Energy use would be required, as well, for demolition, although almost all structures related to previous flight facility uses have already been demolished. The 2016 Green Building Code (Title 24, Part 11 of the California Code of Regulations) requires all construction contractors to reduce construction waste and demolition debris by 65 percent. Depending on the energy required for recycling compared to disposal, these existing requirements could help to make energy use for demolition more efficient.

Building Energy Consumption

The proposed office, logistics/distribution, municipal, and aviation-related buildings would be constructed to meet applicable energy efficiency standards at the time of construction. Individual development projects proposed under the Specific Plan would be required to comply with the current energy performance standards found Title 24 of the California Code of Regulations, resulting in reductions in energy demand for residential and commercial land uses, including the Green Building Code (Part 11 of Title 24) Building Energy Efficiency Standards.

The proposed project's annual electrical and natural gas demand would be approximately 318.34 million kWh and approximately 359,152.46 million British thermal units (MMBtu). Since energy efficiency requirements for new construction have increased over time, the County anticipates that the proposed buildings would generally be

more energy efficient that existing similar use buildings in the County that were constructed according to previous less stringent energy efficiency standards. In addition, older buildings tend to decrease in energy efficiency as infrastructure begins to degrade with time. Therefore, the space heating and cooling, lighting, and other operational-related energy uses for the proposed project's buildings would likely be more efficient than existing buildings in the region.

In addition, Specific Plan development, along with all future development in California, would benefit from State regulations that increase the efficiency of energy use by increasing the percentage of energy generated by renewable sources. As detailed in Section 3.7 of this EIR, Greenhouse Gas Emissions, SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2020. In January of 2016, the CPUC reported that California's three large IOUs provided 26.6 percent of their 2014 retail electricity sales using renewable sources and are continuing progress toward future 2020 requirements (CPUC 2016). Executive Order S-14-08 expanded the State's Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB, under its AB 32 authority, to enact regulations to help the state meet its Renewable Portfolio Standard (RPS) goal of 33 percent renewable energy by 2020. State requirements for energy efficiency in new construction and renewable energy generation would reduce per-employee energy use within the Specific Plan Area throughout the operational phases of the proposed project.

Furthermore, the proposed Specific Plan includes several design goals in Chapter 3, "Built Environment and Design" that encourage energy efficiency measures beyond those contained in CalEEMod. Chapter 3 of the Specific Plan includes the following guidance:

D 20: All development shall consider proposed site, building, and landscape design features that minimize energy demand, lower operational costs, and reduce air emissions associated with facility operations.

D 21: All development shall be encouraged to incorporate energy-efficient design concepts and building systems, and alternative energy sources. To the greatest extent possible, new development should incorporate the following measures:

- Application of Leadership in Energy and Environmental Design (LEED) Green Building principles and certification.
- High-performance buildings materials, including glass and insulation.
- Renewable energy technologies, such as solar water heaters, active solar, wind, or geothermal energy collectors, or other energy generation technologies.
- Computerized controls to monitor temperatures in tenant spaces and to adjust heating and cooling.
- Lighting controls to monitor and adjust lights for work, security, or other functions.
- Energy star appliances, lighting, and equipment.
- Radiant floor heating system in large spaces.
- Roll up or sliding doors in large spaces for natural ventilation during temperate weather.

- Building placement to take advantage of passive heating and cooling, including within open space areas. Buildings should be adequately separated from each other to avoid obstructing solar access, especially during winter months.
- Trees and earth sheltering with creative land grading to shade building entrances and parking areas.
- Passive design strategies within buildings for natural heating, cooling, lighting and other energy saving opportunities.
- Operable windows, skylights, and fans to reduce mechanical ventilation and cooling.
- Windows, doors, and roof tops arranged to maximize natural ventilation and daylighting.
- Active solar energy technologies on large roof areas and in open spaces.

Although these design goals would likely reduce the energy demands, at the time of this analysis the energy reductions or feasibility of these design goals for proposed land uses cannot be precisely determined and therefore, have not been included in this analysis.

Transportation-Related Energy Consumption

The proposed project would be constructed on a previously developed site near the communities of Crows Landing, and the cities of Patterson and Newman. As described in Chapter 2, Project Description, the proposed project will serve as a regional employment center in western Stanislaus County and support job diversity in a County that is job-deficient and highly focused on agriculture. Because of the “proximity to two of the largest employment areas in California [Sacramento and San Francisco], Stanislaus County has become a 'bedroom community’ for commuters seeking more affordable housing” (StanCOG 2014a).

The proposed CLIBP would create a regional employment center that would provide job opportunities to some Stanislaus County residents that would not require commutes to the San Francisco and Sacramento metropolitan areas or other job centers along the Highway 99 corridor. The degree to which the Specific Plan would provide jobs for County residents who commute outside the County is unknown. Factors that would affect the CLIBP’s ability to reduce commutes include the specific end users that elect to establish workplaces within the Specific Plan area, the relative quality of job opportunities, the change in commute times, the price of fuel, and other social and economic factors outside the County’s control. However, the proposed project is intended to attract employment opportunities that would reduce commute trip distances for County residents. In addition, the development of commercial land uses would provide amenities to employees that could further minimize trip distances, VMT, and transportation-related energy consumption. This EIR has taken a conservative approach to analysis that does not factor in travel demand reductions associated with employment opportunities or trip internalization for future employees.

In addition, Mitigation Measure 3.2-1b requires measures to encourage alternatives to the single occupant vehicle commute. Mitigation Measure 3.7-1b requires reduction in greenhouse gas emissions, which would include strategies that would also reduce energy demand.

Conclusion

The physical impacts associated with the generation and use of energy are documented in detail throughout this EIR. For example, generation of non-renewable electricity is an indirect source of criteria air pollutant and greenhouse gas emissions, and these impacts are analyzed, reported, and mitigated as a part of the County's development of Sections 3.2 (Air Quality) and 3.7 (Greenhouse Gas Emissions).

Compliance with existing regulations and the proposed policies in the CLIBP Specific Plan would ensure that the proposed commercial and industrial buildings constructed in the CLIBP Specific Plan area would be more energy efficient than existing, average, similar-use buildings in the County as energy efficiency requirements have become more stringent over time. The proposed project's 14,000 additional jobs would increase the diversity of employment opportunities currently available in the County, and it would provide County residents with local employment opportunities that avoid long commute trips. Considering this information, the proposed project would not be expected to cause the inefficient, wasteful, or unnecessary consumption of energy. The implementation of energy efficiency requirements and renewable energy generation requirements would decrease the overall per-employee energy consumption within the Specific Plan as it is developed. Adding employment opportunities in sectors for which residents currently commute long distances could also help decrease per-capita demand for transportation-related energy over time. Mitigation Measure 3.2-1b requires measures to encourage alternatives to the single occupant vehicle commute. Mitigation Measure 3.7-1b requires reduction in greenhouse gas emissions, which would include strategies that would also reduce energy demand. These building energy, energy generation, and transportation energy features of the project would help to decrease the reliance on fossil fuels. Therefore, the impact is considered **less than significant**. No mitigation is required.

IMPACT 3.6-2 Development in the vicinity of the Fink Road landfill and waste-to-energy plant. *The proposed project could result in new land uses that could encroach on the Fink Road landfill and waste-to-energy plant that would adversely affect their operation or ability to expand. Based on the analysis below, the impact is considered* ***less than significant****.*

POLICY TWENTY-THREE of the County General Plan's Conservation/Open Space Element states that the County will protect existing solid waste management facilities, including the waste-to-energy plant and the Fink Road landfill, against encroachment by land uses that would adversely affect their operation or their ability to expand. In accordance with Implementation Measure 23.1, the proposed project site is located more than 1,000 feet from both facilities.

Some landfill operations can attract potentially hazardous wildlife, such as gulls, ravens, and other avian species that have the potential to interfere with aircraft operations. The proposed project site, including the proposed airport, is located within 1 mile of both the Covanta Stanislaus Resource Recovery Facility and the Fink Road Landfill. The Covanta facility incinerates waste, but does not have uncovered waste disposal areas that are attractive to potentially hazardous wildlife.

The Fink Road Sanitary Landfill is a Class III landfill for nonhazardous municipal solid waste. The landfill accepts industrial, commercial, and residential waste, including household and commercial garbage, construction debris, animal remains, and concrete /inert materials. In accordance with California law, all loads must be covered when transported to the site. The County covers the open face of the landfill daily with fresh soil, provides rodent control, and performs wildlife harassment for birds.

Neither the landfill nor the Covanta facility appears to attract hazardous wildlife, and any change in facility operation would be reviewed pursuant to CEQA to determine the effects of the new operation, including its potential to attract hazardous wildlife that could interfere with air traffic. Therefore, the proposed project would not affect the current operation or future expansion of the Fink Road facility. (See also Section 3.9, "Hazards and Hazardous Materials," which addresses wildlife hazards). This impact is **less than significant**. No mitigation is required.

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3.7 GREENHOUSE GAS EMISSIONS

Emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. The proper context for addressing this issue in an EIR is in an assessment of cumulative impacts; it is unlikely that a single project will contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system.

3.7.1 ENVIRONMENTAL SETTING

CLIMATE

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 (Ahrens 2003). Stanislaus County is located in a climatic zone characterized as dry-summer subtropical, or as Mediterranean in the Köppen climate classification system. The Köppen system's classifications are based primarily on annual and monthly averages of temperature and precipitation. (See Section 3.2 of this EIR, "Air Quality," for a more detailed description of climate in Stanislaus County).

ATTRIBUTING CLIMATE CHANGE TO GREENHOUSE GASES

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Without the *naturally occurring* greenhouse effect, Earth would not be able to support life as we know it.

Anthropogenic (*i.e.*, human caused) emissions of these GHGs lead to atmospheric levels in excess of natural ambient concentrations and are responsible for intensifying the greenhouse effect. These emissions in excess of natural causes have led to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global atmospheric/oceanic circulation patterns and climate (IPCC 2013). Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

HFCs, PFCs, and SF_6 are considered high global warming potential (high-GWP) GHGs. GWP is a concept developed to compare the ability of each GHG to trap heat in the atmosphere compared to CO_2. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2, the most abundant GHG. The concept of CO_2 equivalency (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Climate change is a global problem because GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern (see Section 3.2, Air Quality, for more

information on criteria air pollutants and TACs). Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule depends on multiple variables and cannot be precisely identified, more CO_2 is currently emitted into the atmosphere than is stored, or "sequestered." The quantity of GHGs required to ultimately result in climate change is not precisely known, but the quantity is enormous, and no single project could contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro-climate.

Effects of Climate Change

Climate change could affect environmental conditions in California through a variety of mechanisms. One effect of climate change is sea level rise. Sea levels along the California coast rose approximately 7 inches during the last century (Office of Environmental Health Hazard Assessment 2013), and are predicted to rise an additional 7 to 22 inches by 2100, depending on the future levels of GHG emissions (IPCC 2013). However, the Governor-appointed Delta Vision Blue Ribbon Task Force has recommended that the State plan for a scenario of 16 inches of sea level rise by 2050 and 55 inches by 2100 (California Natural Resources Agency 2008). The effects of sea level rise could include increased coastal flooding and inundation from storm and tidal surges and saltwater intrusion (Office of Environmental Health Hazard Assessment 2013).

As the California climate changes over time, the geographic ranges of various plant and wildlife species could shift or be reduced, depending on the favored temperature and moisture regimes of each species. In the worst cases, some species would become extinct if suitable conditions are no longer available. Additional concerns associated with climate change are a reduction in mountain snowpack (the largest "reservoir" in the state), leading to less overall water storage in the mountains; increasing unpredictability and variability of precipitation and dry conditions (including frequency of multi-year droughts); and an increased risk of wildfire caused by changes in rainfall patterns and plant communities (California Natural Resources Agency 2008). For more information about the potential effects associated with climate change in California, please refer to the California Natural Resources Agency's Climate Adaptation Strategy (CEC 2009).[1]

Greenhouse Gas Emissions Sources and Inventory

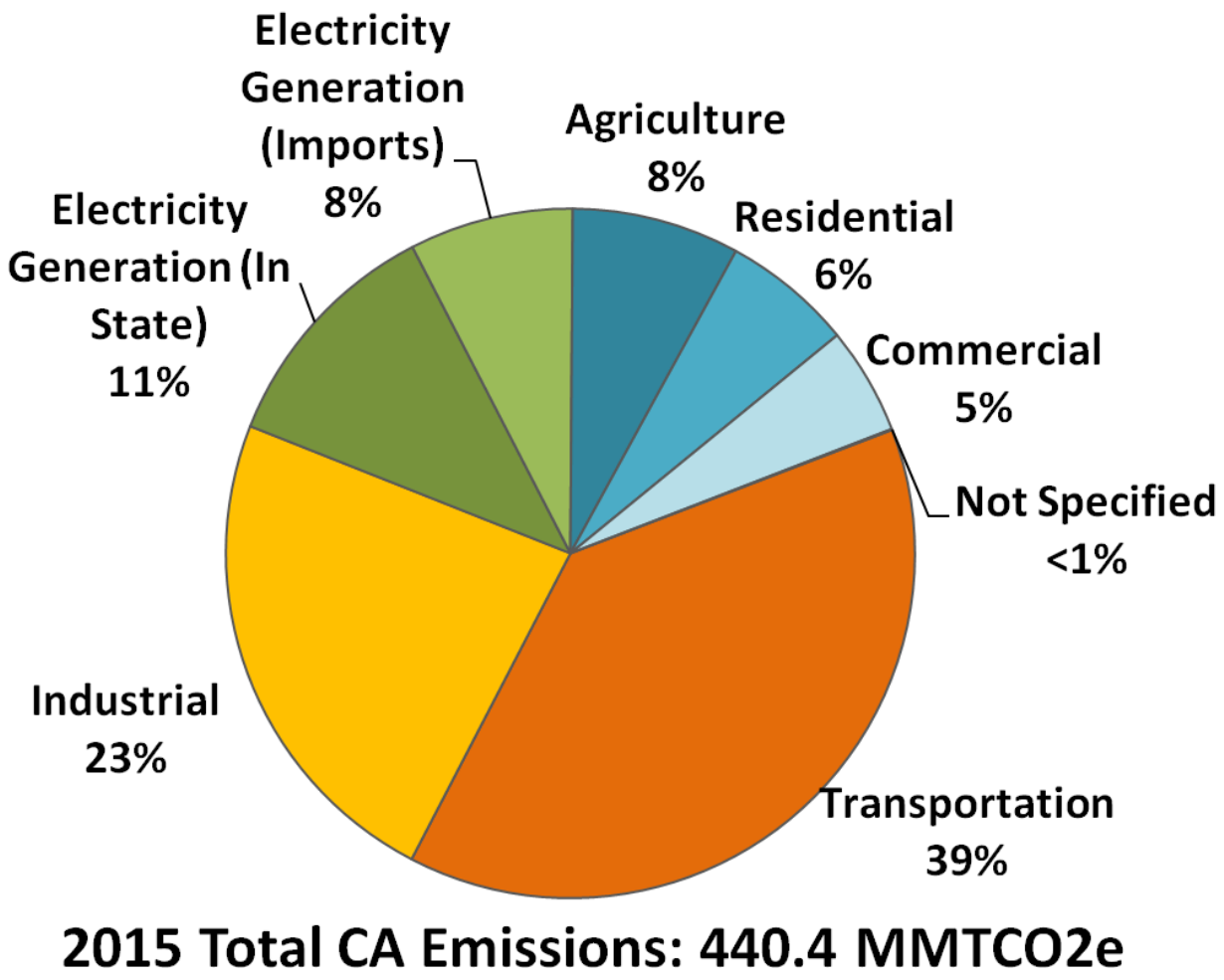
California

As the second largest emitter of GHG emissions in the United States and 20th largest in the world, California contributes a significant quantity of GHGs to the atmosphere (ARB 2014a). With respect to the United States, California's 2013 per-capita GHG emissions (*i.e.*, 9.2 metric tons [MT] CO_2e/capita/year) are the fourth lowest in the nation above Vermont, New York, and District of Columbia, and approximately 45 percent lower than the national average of 16.7 MT CO_2 per person (EIA 2015).

Emissions of CO_2 are primarily 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 (ARB 2014b). In California, the transportation sector is the largest emitter of GHGs, followed by

[1] This is available online at: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

industrial emissions (ARB 2017b) (see Exhibit 3.7-1). Exhibit 3.7-1 presents the total California GHG emissions along the relative percent contribution from each emissions sector.



Source: ARB 2017b
Note: MMT: Million Metric Tons

Exhibit 3.7-1. California GHG Emissions by Sector

3.7.2 REGULATORY FRAMEWORK

Climate change and GHG emissions in California are governed by an evolving body of laws, regulations, and case law. Key laws and regulations are summarized below. However, this regulatory setting discussion is not exhaustive of the ever-growing body of GHG and climate change regulations.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

While there are no federal GHG-related requirements that directly apply to the project, the information below is helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). On April 2, 2007, the U.S. Supreme Court held that the EPA must consider regulation of

motor vehicle GHG emissions. The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant, and that EPA has the authority to regulate GHGs.

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

On December 7, 2009, the EPA Administrator signed two findings regarding GHGs under Section 202(a) of the CAA which applies to the federal government's ability to regulate GHG emissions:

- *Endangerment Finding:* The current and projected concentrations of the six key GHGs in the atmosphere that threaten the public health and welfare of current and future generations: CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6.

- *Cause or Contribute Finding:* The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year 2008 Consolidated Appropriations Act (House of Representatives Bill 2764; Public Law 110-161), which required EPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…" The Reporting Rule applies to most entities that emit 25,000 metric tons (MT) of CO_2e or more per year. Since 2010, facility owners have been required to submit an annual GHG emissions report with detailed calculations of the facility's GHG emissions. The Reporting Rule also mandates compliance with recordkeeping and administrative requirements to enable EPA to verify annual GHG emissions reports.

EPA and National Highway Traffic Safety Administration Standards

The EPA and National Highway Traffic Safety Administration (NHTSA) are currently in the process of implementing national GHG emission and fuel economy standards for light duty cars and trucks in model years 2012–2016. The second phase of the standards includes GHG and fuel economy standards for model years 2017–2025. The 2017–2025 standards are anticipated to save approximately 4 billion barrels of oil and reduce GHG emissions by 2 billion MT. In 2025, if all standards are met through fuel efficiency improvements, the average industry fleetwide fuel efficiency for light duty cars and trucks would be approximately 54.5 miles per gallon (EPA 2012).

In addition to standards for light duty cars and trucks, EPA and NHTSA are also currently implementing Phase 1 of the Medium- and Heavy-Duty Vehicle GHG Emissions and Fuel Efficiency Standards, which apply to model years 2014 to 2018. It is anticipated that medium- and heavy-duty vehicles built to these standards from 2014 to 2018 would reduce CO_2 emissions by approximately 270 million metric tons over the lifetime of the standards (EPA 2011). Phase 2 of these standards would apply to model years 2021–2027 and is anticipated to reduce GHG emissions by 1 billion metric tons over the lifetime of the standards (EPA 2015).

Renewable Fuel Standard Program

The original 2005 Renewable Fuel Standard (RFS) Program established requirements for volumes of renewable fuel used to replace petroleum-based fuels. The four renewable fuels accepted as part of RFS are biomass-based

diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. The 2007 Energy Independence and Security Act (EISA) expanded the program and its requirements to include long-term goals of using 36 billion gallons of renewable fuels and extending annual renewable fuel volume requirements to year 2022. The four renewable fuels have specific renewable fuel-blending requirements for regulated parties such as refiners and importers of gasoline or diesel fuel.

Advance Notice of Proposed Rulemaking: Aircraft Engines

In 2015, EPA initiated the process to make a "cause and contribution" finding under the CAA (see description above) that aircraft GHG emissions contribute to air pollutants that cause climate change and, thus, endanger public health and welfare. At the time of this writing, EPA is not proposing GHG emission standards for aircraft engines. However, EPA is in the process of evaluating how the international CO_2 emission standards for aircrafts established by the International Civil Aviation Organization (ICAO) could be adopted and implemented on a domestic level. Considering that U.S. aircraft-related GHG emissions account for approximately 11 percent of the national transportation sector and 29 percent of global aircraft emissions, this rulemaking could potentially achieve substantial emission reductions (EPA 2015). Any emission standards or administrative requirements established from this effort would apply to the proposed project's aviation uses.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

The legal framework for GHG emission reductions has come about through Executive Orders, legislation, regulations, and court decisions. Some of the major components of California's climate change initiative are reviewed below.

Assembly Bill 1493

AB 1493 required that the California Air Resources Board (ARB) develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, in 2004 ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. This will reduce GHG emissions associated with the project and other development projects throughout California in future years.

Executive Order S-3-05

Executive Order S-3-05, issued in recognition of California's vulnerability to the effects of climate change, set forth the following target dates by which statewide GHG emissions would be progressively reduced: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32

In 2006, the California Legislature passed Assembly Bill (AB) 32 (Health and Safety Code Section 38500 *et seq.*), also known as the Global Warming Solutions Act. Under AB 32, ARB must design and implement feasible

and cost-effective emissions limits, regulations, and other measures, to reduce statewide GHG emissions to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions (*i.e.*, cap-and-trade program) that was phased in, starting in January 1, 2012, with enforceable compliance obligation beginning with 2013 GHG emissions. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. AB 1493 is currently in effect, and has established GHG emission standards for new passenger vehicles from model year 2012 to 2016. These emission standards are anticipated to reduce GHG emissions from passenger vehicles by approximately 30 percent in year 2016 (ARB 2013).

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

Senate Bill 32, Health and Safety Code Section 38566

Senate Bill 32 (SB 32) extends the provisions of AB 32 from 2020 to 2030 with a new target of 40 percent below 1990 levels by 2030. The companion bill, AB 197, adds two non-voting members to the ARB, creates the Joint Legislative Committee on Climate Change Policies consisting of at least three Senators and three Assembly members, requires additional annual reporting of emissions, and requires Scoping Plan updates to include alternative compliance mechanisms for each statewide reduction measure, along with market-based compliance mechanisms and potential incentives.

Climate Change Scoping Plan

Pursuant to AB 32, ARB adopted the Climate Change Scoping Plan (Scoping Plan) in December 2008, outlining measures to meet the 2020 GHG reduction target (*i.e.*, 1990 emissions levels or 431 million metric tons of CO_2e). To meet the target, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels, or about 15 percent from 2005 levels. With respect to current emissions levels shown in Exhibit 3.7-1 (*i.e.*, 459 million metric tons [MMT] of CO_2e), California would need to achieve an approximate 6 percent reduction (shown in Exhibit 3.7-1) by 2020 to achieve the AB 32 target. The Scoping Plan recommends measures that are worth further study, and that the State of California may implement, such as new fuel regulations. It estimates that a reduction of 174 MMT of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and other sources could be achieved should the State implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of SB 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

ARB is required to update the Scoping Plan at least once every five years to evaluate progress and develop future inventories that may guide this process. ARB approved the First Update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (ARB 2014c). The Scoping Plan update includes a status of the 2008 Scoping Plan measures and other State, federal, and local efforts to reduce GHG emissions in California from 2008 to 2013 with respect to the 2020 GHG reduction target. The Scoping Plan Update determined that the State is on schedule to achieve the 2020 target (*i.e.*, 1990 levels by 2020). However, an accelerated reduction in GHG emissions is required to achieve the S-3-05 2050 reduction target of 80 percent below 1990 levels by 2050. The

statewide measures adopted under the direction of AB 32, and as outlined in the Scoping Plan, would reduce GHG emissions associated with existing development, as well as new development, including the project.

ARB has released the 2017 Proposed Scoping Plan to determine how to most effectively achieve a 40 percent reduction in GHG emissions by 2030 as compared to 1990 statewide GHG emissions (consistent with Executive Order B-30-15 and SB 32). The Proposed Scoping Plan Update establishes a proposed framework of action for California to reduce statewide emissions by 40 percent by 2030 compared to 1990 levels (ARB 2017).

Executive Order S-1-07

Executive Order S-1-07 acknowledges that the transportation sector is the main source of GHG emissions in California. The order established a goal of reducing the carbon intensity of fuels for mobile, stationary and portable emissions sources sold in California by a minimum of 10 percent by 2020. It also directed ARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. ARB adopted the Low Carbon Fuel Standard on April 23, 2009. This will reduce GHG emissions associated with existing development, as well as new development, including the project.

Senate Bill 97

SB 97, signed August 2007, acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The California Natural Resources Agency adopted those guidelines on December 30, 2009, and the guidelines became effective March 18, 2010.

Senate Bills 1078 and 107, Executive Orders S-14-08 and S-21-09, and Senate Bill 350

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In January 2016, the California Public Utilities Commission (CPUC) reported that California's three largest investor-owned utilities (IOUs), Pacific Gas and Electric Company, Southern California Edison, and San Diego Gas and Electric Company, collectively provided 26.6 percent of their 2014 retail electricity sales using renewable sources and are continuing progress toward future 2020 requirements (CPUC 2016).

Executive Order S-14-08 expanded the State's Renewable Portfolio Standard to 33 percent renewable power by 2020. Executive Order S-21-09 directs ARB under its AB 32 authority to enact regulations to help the State meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020. The 33 percent-by-2020 goal and requirements were codified in April 2011 with SB X1-2. This new Renewable Portfolio Standard applies to all electricity retailers in the state, including publicly owned utilities, IOUs, electricity service providers, and community choice aggregators. SB 350 (2015) increased the renewable requirement to 50 percent by 2030.

These requirements reduce the carbon content of electricity generation, and would reduce GHG emissions associated with existing development, as well as new development, including the project.

Executive Order B-30-15

On April 29, 2015, Governor Edmund G. Brown Jr. issued an executive order to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The executive order aligns California's GHG gas reduction targets with those of leading international governments (the 28-nation European Union, for instance, set the same target for 2030 in October 2014) (Office of the Governor 2015).

Refrigerant Management Program

As part of the AB 32 Early Action Measures, ARB developed the Refrigerant Management Program (RMP) that requires best management practices for non-residential refrigeration systems. The RMP applies to owners/operators of facilities with stationary, non-residential refrigeration systems exceeding 50 pounds of high GWP refrigerants. Businesses that are typically covered under this threshold include supermarkets and grocery stores, food and beverage processors, cold storage warehouses, and industrial process cooling. These types of facilities are required under RMP to register with ARB, perform regular leak inspections and maintenance, leak repairs within 14 days, and retrofit or retire leaking systems. Currently, all facilities that would use more than 200 pounds of high-GWP refrigerant are required to register and all facilities that use more than 50 pounds, but less than 200 pounds of high-GWP refrigerant are required to register with ARB by March 1, 2016.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

San Joaquin Valley Air Pollution Control District

In August 2008, the governing board of the San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted a climate change action plan (CCAP). The CCAP authorized the District's air pollution control officer to develop guidance documents to:

- Assist land use agencies and other permitting agencies in addressing GHG emissions as part of the CEQA process;
- Investigate the development of a GHG banking program;
- Enhance the existing emissions inventory process to include GHG emission reporting consistent with State requirements; and
- Administer voluntary GHG reduction agreements.

In December 2009, as directed by the CCAP, SJVAPCD adopted the Final Staff Report Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act and Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA (GHG CEQA Guidance) (SJVAPCD 2009a). The purpose of the guidance is to streamline the evaluation and significance determination process for projects within the SJVAPCD's jurisdiction. For more detail on the recommendations from the SJVAPCD, please see below, under the heading, "Thresholds of Significance."

Stanislaus County General Plan

The Stanislaus County General Plan does not explicitly address climate change or GHG emissions. However, air quality is addressed in the Circulation Element of the General Plan, and Policies Six, Seven, and Eight would

reduce GHG emissions, as well as criteria air pollutant emissions associated with existing and new development in Stanislaus County.

Circulation Element

- **POLICY SIX:** The County shall strive to reduce motor vehicle emissions and vehicle miles traveled (VMT) by encouraging the use of alternatives to the single occupant vehicle.

- **IMPLEMENTATION MEASURE 1** – The use of alternative modes of transportation will continue to be encouraged by participating in programs to promote walking, bicycling, ridesharing, and transit use for commuting and recreation.

- **IMPLEMENTATION MEASURE 2** – The County will continue to work with StanCOG, Caltrans, and the cities to identify and secure funding for the development and improvement of bikeways, pedestrian pathways, park-and-ride facilities, transit systems, and other alternatives to the single-occupant vehicle.

- **IMPLEMENTATION MEASURE 3** – Facilities to support the use of, and transfer between, alternative modes of transportation (*i.e.*, pedestrian, rideshare, bicycle, bus, rail, and aviation) shall be provided in new development.

- **IMPLEMENTATION MEASURE 4** – The County will continue to work with the Stanislaus Council of Governments and the San Joaquin Valley Air Pollution Control District to develop and implement transportation control measures to improve air quality through reduction in vehicle trips and vehicle miles of travel.

- **IMPLEMENTATION MEASURE 5** – Developers will construct or pay the cost of new pedestrian pathways, bikeways, rideshare facilities, transit amenities, and other improvements necessary to serve the development and to mitigate impacts to the existing circulation system caused by the development.

- **POLICY SEVEN:** Bikeways and pedestrian facilities shall be designed to provide safe and reasonable access from residential areas to major bicycle and pedestrian traffic destinations such as schools, recreation and transportation facilities, centers of employment, and shopping areas.

- **IMPLEMENTATION MEASURE 1** – Bikeways shall be considered and implemented in accordance with the StanCOG Non-Motorized Transportation Plan and adopted Community Plans or Specific Plans when constructing or improving the roadway system in the unincorporated area outside the spheres of influence of the cities.

- **IMPLEMENTATION MEASURE 3** – Facilities to safely move, and support the use of, bicycles, pedestrians, transit and ridesharing shall be considered and implemented in all new development and roadway construction.

- **IMPLEMENTATION MEASURE 5** – To safely accommodate bicycle traffic, adequate pavement shoulder and/or striping shall be planned and implemented when constructing new roadways or implementing major rehabilitation projects in accordance with the County Standards and Specifications, the Caltrans Highway Design Manual, or other nationally recognized standard.

- **IMPLEMENTATION MEASURE 6** – Whenever a roadway is resurfaced or restored, adequate pavement shoulder and/or striping will be considered to safely accommodate bicycle travel in accordance with the County Standards and Specifications, the Caltrans Highway Design Manual, or other nationally recognized standard, where adequate right-of-way exists.

- **POLICY EIGHT** – Promote public transit as a viable transportation choice.

- **IMPLEMENTATION MEASURE 1** – Continue to operate existing transit systems and cooperate with other agencies and cities to provide public transit serving Stanislaus County.

- **IMPLEMENTATION MEASURE 3** – Ensure that provisions are made in proposed development for access to current and future public transit services. In particular, continuous segments of walls or fences should not impede pedestrian access to Expressways, Principal and Minor Arterials, and Major and Minor Collectors with transit service.

- **IMPLEMENTATION MEASURE 4** – Where appropriate, new development projects shall promote the coordination and continuity of all transportation modes and facilities, including park and ride facilities at major activity centers.

- **IMPLEMENTATION MEASURE 5** – Where appropriate, new development projects shall include bus turnouts and site improvements associated with bus stop accessibility for persons with disabilities, including curb cuts for wheel chair access. Where feasible, developments should be encouraged along established or proposed transit routes. The costs associated with site improvements shall be paid by the developer.

- **IMPLEMENTATION MEASURE 6** – Where possible, coordinate public transportation with land use planning, transportation planning, and air quality policies such that transit investments are complementary to land use planning and air quality policies.

- **IMPLEMENTATION MEASURE 7** – Financing mechanisms shall be investigated to recover the cost of providing transit service and infrastructure to support new development.

3.7.3 Environmental Impacts and Mitigation Measures

Methodology

The proposed project's GHG emissions were estimated using similar methods as those described in Chapter 3.2, "Air Quality." In addition to criteria air pollutants, CalEEMod Version 2013.2.2 and Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model Version 7.1.5.1 can also estimate GHG emissions associated with construction and operational activities. Please see Appendix D for model details, assumptions, inputs, and outputs.

For construction, GHG emissions were estimated for off-road construction equipment, material delivery trucks, haul trucks, and construction worker vehicles. In order to provide a more comprehensive assessment of cumulative GHG emissions related effects, the proposed project's construction related emissions were amortized over the estimated 30-year lifetime of the project and added to the operational emissions. The annual operational emissions, along with the amortized construction emissions were compared with the applicable significance threshold to determine cumulative significance.

For operational activities, CalEEMod estimates GHG emissions associated with mobile, area, and energy sources, similar to air quality emissions. However, CalEEMod also estimates indirect GHG emissions associated with solid waste disposal and water consumption (*i.e.,* water-related electricity and wastewater treatment). In addition, because the proposed project would include logistics land uses (*e.g.,* warehouse, distribution centers) that would likely have large refrigerated areas, the analysis estimates potential high-GWP refrigerant use for the proposed land uses. It should be noted that specific land uses have not been determined at the time of this analysis and that the need for high-GWP could vary depending on market conditions and the ultimate land uses that are developed at the site. Nevertheless, the analysis evaluates GHG emissions associated with high-GWP refrigerant use using conservative assumptions. The average warehouse size in California, which was based on the California Energy Commission's (CEC) *Benchmarking Study of the Refrigerated Warehouse Industry Sector in California* study, was used to estimate the number of warehouse facilities that could be developed within the Specific Plan Area. Refrigerant leakage-related GHG emissions were then estimated using the annual average leakage per facility from ARB's Refrigerant, Registration, and Reporting Tool (R3) Reports in 2015 (ARB 2015a). In addition to the high-GWP refrigerants used in the warehouse facilities, this analysis also quantifies the GHG emissions associated with TRUs using the same assumptions as those from Section 3.2, "Air Quality."

As described in Chapter 2, "Project Description," the proposed project would also redevelop a former military runway to create a public-use, general aviation airport. The Airport Layout Plan for the proposed project estimated the projected aircraft activity associated with the new airport. This analysis uses aircraft activity data from the Airport Layout Plan to estimate aircraft-related GHG emissions associated with the proposed airport redevelopment. Emission factors from the IPCC and ARB for aircraft landing-and-take off (LTO) activities were used to quantify GHG emissions associated with projected aircraft activities (IPCC 2001, ARB 2014e). See Appendix D for additional details and assumptions.

THRESHOLDS OF SIGNIFICANCE

An impact related to global climate change is considered significant if the proposed project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment,
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Amendments to the CEQA Guidelines adopted pursuant to SB 97 authorize lead agencies to determine thresholds of significance. Each agency must determine if a project's GHG emissions will have a "significant" impact on the environment. Agencies must use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" a project's GHG emissions (CEQA Guidelines Section 15064.4 [a]).

SJVAPCD has developed guidance for assessing the impact of GHG emissions. The SJVAPCD's GHG CEQA Guidance was developed to assist lead agencies in establishing their own processes for determining significance of project related impacts on global climate change. The following process is recommended for evaluating the significance of GHG emissions for projects requiring CEQA analysis (SJVAPCD 2015, page 112). This guidance from SJVAPCD is provided in the following bullets, with a discussion regarding the relationship of this guidance to the project.

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.

    - There is no applicable GHG emission reduction plan.

- [According to guidance from the SJVAPCD,] projects implementing [Best Performance Standards] BPS would not require quantification of project specific GHG emissions. Consistent with [the] CEQA Guideline[s], such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.[2]

- In a separate document entitled, "District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency," SJVAPCD outlines the process of developing BPSs for projects where the Air District is the lead agency. From the context, it appears that BPS is a term intended to refer to mitigation measures or emission reduction strategies. Although this document is focused on strategies to reduce stationary source emissions, SJVAPCD recognizes that different mitigation strategies may be feasible for different project types and as such, "[p]roject proponents or other members of the public may propose other technologies, equipment designs, or operational/maintenance practices" (SJVAPCD 2009a).

- When proposed by a project proponent in lieu of an adopted BPS, SJVAPCD will evaluate the proposed GHG emission reduction measure. If demonstrated to be equivalent to or better than District-approved BPS, the proposed GHG emission reduction measure will be added to the list of approved BPS. If demonstrated to be superior to District approved BPS and Achieved-in-Practice, the proposed GHG emission reduction measure will replace the existing District approved BPS for future projects.

    - The County has directed the quantification of project-specific GHG emissions for this EIR, notwithstanding the incorporation of mitigation strategies, design features, or other methods to reduce potential GHG emissions associated with the project or any type of performance standards that would be employed to measure the effectiveness of such reduction methods.

    - The proposed project will quantify its construction and operational GHG emissions and implement necessary mitigation measures to reduce GHG emissions.

- Projects not implementing BPSs would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29 percent, compared to Business as Usual (BAU), including GHG emission reductions achieved since the 2002–2004 baseline period, consistent with GHG emission reduction targets established in ARB's AB 32 Scoping Plan. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG).

[2] The 2009 SJVAPCD guidance states that "District staff will establish BPS for specific classes and categories of stationary sources and for development projects, and will maintain a listing of the established BPS on the Climate Change page of the District's web page" (SJVAPCD 2009a, page 3).

Projects implementing BPS or achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Projects implementing BPS and reducing GHG emissions by 29 percent through any combination of GHG emission reduction measures, including GHG emission reductions achieved as a result of changes in building and appliance standards occurring since the 2002–2004 baseline period, would be considered to have a less-than-significant individual and cumulative impact on global climate change (SJVAPCD 2009a).

- Since the time the SJVAPCD guidance was developed, ARB has updated the 2020 BAU. After an update in 2010, the BAU scenario would need to be reduced by approximately 16 percent, rather than 29 percent to achieve the AB 32 legislative mandate. ARB updated the BAU again in 2014, showing total emissions of 509.4 MMT CO_2e (ARB 2014d). The revised BAU accounts for the economic recession, approximately 30 MMT CO_2e reduction from the Pavley I and Renewable Electricity Portfolio Standard, among other factors. The AB 32 legislative mandate for 2020 has been revised to 431 MMT CO_2e (ARB 2015b). With updates to the BAU scenario and the AB 32 legislative mandate, the differences between the two are now approximately 15 percent, rather than the 29 percent cited in the SJVAPCD guidance.

In 2015, the California Supreme Court ruled that the use of the 29 percent reduction is intended to describe GHG reductions required by the entire State of California to achieve the GHG reduction targets of AB 32.[3] Any application of the 29 percent or any percent reduction to a specific project needs to take into consideration the adjustments for the specific land use and location being evaluated. In other words, it is possible that different types of projects in different locations may have different capacity for emissions reductions. The State's overall emission reduction mandate could require different contributions from different sectors, locations, and project types. Importantly, the State's emission mandate and statewide reduction strategies apply both to new development, as well as existing, on-the-ground development. In order to achieve the AB 32 mandate and also move toward longer-term targets, the emission reduction share could potentially be different for new versus existing development.

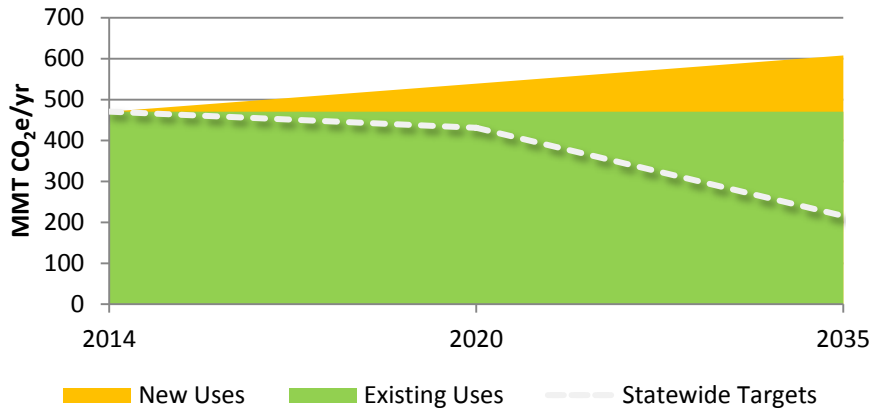
Local Thresholds and Consistency with Statewide Targets

One important aspect of selecting an appropriate significance threshold is ensuring that achievement of the threshold would avoid cumulatively considerable impacts under the framework established by CEQA and the CEQA Guidelines. The most common strategy to demonstrate this is to mirror the State's own reduction targets. The evidence required to demonstrate that achievement of the AB 32 mandate will result in less-than-cumulatively considerable impacts has been provided by ARB in the *Climate Change Scoping Plan*. Often, local projects are compared to the State's emissions reduction goals. If the project can show that it will reduce emissions at the same percentage as the state as a whole under the AB 32 legislative mandate, lead agencies conclude that the contribution to the significant impact of climate change is less that cumulatively considerable. However, AB 32 is focused on the year 2020, and the proposed project is anticipated to be built out later than 2020. Based on recent court rulings and current standard practice, it is appropriate also to consider whether the proposed project's emissions rate would contribute to the State's emission reduction goals for later years, as expressed in Executive Order B-30-15, SB 32, and Executive Order S-3-05. SB 32 and Executive Order B-30-15 call for a statewide reduction in GHG emissions to 40 percent below 1990 levels by 2030. Executive Order S-3-05 calls for a reduction to 80 percent below 1990 levels by 2050.

[3] *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204, 225-226.

Different types of projects in different locations may have different capacity for emissions reductions. The State's overall emission reduction mandate could require different contributions from different sectors, locations, and project types. Importantly, the state's emission mandate and statewide reduction strategies apply both to new development, as well as existing, on-the-ground development. In order to achieve the AB 32 and SB 32 mandates and also move toward longer-term targets, the emission reduction share may be different for new than for existing development.

Exhibit 3.7-2 illustrates the statewide emissions forecasts from 2014 through 2035. As shown, existing uses (the green area is development that is already on the ground) make up 87 percent of emissions estimated to occur by 2020 under ARB's BAU emissions forecasts scenario. Statewide population and employment forecasts can be used as a proxy to estimate emissions growth through 2035. Under this scenario, new growth in the state (orange area) developed after 2014 would account for only 23 percent of total statewide emissions by 2035. The dashed line shows the State's emissions targets through 2035. Since the vast majority of emissions in 2035 will be attributable to existing development, achievement of the 2035 target will require substantial emissions reductions from existing sources. Even if all new development through 2035 could achieve net-zero emissions, additional reductions from existing uses would still be required to achieve reductions that are consistent with SB 32 and Executive Orders S-3-05 and B-30-15. Tables 3.7-1 and 3.7-2 describe how the statewide emissions estimates and reduction targets shown in Exhibit 3.7-2 were calculated.



Notes: MMT CO_2e/yr = million metric tons carbon dioxide equivalent per year

Exhibit 3.7-2. Statewide Emissions and Targets

New growth between 2014 and 2020 is estimated to add approximately 69 million metric tons (MMT) CO_2e/yr, statewide. Total reductions needed to achieve the 2020 target equal approximately 108 MMT CO_2e/yr. In 2035, new growth will contribute approximately 137 MMT CO_2e/yr, while total reductions needed equal 392 MMT CO_2e/yr. By 2035, emissions from new growth only represent 35 percent of total emissions needed to achieve the target. Given that the majority of statewide emissions that will occur in 2035 will be generated by existing uses (as of 2014), and because the State does not intend to use its GHG emissions targets to limit population and economic growth in California, the State's emissions reduction programs have placed a strong emphasis on improving efficiency in existing uses (*i.e.*, residents and employees already living and working in the state).

Table 3.7-1 shows the statewide population and employment estimates and forecasts used to project the statewide emissions beyond ARB's 2020 BAU emissions forecast.

Table 3.7-1
Statewide Demographic Projections

	2014	2020	2022	2035	2050
Population	38,357,121 [1]	40,619,346 [2]	41,320,928 [3]	45,747,645 [2]	49,779,362 [2]
Employment	17,115,300 [4]	18,310,275 [5]	18,708,600 [4]	20,714,534 [6]	22,540,095 [6]
Service Population (population + employment)	55,472,421	58,929,621	60,029,528	66,462,179	72,319,457

Note: MMT CO_2e = million metric tons of carbon dioxide equivalent; BAU = business-as-usual

[1] Department of Finance (DOF) Table E-5 Population and Housing Estimates for Cities, Counties, and the State, January 2011–2015, with 2010 benchmark. Available online at: <http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php>

[2] DOF Table P-1 State and County Population Projections, July 1, 2010–2060 (5-year increments). Available online at: <http://www.dof.ca.gov/research/demographic/projections/>

[3] Interpolated from DOF estimates for 2020 (40,619,346) and 2025 (42,373,301). See note 2 for population estimation source.

[4] Employment Development Department (EDD) Employment Projections. 2014 estimate from Short-Term Projections (Two-years) 2014–2016. Published April 2015. 2022 estimates from Long-Term Projections (Ten-years) 2012–2022. Published September 2014. Available online at: <http://www.labormarketinfo.edd.ca.gov/data/employment-projections.html>

[5] Interpolated from 2014 and 2022 employment estimates.

[6] EDD employment estimates beyond 2022 were unavailable at this time. The ratio of employment to population estimated in 2022 (*i.e.*, 45.28%) was applied to the DOF population estimates in 2350 and 2050.

Source: AECOM 2016

Table 3.7-2 shows the statewide emissions estimates and targets represented in Exhibit 3.7-2.

Table 3.7-2
Statewide Emissions Inventory and Forecasts

	2013	2014	2020	2035
Statewide BAU Emissions (MMT CO_2e)	459 [1]	470 [2]	539 [3]	608 [4]
Statewide Reduction Targets	-	-	431 [5]	216 [6]

Note: MMT CO_2e = million metric tons of carbon dioxide equivalent; BAU = business-as-usual

[1] California Greenhouse Gas Inventory for 2000–2013 – by Category as Defined in the 2008 Scoping Plan, ARB: <http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_2000-13_20150424_1.pdf>

[2] Value was interpolated between 2013 and 2020 values assuming linear growth.

[3] 2020 Business-as-Usual (BAU) Emissions Projection 2014 Edition, ARB: <http://www.arb.ca.gov/cc/inventory/data/tables/2020_bau_forecast_by_scoping_category_2014-05-22.pdf> The revised BAU estimates included the impact of Pavley I and the Renewable Portfolio Standard, for total gross emissions of 509.4 MMT CO_2e/yr. The associated 30 MMT CO_2e/yr reductions from these statewide actions were added back into the inventory to represent a BAU scenario that does not consider the impact of statewide emissions-reduction programs.

[4] Statewide service population growth was used as a proxy for how emissions could grow through 2035. The service population growth rate between 2020 and 2035 was calculated as 12.8% based on the values shown in Table 1. This growth factor was then applied to the 2020 BAU emissions forecasts to estimate the 2035 BAU emissions value. This estimate assumes that emissions per unit of service population will remain constant from 2020 through 2035.

[5] 2020 target reflects a return to 1990 levels based on ARB's most recent inventory update (*i.e.*, 431 MMT CO_2e/yr). <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>

[6] 2035 target reflects linear interpolation between EO-B-30-15 target (*i.e.*, 40% below 1990 levels by 2030) and EO-S-3-05 target (*i.e.*, 80% below 1990 levels by 2050); 2035 target would be 50% below 1990 levels by 2035, or 216 MMT CO_2e/yr based on 2020 emissions target of 431 MMT CO_2e/yr.

Source: AECOM 2016

California's statewide reduction targets, although they do not directly apply to Stanislaus County's land use entitlement authority, are used by the County to establish the framework for GHG emissions analysis in this section, including what level of emissions would be cumulatively considerable. The County has also taken into account the total 2020 and 2035 emissions attributable to existing versus new development in this assessment.

IMPACT ANALYSIS

IMPACT 3.7-1 **Increases in greenhouse gas emissions.** *The proposed project would generate GHG emissions associated with construction and operational activities. This impact is* ***cumulatively considerable****.*

Implementation of the proposed project would generate short-term construction and long-term operational GHG emissions. Construction-related GHG emissions would cease following buildout of the proposed project. Operational emissions are considered long-term and assumed to occur for the lifetime the project. Construction emissions have been amortized over the lifetime of the project (*i.e.*, 30 years) and added to the annual operational emissions.

Construction-related exhaust GHG emissions would be generated from a variety sources including, but not limited to heavy-duty construction equipment, haul trucks, material delivery trucks, and construction worker vehicles. Similar to air quality emissions, daily GHG emissions would vary depending on the type of construction activities planned for each day. For example, during construction equipment-intensive phases, such and site grading, daily GHG emissions would be higher than daily emissions generated during less intensive phases, such as building construction. However, it is essential to understand the total amount of GHG emissions generated because of the longer atmospheric lifetimes of GHG pollutants.

Table 3.7-3 presents the proposed project's construction-related GHG emissions and the amortized annual emissions.

Table 3.7-3
Construction-Related GHG Emissions

Construction Phase/Year	Emissions (MT CO_2e)
Phase 1 Subtotal	83,229
Phase 2 Subtotal	21,969
Phase 3 Subtotal	4,416
Total Construction Emissions	**109,613**
Annual Average Construction Emissions	**3,654**
Amortized Construction Emissions[1]	3,654

Notes: MT CO_2e = metric tons of carbon dioxide equivalent. Totals may not appear to add exactly due to rounding.

[1] Construction emissions were amortized over 30 years.

Source: AECOM 2016

GHG emissions include those from direct and indirect sources. Direct GHG emissions are those emissions that are generated at the location of consumption or use. Indirect emissions are those emissions that occur at a different time or location from the point of consumption or use. For example, electricity-related GHG emissions are indirect emission because as a consumer uses electricity at their home, the fuel combustion and emissions

associated with creating that electricity likely occurred off-site or at a different time. Other indirect GHG emissions include emissions associated with solid waste disposal and water consumption.

CalEEMod estimates direct emissions associated with the proposed project's mobile (*e.g.*, employee vehicles), area (*e.g.*, landscape maintenance equipment), and energy (*e.g.*, natural gas) sources, and indirect emissions associated with energy (*i.e.*, electricity), water (*i.e.*, conveyance and distribution), and solid waste (*i.e.*, decomposition) sources. In addition, as described in the Methodology section, the analysis also quantifies emissions associated with the proposed airport activities (*i.e.*, aircraft landing and take offs and cruise activities) and high-GWP refrigerants associated with refrigerated warehouses and logistics facilities.

Table 3.7-4 presents a summary of the proposed project's annual operational emissions by emissions source. Annual operational GHG emissions are added with the amortized construction to assess the level of impact. It should be noted that existing operational emissions on the project site are assumed to be zero.

Although the project site is currently used for some agricultural processes that would generate GHG emissions from agricultural equipment, fertilizer application, water pumping, and other miscellaneous agricultural processes, existing emissions were conservatively assumed to be zero, which would result in the maximum net change in operational emissions.

Table 3.7-4
Operational GHG Emissions

Emissions Source	Emissions (MT CO_2e/yr)
Area	0.42
Energy	19,332
Mobile	65,902
Waste	11,419
Water	6,251
Transport Refrigeration Units	50,469
High-GWP Refrigerants	19,180
Aircraft	175
Total Operational Emissions	**175,118**
Amortized Construction Emissions[1]	3,654
Total Annual Proposed Project Emissions[2]	**178,772**
Project GHG Efficiency (emissions per service population)[3]	**11.76**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent; yr = year

Totals may not appear to add exactly due to rounding.

[1] Construction emissions were amortized over 30 years, which is the assumed lifetime of the proposed project. See Table 3.7-1 for detailed construction GHG emissions.

[2] The proposed project's total annual emissions include annual operational emissions added with construction emissions amortized over 30 years.

[3] The proposed project is anticipated to provide approximately 14,000 to 15,000 jobs at full buildout.

Source: AECOM 2016

In August 2008, the governing board of the San Joaquin Valley Air Pollution Control District (SJVAPCD) adopted a climate change action plan (CCAP). The CCAP authorized the District's air pollution control officer to develop guidance documents to:

- Assist land use agencies and other permitting agencies in addressing GHG emissions as part of the CEQA process;
- Investigate the development of a GHG banking program;
- Enhance the existing emissions inventory process to include GHG emission reporting consistent with State requirements; and
- Administer voluntary GHG reduction agreements.

In December 2009, as directed by the CCAP, SJVAPCD adopted the *Final Staff Report Addressing Greenhouse Gas Emissions Impacts under the California Environmental Quality Act and Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. The purpose of the guidance is to streamline the evaluation and significance determination process for projects within the SJVAPCD's jurisdiction.

The SJVAPCD developed guidance to assist lead agencies in establishing their own processes for determining significance of project related impacts on global climate change. The following process is recommended for evaluating the significance of GHG emissions for projects that are not exempt from CEQA:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program would have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency and supported by a CEQA-compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing BPS and reducing project-specific GHG emissions by at least 29 percent compared to business as usual (BAU) condition would have a less-than-significant individual and cumulative impact on global climate change. BAU conditions are defined as the average of year 2002 to 2004, similar to the baseline used in the AB 32 Scoping Plan. Projects determined to have a less-than-significant individual and cumulative impact for GHG emissions would not require quantification of project specific GHG emissions.
- Projects not implementing BPS would require quantification of project-specific GHG emissions. Projects must demonstrate at least 29 percent reduction in GHG emissions compared to BAU to have a less-than-significant individual and cumulative impact on global climate change.
- Projects requiring preparation of an Environmental Impact Report would require quantification of project specific GHG emissions.

Projects implementing BPS or achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Projects implementing BPS and reducing GHG emissions by 29 percent through any combination of GHG emission reduction measures, including GHG emission reductions achieved as a result of changes in building and appliance

standards occurring since the 2002–2004 baseline period, would be considered to have a less-than-significant individual and cumulative impact on global climate change.

SJVAPCD's Final Staff Report for the Climate Change Action Plan identifies BPS for stationary sources. This document also includes a section that describes the process for developing BPS for development projects, such as the proposed project. The section of the staff report references 12 strategies developed by ARB to reduce GHG emissions by improving energy efficiency. Most of these strategies are the responsibility of the State, utilities, or local governments, and cannot be unilaterally implemented by any specific development project. The staff report discusses the development of more stringent energy efficiency standards for appliances in the future by the State. The staff report also references green building strategies that would reduce GHG emissions and, after this staff report was published, the State of California adopted new energy efficiency requirements. SJVAPCD's Final Staff report identifies a range of actions for reducing transportation-related GHG emissions, none of which apply to development projects. The staff report also describes the goals of SB 375 for reducing GHG emissions associated with passenger vehicle use.

Since the development of SJVAPCD guidance, ARB has revised the 2020 forecast BAU estimate. Previously, the difference between the statewide BAU estimate and the AB 32 emissions mandate was approximately 29 percent, and this difference served as the basis for the 29 percent threshold published in SJVAPCD guidance. The 2010 update took into account new estimates for future fuel and energy demand, the effects of the recent economic recession, and other factors (ARB 2010). Following the 2010 emissions forecast update, the 2020 "business as usual" (no action is taken) scenario would need to be reduced by 15.75 percent statewide to get to 1990 levels.

In 2015, ARB updated the 2020 emissions limit (consistent with AB 32) to be 431 MMT CO_2e/yr. ARB estimates a 2020 BAU of 509 MMT CO_2e/yr – an estimate that includes the benefits of the primary statewide reduction measures that have been codified. With updates to the BAU scenario and the AB 32 legislative mandate, the differences between the two are now 15.32 percent, rather than the 29 percent cited in the SJVAPCD guidance. A project that provided mitigation of more than 15.32 percent, not including the benefits of statewide measures, would be reducing potential GHG emissions at the same rate as is needed throughout the state to achieve the AB 32 emissions reduction target.

Air districts and public agencies in California have also developed guidance, including quantified methods of assessing the degree to which projects under CEQA would have a cumulatively considerable contribution to the significant cumulative impact of global climate change. Bay Area Air Quality Management District (BAAQMD) and Sacramento Metropolitan Air Quality Management District (SMAQMD) have adopted thresholds of significance for construction and operational emissions (*i.e.*, SMAQMD adopted 1,100 MT CO_2e/yr for construction and operational emissions, and BAAQMD adopted 1,100 MT CO_2e/yr for operational) (SMAQMD 2015; BAAQMD 2011). The proposed project's construction and operational emissions would exceed the SMAQMD and BAAQMD thresholds. San Diego County and San Luis Obispo County Air Pollution Control District have also developed quantified significance thresholds, including different methods for different types of plans and projects. The concept of GHG efficiency has been used to evaluate projects where the total operational emissions are divided by the service population of the project (*i.e.*, population plus jobs). BAAQMD has adopted a threshold of 4.6 MT CO_2e per service population for projects and 6.6 MT CO_2e per service population for plan-level analysis (BAAQMD 2011). San Diego County approved an efficiency-based threshold of 4.32 MT CO_2e per service population. The project's GHG efficiency would be approximately 12 MT CO_2e per service population.

As shown in Table 3.7-2, the proposed project's annual construction, annual operational, total annual (*i.e.*, operational emissions and amortized construction emissions), and emissions would exceed all of the operational and construction-related thresholds of significance adopted by the referenced agencies in California. The impacts associated with climate change are cumulatively significant. The proposed project's impact is **cumulatively considerable**.

Mitigation Measure 3.7-1a: Reduce Construction-Related GHG Emissions

Development of the project shall incorporate measures to reduce GHG emissions associated with construction activities including, but not limited to construction equipment, haul trucks, material delivery trucks, and construction worker vehicles. Measures can include, but should not be limited to the following:

- Contractor shall use alternative-fuel (*e.g.*, compressed natural gas) or electric equipment, when feasible.

- Procure materials from providers from the closest feasible sources.

Implementation: Leaseholders/developers/contractors for projects under the Specific Plan and Stanislaus County for infrastructure improvements directed by the County.

Timing: During all construction activities.

Enforcement: Stanislaus County.

Mitigation Measure 3.7-1b: Reduce Operational GHG Emissions

Projects proposed under the Specific Plan shall incorporate energy efficiency, conservation, and other GHG reduction strategies. The performance standard is to incorporate reduction strategies at a sufficient level to contribute each project's proportional share of the overall greenhouse gas reductions necessary to meet State GHG reduction targets. The following mitigation measures shall be implemented by the project applicant(s) of all project phases to reduce GHG emissions:

- Provide electric vehicle charging stations and priority parking nearest to buildings.

- Design roof top areas for proposed buildings to minimize the area occupied by heating, ventilation, and air conditioning (HVAC) systems and maximum the efficiency and area for solar PV systems that would be compatible with the proposed aviation facilities.

- Orient and design buildings to maximize natural lighting and install passive energy efficiency features such as louvres and shade structures to minimize the amount of air conditioning needed during summer months.

- Building indoor lighting shall be automatically switched to motion sensor and area lighting after normal working hours.

- Provide all businesses with separate recycling containers for daily paper, plastic, cans, and glass generation and recycling pick up in coordination with general solid waste pick up.

- Provide monthly e-waste collection services for all business.

Projects that do not incorporate the measures listed above, shall propose alternative measures that demonstrate an equal or greater decrease in annual operational GHG emissions and achieve the performance standard.

Implementation: Leaseholders/developers/contractors.

Timing: Identify strategies to reduce emissions prior to issuance of building permit and implement strategies during operations.

Enforcement: Stanislaus County.

Mitigation Measure 3.7-1c: Implement Mitigation Measures 3.2-1a and 3.2-1b

The referenced mitigation measures from Chapter 3.2, "Air Quality" would also help reduce GHG emissions.

Significance after Mitigation

Implementation of Mitigation Measures 3.7-1a, 3.7-1b, and 3.7-1c would reduce GHG emissions associated with the proposed construction and operational activities. However, the Specific Plan is anticipated to build out over a relatively long period of time and it is possible that certain reduction strategies identified in these mitigation measures may become infeasible during this relatively long buildout period. It is also not known at this time precisely what land uses and end users may establish within the Specific Plan over the buildout period, which makes a precise estimate of the benefit of these mitigation measures impossible. Given the long-term build-out of the Specific Plan and the uncertainty surrounding feasibility of future GHG compliance measures, the County has conservatively determined that the impact is **significant and unavoidable**.

IMPACT 3.7-2 Consistency with the applicable GHG reduction plan. *The proposed project would not result in cumulatively considerable impacts as a result of inconsistency with applicable strategies of the GHG reduction plans. The impact is less than cumulatively considerable.*

As discussed above, the State of California adopted AB 32 and SB 32, creating a legislative mandate for the state as a whole and not for local governments, such as the County. SB 375 aligns regional transportation and land use planning efforts, regional GHG reduction targets, and fair-share housing allocations under State housing law. However, SB 375 does not include any specific mandates for city or county land use policies against which the project can be compared, but rather establishes GHG emission reduction goals for local Metropolitan Planning Organizations (MPOs), such as Stanislaus Council of Governments (StanCOG). StanCOG is required to, and is on schedule to meet, the SB 375 per capita GHG reduction goals of 5 percent in 2020 and 10 percent in 2035 with respect to 2005 emission levels (ARB 2015c). In order to achieve these goals, StanCOG will rely on strategic land use development projects coordinated with planning transportation infrastructure in the County.

At the time of this writing, Stanislaus County has not developed a climate action plan or another equivalent GHG reduction plan. Therefore, for the purposes of addressing the CEQA checklist criterion, this analysis evaluates the proposed project's consistency with the 2014 Regional Transportation Plan/Sustainable Communities Strategy (2014 RTP/SCS). Consistency with the 2014 RTP/SCS strategies would help to demonstrate the project's beneficial contribution to the region achieving the SB 375 GHG reduction mandates and subsequently the AB 32 GHG reduction targets.

As stated in the 2014 RTP/SCS, the County needs to add local jobs to balance the jobs-to-housing ratio and provide local employment opportunities for County residents. The lack of local and diverse employment opportunities coupled with the County's location between two large employment hubs (Sacramento and San Francisco Bay Area) has resulted in a large portion of County residents commuting longer distances within the County and, more importantly, outside of the County for employment, which increases regional vehicle miles traveled (VMT) associated with commute trips (StanCOG 2014). Because 13 of the 25 largest employers in the County are agricultural-based, the 2014 RTP/SCS and the County's General Plan state the need to diversify employment opportunities within the County in order to provide additional opportunities for County residents to work within the County and minimize commute-based VMT (StanCOG 2014).

The proposed project would accommodate an estimated 14,000 to 15,000 jobs in a variety of professions to supplement the County's existing agriculture-focused job supply. In addition, the proposed local employment opportunities would be available to the community of Crows Landing (less than 2 miles from the project site), City of Newman (approximately 7 miles from the project site), and City of Patterson (approximately 2 miles from the project site). These potential commute distances could substantially decrease current out-of-the-county commute trip distances to Sacramento and/or the San Francisco Bay Area, which are approximately 95 and 85 miles from the proposed project site, respectively. Other nearby job centers include the City of Stockton and the Highway 99 corridor in Merced and Stanislaus Counties, which would require residents of the communities of Crows Landing, Hilmar, and Gustine, and the cities of Patterson and Newman to travel farther distances than those to the proposed project site. In addition, the proposed land uses and employment opportunities would diversify the County's employment opportunities. Therefore, the proposed project would diversify employment opportunities within the County between existing cities and County communities that would be consistent with the County's General Plan and 2014 RTP/SCS and would help reduce regional VMT.

The County will collaborate with Stanislaus Regional Transit to identify and accommodate at least one transit stop or commuter shuttle serving the project site that would provide feasible commuter service for project employees (see Mitigation Measure 3.2-1b).

In addition to the land use and transportation features of the proposed project, it should be noted that all proposed land uses would be built to meet the most current Title 24 Building Standards and the CalGreen Code at the time of development, which would increase in energy efficiency from current standards in later phases. The Specific Plan also includes design guidelines that would increase energy efficiency on-site with implementation of the proposed project (see Section 3.6 of the EIR, "Energy" for more details). With respect to energy-related GHG emissions, the proposed employment opportunities would be provided at a higher GHG efficiency as project development progresses.

Considering the information above, the proposed project would help to balance to the jobs-housing ratio, improve employment diversity within the County, and provide transit opportunities that would help the region achieve SB

375 GHG reduction targets. In addition, the proposed land uses associated with the proposed project would allow for the development of certain on-site amenities (ATM, food service, etc.), for employees to avoid additional trips and to further reduce regional VMT. Lastly, all land uses would comply with current Title 24 energy efficiency standards and the CalGreen Code. Therefore, the proposed project would be consistent with the goals of the applicable GHG reduction plan. Other than the impacts related to GHG emissions reported in Impact 3.7-1, there are no significant effects associated with plan consistency. Therefore, the impact is **less than cumulatively considerable**.

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3.8 GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

3.8.1 ENVIRONMENTAL SETTING

GEOLOGY

The project site is located along the western margin of the San Joaquin Valley, approximately 1 mile east of the gently rolling foothills of the Coast Ranges. The San Joaquin Valley and the Sacramento Valley comprise the Central Valley of California. The Central Valley is a forearc basin composed of thousands of feet of sedimentary deposits, which has undergone alternating periods of subsidence and uplift over millions of years.

The Central Valley basin began to form during the Jurassic period (approximately 200–145 million years ago) as the Pacific oceanic plate was subducted underneath the adjacent North American continental plate. During the Jurassic and Cretaceous periods of the Mesozoic era (approximately 200–65 million years ago), the Central Valley existed in the form of an ancient ocean. By the end of the Mesozoic, the northern portion of the Central Valley began to fill with sediment as tectonic forces caused uplift of the basin. Geologic evidence surrounding the Stockton Arch suggests that the Sacramento Valley and San Joaquin Valley gradually separated into two separate waterbodies as uplift and sedimentation continued. By the time of the Miocene epoch (approximately 23 million years ago), sediments deposited in the Sacramento Valley were mostly of terrestrial origin. In contrast, the San Joaquin Valley continued to be inundated with water for another 20 million years, as indicated by marine sediments dated to the late Pliocene (approximately 5.3 million years ago). By the Pleistocene epoch (approximately 2.6 million years ago), the San Joaquin Valley had emerged from the water and was enclosed by the Sierra Nevada Range to the east and the Coast Ranges to the west.

Most of the surface of the Great Valley is covered with Holocene (i.e., 11,700 years Before Present [B.P.] to present day) and Pleistocene (i.e., 2.6 million–11,700 years B.P.) alluvium. This alluvium is composed of sediments from the Sierra Nevada to the east and the Coast Ranges to the west that were carried by water and deposited on the valley floor. Siltstone, claystone, and sandstone are the primary types of sedimentary deposits.

Based on a review of geologic mapping prepared by Wagner *et al.* (1991) and Sowers *et al.* (1993), the project site is located entirely within Holocene-age alluvial fan and terrace deposits, including deposits from Little Salado Creek. These deposits consist of unconsolidated gravel, sand, silt, and clay, and were derived primarily from the Coast Ranges. (Additional details are provided in the discussion of mineral resources.)

The project site is located within the U.S. Geological Survey (USGS) Crows Landing 7.5-Minute Quadrangle. The project site slopes downward from the southwest to the northeast; elevations range from approximately 195 feet above mean sea level (msl) in the southwest corner to approximately 115 feet above msl in the northeast corner.

REGIONAL SEISMICITY AND FAULT ZONES

Potential seismic hazards resulting from a nearby moderate to major earthquake generally can be classified as primary and secondary. The primary effect is fault ground rupture, also called surface faulting. Common secondary seismic hazards include ground shaking, liquefaction, and subsidence. Each of these potential hazards is discussed below.

Surface Fault Rupture

Surface rupture is an actual cracking or breaking of the ground along a fault during an earthquake. Structures built over an active fault can be torn apart if the ground ruptures. Surface ground rupture along faults is generally limited to a linear zone a few yards wide. The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (see Section 3.8.2, "Regulatory Framework,") was enacted to prohibit the location of structures designed for human occupancy across the traces of active faults, thereby reducing the loss of life and property from an earthquake. The project site is not located in an Alquist-Priolo Earthquake Fault Zone (California Geological Survey [CGS] 2015). The nearest fault zoned under the Alquist-Priolo Act is the Ortigalita Fault (Cottonwood Arm section), approximately 13 miles southwest of the project site. Although the Great Valley Fault Zone Segment 8 is located adjacent to the western project side boundary, the Great Valley Fault Zone is a blind-thrust fault, meaning that it ruptures deep underground rather than at the ground surface. The San Joaquin Fault, which is located approximately 1 mile west of the site, is not considered "active" by the California Geological Survey (CGS). However, Jennings and Bryant (2010) indicate that this fault shows evidence of displacement in the last 700,000 years.

Seismic Ground Shaking

Ground shaking, or motion that occurs as a result of energy released during faulting, could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the location of the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock, the building materials used, and the workmanship of the structure.

The project site is located in a seismically active area. Great Valley Fault Zone Segment No. 8 is located adjacent to the western boundary of the project site. The Great Valley Fault Zone is a system of west-dipping, blind thrust, reverse faults. A blind-thrust fault does not rupture all the way up to the surface (thus the name "blind"), and there is generally no surface fault expression. The top of the Great Valley Fault Zone rupture plane is located approximately 4 miles below the surface. The May 2, 1983, magnitude 6.7 Coalinga earthquake and August 15, 1985, magnitude 5.6 Avenal earthquake have been associated with Great Valley Fault Zone. ln addition, several other seismic events that have occurred between Willows and the San Luis Reservoir have been attributed to the Great Valley Fault Zone (Wallace Kuhl & Associates, Inc. [WKA] 2007:9).

The Tesla-Ortigalita Fault Zone is located approximately 13 miles southwest of the project site (Jennings 1994). It consists of a series of southwest-dipping strike-slip faults separated by pull-apart basins that extend from Orestimba Creek in the north to Panoche Creek in the south, along the eastern portion of the Coast Ranges. The zone has been divided into four segments, from north to south: Cottonwood Arm, Los Banos Valley, Piedra Azul, and Little Panoche (Bryant and Cluett 2000). The segments may represent different origins and histories (Bartow 1991), all of which show evidence of displacement during the late Pleistocene and Holocene epochs.

Finally, although the San Joaquin Fault, which is located approximately 1 mile west of the site, is not considered "active" by the CGS, Jennings and Bryant (2010) indicate that this fault shows evidence of displacement in the last 700,000 years. Therefore, WKA (2007: 12) recommended that it be considered potentially active for purposes of calculating earthquake-resistant design at the project site.

Based on earthquake data reviewed by WKA (2007:10), the most intense seismic ground shaking that has occurred in the vicinity of the project site resulted from the April 18, 1906, magnitude 8.25 San Francisco earthquake and a July 15, 1866, magnitude 5.8 earthquake in the Diablo Range. The July 15, 1866, event was the closest to the site, with an epicenter located approximately 11 miles to the southwest.

Table 3.8-1 identifies active faults in the region that may pose a potential geologic hazard to the project site. Active faults are those that show evidence of displacement during Holocene time. In addition, Table 3.8-1 identifies the approximate distance from the project site, projected maximum moment magnitude, and slip rate.

Table 3.8-1.
Active Regional Faults

Fault Name	Approximate Distance from Project site (miles)	Regional Location	Projected Maximum Moment Magnitude	Slip Rate (mm/yr)
Great Valley Fault Zone, Segment 8	Adjacent to western border of project site	Margin between Sacramento Valley and Coast Ranges	6.8	1.5
San Joaquin Fault	1	East flank of Diablo Range	Unknown	Unknown
Tesla-Ortigalita Fault Zone (Cottonwood Arm section)	13	Coast Ranges	7.1	1.0
Greenville Fault Zone (Arroyo Mocho section)	21	Coast Ranges	7.0	2.0
Calaveras Fault (Central section)	33	Coast Ranges	6.39	6.0
Hayward Fault (Southeast Extension)	35	Coast Ranges	6.78	3.0
Quien Sabe Fault	35	Coast Ranges	6.6	1.0
San Andreas Fault Zone (Santa Cruz Mountains section)	44	Coast Ranges	7.12	14

Notes: mm/yr = millimeters per year
Sources: Jennings 1994, Working Group on California Earthquake Probabilities 2008; WKA 2007

The intensity of ground shaking depends on the distance from the earthquake epicenter to the site, the magnitude of the earthquake, site soil conditions, and the characteristics of the source. Ground motions from seismic activity can be estimated by probabilistic method at specified hazard levels and by site-specific design calculations using a computer model. These calculations are used by engineers for earthquake-resistant design of buildings. WKA (2007:11–12) performed a preliminary determination that a peak horizontal ground acceleration of 0.43 *g* (where *g* is the percentage of gravity) would be appropriate for use in earthquake-resistant design at the project site. This calculation indicates there is a 1-in-10 probability that an earthquake will occur within 50 years that would result in a peak horizontal ground acceleration at the project site exceeding 0.43 *g*. This result indicates that a moderately high level of seismic shaking would be expected at the project site.

Liquefaction and Seismically Induced Settlement

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and become fluid, similar to quicksand. Factors determining liquefaction potential are type and consistency of soils, the level and duration of seismic ground motions, and the depth to groundwater. Loose sands and peat deposits, as well as uncompacted fill and other Holocene materials deposited by sedimentation in rivers and lakes (fluvial or alluvial deposits), as well as debris or eroded material (colluvial

deposits), are more susceptible to liquefaction. Localities most susceptible to liquefaction-induced damage are underlain by loose, water-saturated, granular sediment within 40 feet of the ground surface.

Seismically induced settlement refers to the compaction of soils and alluvium caused by ground shaking. Fine-grained soils are subject to seismic settlement and differential settlement. Areas underlain by low-density silts and clays associated with fluvial depositional environments are susceptible to seismically induced settlement. The amount of settlement may range from a few inches to several feet. The potential for differential settlement is highest and occurs over the largest areas during high magnitude earthquakes. A potential for differential settlement exists where low-density and unconsolidated material is encountered, such as overbank river deposits (present day and historical) common along river and streambeds.

Liquefaction and settlement pose a hazard to engineered structures such as buildings, bridges, and underground utility pipelines. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining walls, and slope instability.

As discussed above, the project site is located in a seismically active area. Groundwater levels underneath the project site are reported to range from 30 to 50 feet below the ground surface (bgs), and the site is underlain by Holocene alluvial fan and terrace deposits (which are relatively more susceptible to liquefaction) (Jacobson James Associates 2016). Furthermore, the estimated design basis ground motion (0.43 *g*) is relatively high. Thus, WKA (2007:13) determined that there may be a potential for liquefaction and seismic settlement beneath the project site during a major seismic event.

Subsidence, Settlement, and Soil Bearing Capacity

Both natural and human phenomena can induce subsidence of the land surface. Natural phenomena that can cause subsidence can result from tectonic deformations and seismically induced settlements; from consolidation, hydrocompaction, or rapid sedimentation; from oxidation or dewatering of organic-rich soils; and from collapse of subsurface cavities. Subsidence related to human activity can result from withdrawal of subsurface fluids or sediment. Pumping of water from subsurface water tables for residential, commercial, and agricultural uses, along with withdrawal of oil and natural gas from wellfields, has resulted in subsidence in various area throughout the Central Valley.

Lateral spreading is the horizontal movement or spreading of soil toward an open face, such as a streambank, the open side of fill embankments, or the sides of levees. The potential for land failure from subsidence and lateral spreading is highest in areas where the groundwater table is high, where relatively soft and recent alluvial deposits exist, and where creek banks are relatively high. Soil bearing capacity is the ability of soil to support the loads applied to the ground; where the bearing capacity is too low to support proposed structures, subsidence and settlement may occur.

The California Department of Water Resources (DWR) has designated the entire Delta-Mendota Groundwater Subbasin as having a high potential for future subsidence. Between 1 and 2.5 inches of subsidence has been reported since 2005 at continuous monitoring station P259 along SR 33 near the northeastern corner of the project site (DWR 2016a). The DWR and Bureau of Reclamation have undertaken a joint subsidence monitoring program in support of the San Joaquin River Restoration Program that includes a geodetic control network of monitoring stations that spans the Site (USBR 2014). Surveying conducted in support of this program indicates that the average subsidence rate near the project site has been in the range of 0 to 01.5 feet per year between December

2011 and December 2015 (USBR 2016). Surveys conducted between December 2012 and December 2013 indicate slightly accelerated short term subsidence rates during that time period between 0.15 and 0.3 feet per year (USBR 2014).

WKA determined that the potential for ground lurching or lateral spreading to occur during or following seismic events near the site is low (WKA 2007: 13). However, WKA also determined that since much of the project site has been historically used for agricultural purposes, the near-surface soils are likely loose and cohensionless. In addition, the site is underlain by Holocene alluvial-fan and terrace deposits, and portions of these relatively young deposits may exhibit high compressibility characteristics, which could result in settlement of building foundations (WKA 2007: 14). Results of laboratory analyses indicated that subsurface clay soils at the project site exhibit poor subgrade qualities for support of pavements and therefore are likely to require thick pavement sections to compensate for the low quality of the native soils (WKA 2007: 15). U.S. Natural Resource Service (NRCS) soil survey data indicates that all but one of the project site soils have a low soil bearing capacity (NRCS 2015a). Soil bearing capacity is the ability of soil to support the loads applied to the ground; where the bearing capacity is too low to support proposed structures, subsidence and settlement may occur.

SLOPE STABILITY

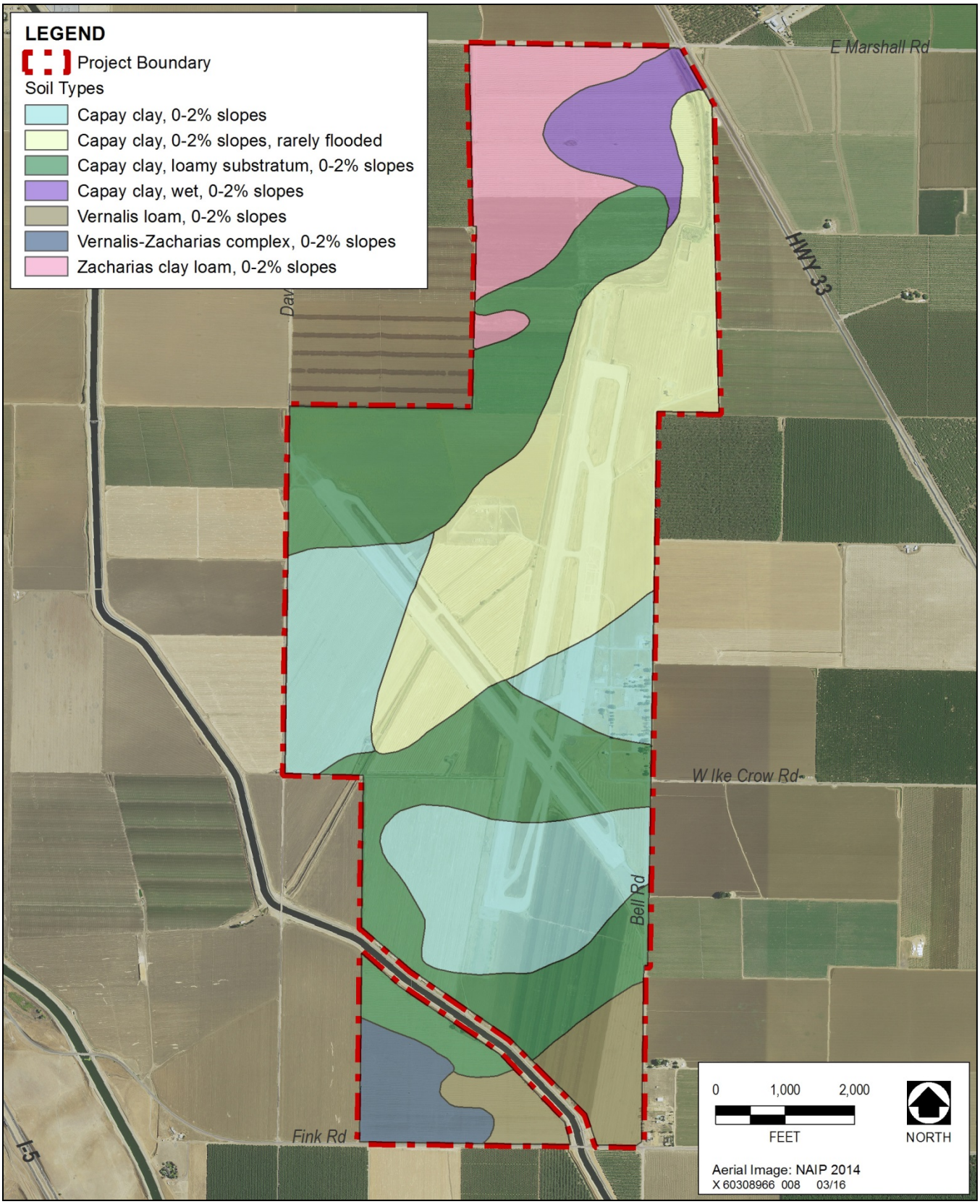
A landslide is the downhill movement of masses of earth material under the force of gravity. The factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults. Landslides typically involve the surface soil and an upper portion of the underlying bedrock. Movement may be very rapid or so slow that a change of position can be noted only over a period of weeks or years. (This slow change is known as “creep.”) The size of a landslide can range from several square feet to several square miles.

The project site slopes gently from southwest to northeast, and does not contain any steep slopes. The low, gently rolling foothills of the Coast Ranges are located approximately 1.5 miles west of the project site. Steep slopes within the Coast Ranges where landslides could pose a hazard and where previous landslides have been mapped are approximately 4 miles west of the project site (Sowers *et al.* 1993).

Soil Characteristics

Exhibit 3.8-1 shows the locations of the various soil types at the project site. Table 3.8-2 summarizes the relevant general characteristics of the soil types at the project site and at the locations where off-site infrastructure may be constructed based on a review of NRCS soil survey data (NRCS 2015a).

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried. Because of this effect, structural foundations may rise during the rainy season and fall during the dry season. If this expansive movement varies beneath different parts of a structure, the foundation may crack and portions of the structure may become distorted. Retaining walls and underground utilities may be damaged for the same reasons. Subsurface borings obtained by WKA (2007: 6) for an airstrip pavement investigation in the vicinity of the existing runways indicated that clay soils were present to a depth of approximately 7 feet bgs. Based on NRCS (2015a) soil survey data shown in Table 3.8-2, soils at the project site and at the locations where off-site infrastructure would be constructed have been rated with a moderate to high shrink-swell potential, meaning that the soils have a moderate to high clay content and thus are likely to undergo volume changes as soil moisture content increases or decreases.



Source: NRCS 2015b

Exhibit 3.8-1. **Project Site Soil Types**

Table 3.8-2
Soil Characteristics

Soil Map Unit Name	Shrink-Swell Potential[1]	Permeability[2]	Water Erosion Hazard[3]	Wind Erosion Hazard[4]	Drainage	Hydrologic Soil Group[5]	Limitations for Small Commercial Buildings and Local Roads	Soil Suitability for Septic Systems
On-Site and Off-Site Infrastructure Improvement Areas								
Capay clay, 0–2% slopes	High	Moderately low	Low	4	Moderately well drained	C	Very limited: high shrink swell potential and low bearing strength	Very limited
Capay clay, 0–2% slopes, rarely flooded	High	Moderately low	Low	4	Moderately well drained	C	Very limited: high shrink swell potential, low bearing strength, flooding potential	Very limited
Capay clay, loamy substratum, 0–2% slopes	High	Moderate	Low	4	Moderately well drained	C	Very limited: high shrink swell potential and low bearing strength	Very limited
Capay clay, wet, 0–2% slopes	High	Moderately low	Low	4	Moderately well drained	D	Very limited: high shrink swell potential and low bearing strength	Very limited
Vernalis loam, 0–2% slopes	Moderate	Moderate	Moderate	6	Well drained	B	Somewhat limited: moderate shrink swell potential	Somewhat limited
Vernalis-Zacharias complex, 0–2% slopes	Moderate	Moderate	Moderate	6	Well drained	C	Somewhat limited: moderate shrink swell potential, low bearing strength	Somewhat limited
Zacharias clay loam, 0–2% slopes	Moderate	Moderate	Moderate	6	Well drained	C	Somewhat limited: moderate shrink swell potential, low bearing strength	Very limited
Off-Site Infrastructure Improvement Areas								
Calla-Carbona complex, 30–50% slopes	Moderate	Moderately High	Moderate	4	Well drained	C	Very limited: steep slope, low bearing strength, moderate to high shrink-swell potential	NA
Damluis gravelly clay loam, 8–15% slopes	High	Moderately High	Low	5	Well drained	C	Very limited: high shrink-swell potential, moderate slope	NA
Dumps[6]	NR	NR	NR	NR	NR	NR	NR	NA
Elsalado loam, 0–2% slopes	Low	Moderately High	Moderate	5	Well drained	B	Not limited	NA
Stomar clay loam, 0–2% slopes	High	Moderate	Moderate	6	Well drained	C	Very limited: high shrink swell potential, low bearing strength	NA
Vernalis clay loam, 0–2% slopes	Moderate	Moderate	Moderate	6	Well drained	B	Somewhat limited: moderate shrink swell potential, low bearing strength	NA

Notes: NR = not rated; NA = not applicable (off-site improvements would not require the installation of septic treatment facilities)

[1] Based on percentage of linear extensibility. Shrink-swell potential ratings of “moderate” to “very high” can result in damage to buildings, roads, and other structures.

[2] Based on standard NRCS saturated hydraulic conductivity (Ksat) class limits; Ksat refers to the ease with which pores in a saturated soil transmit water.

[3] Based on the NRCS erosion factor “Kw whole soil,” which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

[4] Based on the NRCS wind erodibility groups. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

[5] Hydrologic soil groups are based on estimated runoff potential: Group B = moderate infiltration rate and moderate runoff potential, Group C = slow infiltration rate and moderate to high runoff potential, Group D = very slow infiltration rate and very high runoff potential.

[6] Dumps consist of smoothed, uneven accumulations, or piles of waste rock and general refuse.

Source: NRCS 2015a

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Soil Limitations for Septic Systems

For a septic system to function properly, soils must percolate (or "perc"); that is, a certain volume of water must flow through the soil in a certain time period, as determined by a licensed soils or civil engineer. Wastewater is "treated" as soil bacteria feed on the waste material and in the process, break down the material into more basic elements that are dispersed into the lower layers of the soil horizon. If wastewater percolates through the soil too quickly, the bacteria do not have enough time to digest the material. On the other hand, if wastewater percolates through the soil too slowly, the bacteria are killed by the lack of oxygen. Based on a review of NRCS (2015a) soil survey data, movement of water through project site soils is very slow and there is a very shallow soil depth on top of a water-saturated zone. Thus, these soils tend to "perc" too slowly and do not have a deep enough soil layer, rendering them unsuitable for conventional septic systems. However, engineered treatment systems can be developed to address this condition.

MINERALS

Under the State of California's Surface Mining and Reclamation Act of 1975 (SMARA), the State Mining and Geology Board may designate certain mineral deposits as being regionally significant to satisfy future needs. The Board's decision to designate an area is based on a classification report prepared by CGS and on input from agencies and the public. The project site is included in a mineral land classification report for Stanislaus County (Higgins and Dupras 1993).

In compliance with SMARA, CGS has established the mineral resource zone (MRZ) classification system shown in Table 3.8-3 to denote both the location and significance of key extractive resources.

Table 3.8-3
California Geological Survey Mineral Land Classification System

Classification	Description
MRZ-1	Areas where available geologic information indicates there is little likelihood for the presence of significant mineral resources.
MRZ-2a	Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present.
MRZ-2b	Areas underlain by mineral deposits where geologic data indicate that significant inferred resources are present.
MRZ-3a	Areas containing known mineral occurrences of undetermined mineral resource significance.
MRZ-3b	Areas containing inferred mineral resources of undetermined mineral resource significance.
MRZ-4	Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence or significant mineral resources.

Notes: MRZ = Mineral Resource Zone
Source: Higgins and Dupras 1993: Plate 2A

Stanislaus County has a diverse and productive mining history. Commodities from construction aggregate, as well as industrial and metallic minerals have been produced in the county since the 1800s. The value of total production of all mineral commodities in the county in 1993 was estimated to be several hundred million dollars. The most valuable mineral commodities have traditionally been construction aggregate and gold. Gold production

alone has amounted to least $100,000,000. The only mineral commodity recently mined in the County is construction aggregate in the form of sand and gravel (Higgins and Dupras 1993:26).

The entire project site has been classified by CGS as MRZ-3a—areas containing aggregate deposits, the significance of which cannot be evaluated from available data. The project site contains three different concrete aggregate (sand and gravel) mineral designations: MRZ-3a$^{sg(C9)}$, MRZ-3a$^{sg(C10)}$, and MRZ-3a$^{sg(C11)}$. As discussed in detail by Higgins and Dupras (1993: 74–76), these classifications indicate that the project site contains coalesced alluvial fan debris derived from the Coast Ranges. The thick Coast Ranges alluvial blanket along the western side of the San Joaquin Valley was deposited as a system of coalescing alluvial fans. These alluvial fans were formed from sediment deposited onto the flat San Joaquin Valley floor by streamflow. Aggregate quality varies from one fan to the next, primarily as a result of dissimilar rock types. Those fans with streams that drain the Franciscan Complex and Coast Range Ophiolite near the crest of the Coast Ranges tend to contain higher percentages of harder and more durable clasts (which are more suitable for use in concrete-grade aggregate) as compared to fans that only drain Tertiary and Cretaceous sedimentary rocks. All of these alluvial fans along the western margin of the county have incised meanders that form washes, arroyos, and broad stream channels. An incised meander forms when a stream down-cuts into the fan surface. Because alluvial fan deposits are poorly sorted and interbedded with varying proportions of silt and clay, they typically require considerably more processing for use as concrete-grade aggregate as compared to stream-deposited alluvium.

The project site contains alluvial fans deposits of Little Salado Creek, which CGS has rated with a relatively low potential for containing economically valuable deposits of concrete-grade aggregate because: (1) they are derived primarily from Tertiary and Cretaceous sedimentary rocks, and (2) the deposits are poorly sorted and interbedded with unsuitable aggregate materials (Higgins and Dupras 1993: Table 5).

PALEONTOLOGICAL RESOURCES

Paleontological Resource Assessment Criteria

The potential paleontological importance of the project site can be assessed by identifying the paleontological importance of rock units that are exposed there. Because topographic maps can easily delineate the distribution of a rock unit, this method is conducive to determining the parts of the project site that are of higher and lower sensitivity for paleontological resources.

A paleontologically sensitive rock unit is one that is rated high for potential paleontological productivity and is known to have produced unique, scientifically important fossils. The potential paleontological productivity rating of a rock unit exposed in a project area refers to the abundance and densities of fossil specimens, previously recorded fossil sites, or both in exposures of the unit in and near the project area. Exposures of a specific rock unit in the project area are most likely to yield fossil remains representing particular species in quantities or densities similar to those previously recorded from the unit in other locations. Therefore, the paleontological sensitivity determination of a rock unit is based primarily on the types and numbers of fossils that have been previously recorded from that rock unit (i.e., the paleontological productivity).

The following tasks were completed to establish the paleontological sensitivity of each rock unit exposed in or near the project site:

- The potential paleontological productivity of each rock unit was assessed, based on the density of fossil remains previously documented within the rock unit.
- The potential of a rock unit exposed in the project area to contain a unique paleontological resource was considered.

Paleontological Resources Inventory

To develop a baseline paleontological resource inventory of the project site and to establish the paleontological sensitivity of each geologic unit present within the project site, background research was conducted and each geologic formation exposed within the project site was assigned a paleontological sensitivity based on the number of previously recorded fossil sites from that unit and the scientific importance of the fossil remains recorded. These methods are consistent with Society of Vertebrate Paleontology (SVP) 1995 guidelines for assessing the importance of paleontological resources.

Geologic maps and available published geological and paleontological literature covering the bedrock and surficial geology of the project site were reviewed to determine the exposed and subsurface rock units, to assess the potential paleontological productivity of each rock unit, and to delineate their respective areal distribution in the project site. The number and location of previously recorded fossil sites from rock units exposed within the project site and the types of fossil remains each rock unit has produced were evaluated based on published geological and paleontological literature. Regional and local surficial geologic mapping and correlation of the various geologic units in the project site and vicinity has been provided at a scale of 1:24,000 by Sowers *et al.* (1993) and at a scale of 1:250,000 by Wagner *et al.* (1991).

Paleontological Resources Assessment by Rock Unit

Alluvial Fan and Terrace Deposits

As discussed previously, based on a review of available geologic mapping, the project site is located entirely within Holocene-age alluvial fan and terrace deposits. In order to be considered a unique paleontological resource, a fossil must be more than 11,700 years old. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, this formation is considered to be of low paleontological sensitivity.

3.8.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the U.S. through the establishment and maintenance of an effective earthquake hazards reduction program. To accomplish this goal, the act established the National Earthquake Hazards Reduction Program (NEHRP). This program was substantially amended in November 1990 by the National Earthquake Hazards Reduction Program Act (NEHRPA), which refined the description of agency responsibilities, program goals, and objectives.

The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRPA designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities. Other NEHRPA agencies include the National Institute of Standards and Technology, National Science Foundation, and U.S. Geological Survey (USGS).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (California Public Resources Code [PRC] Sections 2621–2630) was passed in 1972 to reduce the hazard of surface faulting to structures designed for human occupancy. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as Earthquake Fault Zones around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) addresses earthquake hazards from non-surface fault rupture, including liquefaction and seismically induced landslides. The act established a mapping program for areas that have the potential for liquefaction, landslide, strong ground shaking, or other earthquake and geologic hazards. The act also specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Standards Code

The California Building Standards Commission coordinates, manages, adopts, and approves building codes in California. The California Building Standards Code (CBC) (Title 24 of the California Code of Regulations) provides minimum standards for building design in California. The CBC applies to building design and construction in the state and is based on the federal Uniform Building Code (UBC) used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations. Where no other building codes apply, Chapter 29 of the CBC regulates excavation, foundations, and retaining walls.

The State earthquake protection law (California Health and Safety Code, Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires that any structure designed for a project site undergo a seismic-design evaluation that assigns the structure to one of six categories, A–F; Category F structures require the most earthquake-resistant design. The CBC philosophy focuses on “collapse prevention,” meaning that structures are to be designed to prevent collapse

during the maximum level of ground shaking that could reasonably be expected to occur at a site. CBC Chapter 16 specifies exactly how each seismic-design category is to be determined on a site-specific basis, based on site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, as well as the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates the analysis of expansive soils and the determination of depth to the groundwater table. For structures in Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For structures in Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and loss of soil strength, and lateral movement or reduction of the foundation's soil-bearing capacity.

Chapter 18 also requires that mitigation measures be considered in structural design. Mitigation measures may include stabilizing the ground, selecting appropriate foundation types and depths, selecting appropriate structural systems to accommodate anticipated displacements, or using any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak-ground-acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. The peak ground acceleration must be determined in a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix J of the CBC regulates grading activities, including drainage and erosion control and construction on expansive soils, areas subject to liquefaction, and other unstable soils.

National Pollutant Discharge Elimination System and Storm Water Pollution Prevention Plans

As discussed in detail in Section 3.10, "Hydrology and Water Quality," the State Water Resources Control Board (SWRCB) and Central Valley Regional Water Quality Control Board (Central Valley RWQCB) have adopted specific National Pollutant Discharge Elimination System (NPDES) permits for a variety of activities that have the potential to discharge wastes (including sediment) to waters of the state. The SWRCB's statewide storm water general permit for construction activity (Order 2009-009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) is applicable to all land-disturbing construction activities that would disturb 1 acre or more. Compliance with the NPDES permit requires submittal to the Central Valley RWQCB of notices of intent (NOI) to discharge, and implementation of stormwater pollution prevention plans (SWPPPs) that include best management practices (BMPs) to minimize water quality degradation during construction activities.

California Surface Mining and Reclamation Act

The Surface Mining and Reclamation Act of 1975 (California Public Resources Code Section 2710 et seq.) (SMARA) addresses surface mining of minerals and requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative uses, and the elimination of hazards to public health and safety from the effects of mining activities. SMARA is implemented through ordinances for permitting developed by local government "lead agencies" that provide the regulatory framework under which local mining and reclamation activities are conducted. The State Mining and Geology Board reviews the local ordinances to ensure that they meet the procedures established by SMARA. The general process consists of obtaining a permit to mine material, implementing a reclamation plan to return the land to a useable condition, and providing financial assurances to ensure the feasibility of the reclamation plan. The process of reclamation includes

maintaining water and air quality and minimizing flooding, erosion, and damage to wildlife and aquatic habitats caused by surface mining. SMARA applies to an individual or entity that would disturb more than 1 acre or remove more than 1,000 cubic yards of material through surface mining activities, including the excavation of borrow pits for soil material.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Stanislaus County General Plan

Policies and implementation measures in the Conservation/Open Space Element and Safety Element of the General Plan address geology, soils, and seismicity. There are no policies in the General Plan related to mineral resources that would apply to the proposed project. The General Plan does not contain any policies related to paleontological resources. Relevant policies and implementation measures are provided below.

Conservation/Open Space Element

- **POLICY SIXTEEN –** Discourage development on lands that are subject to flooding, landslide, faulting or any natural disaster to minimize loss of life and property.
- **IMPLEMENTATION MEASURE 1** – Enforce the provisions of the Alquist-Priolo Earthquake Fault Zoning Act.
- **IMPLEMENTATION MEASURE 3** – Development proposals in an area identified as having unstable soils (bluff, landslide areas in the foothills, etc.) shall include measures for mitigating possible hazards.
- **IMPLEMENTATION MEASURE 4** – The County shall enforce the subdivision ordinance requirement for soils reports, which may be required to include a geologic report.
- **IMPLEMENTATION MEASURE 5** – The County shall utilize the California Environmental Quality Act (CEQA) process to ensure that development does not occur that would be subject to natural disasters.

Safety Element

- **POLICY THREE** – Development should not be allowed in areas that are particularly susceptible to seismic hazard.
- **IMPLEMENTATION MEASURE 1** – The County shall enforce the Alquist-Priolo Earthquake Fault Zoning Act.
- **IMPLEMENTATION MEASURE 2** – Development in areas of geologic hazard shall be considered for approval only where the development includes an acceptable evacuation route.
- **IMPLEMENTATION MEASURE 4** – The routes of new public roads in areas subject to significant seismic hazard shall be designed to minimize seismic risk.
- **IMPLEMENTATION MEASURE 5** – Where it is found that right-of-way widths greater than those specified in the Circulation Element are necessary to provide added safety in geologically unstable areas, additional width shall be required.

- **POLICY 6** – All new development shall be designed to reduce safety and health hazards.

- **IMPLEMENTATION MEASURE 4** – All building permits shall be reviewed to ensure compliance with the California Code of Regulations, Title 24, California Building Codes, and California Code of Regulations Title14, Fire Safe Regulations.

Professional Paleontological Guidelines

The Society of Vertebrate Paleontology (SVP) (1995, 1996), a national scientific organization of professional vertebrate paleontologists, has established standard guidelines that outline acceptable professional practices in the conduct of paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, specimen preparation, analysis, and curation. Most practicing professional paleontologists in the nation adhere to SVP assessment, mitigation, and monitoring requirements, as specifically spelled out in its standard guidelines.

3.8.3 Environmental Impacts and Mitigation Measures

Methodology

Impacts associated with geology, soils, minerals, and paleontological resources that could result from project-related activities were evaluated based on the locations and expected types of construction practices; NRCS soil survey data; CGS mineral land classification studies; and published seismic and geologic resources data (including maps). The analysis related to geology and soils also relied in part on information contained in the following report: *Preliminary Geotechnical Engineering Report and Geologic Investigation Hazard Report, West Park Project, Stanislaus County, California* (Wallace Kuhl & Associates 2007).

In its standard guidelines for the assessment and mitigation of adverse impacts on paleontological resources, SVP (1995) established three categories of sensitivity for paleontological resources: high, low, and undetermined. Areas where fossils have been previously found are considered to have a high sensitivity and a high potential to produce fossils. Areas that are not sedimentary in origin and that have not been known to produce fossils in the past typically are considered to have low sensitivity. Areas that have not had any previous paleontological resource surveys or fossil finds are considered to be of undetermined sensitivity until surveys and mapping are performed to determine their sensitivity. In keeping with the SVP significance criteria (1995), all vertebrate fossils are generally categorized as being of potentially significant scientific value.

Thresholds of Significance

Geology, Soils, and Minerals

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact on geology, soils, and mineral resources if it would:

- expose people or structures to potential substantial adverse impacts, including risk of loss, injury, or death through the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;

- locate project facilities on a geologic unit that is unstable, or that would become unstable as a result of the proposed project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- locate project facilities on expansive soil, creating substantial risks to property;
- result in substantial soil erosion or the loss of topsoil;
- have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state or a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Paleontological Resources

Based on Appendix G of the *CEQA Guidelines*, the proposed project would have significant impacts on paleontological resources if it would directly or indirectly destroy a unique paleontological resource or site. A "unique paleontological resource or site" is one that is considered significant under the following professional paleontological standards.

An individual vertebrate fossil specimen may be considered unique or significant if it is identifiable and well preserved, and it meets one of the following criteria:

- a type specimen (i.e., the individual from which a species or subspecies has been described);
- a member of a rare species;
- a species that is part of a diverse assemblage (i.e., a site where more than one fossil has been discovered) wherein other species are also identifiable, and important information regarding life history of individuals can be drawn;
- a skeletal element different from, or a specimen more complete than, those now available for its species; or
- a complete specimen (i.e., all or substantially all of the entire skeleton is present).

The value or importance of different fossil groups varies, depending on several factors: the age and depositional environment of the rock unit that contains the fossils; their rarity; the extent to which they have already been identified and documented; and the ability to recover similar materials under more controlled conditions (such as for a research project). Marine invertebrates generally are common, the fossil record is well developed and well documented, and they would generally not be considered a unique paleontological resource. Identifiable vertebrate marine and terrestrial fossils generally are considered scientifically important because they are relatively rare.

ISSUES NOT CONSIDERED FURTHER IN THIS EIR

Landslides

Because the project site does not contain and is not located adjacent to any areas of steep slopes, there would be no impact related to landslides. This issue is not addressed further in this EIR.

IMPACT ANALYSIS

IMPACT 3.8-1 Potential damage to proposed facilities from seismic hazards. *Project-related facilities and off-site infrastructure could be subject to hazards from strong seismic ground shaking, liquefaction, and seismically-induced settlement. Therefore, this impact is considered* ***potentially significant****.*

The Great Valley Fault Zone Segment 8 is adjacent to the western border of the project site. However, the Great Valley Fault Zone is a blind-thrust fault, meaning that it ruptures deep underground rather than at the ground surface. Therefore, the Great Valley Fault Zone is not included in an Alquist-Priolo Fault Zone. Although the San Joaquin Fault is approximately 1 mile west of the project site, surface fault rupture is generally limited to an area a few yards wide; thus, surface rupture along the San Joaquin Fault is unlikely to result in damage at the project site. However, off-site infrastructure improvements at the proposed Fink Road/I-5 interchange may be subject to damage to surface fault rupture along the San Joaquin Fault. Since I-5 is not a County Road, this improvement would be implemented through collaboration with Caltrans, and additional study would be required before proceeding. There are no other known faults within or adjacent to the project site.

As discussed previously, the project site and the off-site infrastructure improvements are located in a seismically active area. Both the Great Valley Fault Zone and the Tesla-Ortigalita Fault Zone are active and have the potential to generate a large earthquake (see Table 3.8-1). Previous studies recommended that the San Joaquin Fault be considered potentially active for purposes of earthquake-resistant design at the project site (WKA 2007:12). WKA performed a preliminary determination that a peak horizontal ground acceleration of 0.43 *g* would be appropriate for use in earthquake-resistant design at the project site (WKA 2007:11–12). This result indicates that a moderately high level of seismic ground shaking would be expected at the project site and the locations where the off-site infrastructure improvements would be constructed.

Groundwater underneath the project site may be as shallow as 30 to 50 feet bgs, and the site is underlain by Holocene alluvial fan and terrace deposits, which are more susceptible to liquefaction. Furthermore, the estimated design basis ground motion (0.43 *g*) is relatively high. WKA determined that there may be a potential for liquefaction and seismically-induced settlement beneath the project site during a major seismic event (WKA 2007:13). The same conditions may present a liquefaction hazard for the off-site infrastructure improvements.

A site-specific geotechnical report that meets the current CBC standards has not yet been prepared, the project site's earthquake resistance design spectrum (that meets the current CBC standards) and liquefaction potential (including site-specific soil borings) have not been determined, and site-specific design recommendations from a civil engineer to reduce earthquake damage as required by the CBC have not yet been made. Therefore, this impact is considered **potentially significant**.

Mitigation Measure 3.8-1a: Prepare Site-Specific Geotechnical Report(s) per CBC Requirements and Implement Associated Recommendations.

Prior to issuance of grading/building permits and prior to the construction of any off-site infrastructure improvements, a qualified civil engineer shall be retained to prepare a final geotechnical report for the proposed facilities, which shall be submitted for review and approval to the appropriate Stanislaus County Department(s). The final geotechnical engineering report may require site-specific subsurface soil borings and shall address and make recommendations on the following, as applicable:

- seismic design parameters;
- seismic ground shaking;
- surface fault rupture related to the proposed I-5 interchange improvements;
- liquefaction;
- expansive/unstable soils;
- site preparation;
- soil bearing capacity;
- structural foundations, including retaining-wall design;
- grading practices; and
- soil corrosion of concrete and steel.

In addition to the recommendations for the conditions listed above, the geotechnical investigation shall determine appropriate foundation designs that are consistent with the version of the California Building Code (CBC) that is in force at the time of permit application. 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 CBC.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of a grading/building permit.

Enforcement: Stanislaus County.

Mitigation Measure 3.8-1b: Monitor Earthwork during Earthmoving Activities.

All earthwork, such as excavation, placement of fill, and disposal of materials removed from and deposited on both on-and off-site construction areas, shall be monitored by a qualified geotechnical or civil engineer.

Implementation: Leaseholders/developers/contractors.

Timing: During excavation or other earthwork.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measures 3.8-1a and 3.8-1b would reduce impacts from seismic hazards to a **less-than-significant** level, because the design recommendations of a civil engineer to reduce damage from seismic events would be incorporated into buildings, structures, and infrastructure, as required by the CBC building requirements, and a geotechnical or civil engineer would provide on-site monitoring to ensure that earthwork is performed as specified in the plans. Measures that could be recommended in the geotechnical reports to reduce hazards from seismic ground shaking could include structural reinforcement for additional sheer strength such as extra rebar, bolts, and metal straps; or soil densification. Measures to reduce hazards from liquefaction could include excavation of liquefiable soils and replacement with appropriate fill dirt, or amendment of the soils with lime. The use of specific design techniques would depend on soil type and potential construction techniques in each location within the project site and each location of an off-site infrastructure improvement, which would be determined during final design by a licensed civil engineer.

IMPACT 3.8-2 Potential geologic hazards related to construction in unstable soils. *Facilities constructed at the project site and the off-site infrastructure improvements could be subject to geologic hazards related to settlement from soil compression, subsidence, and perched groundwater during the winter months. Therefore, this impact is considered* ***potentially significant.***

WKA determined that since much of the project site has been historically used for agricultural purposes, the near-surface soils are likely loose and cohensionless (WKA 2007: 13). In addition, the project site and most of the locations where the off-site infrastructure improvements would occur are underlain by Holocene alluvial fan and terrace deposits. Portions of these relatively young deposits may exhibit high compressibility characteristics, which could result in settlement of building foundations (WKA 2007: 14). Results of laboratory analyses indicated that subsurface clay soils at the project site exhibit poor subgrade qualities for support of pavements and therefore are likely to require thick pavement sections to compensate for the low quality of the native soils (WKA 2007: 15). A review of NRCS soil survey data indicates that soils within the project site and the locations where off-site infrastructure improvements would be constructed are rated as very limited for construction of buildings and roads because of low soil bearing strength (see Table 3.8-2), which could, in turn, result in hazards from subsidence and settlement (NRCS 2015a). Finally, due to the high clay content of project site and off-site soils, perched groundwater conditions could occur during the winter months.

The California Department of Water Resources (DWR) has designated the entire Delta-Mendota Groundwater Subbasin as having a high potential for future subsidence. Between 1 and 2.5 inches of subsidence has been reported since 2005 at continuous monitoring station P259 along SR 33 near the northeastern corner of the project site (DWR 2016a). The DWR and Bureau of Reclamation have undertaken a joint subsidence monitoring program in support of the San Joaquin River Restoration Program that includes a geodetic control network of monitoring stations that spans the Site (USBR 2014). Surveying conducted in support of this program indicates that the average subsidence rate near the Site has been in the range of 0 to 01.5 feet per year between December 2011 and December 2015 (USBR 2016). Surveys conducted between December 2012 and December 2013 indicate slightly accelerated short term subsidence rates during that time period between 0.15 and 0.3 feet per year (USBR 2014).

Subsidence in the San Joaquin Valley has occurred mainly when compressible clays are dewatered as a result of drawdown in the confined aquifer system beneath the Corcoran Clay to below historical low levels. Long-term hydrographs are not available for any of the wells at the project site. However, several wells are located in the

region south of the project site near the city of Newman (DWR 2016b). The current groundwater level in the well with the longest period of record (State Well No. 06S08E29J001M) is approximately 40 feet above the historical low level in October 1952. Given the limited amount of drawdown that is predicted and that less than 2 inches of subsidence has been reported near the project site to date, the likelihood of subsidence that substantially interferes with surface land uses and infrastructure is judged to be small (JJ&A 2016).

A site-specific geotechnical report that meets the current CBC standards has not yet been prepared, site-specific laboratory soil analyses have not been obtained, and site-specific design recommendations from a civil engineer to reduce potential damage from soil compression, subsidence, settlement, and perched groundwater conditions as required by the CBC have not yet been made. Therefore, this impact is considered **potentially significant**.

Mitigation Measure 3.8-2a: Implement Mitigation Measure 3.8-1a (Prepare Site-Specific Geotechnical Report(s) per CBC Requirements and Implement Associated Recommendations).

Mitigation Measure 3.8-2b: Implement Mitigation Measure 3.8-1b (Monitor Earthwork during Earthmoving Activities).

Mitigation Measure 3.8-2c: Conduct Subsidence Monitoring.

Subsidence monitoring shall be conducted and appropriate actions taken to prevent subsidence associated with the project. The County shall coordinate with the Groundwater Sustainability Agency on any monitoring of subsidence monuments conducted to implement the Groundwater Sustainability Plan for the vicinity of the Specific Plan Area. The exact construction, placement, and monitoring methodology will be defined in a subsidence monitoring program in the Groundwater Sustainability Plan. Subsidence monitoring activities, findings, and reporting schedule will also be defined in the Groundwater Sustainability Plan, along with standards that dictate when investigation and intervention is required and what actions will be a part of intervention, if required, in order to avoid damage to infrastructure.

Implementation: Stanislaus County and the Groundwater Sustainability Agency.

Timing: Ongoing.

Enforcement: Stanislaus County and the Groundwater Sustainability Agency.

Significance after Mitigation

Implementation of Mitigation Measures 3.8-1a and 3.8-1b would reduce impacts from construction in unstable soils to a **less-than-significant** level, because the design recommendations of a civil engineer to reduce damage from construction in unstable soils would be incorporated into buildings, structures, and infrastructure, as required by the CBC, and a geotechnical or civil engineer would provide on-site monitoring to ensure that earthwork is performed as specified in the plans. The use of specific design techniques would depend on soil type and potential construction techniques in each location within the project site and each off-site infrastructure improvement, which would be determined during final design by a licensed civil engineer. Mitigation Measure 3.8-2c would require monitoring for subsidence and adjustments to the groundwater extraction program, if needed, thus avoiding significant effects related to subsidence to a **less-than-significant** level in coordination with the San

Joaquin Valley Delta-Mendota Groundwater Sustainability Agency (DM-II).[1] The County will continue to coordinate with the Groundwater Sustainability Agency for local governance of groundwater conditions under the Sustainable Groundwater Management Act of 2014. DM-II encompasses the entirety of the Specific Plan Area and monitoring of subsidence monuments currently being conducted. The Groundwater Sustainability Plan currently under development is scheduled to take effect on or before February 1, 2020. Subsidence monitoring activities, findings, and reporting schedule will be defined in the Groundwater Sustainability Plan, along with standards that dictate when investigation and intervention is required and what actions will be a part of intervention. Subsidence monitoring of the Specific Plan Area is ongoing via a number of agencies, such as the U.S. Bureau of Reclamation, DWR, the U.S. Geological Survey, Plate Boundary Observatory UNAVCO[2], and the California Department of Transportation (Caltrans).

IMPACT 3.8-3 **Potential temporary, short-term construction-related erosion.** *Ground-disturbing activities associated with construction of proposed improvements could result in substantial soil erosion and loss of topsoil at construction sites. This impact would be* ***potentially significant****.*

Project implementation would involve intensive grading, trenching, excavation, soil stockpiling, and other earthmoving activities for infrastructure, project construction, and road foundations over approximately 1,314 acres, plus construction of off-site infrastructure improvements associated with the proposed project. Construction activities would occur in soils that have moderate wind and water erosion hazard potential, and a moderate to high stormwater runoff potential (see Table 3.8-2). Conducting these activities would result in the temporary disturbance of soil and would expose disturbed areas to winter storm events. Rain of sufficient intensity could dislodge soil particles from the soil surface. If the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during the summer as a result of earthmoving activities could result in soil loss because of wind erosion. Therefore, direct impacts associated with short-term construction-related erosion are considered **potentially significant**. (Indirect and long-term impacts from soil erosion, such as sediment transport and degradation of downstream water quality from project operation, are evaluated in Section 3.10, "Hydrology and Water Quality.")

Mitigation Measure 3.8-3a: Prepare and Implement a Grading and Erosion Control Plan.

Before grading permits are issued or earthmoving activities are conducted, a California Registered Civil Engineer shall be retained to prepare a grading and erosion control plan. The grading and erosion control plan shall be submitted to the Stanislaus County Public Works Department for review and approval. The plan shall be consistent with the County's NPDES permit, and shall include site-specific grading proposals. The plan shall include the location, implementation schedule, and maintenance schedule of all erosion and sediment control measures, a description of measures designed to control dust and stabilize the construction-site road and entrance, and a description of the location and methods of storage and disposal of construction materials. Temporary construction-related erosion and sediment control measures could include the use of detention basins, berms, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion. Stabilization of construction entrances to minimize

[1] For more details about the San Joaquin Valley Delta-Mendota Groundwater Sustainability Agency, please see: http://sgma.water.ca.gov/portal/gsa/print/301.

[2] UNAVCO was created in and at this time was called the University NAVSTAR Consortium (UNAVCO). In 2001, UNAVCO, Inc. incorporated as a non-profit and adopted the former acronym as its official name.

trackout (control dust) is commonly achieved by installing filter fabric and crushed rock to a depth of approximately 1 foot.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of a grading permit.

Enforcement: Stanislaus County.

Mitigation Measure 3.8-3b: Implement Mitigation Measure 3.10-1 (Prepare and Implement a Stormwater Pollution Prevention Plan and Associated Best Management Practices).

Significance after Mitigation

Implementation of the above described mitigation would reduce potentially significant short-term construction-related erosion impacts to a **less-than-significant** level because grading and erosion control plans with specific erosion and sediment control measures would be prepared and implemented, and because a site-specific SWPPP with appropriate BMPs designed to maintain surface water quality conditions in adjacent receiving waters would be prepared and implemented in compliance with the County's NPDES permit.

IMPACT 3.8-4 Potential damage to proposed facilities from construction in expansive soils. *The project site is composed of soils that have a moderate to high potential for expansion when wet and may result damage to structures and infrastructure. This impact would be potentially significant.*

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities and infrastructure if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Volume changes of expansive soils also can result in the consolidation of soft clays following the lowering of the water table or the placement of fill. Placing buildings or constructing infrastructure on or in unstable soils can result in structural failure. Subsurface borings obtained by WKA (2007: 6) for an airstrip pavement investigation in the vicinity of the existing runways indicated that clay soils were present to a depth of approximately 7 feet bgs. Based on a review of NRCS soil survey data as shown in Table 3.8-2, all but one of the project site soils have a moderate to high shrink-swell potential, indicating the soils are expansive. Soil expansion, including volume changes during seasonal fluctuations in moisture content, could adversely affect road surfaces, interior slabs-on-grade, landscaping hardscapes, and underground pipelines. Therefore, this impact is considered **potentially significant**.

Mitigation Measure 3.8-4: Implement Mitigation Measure 3.8-1 (Prepare Site-Specific Geotechnical Report[s] per CBC Requirements and Implement Associated Recommendations).

Significance after Mitigation

Implementation of the above described mitigation would reduce impacts from construction in expansive soils to a **less-than-significant** level because the design recommendations of a civil engineer to reduce damage from construction in expansive soils would be incorporated into buildings, structures, and infrastructure as required by the CBC, and a geotechnical or civil engineer would provide on-site monitoring to ensure that earthwork is performed as specified in the plans. Measures that could be recommended in the geotechnical reports to reduce

hazards from expansive soils could include construction of buildings on post-tensioned slab foundations, and/or soil treatment with lime. The use of specific design techniques would depend on soil type and potential construction techniques in each location within the project site and each location of an off-site infrastructure improvement, which would be determined during final design by a licensed civil engineer.

IMPACT 3.8-5 Suitability of soils for use with septic systems. *If septic systems are used on-site, they will be required to meet requirements of Stanislaus County, which were designed to prevent adverse water quality and public health effects. Therefore, this impact would be* ***less than significant.***

Septic systems may be used for during the early stages of site development. Based on a review of NRCS (2015a) soil data (see Table 3.8-2), project site soils are rated with moderate to severe limitations for conventional septic systems. Movement of water through the soils is very slow and there is a very shallow soil depth on top of a water-saturated zone. Thus, these soils tend to percolate water too slowly and do not have a deep enough soil layer, rendering them unsuitable for conventional septic systems without engineering solutions. If a septic system is to be used, a qualified professional will be required to conduct site-specific percolation test(s) and to design and engineer a septic system that would effectively treat wastewater to secondary standards as required for by Stanislaus County. The wastewater treatment systems would be designed to:

- maximize the available effective absorptive area in disposal fields;
- provide appropriate separation between the bottom of the disposal field and groundwater or a restrictive soil layer;
- consider the ground slope in both the primary and reserve disposal field areas;
- factor influent wastewater strength and quantity into design calculations;
- implement appropriate requirements for setbacks from wells, surface waters, and property boundaries; and
- provide for treatment of wastewater such that it does not adversely affect water quality or endanger public health.

The County requires qualified professionals to design on-site wastewater treatment systems (OWTS) to meet the standards of Stanislaus County. Because any on-site wastewater treatment systems will meet the requirements of Stanislaus County, and because these requirements are designed to avoid adverse environmental health effects, any on-site system that is used would not adversely affect water quality or endanger public health. This impact is considered **less than significant**. No mitigation is required.

IMPACT 3.8-6 Possible loss of availability of regionally or locally important known mineral resources. *The project site and the off-site infrastructure improvement locations are not classified as MRZ-2, and have been rated by CGS with a relatively low potential to contain economically valuable deposits of mineral resources. Therefore, this impact would be* ***less than significant.***

Regionally important mineral resources are generally classified by CGS as MRZ-2. The entire project site has been classified by CGS as MRZ-3a—areas containing aggregate deposits, the significance of which cannot be evaluated from available data. The project site and the proposed off-site infrastructure improvements contain three

different concrete aggregate (sand and gravel) mineral designations: MRZ-3a$^{sg(C9)}$, MRZ-3a$^{sg(C10)}$, and MRZ-3a$^{sg(C11)}$. These classifications indicate that the project site and the areas where off-site infrastructure improvements would be constructed are located within the Salado Creek, Little Salado Creek, and Crow Creek coalesced alluvial fan debris derived from the Coast Ranges. In addition, the proposed I-5 interchange improvement location has been classified as MRZ-3a$^{sg(C1)}$, meaning it consists of unconsolidated Pleistocene and Pliocene alluvial fan sediments (Higgins and Dupras 1993: 74–79). Because alluvial fan deposits are poorly sorted and interbedded with varying proportions of silt and clay, they typically require considerably more processing for use as concrete-grade aggregate as compared to stream-deposited alluvium. The project site contains alluvial fans deposits of Little Salado Creek, which CGS has rated as having a relatively low potential to contain economically valuable deposits of concrete-grade aggregate because: (1) they are derived primarily from Tertiary and Cretaceous sedimentary rocks, and (2) the deposits are poorly sorted and interbedded with unsuitable aggregate materials (Higgins and Dupras 1993: Table 5).

The Stanislaus County General Plan protects areas containing "…significant deposits of extractive mineral resources (e.g., sand and gravel)"; these generally correspond to the areas classified by CGS as MRZ-2 (Stanislaus County 2016: 3-20 and 3-21). The project site and the locations where off-site infrastructure improvements would be constructed have been classified as MRZ-3 and have a low potential to contain economically valuable mineral deposits. Thus, the project site and the locations where off-site infrastructure improvements would be constructed do not contain a locally important mineral resource recovery site delineated on a local general plan.

For the reasons stated above, project implementation would not result in a loss of economically valuable known mineral resources of regional or local importance. Therefore, this impact is considered **less than significant**. No mitigation is required.

IMPACT 3.8-7 Possible damage to or destruction of unique paleontological resources. *The project site and most of the off-site infrastructure improvements are underlain by Holocene-age rock formations, which are considered to be of low paleontological sensitivity. However, the off-site infrastructure improvements associated with the I-5 interchange may occur in older rock formations that may be paleontologically sensitive. Therefore, this impact is considered potentially significant.*

Based on a review of geologic maps (Sowers *et al.* 1993, Wagner et al. 1991), the project site and most of the locations where off-site infrastructure facilities would be constructed are underlain by Holocene-age rock formations. The on-site detention basin would be constructed in the northeastern portion of the site, and would be approximately 14.5 feet deep. The depth of excavation for other facilities at the project site is not expected to exceed 10 feet bgs. Therefore, construction activities at the project site would not encounter older Plio-Pleistocene-age rock formations, which could be paleontologically sensitive. Most of the off-site infrastructure improvements would also be constructed in Holocene-age deposits, and excavation also would not occur to a depth that would be great enough to encounter older Plio-Pleistocene-age formations. Holocene deposits contain only the remains of extant, modern taxa (if any resources are present), which are not considered "unique" paleontological resources. Therefore, Holocene-age deposits are of low paleontological sensitivity. Thus, earthmoving activities at the project site and all of the off-site infrastructure locations except the I-5 interchange would have a **less-than-significant** impact on unique paleontological resources.

Earthmoving activities associated with the proposed I-5 interchange improvements may occur in older, Plio-Pleistocene rock formations, which may be paleontologically sensitive. Therefore, earthmoving activities associated with the I-5 interchange improvements could have a **potentially significant** impact on unique paleontological resources.

Mitigation Measure 3.8-7: Avoid Paleontological Resources Impacts.

If paleontological resources (e.g., fossils) are discovered during earthmoving activities, the construction crew shall immediately cease work in the vicinity of the find and notify the Stanislaus County Planning & Community Development Department. A qualified paleontologist shall be retained to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology Guidelines (1996). The recovery plan may include, but is not limited to, a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings. Recommendations in the recovery plan that are determined by the Stanislaus County Planning & Community Development Department to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

Implementation: Stanislaus County.

Timing: During excavation and other earth disturbance.

Enforcement: Stanislaus County.

Implementing Mitigation Measure 3.8-4 would reduce potential impacts to unknown unique paleontological resources associated with improvements in the area of the I-5 interchange to a **less-than-significant** level, because a site-specific paleontological resources analysis of the proposed I-5 interchange improvements would be performed. If earthmoving activities would occur in paleontologically sensitive rock formations, the construction workers would be alerted to the possibility of encountering paleontological resources. In the event that resources were discovered, fossil specimens would be recovered and recorded, and would undergo appropriate curation.

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3.9 HAZARDS AND HAZARDOUS MATERIALS

Section 3.9 of this EIR examines potential short- and long-term impacts associated with the historic, existing, and future use, storage, and transportation of hazardous materials and other hazards associated with the construction and operation of the project.

3.9.1 ENVIRONMENTAL SETTING

TERMINOLOGY

Federal regulations define a "hazardous material"[1] as "a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce" (49 Code of Federal Regulations [CFR] 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows:

> Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that:

> …because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness [, or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria listed in the California Code of Regulations (CCR), Title 22. Cleanup requirements are determined on a case-by-case basis by the agency with lead jurisdiction over the project.

A few of the specific terms related to hazardous material cleanup activities are defined below:

- **Remedial Investigation** – An in-depth study designed to determine the nature and extent of contamination at a site (e.g., which hazardous materials are present, and the quantities and locations).
- **Feasibility Study** – An in-depth study designed to evaluate the effectiveness and costs of various remedial alternatives for the conditions defined by the Remedial Investigation and Baseline Risk Assessment.
- **Remedial Action Plan** – A plan, approved by the California Department of Toxic Substances Control (DTSC), that contains a specific program for remediation of a contaminated site. After the draft Remedial Action Plan is prepared, a public meeting is held and comments from the public are solicited for a period of no less than 30 days. After the public comment period has ended and public comments have been responded

[1] For purposes of this EIR, "hazardous materials" is used to refer to hazardous wastes and hazardous substances, unless those specific terms are used.

to in writing, DTSC will selects and approves the final remedy for the site. This decision is described in the final Remedial Action Plan. A RAP is generally used for large, long-term projects.

- **No Further Action** – The decision by DTSC that remedial actions are not necessary because environmental contamination is not present at a site.

Remedial investigations provide information related to current site conditions, wastes found on site, human health and ecological risks, and evaluation of potential treatment technologies. The feasibility study is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. Remedial actions may include:

- institutional controls (e.g., deed restrictions – also known as environmental restrictions and land use covenants),
- monitoring,
- physical containment, or
- mass reduction (e.g., biological or chemical treatment).

ENVIRONMENTAL HISTORY OF THE PROJECT SITE

The CLIBP project site consists of 1,528 acres that were formerly the NASA Crows Landing Air Facility. In 1999, the U.S. Congress passed Public Law 106-82, which directed NASA to transfer the property to Stanislaus County upon the completion of site remediation activities.

To ready the site for transfer, NASA designated eight parcels, A through H, which comprised the 1,528-acre property, as shown in Table 3.9-1. The location of these parcels is presented in Figure 2-3.

Table 3.9-1
Transfer Status Crows Landing Air Facility Parcels

Parcel	Size (Acres)	Hazardous Material/Concerns	Status (May 2015)
A: Primary Parcel	1,352	None.	Transferred
B: Disposal Pits	13.5	Small excavations containing Unexploded Ordnance (UXO) and construction debris.	Suitable for Transfer
C: Administration Area	81.3	Contaminated groundwater containing carbon tetrachloride and petroleum products (Site 17 and the former Cluster 1 fuel farm, UST Site 117). Groundwater remediation is ongoing on 17.7 acres.	Suitable for Transfer – 63.6 acres 17.7 acres unavailable for transfer.
D: Sanitary Sewer System	38.6	Former oxidation ponds had been used for trash and construction debris.	Suitable for Transfer
E: Cluster 2	35.15	Three large underground storage tanks (USTs), truck and rail unloading facilities and fuel truck loading stand. Fuel contamination in soil and groundwater.	Suitable for Transfer
F: Firing Range	2.14	Soil berm contaminated with lead and UXO.	Suitable for Transfer
G: Live Ammunition Area	1.39	Location of air crash that released ammunition.	Suitable for Transfer
H: Abandoned Debris Disposal Site	3.33	Buried construction debris, scrap metal, glass and some spent 50-caliber rounds.	Suitable for Transfer
Total Acreage	**1,527.41**		

Source: Duff, Charles. Letter to Stanislaus County dated May 4, 2015.

In 2004, NASA transferred Parcel A to the County (see Exhibit 2-3). Only Parcel A (1,352 acres) has been transferred to the County as of the writing of this document.

Parcels B through H, which comprise the remaining approximately 176 acres, have not been transferred to date. Correspondence received from NASA in May 2015, indicates that remediation has been completed on all but 11 acres of the site. As shown on Table 3.9-1, Parcels B, D, E, F, G, H, and 63 acres of site C are suitable for transfer to Stanislaus County. To be considered suitable for transfer, the parcel must be determined to be clean, in accordance with industrial standards, and State regulatory agencies must concur that remediation is complete. Groundwater remediation is ongoing on 18 acres associated with Parcel C (Duff 2015). NASA estimates that groundwater monitoring will continue through 2024.

A Memorandum of Understanding (MOU) between the Navy and NASA describes the Navy's responsibility for environmental restoration of the project site. The Navy is the lead agency responsible for planning and implementing a cleanup action to remediate contaminated groundwater that resulted from former site operations. The Navy, together with the Central Valley Regional Water Quality Control Board (RWQCB) and the California Department of Toxics Substances Control (DTSC), formed the Base Realignment and Closure (BRAC) Cleanup Team (BCT) to evaluate, review, and concur with all major cleanup documents and activities associated with the Facility.

Since 1987, several phases of subsurface investigations were conducted to evaluate the extent of effects to soil and groundwater at the project site from previous site activities related to the former Crows Landing Flight Facility. These investigations determined that various areas of the project site contained contaminated soils; however, these sites have been fully remediated, and no further action is required (Duff, 2015). Therefore, this section focuses only on the Site 17 Administration Area Groundwater Plume (Parcel C), which is a commingled plume originating from three source areas: (1) Installation Restoration Program (IRP) Site 17 (demolished former aircraft hangar area); (2) UST Site 117 (former service station); and (2) former underground storage tank (UST) Cluster 1 (former jet propulsion and aviation fuel storage). The results of investigations at the Site 17 Administration Area Groundwater Plume, along with the remedial actions, are summarized below (Navy 2012; CH2MHILL Kleinfelder, A Joint Venture [KCH] 2014).

Contaminated Soil at the Site 17 Administration Area Groundwater Plume

IRP Site 17

IRP Site 17 was formerly occupied by two aircraft hangars and an assembly and repair shop, which were constructed circa 1943 and demolished and removed by the late 1950s. IRP Site 17 is located adjacent to the apron along former runway 16-34, the former north-south runway. Past subsurface investigations at IRP Site 17 include a Site Investigation (SI) conducted in 1994 and a Remedial Investigation (RI) conducted in 1995 and 1996. The RI report concluded that no effects from aircraft maintenance activities were evident aside from petroleum contamination in soils in the vicinity of the former floor drain sump. The contaminated soils were removed as part of the RI and no other soil effects from past aircraft maintenance activities were evident. Therefore, the RI report recommended no further action for soil at IRP Site 17 – no further remediation is necessary. DTSC concurred with this recommendation (Navy 2012.)

UST Site 117

UST Site 117 is the former location of a 1,200-gallon steel gasoline underground storage tank (UST) that supplied fuel through a fuel dispenser at a former service station. In 1987, the tank failed a leak test and was removed from service. In 1988, the tank and associated equipment were removed from the site. Soil vapor extraction (SVE) conducted over the period from August 1997 through March 1998 resulted in the removal of 48,000 pounds of petroleum hydrocarbon mass from soil. Following submission of a preliminary closure report in 2005, the Central Valley RWQCB concurred with the Navy's determination that no further action was necessary for soils at UST Site 117, but additional groundwater monitoring was required at UST Site 117 in conjunction with other response actions relating to the Site 17 Administration Area Groundwater Plume, and groundwater use restrictions will be enforced until the completion of groundwater remediation. A final closure report for soil was issued on May 3, 2005 for UST Site 117 (Navy 2012).

UST Cluster 1

UST Cluster 1 is the former location of three 50,000-gallon concrete USTs (tanks CL-1, CL-2, and CL-3) that reportedly stored jet propulsion fuel and possibly aviation gasoline. Tank CL-1 was removed from service in 1986 and tanks CL-2 and CL-3 were removed from service in 1990. In 1994, separate excavations were conducted to remove each tank and associated equipment to total depths ranging from 19 to 22 feet below the ground surface (bgs). Petroleum hydrocarbons in the soil were observed to extend laterally from the former tanks and dry wells and vertically to depths up to 58 feet bgs. The results of long-term soil vapor extraction (SVE) activities conducted at UST Cluster 1 from 2001 through 2003 indicated that SVE was effective in reducing the levels of total extractable petroleum hydrocarbons.

Vadose zone modeling was conducted to evaluate whether vadose zone hydrocarbons at UST Cluster 1 would further contribute to existing groundwater contamination. The results of this modeling indicated that total petroleum hydrocarbons as diesel (TPH-d) concentrations are highest in groundwater below the center of the source area, attenuate laterally with distance away from the center of the source area, and are not expected to reach the property boundary. Based on the modeling results, the Navy determined that groundwater monitoring must continue to be monitored, sampled, and evaluated with regard to TPH-d trends. The Navy further determined that if TPH-d concentrations in groundwater exhibited statistically significant increases at both the source zone and in downgradient monitoring wells, then additional vadose zone soil sampling would be considered to assess whether additional soil remediation is required. However, if TPH-d groundwater concentrations did not exhibit statistically significant increases at both the source zone and in downgradient monitoring wells within a 3- to 5-year period, then a request for closure of soils at UST Cluster 1 should be submitted (Navy 2012 and KCH 2014).

Contaminated Groundwater at the Site 17 Administration Area Groundwater Plume

Past operations at the three source areas described above (i.e., IRP Site 17, UST Site 117, and UST Cluster 1) have resulted in groundwater contamination. The primary chemicals of concern include carbon tetrachloride (CCl_4) and chloroform (CF) beneath IRP Site 17 and petroleum hydrocarbons, benzene, 1,2-dichloroethane (1,2-DCA), CCl_4, and CF beneath UST Site 117 and UST Cluster 1. Groundwater monitoring data indicate that dissolved-phase CCl_4 and 1,2-DCA have migrated off-site to the east of the Facility at Bell Road. According to the 2012 Final Record of Decision for Site 17 and the 2014 Remedial Design and Design Basis Report, a total of 72 monitoring wells (68 wells that were previously located on-site and 4 off-site wells) had been gauged and

sampled routinely to monitor groundwater flow direction and quality at the facility (Navy 2012 and KCH 2014). There are 63 groundwater monitoring wells on-site and 7 off-site, which that are sampled semiannually, annually, or biannually.

Underground Fuel Storage Tanks at Cluster 2

At Parcel E, Cluster 2 included three large underground fuel storage tanks, truck and rail unloading facilities, and a fuel truck loading stand. However, all of these facilities and tanks have been removed by the Navy. There was fuel contamination detected in both soil and groundwater. However, the Navy operated a remedial system that reduced levels below relevant cleanup goals. The remedial system was removed and remediation of the site is now complete. The State agencies have approved of the remediation and the site is now suitable for transfer. However, it is possible that petroleum contamination may be encountered during subsurface work (Duff 2015).

Summary of Previous Groundwater Investigations and Health Risks

Based on the previous investigations, four groundwater zones and associated chemicals of concern that represent risks to human health and the environment were identified in groundwater and are summarized in Table 3.9-2.

Table 3.9-2
Groundwater Zones and Associated Chemicals of Concern

Groundwater Zone	Depth Range (feet bgs)	Chemicals of Concern
Shallow	50–75	Benzene; 1,2-dichloroethane; TPH-g; TPH-d; and CCl_4
Mid-Shallow	90–110	Benzene; 1,2-dichloroethane; TPH-g; TPH-d; and CCl_4
Mid-Deep	160–180	Benzene; 1,2-dichloroethane; TPH-g; TPH-d; and CCl_4
Deep	200–225	CCl_4

Notes: bgs = below ground surface; TPH-g = total petroleum hydrocarbons as gasoline; TPH-d = total petroleum hydrocarbons as diesel; CCl_4 = carbon tetrachloride

Source: KCH 2014:Table ES-1

These chemical of concerns detected in groundwater are the key compounds of interest that have been consistently detected at concentrations that exceed the recommended taste and odor thresholds outlined in the Central Valley RWQCB Basin Plan (Basin Plan) or the California maximum contaminant levels (MCLs).

In general, the regional groundwater flow direction at the project site is to the east/northeast. However, these regional flow directions can be influenced locally by the pumping of agricultural wells. Groundwater occurs at depths greater than 44 feet bgs and does not discharge into any nearby surface water body (Navy 2012 and KCH 2014).

Groundwater Remediation

Feasibility studies and a bioremediation pilot study to examine the potential effectiveness of methods to treat the contaminated groundwater plume were completed in 2009–2010. In 2012, the Navy executed and published its *Final Record of Decision Site 17 Administration Area Groundwater Plume* (ROD), which evaluated and summarized several alternatives to remediate the contaminated groundwater. DTSC and the Central Valley RWQCB concurred with the selected alternative for remediation of groundwater, as described in the ROD. The agreed-upon remedy for groundwater remediation at the project site consists of the following components (Navy 2012):

- Enhanced bioremediation with recirculation (targeting carbon tetrachloride [CCl_4])—Groundwater will be extracted via pumping from the subsurface from 14 extraction wells, treated, and then a carbon substrate will be injected to enhance naturally occurring bioremediation of CCl_4. The water will then be reinjected back into the subsurface at 17 injections wells, and recirculated to control further off-site migration of contaminated groundwater. Groundwater extraction and injection will hydraulically control the flow of groundwater and limit further off-site migration of CCl_4 beyond the property boundary at Bell Road, while also reducing CCl_4 concentrations within the on-site source area in all four of the contaminated groundwater zones.

- Groundwater monitoring—Monitored natural attenuation will be used to monitor the concentration of chemical of concerns in groundwater and the groundwater plume stability, and to confirm the continued natural degradation of TPH, benzene, 1,2-DCA, and CCl_4 in groundwater.

- Institutional controls—Land use controls (LUCs) have been and will continue to be used to restrict on-site groundwater use. These controls will remain in effect until the remedial goals for groundwater are achieved. The LUCs are enforced through the fully executed ROD (Navy 2012) and the legally binding *Covenant to Restrict Use of Property-Water Use Restriction dated October 26, 2004, by and between the County and Central Valley RWQCB*. The following uses or activities are prohibited within the Restricted Area (i.e., a 2,000-foot pumping exclusion buffer zone around the contaminated groundwater plume, as shown on Exhibit A of the *Covenant to Restrict Use of Property-Water Use Restriction* without the express written permission of the Central Valley RWQCB[2]:

  - Use of existing supply wells or the drilling of any new wells within the Restricted Area, except as expressly stated in the LUC;

  - Construction of groundwater wells for injection or extraction and utilization or consumption of any groundwater within the boundary of the Restricted Area, except as expressly stated in the LUC;

  - Any other activity on the Restricted Area that would interfere with or adversely affect any groundwater remediation system or cause the contaminated groundwater to migrate or spread from the Restricted Area or result in the creation of a groundwater recharge area (e.g., unlined surface impoundments or disposal trenches). Normal landscaping and irrigation activities within the Restricted Area, including routine irrigation practices, are not prohibited activities.

  - The use of groundwater within the Restricted Area is prohibited for 8 years following the execution of the ROD, i.e., approximately 2024 (which is the length of time anticipated to achieve the remediation goals).

- After the remediation system is operating as intended, 5-year reviews (Interim Remedial Action Completion Reports) will be prepared and submitted to stakeholders. These reports will document the groundwater remediation activities, including waste characterization and laboratory analyses.

[2] Prohibited activities do not apply to: (i) the use of on-site water supply well #6/8-17R(NASA) when used for emergency or fire suppression purposes only, (ii) uses of groundwater to which the Central Valley RWQCB concurs, and (iii) uses of groundwater after the LUCs are terminated.

Asbestos

Asbestos is designated as a hazardous substance when the fibers have potential to come into contact with air because the fibers are small enough to lodge in lung tissue and cause health problems. The presence of asbestos-containing materials (ACMs) in existing buildings poses an inhalation threat only if the ACMs are in a friable state. If the ACMs are not friable, then there is no inhalation hazard because asbestos fibers remain bound in the material matrix. Emissions of asbestos fiber to the ambient air, which can occur during activities such as renovation or demolition of structures made with ACMs (e.g., insulation), are regulated in accordance with Section 112 of the federal Clean Air Act (CAA).

An asbestos survey was performed at the Facility by Tetra Tech (1994). Tetra Tech surveyed 213 on-site buildings for evidence of ACMs. ACMs were identified in 158 of the 213 buildings that were inspected (Tetra Tech 1994:I-2 and Table 1). Since the asbestos survey was completed, all of the former Facility features and buildings have been demolished, with the exception of the runways, control tower (building C101), airfield lighting vault (building C103), and underground sewer and water transmission lines. Based on Table 1 in the Tetra Tech report (1994), existing on-site buildings C101 and C103 were not included as part of the asbestos survey. Thus, there is a potential that ACM may be present in these two buildings that remain on the project site.

Lead-Based Paint

The use of lead as an additive to paint was discontinued in 1978 because human exposure to lead was determined by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Labor Occupational Health and Safety Administration (OSHA) to be an adverse human health risk, particularly to young children.

NASA (2003) reported that a survey was conducted for lead-based paint at the facility in February 2002. Based on the results presented by NASA (2003: Table 3-1), 15 on-site buildings were found to contain lead-based paint. All of those buildings have since been demolished, with the exception of the existing control tower (building C101).

Agricultural Operations

As previously stated, portions of the project site have been cultivated with row crops for many years. Pesticides were used historically at Crows Landing and on the adjacent lands for agricultural purposes (NASA 2003). Currently, two above-ground storage tanks (ASTs) of unknown capacity are located on-site that are owned by the agricultural tenant. These tanks are used to store fuel for irrigation pumps.

HAZARDOUS MATERIALS ASSOCIATED WITH OFF-SITE FACILITIES

The County searched the GeoTracker database, which is a groundwater information management system that is maintained by the State Water Resources Control Board (SWRCB). Data relating to leaking underground storage tanks and other cleanup activities are part of the information that SWRCB is required to maintain under Public Resources Code Section 65962.5 (i.e., the “Cortese List”). The Hazardous Waste and Substances Site List (i.e., the EnviroStor database), which is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of Public Resources Code Section 65962.5, was also searched.

The Geotracker database search results (SWRCB 2016) identified one open, active case within 0.25 mile of the northern end of roadway improvements that are proposed for State Route (SR) 33. This site is related to the

Vieria Petroleum Company's Patterson facility at 341 South 1st Street, a 40,000-square-foot facility, which has operated as a bulk fuel and card lock facility since the early 1900s. Shallow groundwater contamination from gasoline, diesel, and other volatile organic compounds (VOCs) has occurred, and remediation has been ongoing since 2005. The plume extends slightly west of 1st Street, between E Street and Las Palmas Avenue. This area is approximately 0.45 mile north of the proposed roadway and intersection improvements, and the direction of groundwater flow is to the north-northwest.

The Fink Road Landfill is located southwest of the area where Interstate 5 (I-5)/Fink Road interchange improvements are proposed. Based on a review of the fourth quarter annual landfill monitoring report for 2015 (Stanislaus County 2016), there are no groundwater or vapor contamination issues at the landfill. Interchange improvements would be a sufficient distance from the landfill to avoid any disturbance or disruption.

EnviroStor database search results (DTSC 2016) indicate another site, the AL Castle site, a seed processing plant, is located at 1607 West Marshall Road and adjacent to an area where a proposed sewer pipeline would be installed. In August 1987, the U.S. Bureau of Reclamation conducted a pesticide-monitoring program at the AL Castle site in conjunction with DTSC. Fifteen water samples were collected from eight on-site monitoring stations adjacent to the Delta-Mendota Canal. Simazine, the only analyte detected, was discovered in six of the 15 samples, with levels ranging from 0.10 parts per billion (ppb) to 0.25 ppb (compared to a maximum contaminant level of 4 ppb). In 1989, after several observed discharges to the Delta-Mendota Canal from the settling pond, the U.S. Bureau of Reclamation revoked the temporary license to AL Castle that allowed the plant to pump wastewater from the pond and into the Delta-Mendota Canal. The pump was subsequently locked by U.S. Bureau of Reclamation staff. One soil and one water sample were collected from the equipment washing area by the Central Valley RWQCB. The water sample indicated that nitrates (64.6 parts per million [ppm]) were present. Both Toxaphene (0.4 ppm) and dichlorodiphenyldichloroethylene (DDE) (0.05 ppm) were detected in the surface soil sample. A site reassessment performed by DTSC in 2012 indicated that the site needs further evaluation. Records for the AL Castle site indicate the site investigation occurred under provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund. Please see below under the heading, "Regulatory Framework," for details.

SCHOOLS IN THE PROJECT VICINITY

There are no schools within 0.25 mile of the project site. The closest school is Bonita Elementary, located approximately 1.5 miles east of the southern portion of the project site, at the corner of Fink Road and Bonita Avenue.

Proposed off-site road facilities would include improvements to the intersection of SR 33 and Fink Road; however, this intersection is located approximately 0.35 mile east of the Bonita Elementary School. There are no schools within 0.25 mile of any of the proposed off-site improvements.

AIRPORTS IN THE PROJECT VICINITY

The proposed project includes the reuse of 370-acres of the former Crows Landing Naval Auxiliary Airfield property to create a public use general aviation airport. The shorter of the two runways, former runway 12–30, would be reused. New internal roadways would serve as a barrier between adjacent land uses and the airport, which would be enclosed by a security fence. Potential airports users would include business travelers, recreational aviators, flight schools, delivery services, and emergency services. A helipad would be constructed

in the southeastern portion of the airport. Commercial passenger service would not be provided. The proposed project includes the adoption of an *Airport Layout Plan (ALP) and Narrative Report* that describes the design of a new public-use airport and presents a recommended ALP drawing (Appendix B). The primary purpose of the *ALP and Narrative Report* are to describe the extent, type, and approximate schedule of development needed to accommodate the opening of, and future aviation demand for, the proposed Crows Landing Airport. The *ALP and Narrative Report* also:

- Documents existing aviation facilities and generally describes future airport development plans;
- Provides data to help the County make decisions on how to best operate and develop the new airport to meet future demand; and
- Serves as the basis for amending the *Stanislaus County Airport Land Use Compatibility Plan* (ALUCP) to include the proposed Crows Landing Airport and its anticipated use as a general aviation facility.

As described in detail in Chapter 2, "Project Description," the Stanislaus County Airport Land Use Commission (ALUC) is responsible for the preparation of an ALUCP for each public-use airport in Stanislaus County. The ALUCP establishes a set of compatibility criteria that are used to evaluate the compatibility of land use and airport proposals within the Airport Influence Area (AIA). The countywide ALUCP was revised in 2015 to address the most recent long-range airport plans available for both the Modesto City-County Airport and the Oakdale Municipal Airport. However, the policies associated with the Crows Landing airfield were not revised, and the former policies associated with the dual-runway military airfield remain in effect.

The closest airport is the Modesto City-County airport, which is 15 miles from the project site.

WILDLAND FIRE HAZARDS

According to the California Department of Forestry and Fire Protection (CAL FIRE) fire hazard severity zone map, the project site is located is an area of federal responsibility; it has not been rated for fire hazard severity (CAL FIRE 2007a).

Portions of the project site have been under agricultural cultivation with row crops since 1950. The remaining approximately 300 acres include paved airport runways, low-growing weeds, and scattered bushes in drainage ditches. The project site is surrounded on all sides by agricultural land uses consisting of row crops and orchards. Therefore, the wildland fire hazard at the project site is considered low.

The proposed project would require off-site improvements to the I-5/Fink Road interchange with a state responsibility area rated with a moderate fire hazard (CAL FIRE 2007a). All of the other off-site improvements would occur with local responsibility areas that have not been rated for fire hazard severity (CAL FIRE 2007b).

3.9.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. 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 use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the HSWA.

RCRA established an all-encompassing federal regulatory program for hazardous substances that is administered by EPA. Under RCRA, EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous substances. RCRA was amended in 1984 by the Hazardous and Solid Waste Amendments of 1984, which specifically prohibits the use of certain techniques for the disposal of various hazardous substances. The Federal Emergency Planning and Community Right to Know Act of 1986 imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous substance sites; created liability for owners of property contaminated with hazardous substances, persons responsible for releases of hazardous substances at these sites, transporters of hazardous substances, and persons who otherwise arranged for disposal of hazardous substances; and established a trust fund to provide for clean up when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The NCP also established the National Priorities List, which is a list of contaminated sites warranting further investigation by the U.S. EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Worker Safety Requirements

OSHA is responsible at the federal level for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for the handling of hazardous substances (as well as other hazards). OSHA also establishes criteria by which each state can implement its own health and safety program.

National Oil and Hazardous Substances Pollution Contingency Plan

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (as codified in 40 CFR Part 300, *et seq*.,) is the federal plan for responding to oil spills and hazardous substances releases. The NCP establishes the National Response Team and its roles in the National Response System, which include planning and coordinating response to major discharges of oil or hazardous waste, providing guidance to regional response

teams, coordinating a national program of preparedness planning and response, and facilitating research to improve response activities.

Clean Air Act

The federal Clean Air Act (CAA) was enacted in 1970 and continues to be periodically updated. The CAA required EPA to establish primary and secondary national ambient air quality standards. The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan. Section 112 of the CAA defines hazardous air pollutants and sets threshold limits. ACMs are regulated by EPA under the CAA. Additional information about the CAA is contained in Section 3.2, "Air Quality."

Federal Aviation Regulations

The Federal Aviation Administration (FAA) is the agency responsible for promulgating and enforcing Federal Aviation Regulations (FARs). The FAA establishes policies to enhance public safety at air carrier airports and at federally obligated airports. Although the proposed Crows Landing Airport would not be a federally obligated airport at opening, it will be designed, constructed, and operated using applicable FAA guidance.

Several federal regulations address safety concerns and hazard management at airports and in their vicinity:

- Title 14 of the Code of Federal (CFR) Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace," also referred to as Federal Aviation Regulation (FAR) Part 77, identifies areas that must remain free of objects, provides standards regarding FAA notification of proposed objects, and the height limits of objects near airports.

- FAA Advisory Circular 150/5300-13, "Airport Design," provides standards regarding safety-related areas in the immediate vicinity of runways.

- FAA Advisory Circular 150/5200-33B, "Hazardous Wildlife Attractants On or Near Airports," provides guidance on the types of facilities that are known to attract birds and other potentially hazardous wildlife to the airport and its vicinity.

- FAA Advisory Circular 150/5200-34A, "Construction or Establishment of Landfills near Public Airports," provides guidelines on the proximity of these facilities to airports.

FAA regulations and standards do not give FAA the authority to prevent the creation of hazards to aviation. Such authority rests with state and local governments. Local agencies use the criteria in 14 CFR and other FAA guidance to recognize that certain safety hazards to aircraft and airport operations may occur where a land use would:

- attract large concentrations of birds within approach or climb out areas,
- produce smoke or flashing lights,
- reflect light or generate electronic interference, or
- use or store large quantities of flammable materials.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Hazardous Materials Handling

Several State agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety. The California Environmental Protection Agency (Cal-EPA) and the Office of Emergency Services (OES) establish rules governing the use of hazardous substances in California. Within Cal-EPA, DTSC has primary responsibility, with delegation of enforcement to local jurisdictions, for regulating the generation, transport, and disposal of hazardous substances under the authority of the Hazardous Waste Control Law (HWCL). Regulations implementing the HWCL list hazardous chemicals and common substances that may be hazardous; establish criteria for identifying, packaging, and labeling hazardous substances; prescribe management of hazardous substances; establish permit requirements for hazardous substances treatment, storage, disposal, and transportation; and identify hazardous substances prohibited from landfills.

Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal-OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within California. Cal-OSHA regulations pertaining to the use of hazardous materials at workplaces, as detailed in CCR Title 8, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal-OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets be available to employees and that employee information and training programs be documented.

Hazardous Materials Transport

State agencies with primary responsibility for enforcing federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads. The transport of hazardous materials is regulated under the California Vehicle Code (CCR Title 13) and can only be conducted under a registration issued by DTSC. ID numbers are issued by DTSC or EPA for tracking hazardous waste transporters and treatment, storage, and disposal facilities for hazardous materials. The ID number is used to identify the hazardous waste handler and to track waste from point of origin to final disposal, and all material transport takes place under manifest.

California Government Code Section 65962.5 (Cortese List)

The provisions of California Government Code Section 65962.5 are commonly referred to as the “Cortese List” (after the legislator who authored the legislation that enacted it). The Cortese List is a planning document used by State and local agencies to comply with CEQA requirements in providing information about the location of hazardous materials release sites. California Government Code Section 65962.5 requires Cal-EPA to develop an updated Cortese List annually, at a minimum. DTSC and SWRCB are responsible for a portion of the

information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires the preparation of hazardous materials business plans and disclosure of hazardous materials inventories. A business plan includes an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code Sections 25500, *et seq.*). The business plan program is administered by the California Emergency Management Agency (CalEMA). A business plan is required if a hazardous substance would be stored more than 30 days in any of the following quantities:

- 500 gallons or more of any solid
- 55 gallons or more of any liquid
- 200 cubic feet or more of any compressed gas
- Any acutely hazardous substance or radiological material that meets the federal threshold planning quantities listed in 40 Code of Federal Regulations (CFR) Park 355, Subpart A.

State Aeronautics Act

The California State Aeronautics Act (Aeronautics Act/Public Utilities Code Section 21670 *et seq.*) requires the creation of an airport land use commission (ALUCs) in every county that includes a public-use or military airport. The ALUC must prepare an Airport Land Use Compatibility for each public-use and military airport in the county. As expressed in the present statutes, the fundamental purpose of the ALUC is "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

Regional and Local Plans, Policies, Regulations, and Laws

San Joaquin Valley Air Pollution Control District Asbestos Regulations

The San Joaquin Valley Air Pollution Control District (SJVAPCD) regulates the demolition and renovation of buildings and structures that may contain asbestos. SJVAPCD Rule 4002 requires compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation, 40 CFR, Part 61, Subpart M developed by EPA.

Stanislaus County Multi-Jurisdictional Hazards Mitigation Plan

The Stanislaus County Multi-Jurisdictional Hazards Mitigation Plan (MHMP) is designed to meet the requirements of the Disaster Mitigation Act of 2000, which allows for eligibility for certain hazard mitigation (*i.e.,* disaster loss reduction) programs for the Federal Emergency Management Agency (FEMA). Formulation of the MHMP was based on hazard identification and risk assessment of potential natural hazards that could affect Stanislaus County; a review of the County's capability to reduce hazards impacts; and, recommendations to

further reduce vulnerability to potential disasters. The most recent of the MHMP was adopted by FEMA and Stanislaus County in 2010 (Stanislaus County Office of Emergency Services 2010).

Hazardous Material Storage, Handling, and Management

The Stanislaus County Department of Environmental Resources (DER) is the lead local regulatory agency (i.e., Certified Unified Program Agency [CUPA]) and is responsible for a variety of tasks related to the storage, handling, and management of hazardous materials. The Stanislaus County DER has a hazardous materials incident response team and responds to incidents involving chemical releases, as well as other hazardous materials situations.

Stanislaus County General Plan

The County's General Plan Safety Element includes goals, policies, and implementation measures related to hazards and hazardous materials, including those listed below.

- **POLICY ONE** – The County will adopt (and implement, as necessary) plans inclusive of the Multi-Jurisdictional Hazard Mitigation Plan, to minimize the impacts of natural and man-made disasters.
- **IMPLEMENTATION MEASURE 6** – The County has adopted a Multi-Jurisdictional Hazard Mitigation Plan, and will implement and evaluate the Plan on a regular basis as necessary to comply with state and federal laws. This includes implementing the mitigation actions of the Plan through the Safety Element.
- **GOAL TWO** – Minimize the effects of hazardous conditions that might cause loss of life and property.
- **POLICY SIX** – All new development shall be designed to reduce safety and health hazards.
- **POLICY THIRTEEN** – The Department of Environmental Resources shall continue to coordinate efforts to identify locations of hazardous materials and prepare and implement plans for management of spilled hazardous materials as required.
- **IMPLEMENTATION MEASURE 2** – The County has prepared a Hazardous Waste Management Plan which is the guideline for managing hazardous waste in this County. The goals, objectives, conclusions, recommendations, and implementation measures of that plan are hereby incorporated as a part of the Safety Element, along with any modifications which may result from state review of the Hazardous Waste Management Plan.

Stanislaus County Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plans (ALUCPs) that ALUCs adopt are the basic tools that ALUCs use to protect public health, safety, and welfare of those living and working near public-use airports and to comply with the State Aeronautics Act. The primary objective of an ALUCP is to promote compatibility between airports and their surrounding land uses, to the extent that these areas have not already been devoted to incompatible uses. The plan accomplishes this function through establishment of a set of compatibility criteria and policies that apply to new development within a designated Airport Influence Area.

Stanislaus County ALUC first prepared and adopted an ALUCP in 1978, and it adopted amendments to the plan in 2004 and 2016. The 2016 ALUCP was prepared to comply with changes in the State Aeronautics Act and guidance set forth by the California Department of Transportation (Caltrans), Division of Aeronautics as set forth in its guidance, California Airport Land Use Compatibility Handbook.

An ALUCP includes countywide policies, which apply to all airports addressed in the ALUCP, and identifies an Airport Influence Area for each airport included in the plan. The Airport Influence Area, or the geographic area to which ALUCP policies apply, must be based on an adopted Airport Master Plan or Airport Layout Plan. The 2016 ALUCP recognized that the Crows Landing Naval Auxiliary Airfield had been conveyed to Stanislaus County for the purposes of job creation, including the development of a public-use airport, but the County had not yet adopted a Master Plan or Airport Layout Plan for the new airport. Therefore, a new Airport Influence Area was not developed for the proposed Crows Landing airport as part of the 2016 update. The 2016 ALUCP states that:

> Following appropriate review of the proposed airport layout plan and accompanying ALUCP pursuant to the California Environmental Quality Act (CEQA)…. The ALUCP will be amended to include the Crows Landing General Aviation Airport following the certification of the associated CEQA document and approval by the County Board of Supervisors. Until that time, the airport-specific ALUCP policies associated with the Crows Landing Air Facility set forth in the County's 2004 ALUCP shall remain in place.

An amendment to the ALUCP to provide a new Airport Influence Area is included as part of the proposed project.

Although the Airport Influence Area and specific airport policies associated with the former Naval Auxiliary Landing Field remain in place at this time, countywide policies were adopted in 2016 that apply to all county airports. Policy 3.3.7 (a)(2) of the ALUCP addresses "Land Uses of Special Concern," which addresses land uses involving the storage of hazardous materials. The countywide policy states:

> (2) Hazardous Materials Storage: Materials that are flammable, explosive, corrosive or toxic constitute special safety compatibility concerns to the extent that an aircraft accident could cause a release of the materials and thereby pose dangers to the people and property in the vicinity. Facilities in this category include:
>
> - Facilities such as oil refineries and chemical plants that manufacture, process, and/or store bulk quantities of hazard materials generally for shipment elsewhere.
> - Facilities associated with otherwise compatible land uses where hazards materials are stored in smaller quantities primarily for on-site use.

ALUCP Table 2, "Safety Compatibility," states that land uses associated with hazardous materials production are only conditionally allowed in Safety Zone 6, and only when an alternative site outside of the safety zones would not serve the intended function. The policy in Table 2 states that light industrial and research/development uses in zones 2, 3, 4, and 6 should avoid the storage of hazards materials, and permitting agencies must evaluate the possible need for special measures to minimize hazards in the event that the hazardous materials stored on-site were struck by an aircraft. Special measures could include they type of containment devise used, need for secondary containment, etc., based on the type of material to be stored.

Compatibility with the ALUCP is described in Section 3.11, "Land Use and Planning and Population, Housing, and Employment."

3.9.3 Environmental Impacts and Mitigation Measures

Methodology

This hazards and hazardous materials analysis is based primarily on a review of the following documents:

- *Final Record of Decision Site 17 Administration Area Groundwater Plume* (Navy 2012);
- *Environmental Assessment for Transfer of NASA Crows Landing Flight Facility* (NASA 2003);
- *Final Remedial Design and Design Basis Report—NASA Crows Landing Flight Facility, Crows Landing, California* (KCH 2014);
- *Asbestos Survey at NAS Moffett Field and [Naval Auxiliary Landing Field] NALF Crows Landing—Final Report* (Tetra Tech 1994); and
- *Covenant to Restrict Use of Property—Water Use Restriction dated October 26, 2004, by and between the County and Central Valley RWQCB*
- *Drainage Study for Crows Landing Industrial Business Park* (under separate cover and available for review on file with the County Planning and Community Development Department)
- Letters from NASA to Stanislaus County dated May 24, 2015, and November 11, 2016, regarding ongoing remediation efforts and the timing and suitability of transfer of remaining parcels.

The analysis also incorporates the results of site visits, and a review of data, such as CAL FIRE fire hazard severity zone maps.

Thresholds of Significance

Based on the *CEQA Guidelines,* Appendix G, the proposed project would result in a significant impact related to hazards and hazardous materials if the project would:

- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment or through the routine transport, use, or disposal of hazardous materials;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- result in a safety hazard for people residing or working in a project area that is located within 2 miles of a public use airport or private airstrip;

- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

- 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 residences are intermixed with wildlands.

ISSUES NOT CONSIDERED FURTHER IN THIS EIR

Handling of Hazardous Materials within 0.25 Mile of a School – The closest school in the project vicinity is approximately 1.5 miles east of the southeastern property boundary. Therefore, the proposed project would not result in the handling of hazardous materials within 0.25 mile of a school. Therefore, there would be no impact, and this issue is not evaluated further in this EIR.

Wildland Fire Hazard – Most of the project site consists of cultivated row crops. The remaining approximately 300 acres of the project site consist of paved airport runways, low-growing weeds, and drainage ditches. Furthermore, the project site is surrounded on all sides by agricultural land uses consisting of row crops and orchards. The proposed off-site facilities are similarly surrounded by agricultural land uses, and by urban development associated with the city of Patterson north of the site. Therefore, the wildland fire hazard at the project site and off-site facilities is considered very low. Because the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, this issue is not evaluated further in this EIR. (See Section 3.13, "Public Services," for a discussion of existing and proposed fire protection services.)

IMPACT ANALYSIS

IMPACT 3.9-1 **Accidental spills and routine use and transport of hazardous materials used during construction activities.** *Construction and operation of the proposed project would involve the storage, use, and transport of hazardous materials such as fuels, oils, lubricants, paints and other substances. Federal, State, and local hazardous materials regulations address the transport, storage, and use of these materials to reduce the risk of accidental spills to the maximum extent practicable. Therefore, this impact is considered* ***less than significant****.*

Project construction would involve the storage, use, and transport of small amounts of hazardous materials (e.g., asphalt, fuel, lubricants, paint, and other substances). Because traffic through the city of Patterson is limited to slow speeds due to the number of stop signs and stop lights, it is anticipated that construction-related traffic would approach the project site from I-5 and Fink Road rather surface roads or State Route (SR) 33. Project-related truck traffic on SR 33 is anticipated to access the project site using Marshall Road or Ike Crow Road rather than the portion of Fink Road east of the site that passes through the community of Crows Landing.

Regulations governing hazardous materials transport are included in CCR Title 22, the California Vehicle Code (CCR Title 13), and the State Fire Marshal Regulations (CCR Title 19). Transport of hazardous materials can only be conducted under a registration issued by DTSC. ID numbers are issued by DTSC or EPA for tracking hazardous waste transporters and treatment, storage, and disposal facilities for hazardous materials. The ID number is used to identify the hazardous waste handler and to track waste from point of origin to final disposal, and all material transport takes place under manifest.

During project operations, any future businesses or public agency operations that handle hazardous materials would be required by law to comply with federal, State, and local laws, regulations, and policies regarding the handling, storage, reporting, tracking, and cleanup (if any accidental spills occurred) of hazardous materials, including preparation of a hazardous materials business plan and disclosure of hazardous materials inventories. The Stanislaus County DER is the CUPA responsible for oversight of local businesses that handle hazardous materials.

The project applicant, builders, contractors, and tenants would be required to use, store, and transport hazardous materials in compliance with applicable federal, State, and local regulations during project construction and operation. Project construction contractors and future site users are required by law to implement and comply with existing hazardous material regulations. Each of these regulations is specifically designed to protect the public health through improved procedures for the handling of hazardous materials, better technology in the equipment used to transport these materials, and a more coordinated quicker response to emergencies. With incorporation of existing regulations, impacts related to the creation of significant hazards to the public through routine, transport, use, disposal, and risk of upset would be **less than significant**. No mitigation is required.

IMPACT 3.9-2 Exposure of people and the environment to existing hazardous materials, including Cortese-listed sites. *Remediation of contaminated soil has occurred. Groundwater remediation is ongoing and development in the vicinity of the groundwater plume is prohibited until the remediation goals are met. All but two of the former on-site structures have been demolished. However, construction workers could be exposed to presently unknown areas of soil or groundwater contamination, fuel from the existing ASTs used for agricultural production, petroleum-contaminated soils associated with former UST Cluster 2, and asbestos and lead-based paint in the air traffic control tower and lighting vault. Finally, construction of some of the proposed off-site improvements could expose construction workers and the environment to hazardous materials. Therefore, this impact is considered* ***potentially significant.***

Former military activities at the NASA Crows Landing Flight Facility caused soil and groundwater contamination in the Site 17 Administration Area Groundwater Plume, where remediation activities are ongoing. The Navy is the lead agency responsible for cleanup activities, and cleanup actions are occurring in compliance with CERCLA. Both known and potentially unknown contamination sources and substances that may pose a hazard to human health and the environment at the project site are evaluated separately in the material that follows.

Known On-Site Soil Contamination

As described in the Environmental Setting discussion, soil within the Site 17 Administration Area has been contaminated at (1) IRP Site 17 (demolished former aircraft hangar area); (2) UST Cluster 1 (former jet propulsion and aviation fuel storage); and (3) UST Site 117 (former service station). The chemical of concerns at these locations consisted of petroleum hydrocarbons (as gasoline and diesel) (TPH-g and TPH-d). However, the USTs have been removed, the contaminated soil has been removed, and the results of laboratory testing indicated that TPH-g and TPH-d have been adequately removed. Therefore, no further soil remediation work is required at either IRP Site 17 or UST Site 117. Monitoring is ongoing at UST Cluster 1, and if statistically significant increases in the soil vadose concentration should occur, the ROD executed by the Navy (2012) contains provisions requiring additional samples to determine whether further soil remediation is required. If no statistically significant increases in the soil vadose concentration have occurred at UST Cluster 1 by the end of

2017, then a request for closure of soils at UST Cluster 1 may be submitted. Therefore, a human health hazard from known areas of contaminated soil at the Site 17 Administration Area would not occur, and this impact would be **less than significant**.

The May 4, 2015, letter from NASA indicates that although Site E, which formerly contained UST Cluster 2, is suitable for transfer, it is possible that petroleum contamination may be encountered during subsurface construction activities. Therefore, this impact would be **potentially significant**.

Known On-Site and Off-Site Groundwater Contamination from the Site 17 Administration Area

As described in detail in the Environmental Setting, the project site contains a commingled contaminated groundwater plume originating from three sources within the Site 17 Administration Area. The chemical of concerns in the groundwater consist of TPH, benzene, 1,2-DCA, and CCl_4. The groundwater plume has migrated off-site to the east, and CCl_4 has been detected in a well that is used to irrigate an almond orchard immediately adjacent to the eastern side of the project site.

Contaminated groundwater could result in adverse human health effects both on-site and off-site through the following potential exposure pathways:

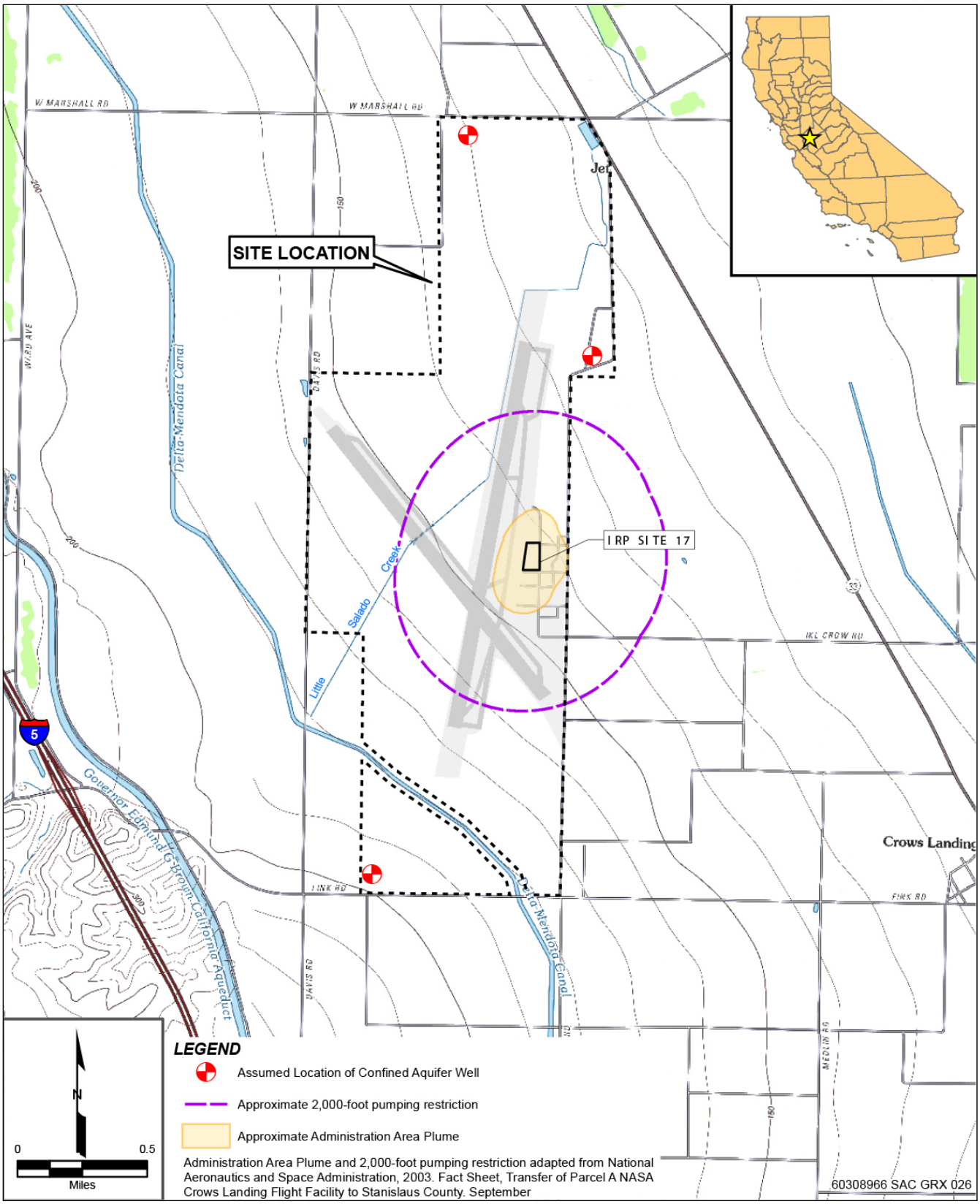
- Ingestion of groundwater via pumping of contaminated groundwater from water supply wells;
- Upward migration of vapors from groundwater chemical of concern to the surface, where inhalation in buildings or outdoors could occur; or
- Inhalation and/or dermal contact with chemical of concern in groundwater during irrigation on adjacent agricultural lands.

LUCs specified in the ROD (Navy 2012) are currently in place at the project site and will remain in place until the groundwater remediation goals are achieved, which is anticipated to occur in 2024 (see *Covenant to Restrict Use of Property-Water Use Restriction dated October 26, 2004, by and between the County and Central Valley RWQCB*). The LUCs prohibit on-site pumping of groundwater within the 2,000-foot Restricted Area (except for occasional emergency use for fire suppression from Well#6/8-17R [NASA]) (Exhibit 3.9-1). The groundwater remediation goals are listed in Table 3.9-3.

Table 3.9-3
Groundwater Remediation Goals

Chemical of Concern	Goal (Micrograms per Liter [µL])
Benzene	1.0
1,2-dichloroethane	0.5
carbon tetrachloride (CCl_4)	0.5
total petroleum hydrocarbons as gasoline (TPH-g)	100
total petroleum hydrocarbons as diesel (TPH-d)	490

Source: Navy 2012: Table 3



Source: Adapted by AECOM 2017

Exhibit 3.9-1 **Pumping Exclusion Boundary**

A human health risk assessment (HHRA) was conducted by the U.S. Navy in 2008 to evaluate the potential risks associated with exposure to CCl_4 in groundwater migrating from the project site into the deep groundwater zone, which is also pumped and used to irrigate an almond orchard located to the east across Bell Road and adjacent to the project site. In 1997 and later in 2008, ecological risk assessments (ERAs) were also completed to evaluate the threat to terrestrial habitats and biota that have potential to be exposed to chemical of concern in groundwater. The results of the HHRA and the ERAs indicated that, based on the groundwater remediation alternative selected in the ROD and currently being implemented at the project site, (1) significant health risks to workers or consumers resulting from off-site exposure to CCl_4 in groundwater are unlikely, and (2) significant risks to wildlife or other ecological receptors as a result of exposure to CCl_4 in groundwater at the almond orchard are unlikely. Because the modeled estimated concentration of CCl_4 in surface soil and ambient air did not exceed the U.S. Environmental Protection Agency Region 9 regional screening level for CCl_4 for industrial exposure, the potential for inhalation in buildings or outdoors was determined not to pose a human health hazard and therefore was not evaluated further in the HHRA (Navy 2012).

The remedial goals for contaminated groundwater at the project site have been established to comply with the Central Valley RWQCB Basin Plan, which requires that groundwater meet the beneficial use of municipal water supply, and would also meet the needs of the proposed project. Off-site migration of chemical of concerns in groundwater during implementation of groundwater remediation would be limited by hydraulic controls and treatment of groundwater, while on-site exposures would be controlled through institutional control in the form of LUCs that have been established for the project site (Navy 2012).

As dictated by the ROD (Navy 2012), the groundwater treatment system at the project site will be operated until one of the following conditions is met:

- The remedial goals for CCl_4 within the treatment area are achieved;
- The mass recovery of the system has reached asymptotic levels with no monitoring wells exhibiting concentrations of CCl_4 greater than four times the remedial goal, at which time operation of the system will cease and monitored natural attenuation will be utilized to address residual CCl_4 concentrations; or,
- The system has operated for eight years.

As discussed in the ROD (Navy 2012), which was prepared in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300, *et seq.*), the actions being taken at the project site to remediate contaminated groundwater meet the statutory requirements of Section 121 of CERCLA and, therefore, will achieve adequate protection of human health and the environment, comply with Applicable or Relevant and Appropriate Requirements (ARARs) of both federal and state laws and regulations, be cost effective, and use, to the maximum extent practicable, permanent solutions and alternative treatment or resource recovery technologies. Although previous investigations related to hazardous materials at the project site have occurred, there is a potential that evidence of previously unknown soil or groundwater contamination could be encountered during project-related earthmoving activities, thus resulting in a human health impact.

Furthermore, as discussed in the SB 610 Water Assessment (AECOM 2016), groundwater would be used to meet the project's water demands. As shown in Table 4.2 of the Water Supply Study (VVH Consulting Engineers and AECOM 2016: 25), the project's projected potable water demand at full buildout would be 1.34 million gallons per day (MGD) average daily demand, and 5.35 MGD peak-hour demand. The project's projected non-potable

water demand at full buildout would be 1.18 MGD average daily demand. As described by Jacobson James & Associates, Inc. (JJ&A), Groundwater Resources Impact Assessment, historical records of groundwater pumped from the on-site well to meet existing agricultural needs indicate that total production was 834 acre-feet per year (afy). This equates to approximately 0.74 MGD for agricultural use, as compared to a total (potable and non-potable) projected water demand for the proposed project of 2.52 MGD. Therefore, the project would result in an increase in overall groundwater use, when compared to existing conditions. As discussed in the SB 610 Water Assessment (AECOM 2016), additional on-site wells would be necessary to meet the project's water supply demands. Refer to Section 3.10, "Hydrology and Water Quality," for a discussion of project design and mitigation related to groundwater levels.

Although as detailed previously, there is a contaminated groundwater plume, land use controls have been, and will continue to be used to restrict on-site groundwater use, including a 2,000-foot pumping exclusion buffer zone around the contaminated groundwater plume, as shown on Exhibit A of the *Covenant to Restrict Use of Property-Water Use Restriction.* After the remediation system is operating as intended, 5-year reviews (Interim Remedial Action Completion Reports) will be prepared and submitted to stakeholders. These reports will document the groundwater remediation activities, including waste characterization and laboratory analyses. With these legally binding requirements, the impact is considered **less than significant**. No mitigation is required.

Asbestos and Lead-Based Paint

All the buildings at the project site that were found to contain ACM were demolished. However, neither the air traffic control tower nor the lighting vault were evaluated for the presence of asbestos, and it is possible that both contain ACM. The results of the on-site survey (NASA 2003: Table 3-1) indicate that the existing air traffic control tower (building C101) contains lead-based paint. Therefore, future on-site employees and the public could be exposed to hazardous materials from the air traffic control tower or the lighting vault, and this impact is considered **potentially significant**.

Agricultural Chemicals

Row crops have been grown on approximately 1,100 acres of the project site since 2004 under a lease with the County, and portions of the site have been cultivated for many years prior to conveyance. Since the property was transferred to Stanislaus County, the cultivation is continuing through a lease until development is imminent. There are two ASTs of unknown capacity that are owned by the farmer leasing the land that is used for agricultural production. These tanks are used to store fuel for irrigation pumps. Pesticides have historically been used at Crows Landing and on the adjacent lands for agricultural purposes (NASA 2003). Agricultural chemical use and fuels in the two ASTs represent potential sources of environmental contamination that could pose a human health and environmental hazard during future development activities. Therefore, this impact is considered **potentially significant**.

Known Hazardous Materials at Off-Site Facilities

The contaminated groundwater plume at the Vieria Petroleum Company's Patterson facility (341 South 1st Street) extends slightly west of 1st Street, between E Street and Las Palmas Avenue. However, this area is approximately 0.45 mile north of the proposed SR 33 roadway widening and SR 33/Sperry Road intersection improvements, and the direction of groundwater flow is to the north-northwest. Therefore, this contamination site would not pose a hazard for project-related off-site facilities.

The Fink Road Landfill is located southwest of the proposed I-5/Fink Road interchange improvements (Exhibit 3.9-2). Based on a review of the fourth quarter annual landfill monitoring report for 2015 (Stanislaus County 2016), it appears that there are no groundwater or vapor contamination issues at the landfill. Interchange improvements would be at a sufficient distance from the landfill to avoid any disruption. Construction of the I-5/Fink Road interchange improvements would not expose construction workers or the environment to hazards from contact with landfill materials due to the distance between improvement areas and the landfill.

The AL Castle site is located at 1607 West Marshall Road, adjacent to an area where a proposed sewer pipeline would be installed. Soil and equipment wash water samples indicated that several harmful chemicals (i.e., nitrates, toxaphene, and DDE) were present. A site reassessment by DTSC in 2012 indicated that the site needs further evaluation; therefore, construction of the sewer pipeline in the vicinity of this site could expose construction workers and the environment to hazards from contact with harmful chemicals. For the reasons stated above, this impact is considered **potentially significant**.

Mitigation Measure 3.9-2a: Prepare and Implement a Worker Health and Safety Plan, and Implement Appropriate Measures to Minimize Potential Exposure to Hazardous Materials.

The following shall be implemented before and during construction to reduce potentially significant impacts associated with exposure to hazardous materials:

- Prepare and implement a worker health and safety plan before the start of construction activities that identifies, at a minimum, the potential types of contaminants that could be encountered during construction activity; all appropriate worker, public health, and environmental protection equipment and procedures to be used during project activities; emergency response procedures; the most direct route to the nearest hospitals; and a Site Safety Officer. The plan shall describe actions to be taken should hazardous materials be encountered on site, including the telephone numbers of local and state emergency hazmat response agencies.

- If, during site preparation and construction activities, evidence of hazardous materials contamination is observed or suspected (*e.g.*, stained or odorous soil or groundwater), construction activities shall cease immediately in the area of the find. If such contamination is observed or suspected, the developer/contractor shall retain a qualified hazardous materials specialist to assess the site and collect and analyze soil and/or water samples, as necessary. If contaminants are identified in the samples, the developer/contractor shall notify and consult with the appropriate federal, State, and/or local agencies. Measures to remediate contamination and protect worker health and the environment shall be implemented in accordance with federal, State, and local regulations before construction activities may resume at the site where contamination is encountered. Such measures could include, but are not limited to, preparation of a Phase I and/or Phase II Environmental Site Assessment, removal of contaminated soil, and pumping and treating of groundwater.

- Properly abandon and remove the existing agricultural ASTs in accordance with Stanislaus County Department of Environmental Resources regulations.

Implementation: Leaseholders/developers/contractors.

Timing: Before the start of earthmoving activities.

Enforcement: Stanislaus County.

Mitigation Measure 3.9-2b: Remove Asbestos-Containing Material and Lead-Based Paint in Accordance with Federal, State, and Local Regulations.

The County shall retain a Cal-OSHA certified asbestos consultant before reuse, remodeling, or demolition of the control tower (building C101) and the airfield lighting vault (building C103) to investigate whether any asbestos-containing materials or lead-based paints are present, and could become friable or mobile during rehabilitation or demolition activities. If any materials containing asbestos or lead-based paints are found, they shall be removed by an accredited contractor in accordance with EPA, Cal-OSHA, and SJVAPCD standards. In addition, all activities (construction or demolition) in the vicinity of these materials shall comply with Cal-OSHA asbestos and lead worker construction standards. The materials containing lead shall be disposed of properly at an appropriate off-site disposal facility.

Implementation: Stanislaus County.

Timing: During construction activities at the control tower (building C101) and the airfield lighting vault (building C103).

Enforcement: Stanislaus County Department of Environmental Resources.

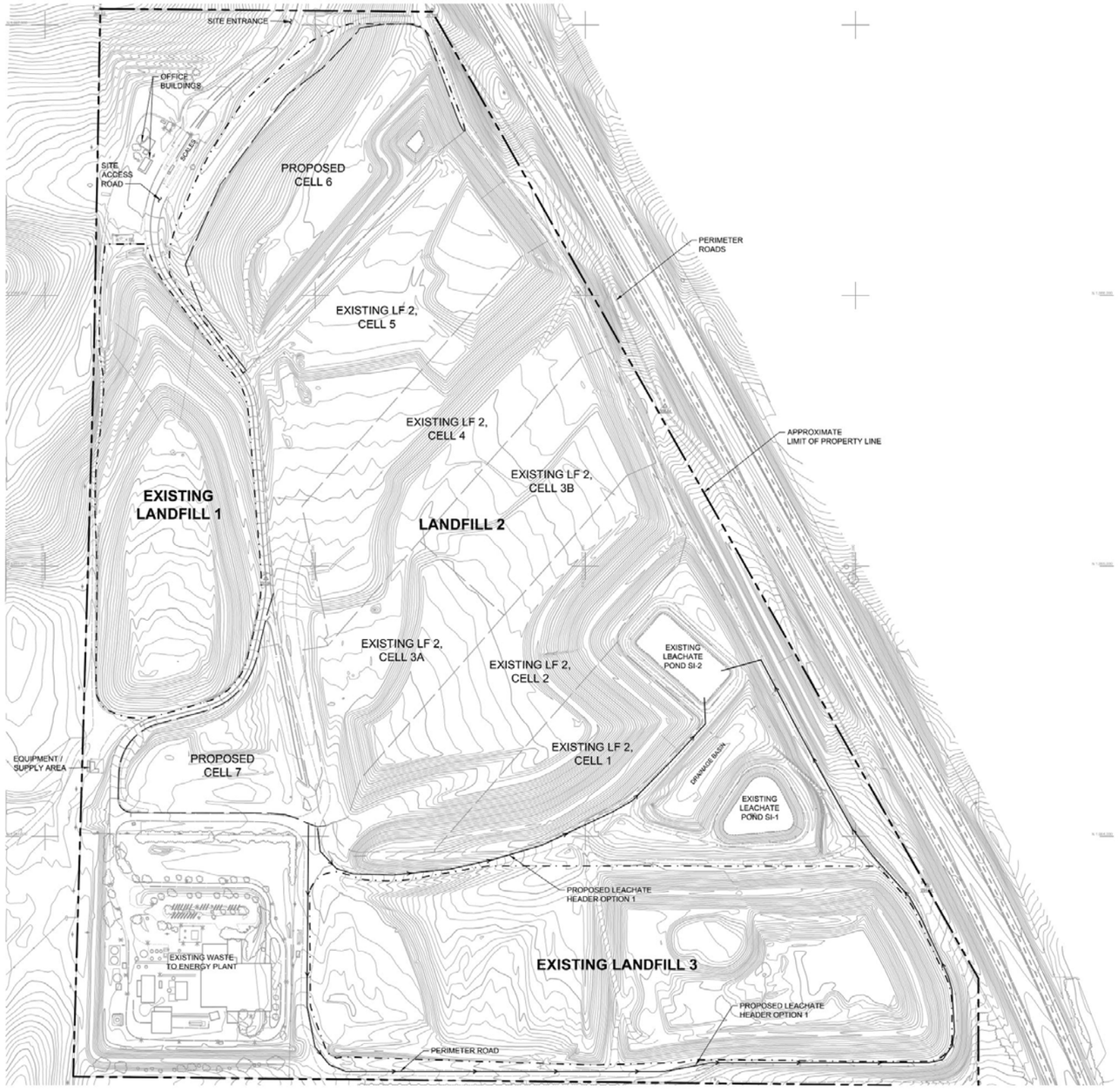
Mitigation Measure 3.9-2c: Design the I-5/Fink Road Interchange Improvements to Avoid Contact with Landfill Materials.

Interchange improvements shall be designed to avoid all contact with landfill materials. The boundaries of existing landfill materials shall be clearly marked as an avoidance area prior to the start of construction activities at the interchange.

Implementation: Stanislaus County.

Timing: Prior to, and during construction activities associated with the I-5/Fink Road interchange improvements.

Enforcement: Stanislaus County Department of Environmental Resources.



GENERAL NOTES

1. ALL COORDINATES AND ELEVATIONS ARE TO BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
2. BASE TOPOGRAPHY PROVIDED BY ANALYTICAL PHOTOGRAMMETRIC SURVEYS, INC., DATED 09-12-15. ALL COORDINATES WERE BASED ON NAD 83, 1990 O.C.S. ADJ AND ALL ELEVATIONS WERE BASED ON 1976 O.C.S. ADJ.
3. REPLACEMENT OF PERMANENT SURVEY MARKERS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR SHALL BEAR THE COST OF REPLACEMENT OF ANY THAT ARE REMOVED OR DISTURBED WITHOUT PERMISSION. WHEN A PERMANENT MONUMENT IS REPLACED, A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE AND AS DEFINED BY THE LAND SURVEYORS ACT, SHALL BE FILED BY THE CONTRACTOR OR THE CONTRACTORS AGENTS.
4. SURVEY SERVICES - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROCURING ALL SURVEYING SERVICES, AS MAY BE REQUIRED FOR CONSTRUCTION. ALL CONSTRUCTION SURVEYING SERVICES SHALL BE PROVIDED BY A LICENSED LAND SURVEYOR OR A REGISTERED CIVIL ENGINEER LICENSED TO PRACTICE LAND SURVEYING. AMONG THE SERVICES PROVIDED BY THE CONSTRUCTION SURVEYOR IS THE ESTABLISHMENT OF A BASELINE AND A BENCH MARK FOR CONSTRUCTION.

CONSTRUCTION NOTES

(1) CONSTRUCTION NOTE
CONSTRUCTION NOTE PER — X / X-XXX

ABBREVIATIONS

AC	ASPHALT CONCRETE	INV	INVERT
AP	ANGLE POINT	L	LENGTH
BC	BEGIN CURVE	LCRS	LEACHATE COLLECTION AND RECOVERY SYSTEM
CF	CUBIC FEET		
C/L	CENTER LINE	LF	LINEAL FEET
CLR	CLEAR	LFG	LANDFILL GAS
CMB	CRUSHED MISCELLANEOUS BASE	LP	LOW POINT
		MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
CP	CONNECTION POINT		
CSP	CORRUGATED STEEL PIPE	N	NORTHING
D	DEPTH	NTS	NOT TO SCALE
DIA	DIAMETER	OC	ON CENTER
E	EASTING	OZ	OUNCE
EL	ELEVATION	PVC	POLYVINYL CHLORIDE
EC	END CURVE	SDR	STANDARD DIMENSION RATIO
FL	FLOWLINE	SHT	SHEET
FML	FLEXIBLE MEMBRANE LINER	SJC	SAN JUAN CAPISTRANO
FS	FINISHED SURFACE	STA	STATION
GA	GALVANIZED	STD	STANDARD
GB	GRADE BREAK	SY	SQUARE YARD
GR	GRADE	TRAP	TRAPEZOIDAL
H	HEIGHT	TYP	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE	WWM	WELDED WIRE MESH
HP	HIGH POINT		

LEGEND

- APPROXIMATE LIMIT OF PROPERTY LINE
- PROPOSED CELL LINER LIMIT
- EXISTING CELL LINER LIMIT
- LIMIT OF REFUSE
- LIMIT OF GRADING
- 10 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 10 — GEOSYNTHETICS MAJOR CONTOUR
- 9 — GEOSYNTHETICS MINOR CONTOUR
- FLOWLINE

0 140 280
FEET
NORTH

60308966 SAC GRX 021

Source: Tetra Tech BAS 2016

Exhibit 3.9-2 **Fink Road Landfill**

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Mitigation Measure 3.9-2d: Perform an Environmental Site Assessment of the AL Castle Site, and Implement Remediation if Necessary.

Prior to the start of construction activities associated with the sewer pipeline along West Marshall Road, a licensed environmental professional shall be retained to perform a Phase I Environmental Site Assessment (ESA) of the AL Castle site. The Phase I ESA shall include consultation with the Stanislaus County Department of Environmental Resources, and DTSC and/or SWRCB, regarding the status and nature of contamination of the AL Castle site. If necessary, a Phase II ESA shall be performed to obtain soil and groundwater samples for laboratory analysis. The Phase I ESA (and Phase II ESA, if necessary) shall be submitted to the Stanislaus County Department of Environmental Resources for review. Any necessary remedial activities shall be performed, prior to the start of any construction activities within 0.25 mile of the AL Castle property. Remedial activities shall be coordinated with the Stanislaus County Department of Environmental Resources (and DTSC and/or SWRCB, as necessary).

Implementation: Stanislaus County.

Timing: Prior to, and during construction activities associated with sewer pipeline.

Enforcement: Stanislaus County Department of Environmental Resources.

Significance after Mitigation

Implementation of Mitigation Measures 3.9-2a, 3.9-2b, 3.9-2c, and 3.9-2d would reduce the potentially significant impact associated with human health exposure to hazardous materials because work will halt if evidence of contamination is encountered and appropriate remediation would be performed, and the existing ASTs would be closed in accordance with local regulations designed to protect the environment. Furthermore, no development would occur in the Restricted Area around the contaminated groundwater plume until the remediation goals have been met as determined by DTSC and any ACM and/or lead-based paint in the two existing on-site buildings has been removed in accordance with federal, State, and local regulations. As previously noted, nearly all structures at the site have been surveyed for the presence of asbestos and lead-based paint, and all structures containing lead-based paint were demolished, with the exception of the former air traffic control tower and airfield lighting vault. Neither of the two remaining on-site structures were surveyed for the presence of asbestos, and it is possible that ACM is present. Finally, the I-5/Fink Road interchange improvements will be located at a sufficient distance and will be designed to avoid contact with Fink Road Landfill materials and a Phase I ESA (and Phase II ESA, if necessary) would be prepared, and remedial activities would occur (as necessary) at the AL Castle site prior to construction of the Marshall Road sewer pipeline. The impact is considered **less than significant with mitigation**.

IMPACT 3.9-3 Creation of safety hazards, including wildlife strikes, in the vicinity of a public or private airport. *The land uses proposed in the CLIBP Specific Plan would be compatible with the Crows Landing Airport, and therefore would not result in a safety hazard to aircraft or to people working on the ground. The impact is considered less than significant.*

The proposed project includes reuse of the former National Aeronautics and Space Administration (NASA) Crows Landing Flight Facility as a public use general aviation airport, including reuse of the pavement and infrastructure associated with a former military runway. The planned internal roadways would serve as barriers

between adjacent land uses and the airport, which would be enclosed by a security fence. Potential airport customers consist of business travelers, recreational aviators, flight schools, delivery services, and emergency services. A helipad would be constructed in the southeastern portion of the airport. Commercial passenger service would not be provided.

The proposed project is consistent with the adopted ALUCP. The proposed land uses associated with CLIBP development are considered consistent or conditionally consistent with the ALUCP, and land uses that require the use of hazardous materials would be required to comply with the ALUCP policies pertaining to hazardous material storage.

The proposed project includes the adoption of an *Airport Layout Plan (ALP) and Narrative Report* that describes the design of a new public-use airport and presents a recommended ALP drawing (Appendix B), and an amendment to the County's recently adopted 2016 county-wide ALUCP that would provide for a revised Airport Influence Area specifically associated with the new Crows Landing Airport. The Caltrans Division of Aeronautics has approved the use of the proposed *Crows Landing Airport Layout Plan and Narrative Report* to serve as the basis of this ALUCP amendment. The land uses and development policies are presented in the CLIBP Specific Plan (under separate cover and available for review on file with the County).

The proposed project was developed in accordance with the Countywide ALUCP policies and proposed airport-specific ALUCP policies for the new Crows Landing Airport. Compliance with these policies would avoid potential land use conflicts and support the long-range development of the proposed Crows Landing Airport. The proposed land uses, structures associated with the proposed project would not represent a safety hazard to aircraft or to people working on the ground because the proposed land uses and design requirements presented in the Specific Plan would prevent potential conflicts.

Section 3.4 of the 2016 ALUCP provides countywide policies for Airspace Protection, including:

- 3.4.1 Evaluating Airspace Protection/Object Height compatibility for New Development
- 3.4.2 Airspace Obstruction/Object Height Criteria
- 3.4.3 Other Flight Hazards (glare, Distracting lights, dust, steam, electrical interference, wildlife hazards)
- 3.4.4 Requirements for FAA Notification
- 3.4.5 ALUC Review Requirements.

The 2016 ALUCP identifies specific policies for the prevention of hazards/conflicts with aviation. Chapter 2 of the Specific Plan states that "The mix of land uses associated with CLIBP development are compatible with the airport following the application of appropriate guidance and design and development standards set forth in the Specific Plan, the Stanislaus County Airport Land Use Compatibility Plan (ALUCP), and applicable State and federal regulations and guidance," and "[p]roposed land uses and infrastructure located within the boundaries of the Plan Area shall be consistent with the Stanislaus County Airport Land Use Compatibility Plan (ALUCP), as amended, and incorporated into the Specific Plan by reference. Any use that would pose risk to aircraft operation shall be prohibited" (see Chapter 2 of the Specific Plan). See ALUCP Chapters 1 to 3 for countywide policies and Chapter 5 (of the ALUCP) for specific policies associated with the Crows Landing Airport.

The countywide policies currently apply to the current Airport Influence Area for the former military airport, which includes the proposed Specific Plan Area. An ALUCP amendment is included with the proposed project, which includes a new Airport Influence Area to reflect the use of only a single runway and encompass the

Specific Plan Area. The application of ALUCP policies would prevent conflicts with proposed land uses with regard new hazards to flight associated with airspace/obstructions, wildlife, and other flight hazards. No other public-use airports are located within 2 miles of the proposed project site.

County General Plan Policy Twenty-Three states that the County will "protect existing solid waste management facilities, including the waste-to-energy plant and the Fink Road landfill, against encroachment by land uses that would adversely affect their operation or their ability to expand."

Neither the Covanta Waste-to-Energy facility nor the Fink Road landfill appear to attract hazardous wildlife. If either facility were to propose an increase its capacity or a change in operation, it would be required to undergo CEQA analysis and review by the ALUC to determine whether the proposed expansion or change would have the potential to pose hazards to aviation. If potential hazards were identified, the County would require the implementation of specific measures to abate the hazards. The presence of the CLIPB, including the Crows Landing Airport, would not prevent future expansion of the facility. This impact is considered **less than significant**.

IMPACT 3.9-4 Interference with emergency access or adopted emergency response plans. *Although construction materials, equipment, and personnel would be stored and staged on site, local roadways would experience a higher traffic volume during construction that could slow emergency access. In addition, off-site roadway improvements and installation of the proposed sewer pipeline would result in traffic delays that could slow emergency access. Therefore, this impact is considered* ***potentially significant.***

The project site contains sufficient land such that construction materials, equipment, and personnel would be staged on-site. However, nearby roadways in the project vicinity, such as Fink Road, West Marshall Road, and SR 33, would be affected intermittently during construction phases involving road widening, road signal improvements, and installation of the new sewer pipeline. Ongoing construction activities could result in temporary lane closures, increased construction truck traffic, and other roadway effects that could slow or interfere with emergency vehicles, temporarily increasing response times and impeding existing services. The impact is considered **potentially significant**.

Mitigation Measure 3.9-4: Prepare and Implement a Construction Traffic Control Plan.

A traffic control plan shall be implemented for construction activities that may affect road rights-of-way, in order to facilitate travel of emergency vehicles on affected roadways. The traffic control plan must follow the applicable and current Stanislaus County *Standards and Specifications*, and must be approved and signed by a professional engineer. Measures typically used in traffic control plans include advertising of planned lane closures, warning signage, a flag person to direct traffic flows when needed, and methods to ensure continued access by emergency vehicles. During project construction, access to the existing surrounding land uses shall be maintained at all times, with detours used, as necessary, during road closures. The traffic control plan shall be submitted to the Stanislaus County Public Works Department for review and approval before the approval of all project plans or permits.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to any construction activity that may affect road rights-of-way on and off-site.

Enforcement: Stanislaus County Public Works.

Significance after Mitigation

Implementation of Mitigation Measure 3.9-4 would reduce the impact associated with decreased emergency response times during construction to a **less-than-significant** level by requiring preparation and implementation of a construction traffic control plan that would provide for adequate emergency access during construction activities.

IMPACT 3.9-5 Specific Plan consistency with the Airport Land Use Compatibility Plan. *The ALUCP states that the development of heavy or light industry must "avoid the bulk storage of hazards materials, and permitting agencies must evaluate the need for specific measures to minimize hazards." The County's proposed Specific Plan is consistent with the adopted ALUCP. The impact is considered less than significant.*

The County's 2016 ALUCP includes countywide policies pertaining to land uses that require the use or storage of hazardous materials, and the ALUCP discourages the development of land uses that would produce hazardous materials unless no other alternative is available outside of safety zones. The ALUCP states that the development of heavy or light industry must "avoid the bulk storage of hazards materials, and permitting agencies must evaluate the need for specific measures to minimize hazards" in the event that the storage areas were involved in an aircraft mishap and struck" (ALUCP 2016, Table 2). This policy would apply to the existing and proposed Airport Influence Area associated with the proposed Crows Landing airport.

The County's proposed Specific Plan is consistent with the adopted ALUCP:

- As shown in Appendix B of the proposed Specific Plan, neither the development of hazard materials production nor heavy industry would be permitted in the Plan Area.
- Specific Plan Land Use Policy 4.2 states that "Proposed land uses and infrastructure located within the boundaries of the Plan Area shall be consistent with the Stanislaus County Airport Land Use Compatibility Plan (ALUCP), which is incorporated into this Specific Plan by reference. Any use that would pose risk to aircraft operation shall be prohibited.

The impact is considered **less than significant**. No mitigation is required.

3.10 HYDROLOGY AND WATER QUALITY

Section 3.10 includes an assessment of the project's impacts related to short- and long-term water quality, drainage patterns, groundwater supplies, and flood risk.

3.10.1 ENVIRONMENTAL SETTING

SURFACE WATER HYDROLOGY

Surface Water Features

The 1,528-acre project site contains remnants of former structures and utility infrastructure associated with the former Naval Auxiliary Landing Field (NALF) Crows Landing. All structures, with the exception of the former Air Traffic Control Tower and airfield lighting vault, have been razed and row crops are cultivated on approximately 1,100 acres of the site. The primary surface water feature at the project site is Little Salado Creek.

Little Salado Creek flows from the eastern foothills of the Diablo Range west of the project site, crosses under the Delta-Mendota Canal through a box culvert, and then flows in a modified channel through agricultural fields and onto the project site. The channel was straightened, deepened, and confined within earthen levees through the project site beginning in 1943 when the former military airfield was constructed. The creek is a single-thread, channelized, seasonal stream, approximately 3.26 acres of which flows through the project site in a northeasterly direction. The average width of the creek through the project site is approximately 20 feet, but it ranges from 4 to 40 feet in width. The creek bed is characterized by clay loam soil with a high shrink-swell potential, resulting in large, deep cracks as the channel dries. Little Salado Creek terminates in the northeastern corner of the project site, where the water is discharged through a culvert under State Route (SR) 33 into a single 24-inch-diameter drain pipe. Water flows east in the drainage pipe along Marshall Road for approximately 4.3 miles to its final discharge point at the San Joaquin River (AECOM 2016a).

Two small excavated basins comprising a total of 0.05 acre are present at the center of the project site where Little Salado Creek meets the edge of a runway. One of the basins is directly connected to Little Salado Creek through a culvert while the other is connected by pump. Based on review of aerial imagery, these basins were constructed in 2011 and are typically inundated for a long duration during the growing season.

Seven ditches totaling approximately 2.02 acres occur on the project site and are used to convey stormwater runoff and agricultural tailwater to Little Salado Creek. These features flow periodically for short durations during storm events and crop irrigation. The irrigation ditches range from 2 to 14 feet in width and have an average depth of 5 feet.

The Delta-Mendota Canal bisects the project site in a northwest-southeast direction in a separate right-of-way that is excluded from the project site. The California Aqueduct flows in a north-south direction just west and outside of the project boundary.

Drainage and Watersheds

The project site lies within the San Joaquin River Drainage Province, in the Middle San Joaquin-Lower Chowchilla subwatershed. The existing drainage study area for the proposed project is divided into four subsheds, as shown in Exhibit 3.10-1, in order to characterize the on-site and off-site drainage for project planning purposes.

- **Little Salado Creek Subshed** – Approximately 6,925 acres west of Interstate 5 that is tributary to Little Salado Creek.
- **Subshed 1** – Approximately 236 acres situated between Interstate 5 and the California Aqueduct.
- **Subshed 2** – Approximately 1,046 acres situated between the Delta-Mendota Canal and the California Aqueduct.
- **Project Site** – Approximately 3,036 acres that consist of Subshed 3, which is the approximately 1,528-acre project site and the surrounding area from the Delta-Mendota Canal to State Route 33 (approximately 1,508 acres).

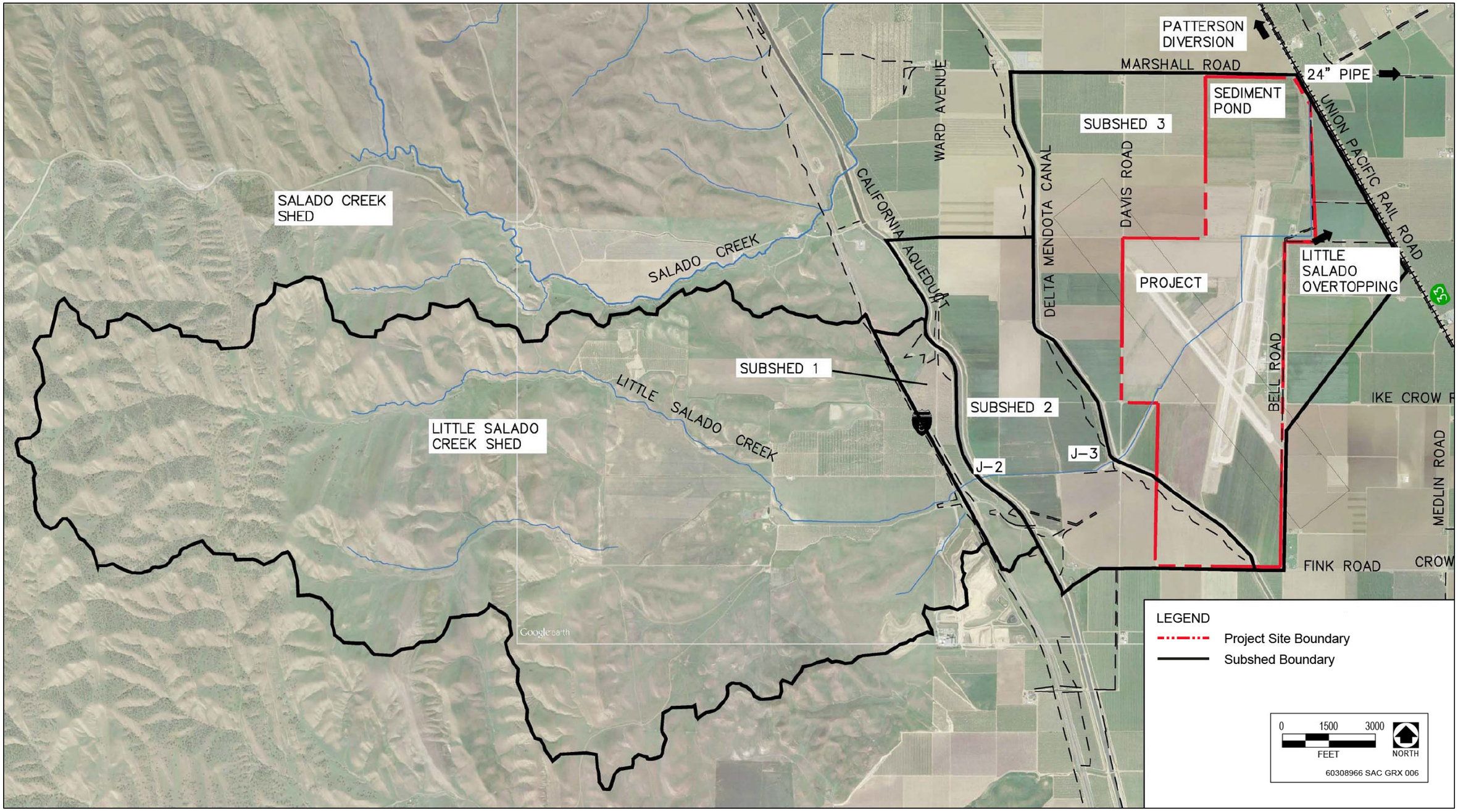
Stormwater runoff from the Little Salado Creek subshed crosses both I-5 and the California Aqueduct. From the aqueduct, Little Salado Creek subshed runoff flows toward the Delta-Mendota Canal and collects runoff from Subshed 1. Subshed 2 drains the area between the California Aqueduct and the Delta-Mendota Canal. Flows from all three subsheds are conveyed under the Delta-Mendota Canal by two 5-foot-square box culverts that have a combined capacity of 700 cubic feet per second (cfs). This crossing is the only direct drainage connection to the project site from watershed areas west of the Delta-Mendota Canal.

On the east side of the Delta-Mendota Canal, the box culverts drain into the open channel of Little Salado Creek, which continues in a northeasterly direction through the project site and passes through culverts that convey flow underneath the existing runways. The creek channel ultimately drains toward the low point of the project site near the intersection of SR 33 and Marshall Road. At this low point, runoff drains through a linear sedimentation basin towards a raised concrete control structure, which contains a 24-inch outlet controlled by a slide gate valve.

The 24-inch outlet discharges to the 24-inch Marshall Road Drain, an underground pipeline that runs parallel to Marshall Road for about 4.5 miles to its final discharge point at the San Joaquin River. Accumulation of excess stormwater runoff in the northeastern portion of the project site is known to occur and is primarily a result of limited discharge capacity within the existing 24-inch Marshall Road Drain. During heavy rainfall events, runoff pools against the Union Pacific Railroad tracks, which are located across SR 33 from the northeastern corner of the project site, eventually overtops the railroad, and flows northeasterly towards the San Joaquin River. In addition, these flood flows also migrate north, contributing to flooding in the city of Patterson. A 380 acre-foot capacity detention pond is proposed as part of the project to reduce the flows to equal to or less than existing conditions.

Climate and Precipitation

The inland Mediterranean climate of the San Joaquin Basin is characterized by hot, dry summers and cool, rainy winters. The local meteorology in the vicinity of the project site is represented by measurements recorded at the Western Regional Climate Center's (WRCC) Newman station. The normal annual precipitation, which occurs primarily from November through March, is approximately 10.7 inches (WRCC 2015). January temperatures range from an average minimum of 36.2 degrees Fahrenheit (°F) to an average maximum of 55.9°F. July temperatures range from an average minimum of 59.3°F to an average maximum of 97.3°F (WRCC 2015). The predominant wind direction and speed, measured at the Modesto Airport station, is from the northwest at approximately 6.5 mph (WRCC 2003, 2012).



Source: AECOM 2016a

Exhibit 3.10-1. **Existing Subwatersheds and Modeled Flow Locations**

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Approximately 80 percent of the annual precipitation in the San Joaquin Basin normally occurs from November to March. However, in the San Joaquin Basin as a whole, only 40 to 50 percent of the streamflow occurs from November to March; the greater proportion of the streamflow comes from snowmelt stored in the reservoirs, which is not released until later in the spring (Dubrovsky *et al.* 1998:5).

Topography

The drainage study area (shown in Exhibit 3.10-1) has two distinct types of terrain. Subwatersheds 1 and 2, and the project site subwatersheds, consist of a broad alluvial plain formed by deposition of sediment from Little Salado Creek. Elevations at the project site range from approximately 195 feet above mean sea level (msl) in the southwest corner to approximately 115 feet above msl in the northeast corner near the intersection of Marshall Road and SR 33. The Little Salado Creek subwatershed consists of gently rolling to steeply mountainous terrain. The western portion of this subshed is composed of a system of north-south main ridges and east-west spur ridges with deeply incised swales that make up the Diablo Range. Elevations in the western portion of this subshed range from 600–1,761 feet above msl. Elevations in the eastern portion of this subshed range from 260–500 feet above msl.

Floodplain Hydraulics

Floodplain designations are important hydraulic engineering considerations when constructing buildings, roads, and bridges. The most recent Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) Flood Insurance Rate Map (FIRM) (2008, as cited in AECOM 2016a: 21) indicates that the project site is partially within Zone A (100-year floodplain, no elevations determined) and partially within Zone X (500-year or 100-year floodplain with depths less than 1 foot). However, the County subsequently determined that the Zone A area was incorrectly mapped over a larger area than necessary. FEMA allows the County Flood Plain Manager to permit development in Zone A areas if base flood elevations have been determined and the proposed development would be outside the limits of the 100-year floodplain. (See Impact 3.10-5 for further details and exhibits related to the FEMA floodplain. See also Exhibit 3.10-3.)

Erosion and Stormwater Runoff Potential

Most soils can be categorized into hydrologic soil groups, which apply only to surface soil layers, based on runoff-producing characteristics. Hydrologic soil groups are factored into calculations of erosion and stormwater runoff potential when drainage plans are prepared. Descriptions of each hydrologic soil group are presented in Table 3.10-1.

As shown in Table 3.8-2 (Section 3.8, “Geology, Soils, Minerals, and Paleontological Resources”), the project site contains a variety of different soil types, most of which are classified by the U.S. Natural Resources Conservation Service (NRCS) as Group C, which are soils that have a slow infiltration rate when thoroughly wet and, therefore, a high runoff potential. In addition, two of the project site soils are classified as Group B, and one is classified as Group D (NRCS 2015).

Table 3.10-1 Natural Resource Conservation Service Hydrologic Soil Groups	
Hydrologic Soil Group	Description
Group A	Soils generally consist of sand, loamy sand, or sandy loam. These soils have low runoff potential and high infiltration rates (greater than 0.30 in/hr) even when thoroughly wetted. They consist primarily of deep, well to excessively drained sands or gravels, and have a high rate of water transmission.
Group B	Soils generally consist of silt loam or loam. These soils have moderate infiltration rates (0.15–0.30 in/hr) rates when thoroughly wetted and consist primarily of moderately drained soils with moderately fine to moderately coarse textures.
Group C	Soils generally consist of sandy clay loam. These soils have low infiltration rates (0.05–0.15 in/hr) when thoroughly wetted and consist primarily of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.
Group D	Soils generally consist of clay loam, silty clay loam, sandy clay, silty clay, or clay. These soils have the highest runoff potential and very low infiltration rates (0.0–0.05 in/hr) when thoroughly wetted. They consist primarily of clay soils with a high shrink-swell potential and/or soils with a permanent high water table.
Note: in/hr = inches per hour Source: AECOM 2016a: 5	

GROUNDWATER HYDROLOGY

The project site is located in the San Joaquin Valley Groundwater Basin, within the Delta-Mendota Subbasin (Subbasin 5-22.07). This subbasin is bounded by the Coast Ranges to the west, approximately the Stanislaus/San Joaquin county line to the north, and by the San Joaquin River to the east.[1] To the south, it is bounded by the Tranquility Irrigation District and Westlands Water District boundaries in Fresno County. Bulletin 118 (California Department of Water Resources [DWR] 2006) states that the Delta-Mendota Subbasin encompasses 1,170 square miles and is drained toward the Sacramento-San Joaquin Delta (Delta) by the San Joaquin River and its tributaries: the Fresno, Merced, Tuolumne, and Stanislaus Rivers.

The Delta-Mendota Subbasin is composed of the Pliocene-age Tulare Formation, Pleistocene-age terrace deposits, and Holocene-age alluvial and floodbasin deposits. The subbasin includes a number of lacustrine clay units, the most prominent of which is known as the Corcoran clay, which acts as a regional aquitard that divides the subbasin's fresh water deposits into an upper aquifer system that is unconfined to semi-confined, and a lower aquifer system that is confined. The Corcoran clay is reported to occur at depths between approximately 200 and 250 feet near the project site, and extends from near the western margin of the subbasin to beneath the San Joaquin River (JJ&A 2016:3-2). Groundwater production wells in the area are completed in both the unconfined and confined aquifer systems; however, most high-capacity wells extend into the confined aquifer system. Domestic wells in the area are generally completed in the unconfined aquifer system. The direction of groundwater flow in the subbasin is generally to the north and east toward the San Joaquin River. The depth to groundwater for municipal and irrigation wells ranges from 50 to 800 feet (DWR 2006).

[1] The Delta-Mendota Groundwater Subbasin went through a basin boundary modification process that changed the northern boundary More information on the basin boundary modification process can be found at: www.water.ca.gov/groundwater/sgm/basin_boundaries.cfm

Groundwater levels in the region have been declining due to the long-term overdraft conditions caused by overpumping. DWR has designated the Delta-Mendota Subbasin as being in a condition of critical overdraft (DWR 2016b), although groundwater levels in the vicinity of the project site are generally stable.

The depth to groundwater in local wells has been shown to vary seasonally; lower levels (i.e., greater depth) have been observed during the summer months when the maximum pumping for agricultural irrigation is occurring, with higher levels during the winter months when irrigation needs are lower and natural groundwater recharge from rainfall is occurring (Kenneth D. Schmidt and Associates 2010). Some studies of groundwater elevations have shown some decline during recent years attributable to abnormally low rainfall throughout the state and increased groundwater pumping to meet demands that would normally be met from surface water sources, but that over time, groundwater elevations are relatively stable, which would indicate a hydrologically balanced condition (VVH Consulting Engineers and AECOM 2016). Specifically, groundwater levels underlying the project site appear to have minimal net change and appear to be hydrologically balanced (AECOM 2016b).

Groundwater elevation contour maps for the confined aquifer in the project site vicinity from 2011 to spring 2016 show a groundwater ridge or mound persists opposite Little Salado, Salado, and Orestimba Creeks, which suggests recharge occurs along the mountain front. The contour maps show that in recent years, and particularly during months where there were reductions of surface water deliveries to local water providers in response to historic drought conditions, cones of depression have formed northwest and south of the project site and locally influence the groundwater flow direction (JJ&A 2016:3-3). The cone of depression to the south is located northwest of Newman, near the northern portion of the Eastin Water District, which derives its water supply entirely from groundwater. The cone of depression northwest of the project site is consistent with reported groundwater pumping from the confined aquifer northwest of Patterson for irrigation purposes, and possibly related to the curtailment of surface water deliveries due to drought conditions and an associated reduction in groundwater recharge from those deliveries, as well as in increased need for groundwater pumping (JJ&A 2016:3-3).

Analysis of long-term hydrographs in the region south of the project site indicates that groundwater levels in the area were generally lowest in the 1940s and 1950s, increased during the 1960s and 1970s when surface water became available from the state and federal water projects, and decreased through the 1990s and 2000s, when surface water deliveries began to be curtailed for environmental reasons (JJ&A 2016:3-3). Shorter-term trends were identified related to periods of above or below normal precipitation. The two wells located south of the project site, near the cone of depression northwest of Newman, show a recent decreasing trend that may relate to previous drought conditions and increased groundwater pumping to replace curtailment of surface water deliveries (JJ&A 2016:3-3).

The hydrographs for State Well No.'s 06S08E20D002M and 06S08E09E001M span the period from 2011 to the present. In general, these hydrographs suggest that groundwater levels near the project site recover quickly after pumping ceases, as indicated by relatively consistent water elevations by season (see State Well No. 06S08E09E001M). Overall, water levels near the project site have been stable since 2011, which indicates that recent pumping rates near the project site have been sustainable on an annual basis, even during the drought (JJ&A 2016:3-3).

In general, the regional groundwater flow direction at the project site is to the east/northeast. However, these regional flow directions can be influenced locally by the pumping of agricultural wells. Groundwater beneath the

project site occurs at depths of 30 feet below the ground surface (bgs) or more (JJ&A 2016:5-1) and does not discharge into any nearby surface water body (U.S. Department of the Navy 2012, CH2MHILL/Kleinfelder 2014). Groundwater levels near the San Joaquin River are generally close to the elevation of the river, suggesting that this reach of the river is hydraulically connected with the shallow aquifer. Groundwater contours near the river suggest that shallow groundwater is discharging to the river, especially in the area southeast of the project site (JJ&A 2016:4-9).

Existing Groundwater Pumping

Land use overlying the Delta-Mendota Subbasin near the project site is primarily agricultural, with local agricultural water demand served by surface water deliveries from the Del Puerto Water District (DPWD) and supplemented by groundwater extraction. Municipal water demand for the cities of Patterson and Newman, as well as the community of Crows Landing, is met using groundwater. Demand forecasts for Patterson are available from the 2015 update to its Urban Water Management Plan (UWMP). The demand is projected to increase from 6,376 afy in 2020 to 11,801 afy in 2040 (RMC 2016). Similar proportional increases in demand may also be expected in the communities of Newman and Crows Landing if they follow similar population and development trends. However, it is important to note that increased municipal demand would be expected to be offset by a corresponding decrease in agricultural demand associated with conversion of agricultural land to municipal use (JJ&A 2016:3-6).

Groundwater demand for agricultural production at the project site has historically been met through a combination of groundwater pumping and surface deliveries from DPWD (JJ&A 2016:3-6). Information regarding the total applied water volumes and groundwater pumpage for on-site wells was provided by the County's agricultural tenant, as summarized in Table 3.10-2.

Table 3.10-2
Historical Site Groundwater Pumpage and Surface Water Deliveries

Year	Volume of Groundwater Extracted (acre-feet)[1]			Volume of Surface Water Delivered (acre-feet)[2]	Percent of CVP Contract Allotment Available[2]	Total Applied Water (acre-feet)
	Deep Well	Shallow Wells	Total			
2012	380	560	940	1,629	40%	2,569
2013	402	448	850	424	20%	1,274
2014	390	212	602	158	0%	760
2015	564	378	942	0	0%	942
Average	434	400	834	553	15%	1,386

[1] Based on information reported in AECOM, 2016 or data provided by Wheeler, 2016. Where conflicting data were provided, extraction volumes reported in AECOM, 2016 were utilized and divided among the wells in proportion to reported pumping rates.

[2] Taken from Water Use Statements from Del Puerto Water District provided by Wheeler, 2016.

Source: JJ&A 2016:Table 3.4.2

SURFACE WATER QUALITY

The water quality control plan (Basin Plan) adopted by the Central Valley Regional Water Quality Control Board (Central Valley RWQCB) (described in the "Regulatory Framework" section below) does not designate any

specific beneficial uses for Little Salado Creek. Consequently, the Central Valley RWQCB applies the Basin Plan's "tributary rule" to the creek and assigns the beneficial uses designated for the nearest downstream location, which is the San Joaquin River. The Central Valley RWQCB also regulates waste discharges in undesignated streams to ensure that downstream water quality conditions and beneficial uses are not degraded. Thus, the creek is subject to regulation for the existing designated uses in its receiving waterbodies. Designated beneficial uses for the San Joaquin River, from the mouth of the Merced River to Vernalis, as defined by the Basin Plan (Central Valley RWQCB 2011) are:

- municipal and domestic supply;
- agricultural irrigation;
- industrial processing;
- contact and noncontact recreation;
- warmwater fish habitat;
- warmwater and coldwater fish migration;
- warmwater fish spawning; and
- wildlife habitat.

Little Salado Creek is not included in the *2012 Section 303(d) List of Impaired Waters* for California issued by the State Water Resources Control Board (SWRCB 2015). However, as stated above, the creek discharges into the Marshall Road Drain and then into the San Joaquin River. The segment of the San Joaquin River that is the receiving water for Little Salado Creek and the Marshall Road Drain (i.e., from the Merced River to the Tuolumne River) is on the 303(d) list for multiple pollutants, as shown in Table 3.10-3.

Table 3.10-3
Section 303(d)-Listed Pollutants for San Joaquin River[1]

Pollutant/Stressor	Pollutant Category	Potential Sources	Proposed TMDL Completion Date
Boron	Metals/Metalloids	Source Unknown	Adopted in 2007
Chlorpyrifos	Pesticides	Source Unknown	Adopted in 2007
DDE	Pesticides	Source Unknown	Adopted in 2014
DDT	Pesticides	Source Unknown	2011
Electrical Conductivity	Salinity	Source Unknown	2021
Group A Pesticides[2]	Pesticides	Source Unknown	2011
Mercury	Metals/Metalloids	Source Unknown	Adopted in 2011
Water Temperature	Miscellaneous	Source Unknown	2021
Unknown Toxicity	Toxicity	Source Unknown	2019
alpha-BHC	Other Organics	Source Unknown	2022

Notes: TMDL = total maximum daily load; DDE = dichlorodiphenyldichloroethylene; DDT = dichlorodiphenyltrichloroethane; alpha-BHC = benzenehexachloride or alpha-hexachloroclyclohexane

[1] From the Merced River to the Tuolumne River

[2] Human carcinogens

Source: SWRCB 2015

The San Joaquin Basin is predominately used for agriculture. Fertilizers are used on agricultural lands because nitrogen and phosphorus are often depleted from the soil. Excess or unused amounts of fertilizers, pesticides, and other agricultural chemicals may be carried by surface runoff or as tail water into river systems.

The distribution of precipitation, and consequently runoff, in the San Joaquin Basin is highly influenced by topography. Mean annual precipitation on the valley floor ranges from less than 5 inches in the south to 15 inches in the north (Dubrovsky *et al.* 1998: 5).

The San Joaquin River receives water from tributaries draining the Sierra Nevada and Coast Ranges, and except for streams discharging directly to the Delta, is the only surface water outlet from the approximately 31,200-square-mile San Joaquin Basin. The water quality of the San Joaquin River is of critical interest because it flows to the Delta. Both the Delta-Mendota Canal, which supplies irrigation water to farms in the western San Joaquin Valley, and the California Aqueduct, which supplies drinking water to southern California, originate in the Delta.

As previously indicated, runoff from the project site discharges into the Marshall Road Drain and then into the San Joaquin River. Specific conductance measured at U.S. Geological Survey (USGS) Gauge no. 11274550 on the San Joaquin River near Crows Landing, downstream of the Marshall Road Drain, ranged from 2,300 microsiemens per centimeter (µS/cm) in April, 2015 to 250 µS/cm in November, 2015 (USGS 2015). Specific conductance can be used to estimate the level of total dissolved solids (TDS). TDS is not a pollutant that is normally associated with adverse health effects, but it is used as an indication of aesthetic characteristics of drinking water and as an indicator for the presence of a broad array of chemical contaminants in water used for all types of supply. TDS consists primarily of inorganic salts, such as calcium, magnesium, potassium, sodium, bicarbonates, chlorides, and sulfates. The primary sources of TDS found in receiving waters are agricultural and residential runoff, leaching of soil contamination, and point-source water pollution in the form of discharge from industrial or sewage treatment plants. The specific conductance values at the San Joaquin River gauge listed above translate to TDS values of approximately 160–1,150 parts per million (ppm). The U.S. Environmental Protection Agency (EPA) National Secondary Drinking Water Regulations (NSDWRs) set a non-mandatory maximum contaminant level (MCL) of 500 ppm for TDS (EPA 2015). Thus, the values measured in the spring and summer at Gauge no. 11274550 indicate that high levels of TDS (and potentially other chemical compounds) are present in the San Joaquin River downstream from the Marshall Road Drain discharge point.

Existing water quality data is generally lacking for Little Salado Creek due to the lack of flow gauging stations or other hydrologic or water quality data collection facilities. However, water quality data is available for Orestimba Creek—an ephemeral stream approximately 2.6 miles south-southeast of the project site. Orestimba Creek has a similar context as Little Salado Creek, has the same sources for streamflow, and was selected as an indicator stream that is representative of the small western tributaries to the San Joaquin River. Orestimba Creek is located in a small agricultural basin within the valley floor on the west side of the San Joaquin Basin, similar to the project site. Orestimba Creek flows directly into the San Joaquin River. As with Little Salado Creek, streamflow in Orestimba Creek results from stormwater runoff in the winter, and irrigation return flows in the spring and summer. During the winter, both creeks also receive runoff from the Coast Ranges, depending on the intensity and duration of storms. Orestimba Creek is part of the USGS's National Water-Quality Assessment (NAWQA) Program, which began in 1991 to assess the status of the quality of freshwater streams and aquifers, describe trends or changes in water quality over time, and provide an understanding of the natural and human factors that affect water quality. Orestimba Creek was selected an indicator stream that is representative of the small western

tributaries to the San Joaquin River. Published data from water quality monitoring from 1992 to 1995 (Dubrovsky et al. 1998) indicated the following trends:

- Peak diazinon concentrations in Orestimba Creek and in the main stem of the San Joaquin River frequently exceeded levels that can be acutely toxic to some aquatic life.

- The U.S. EPA established criteria for maximum ammonia concentrations in surface water on the basis of chronic and acute exposure of aquatic organism. Ammonia concentrations in Orestimba Creek exceeded the EPA chronic criteria in 76, 14, and 5 percent, respectively, of samples collected between April 1993 and March 1995. However, none of the samples collected in the main stem of the San Joaquin River exceeded ammonia criteria from 1993 to 1995.

- Pesticides were detected in all but one of the surface water samples collected during calendar year 1993 from Orestimba Creek. During the winter, high concentrations of some pesticides occur for brief periods because of transport by rainfall runoff. During the irrigation season, a large number of pesticides—usually greater than 15—were detected. Pesticides detected with the most frequently in Orestimba Creek were dichlorodiphenyldichloroethylene (DDE), dieldrin, fonofos, napropamide, and propargite. The presence of these pesticides was attributed to application primarily on row crops.

- The nitrate MCL was exceeded in Orestimba Creek in 15, 11, and 9 percent, respectively, of samples collected between April 1993 and March 1995. However, Orestimba Creek (similar to Little Salado Creek) is not designated as a drinking water source. The MCL was not exceeded during this period in the main stem of the San Joaquin River, which is a designated drinking water source.

As stated above, Orestimba Creek was selected an indicator stream in the NAWQA program to serve as a representative of the small western tributaries of the San Joaquin River. The study area for the Orestimba Creek Basin in the NAWQA Program is larger than the area drained by Little Salado Creek. However, due to the similar nature of the soil types, topography, streamflow sources, and agricultural land uses, existing water quality in Little Salado Creek is likely to be similar to that of Orestimba Creek.

Little Salado Creek discharges into the Marshall Road Drain, which is owned and operated by the Patterson Irrigation District—one of the founding agencies of the Westside San Joaquin River Watershed Coalition (Westside Coalition), which helps its members comply with California's Irrigated Lands Regulatory Program. The Irrigated Lands Regulatory Program requires a comprehensive monitoring program and reporting of exceedances of water quality objectives caused by agricultural discharges. The Marshall Road Drain currently discharges to the San Joaquin River, and may carry pesticides (including chlorpyrifos and malathion), suspended silt, salt, and boron with the flows, thereby contributing to CWA Section 303(d) listed pollutants within the river. The Marshall Road Drain is one of the drainages monitored by the Westside Coalition, and it has had numerous water quality exceedances, as shown in Table 3.10-4 (Summers Engineering 2012).

Table 3.10-4
Marshall Road Drain Water Quality Exceedances that Require Management Plan Action under the Westside San Joaquin River Watershed Coalition Monitoring and Reporting Program

Constituent of Concern	Number of Exceedances From Start of Monitoring Program (2004) through 2012
Water Flea Toxicity	4
Algae Toxicity	6
Ammonia	4
Arsenic	1
Boron	8
Chlordane	3
Chlorpyrifos	24
DDE/DDT	37/10
Diazanon	2
Dimethoate	3
Dissolved Oxygen	30
Diuron	8
Escherichia coli	34
Gamma Chlordane	3
Lead	7
Malathion	6
Methyl-Parathion	1
Nickel	2
pH	9
EC/TDS	56
Zinc	2

Notes:
DDE = dichlorodiphenyldichloroethylene
DDT = dichlorodiphenyltrichloroethane
EC = electrical conductivity
TDS = total dissolved solids;
Source: Summers Engineering 2012: Table 3; San Joaquin Valley Drainage Authority 2013: Table 1

The San Joaquin Valley Drainage Authority (SJVDA) has prepared a focused watershed management plan to address aquatic toxicity, pesticides, sediment toxicity, and sediment discharge within the Marshall Road Drain subwatershed based on monitoring results from samples collected at the Marshall Road Drain at River Road (SJVDA 2013). The Marshall Road Drain subwatershed includes approximately 10,000 acres, including the project site. Crops within the subwatershed are a mix of alfalfa, field crops, and almonds. In addition to the irrigated agriculture, the subwatershed includes a number of non-farmed properties including rural residences, farm shops and yards, and the Southside Reservoir (owned and operated by Patterson Irrigation District). The focused watershed management plan noted the following with regard to the water quality exceedances (SVJDA 2013: 4–5):

- **Aquatic Toxicity and Pesticides:** Although substantial aquatic toxicity has not been commonly observed, some pesticides have been detected at concentrations exceeding regulatory limits, including chlorpyrifos, diuron, and malathion, as well as legacy insecticides (DDE and DDT), which were likely

transported in agricultural tailwater discharges from ground or aerial applications.

- **Electrical Conductivity (EC)/TDS:** EC and TDS are both measurements of dissolved salts in water. Although salinity has been detected frequently at concentrations exceeding regulatory levels, they have also been measured at levels exceeding regulatory levels in the source water used by growers for irrigation. Surface water supplies from both the San Joaquin River and Delta-Mendota Canal frequently contain dissolved salts in excess of the water quality criteria. In addition, groundwater pumping is used to supplement surface supplies (particularly in dry years). Groundwater quality in the region is generally fair to poor in terms of water quality and, therefore, would contribute to increased salinity in tailwater.

- **Escherichia coli:** *E. coli* are bacteria that are present in fecal discharges from warm-blooded animals. These bacteria are found throughout the Westside Coalition subwatersheds. Sources could include wildlife, managed animals (*e.g.*, goats, sheep, and cattle), rural residence septic systems, manure applications, as well as self-sustaining bacterial cultures in local and regional waterways.

- **Dissolved Oxygen and pH:** Neither the source nor cause of DO and pH exceedances are known.

In 2014, the U.S. Bureau of Reclamation and the Patterson Irrigation District prepared a joint Environmental Assessment/Initial Study to evaluate the proposed Two Drains project, which is intended to reduce the total volume of irrigation return water and stormwater runoff discharged by the Marshall Road Drain and the Spanish Land Grant Drain into the San Joaquin River, thereby improving river water quality. By recapturing a portion of the irrigation and stormwater and blending it with other Patterson Irrigation District irrigation water supplies, the Two Drains project would also provide approximately 5,000 acre-feet per year of additional irrigation water to meet agricultural needs (U.S. Bureau of Reclamation and Patterson Irrigation District 2014: Sections 1 and 2). The Negative Declaration was adopted and a Finding of No Significant Impact (FONSI) for the project was issued in September 2014.

GROUNDWATER QUALITY

Irrigation water is the largest source of recharge to the regional aquifer, but irrigation water can contain higher concentrations of dissolved solids than water from natural recharge (Dubrovsky *et al.* 1998: 4). Irrigation recharge also may contain elevated concentrations of nutrients, pesticide residues, and trace elements, as a result of agricultural land uses.

Generally, groundwater quality in the basin is suitable for most urban and agricultural uses, with primary pollutants consisting of total dissolved solids (TDS), nitrate, boron, chloride, and organic compounds (JJ&A 2016:3-5). Areas of high TDS concentrations are primarily found in the western region of the valley, due to the recharge of streamflow originating from the marine sediments in the nearby Coast Ranges, while high concentrations of boron are typically found in the valley trough as the result of concentration of salts, due to evaporation and poor drainage. Sulfate and boron concentrations vary in both the shallow and confined aquifers, with slightly higher boron concentrations in the confined aquifer; there is little difference in arsenic concentrations between the shallow and confined aquifers. Nitrate, nitrite, hexavalent chromium, and 1,2,3-trichloropropane have been detected at concentrations exceeding the MCL in groundwater from the Crows Landing Community Services District area surrounding the project site (VVH Consulting Engineers and AECOM 2016).

In general, TDS levels range from 400 to 1,600 milligrams per liter (mg/L) in the northern portion of the subbasin and from 730 to 6,000 mg/L in the southern portion of the subbasin. TDS values from public supply wells range from 210–1,750 mg/L, with an average value of 770 mg/L. In addition, shallow, saline groundwater occurs within approximately 10 feet of the ground surface over a large portion of the subbasin. As noted by the San Luis and Delta-Mendota Water Authority (SLDMWA), in the Patterson area (north/northeast of the project site), salt levels are high and could eventually reach concentrations that would require treatment. In response to the elevated salt concentrations and associated taste concerns, many customers have installed salt-regenerative water softeners, which have resulted in substantial salt loading to the City of Patterson's Water Quality Control Facility (which is the name for the City's wastewater treatment plant). The City has begun installing deeper wells below the Corcoran Clay to provide protection from source water contaminants and to capture water with lower salinity. SLDMWA also notes that the use of non-potable water for landscape irrigation, which has been implemented north of the project site in the city of Patterson, should help to reduce the salinity problem in the future (SLDMWA 2014:25).

Groundwater quality data obtained in 2007 from wells operated by the Central California Irrigation District west of Newman (approximately 5.5 miles south of the project site), which are located in an agricultural area similar to the project site, indicate TDS concentrations ranging from 820 to 1,000 mg/L. Chloride concentrations ranged from 120 to 210 mg/L (below the recommended MCL of 250 mg/L). Sulfate concentrations ranged from 150–200 mg/L (below the recommended MCL of 250 mg/L). Boron concentrations ranged from 0.3–0.6 mg/L (one sample was above the recommended level of 0.5 mg/L for irrigation of boron-sensitive crops). Nitrate concentrations ranged from 29 to 100 mg/L, and were highest to the north. Nitrate concentrations in water from three of five wells sampled equaled or exceeded the MCL for public water supplies of 45 mg/L (Kenneth D. Schmidt and Associates 2010: 29–31).

A contaminated groundwater plume, known as the IRP Site 17 Administration Area Plume, is present underneath a portion of the project site east of the runways. The contamination was caused by leaks from underground fuel storage tanks associated with the former NALF Crows Landing. The chemicals of concern include benzene, 1,2-dichloroethane, total petroleum hydrocarbons as gasoline, total petroleum hydrocarbons as diesel, and carbon tetrachloride. The plume contaminants appear to be limited to the shallow aquifer, above the Corcoran clay. The Navy maintains a 2,000-foot pumping restriction at the Crows Landing Air Facility around the contamination plume (see Exhibit 3.9-1). Details regarding the nature of groundwater contamination, and an evaluation of potential hazards associated with the contaminated groundwater, are contained in Section 3.9, "Hazards and Hazardous Materials."

The most frequently occurring contaminants in the Delta-Mendota subbasin, based on reported well data through the year 2000, are listed in Table 3.10-5.

Table 3.10-5.
Frequently Occurring Groundwater Contaminants in Public Supply Wells
Delta-Mendota Subbasin

Contaminant	Number of Wells Sampled	Number of Wells with Concentrations Above an MCL
Inorganics – Primary	47	2
Inorganics – Secondary	47	18
Radiological	47	1
Nitrates	51	4
Pesticides	47	1
VOCs and SVOCs	45	0

Notes:
MCL = maximum contaminant level
VOCs = volatile organic compounds
SVOCs = semi-volatile organic compounds
Source: DWR 2006

SEISMIC SEICHES

Earthquakes may affect open bodies of water by creating seismic sea waves (often called "tidal waves" or "tsunami") and seiches. Seismic sea waves are caused by abrupt ground movements (usually vertical) on the ocean floor in connection with a major earthquake. Because the project site is far from the Pacific Ocean, seismic sea waves would not represent a hazard.

A seiche is a sloshing of water in an enclosed or restricted water body, such as a basin, river, or lake that is caused by earthquake motion; the sloshing can occur for a few minutes or several hours. Little Salado Creek and the Delta-Mendota Canal are too small to represent a seiche hazard. The proposed project includes construction of a linear detention basin with a capacity of 380 acre-feet. Because the detention basin is a linear feature that is designed to drain regularly within 48 hours post-storm event (to avoid air hazards), seismic seiches and associated flooding would not represent a significant hazard. Furthermore, it is unlikely that that a 100-year flood event would coincide with an earthquake.

3.10.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for managing water quality. The Clean Water Act (CWA) of 1972 is the primary federal law that governs and authorizes EPA and the individual states to implement activities to control water quality. The various elements of the CWA that address water quality and are applicable to the project are discussed below. Wetland protection elements administered by the U.S. Army Corps of Engineers (USACE) under Section 404 of the CWA, including permits for the discharge of dredged and/or fill material into waters of the U.S., are discussed in Section 3.4 of this EIR, "Biological Resources."

Water Quality Criteria and Standards

Under federal law, EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations. Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the U.S. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Where multiple uses exist, water quality standards must protect the most sensitive use. EPA is the federal agency with primary authority for implementing regulations adopted under the CWA. EPA has delegated the State of California as the authority to implement and oversee most of the programs authorized or adopted for CWA compliance through the Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne Act), described below.

National Pollutant Discharge Elimination System Permit Program

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the CWA to regulate municipal and industrial point discharges to surface waters of the United States. Each NPDES permit for point discharges contains limits on allowable concentrations of pollutants contained in discharges. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

The CWA was amended in 1987 to require NPDES permits for nonpoint-source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of NPDES stormwater regulations is to improve the quality of stormwater discharged to receiving waters to the "maximum extent practicable" through the use of structural and nonstructural best management practices (BMPs). BMPs can include the development and implementation of various practices: educational measures (workshops informing the public of what impacts result when household chemicals are dumped into storm drains), regulatory measures (local authority for drainage facility design), public policy measures, and structural measures (bioretention planters, grass swales, and detention ponds).

NPDES permits generally identify effluent and receiving water limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge; prohibitions on discharges not specifically allowed under the permit; and provisions that describe required actions by the discharger, including industrial pretreatment, pollution prevention, self-monitoring, and other activities.

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the U.S.) must first obtain a certificate from the appropriate state agency stating that the fill is consistent with the state's water quality standards and criteria. In California, the authority to either grant water quality certification or waive the requirement is delegated by the SWRCB to the nine RWQCBs.

Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that would not attain water quality objectives after implementation of required levels of treatment by point-source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of loading that the water body can receive and still be in compliance with water quality objectives. The TMDL prepared by the state must include an allocation of allowable loadings

to point and nonpoint sources, with consideration of background loadings and a margin of safety. The TMDL must also include an analysis that shows links between loading reductions and the attainment of water quality objectives. The EPA must either approve a TMDL prepared by the state or, if it disapproves the state's TMDL, issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. After implementation of the TMDL, it is anticipated that the problems that led to placement of a given pollutant on the Section 303(d) list would be remediated.

Federal Emergency Management Agency

FEMA administers the National Flood Insurance Program to provide subsidized flood insurance to communities that comply with FEMA regulations that limit development in floodplains. FEMA also issues Flood Insurance Rate Maps (FIRMs) that identify land areas subject to flooding. These maps provide flood information and identify flood hazard zones in the community. The design standard for flood protection covered by the FIRMs is established by FEMA, with the minimum level of flood protection for new development determined to be the 1-in-100 (0.01 annual exceedance probability or the 100-year flood event). As developments are proposed and constructed FEMA is also responsible for issuing revisions to FIRMs, such as Conditional Letters of Map Revision (CLOMR) and Letters of Map Revision (LOMR) through the local agencies that work with the National Flood Insurance Program.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

In California, the SWRCB has broad authority over water-quality control issues for the state. The SWRCB is responsible for developing statewide water quality policy and exercises the powers delegated to the State by the federal government under the CWA. Other State agencies with jurisdiction over water quality regulation in California include the California Department of Public Health (CDPH) for drinking-water regulations, the California Department of Pesticide Regulation, the California Department of Fish and Wildlife (DFW), and the Office of Environmental Health Hazard Assessment (OEHHA).

Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The regional boards are required to formulate and adopt Basin Plans for all areas in the region and establish water quality objectives in the plans. California water quality objectives (or "criteria" under the CWA) are found in the Basin Plans adopted by the SWRCB and each of the nine RWQCBs. The Central Valley RWQCB is responsible for the regional area in which the project site is located.

Title 22 Standards

Water quality standards are enforceable limits composed of two parts: (1) the designated beneficial uses of water, and (2) criteria (numeric or narrative limits) to protect those beneficial uses. Municipal and domestic supply (MUN) is among the "beneficial uses" as defined in Section 13050(f) of the Porter-Cologne Act, which defines them as uses of surface water and groundwater that must be protected against water quality degradation. MCLs are components of the drinking water standards adopted by the CDPH pursuant to the California Safe Drinking Water Act. California MCLs may be found in Title 22 of the CCR, Division 4, Chapter 15, Domestic Water Quality and Monitoring. The CDPH is responsible for Title 22 of the CCR (Article 16, Section 64449) as well, which also defines secondary drinking water standards, established primarily for reasons of consumer acceptance (i.e., taste) rather than because of health issues.

California MCLs, both Primary and Secondary, are directly applicable to groundwater and surface water resources when they are specifically referenced as water quality objectives in the pertinent Basin Plan. In such cases, MCLs become enforceable limits by the SWRCB and the RWQCBs. When fully health protective, MCLs may also be used to interpret narrative water quality objectives prohibiting toxicity to humans in water designated as a source of drinking water (MUN) in the Basin Plan.

California Toxics Rule and State Implementation Plan

The California Toxics Rule (CTR) was issued in 2000 in response to requirements of the EPA National Toxics Rule (NTR), and establishes numeric water quality criteria for approximately 130 priority pollutant trace metals and organic compounds. The CTR criteria are regulatory criteria adopted for inland surface waters, enclosed bays, and estuaries in California that are subject CWA Section 303(c). The CTR includes criteria for the protection of aquatic life and human health. Human health criteria (water and organism based) apply to all waters with a Municipal and Domestic Water Supply Beneficial Use designation, as indicated in the Basin Plans.

The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as the State Implementation Plan (SIP), was adopted by the SWRCB in 2000. It establishes provisions for translating CTR criteria, NTR criteria, and Basin Plan water quality objectives for toxic pollutants into NPDES permit effluent limits, effluent compliance determinations, monitoring for 2,3,7,8-TCDD (dioxin) and its toxic equivalents, chronic (long-term) toxicity control provisions, initiating site-specific water quality objective development, and granting of exceptions for effluent compliance. The goal of the SIP is to establish a standardized approach for the permitting of discharges of toxic effluents to inland surface waters, enclosed bays, and estuaries in a consistent fashion throughout the state.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act is California's statutory authority for the protection of water quality. Under the act, the State must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. The Porter-Cologne Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update basin plans. Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act that establish beneficial uses, water quality objectives, and implementation programs for each of the nine regions in California.

The act also requires waste dischargers to notify the RWQCBs of their activities by filing reports of waste discharge (RWDs) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWDs and/or WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects when implemented according to prescribed terms and conditions.

Central Valley Basin Plan

The *Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin* (Basin Plan) (Central Valley RWQCB 2011) describes the officially designated beneficial uses for specific surface water and groundwater resources and the enforceable water quality objectives necessary to protect those beneficial uses.

Basin Plans are generally updated every 3 years by the Central Valley RWQCB in compliance with the Porter-Cologne Act.

The Basin Plan includes numerical and narrative water quality objectives for physical and chemical water quality constituents. Numerical objectives are set for temperature; dissolved oxygen; turbidity; pH (i.e., acidity); total dissolved solids; electrical conductivity; bacterial content; and various specific ions, trace metals, and synthetic organic compounds. Narrative objectives are set for parameters such as suspended solids, biostimulatory substances (e.g., nitrogen and phosphorus), oils and grease, color, taste, and aquatic toxicity. Narrative objectives are often precursors to numeric objectives. The RWQCB issues WDRs for projects that may discharge wastes to land or water uses to ensure conformance with Basin Plan water quality objectives and implementation policies. WDRs specify terms and conditions that must be followed during the implementation and operation of a project.

California State Antidegradation Policy

In 1968, as required under the federal antidegradation policy described above, the SWRCB adopted Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California ["Antidegradation Policy"]) aimed at maintaining high quality for waters in California. The antidegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

- Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

- Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements, which would ensure (1) pollution or nuisance would not occur and (2) the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

Irrigated Lands Regulatory Program

Water discharges from agricultural operations in California include irrigation runoff, flows from tile drains, and stormwater runoff. These discharges can affect water quality by transporting pollutants, including pesticides, sediment, nutrients, salts (including selenium and boron), pathogens, and heavy metals, from cultivated fields into surface waters. Many surface water bodies are impaired because of pollutants from agricultural sources. Groundwater bodies have suffered pesticide, nitrate, and salt contamination.

To prevent agricultural discharges from impairing the waters that receive these discharges, the Irrigated Lands Regulatory Program was initiated in 2003 and regulates discharges from irrigated agricultural lands. The Central Valley RWQCB has adopted WDRs for discharges from irrigated lands to protect both surface water and groundwater throughout the Central Valley (Central Valley RWQCB 2015). The WDRs replace the interim regulatory requirements under a Conditional Waiver of Waste Discharge Requirements. Under the Irrigated Lands Regulatory Program, the Central Valley RWQCB issues WDRs or conditional waivers of WDRs (Orders) to

growers. These orders contain conditions requiring water quality monitoring of receiving waters and corrective actions when impairments are found.

All commercial irrigated lands, including nurseries and managed wetlands, are required to obtain regulatory coverage from the Central Valley RWQCB. Regulatory coverage is not required if a property is not used for commercial purposes, or if commercial irrigated lands are covered under the dairy program. Options for regulatory coverage include joining a coalition group (e.g., Order R5-2014-0002-R2 encompasses the Western San Joaquin River Watershed, which includes the project site), obtaining coverage as an individual grower under general WDRs (Order R5-2013-0100), or obtaining an individual permit. The coalition groups work directly with their member growers to assist in complying with requirements by conducting monitoring and preparing regional plans to address water quality problems (Central Valley RWQCB 2015).

California Water Code – Dam Safety Program

The California Water Code designates the regulatory Dam Safety Program to DWR, Division of Safety of Dams (DSOD). The principal goal of this program is to avoid dam failure and thus prevent loss of life and destruction of property. The DSOD reviews plans and specifications for the construction of new dams and for the enlargement, alteration, repair, or removal of existing dams, and must grant written approval before the owner can proceed with construction. Professional engineers and geologists from the DSOD evaluate each project, investigate proposed sites, and check available construction materials. Dams under DSOD jurisdiction include artificial barriers (together with appurtenant works) that are 25 feet or more in height or have an impounding capacity of 50 acre-feet or more. Any artificial barrier not in excess of 6 feet in height, regardless of storage capacity, or that has a storage capacity not in excess of 15 acre-feet, regardless of height, is not considered jurisdictional (DWR 2016a).

The proposed detention basin, which would impound 380 acre-feet, may fall under DSOD jurisdiction.

National Pollutant Discharge Elimination System Permit System and Waste Discharge Requirements for Construction

The SWRCB and Central Valley RWQCB have adopted specific NPDES permits for a variety of activities that have the potential to discharge wastes to waters of the state. The SWRCB's statewide stormwater general permit for construction activity (Order 2009-009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ) is applicable to all land-disturbing construction activities that would disturb 1 acre or more of land area. The Central Valley RWQCB's general NPDES permit for construction dewatering activity (Order No. R5-2013-0074) authorizes direct discharges to surface waters up to 250,000 gallons per day for no more than a 4-month period each year. All of the NPDES permits involve similar processes, which include submitting notices of intent to discharge to the Central Valley RWQCB and implementing storm water pollution prevention plans (SWPPPs) that include BMPs to minimize those discharges. As mentioned above, the Central Valley RWQCB may also issue site-specific WDRs or waivers to WDRs for certain waste discharges to land or waters of the state. In particular, Central Valley RWQCB Resolution R5-2003-0008 identifies activities subject to waivers of RWDs and/or WDRs, including minor dredging activities and construction dewatering activities that discharge to land.

Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider using permanent post-construction

BMPs that would remain in service to protect water quality throughout the life of the project. All NPDES permits also have inspection, monitoring, and reporting requirements.

In addition, the Central Valley RWQCB requires water quality sampling if the activity could result in the discharge of turbidity or sediment to a water body that is listed as impaired under CWA Section 303(d) because of sediment or siltation, or if a release of a nonvisible contaminant occurs. Where such pollutants are known or should be known to be present and have the potential to contact runoff, sampling and analysis is required.

The applicant for a Construction General Permit must prepare and implement a storm water pollution prevention plan (SWPPP). The SWPPP must include a site map and description of construction activities, and must identify BMPs that would be employed to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, and cement) that could contaminate nearby water resources. Examples of construction BMPs typically included in SWPPPs include using temporary mulching, seeding, or other suitable stabilization measures to protect uncovered soils; storing materials and equipment to ensure that spills or leaks cannot enter the storm drain system or surface water; developing and implementing a spill prevention and cleanup plan; and installing sediment-control devices such as gravel bags, inlet filters, fiber rolls, or silt fences to reduce or eliminate sediment and other pollutant discharges to drainage systems or receiving waters.

National Pollutant Discharge Elimination System Municipal Storm Water Permitting Program

The SWRCB's Municipal Storm Water Permitting Program regulates stormwater discharges from MS4s. An MS4 is defined by the EPA in 40 Code of Federal Regulations (CFR) 122.26(b)(8) as:

> …a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying storm water; (ii) which is not a combined sewer; and (iii) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. (SWRCB 2003.)

MS4 permits are issued in two phases. Under Phase I, which started in 1990, the RWQCBs adopted NPDES stormwater permits for medium and large municipalities (serving 100,000–250,000 people and 250,000 or more people, respectively). Most of these permits are issued to a group of co-permittees encompassing an entire metropolitan area.

As part of Phase II, the SWRCB adopted the General Permit for the Discharge of Storm Water from Small MS4s (Order No. 2003-0005-DWQ, as amended by Order No. 2013-0001 DWQ) to provide permit coverage for smaller jurisdictions (SWRCB 2003).

An MS4 permit requires the discharger to develop and implement a stormwater management plan with the goal of reducing the discharge of pollutants to the maximum extent practicable (MEP). "Maximum extent practicable" is the performance standard specified in Section 402(p) of the CWA. The management plans specify what BMPs will be used to address certain program areas—namely, public education and outreach, detection and elimination of illicit discharges, construction and post-construction, and municipal operations.

Landowners are responsible for applying for coverage under the permit and complying with permit requirements, but may delegate specific duties to developers and contractors by mutual consent. Permit applicants are required to prepare and implement a SWPPP that describes the site; erosion and sediment controls; means of waste

disposal; implementation of local plans; control of post-construction sediment and erosion control measures and maintenance responsibilities; and non-stormwater management control.

There are two types of small MS4 permittees: regular and non-traditional. A non-traditional small MS4 consists of a stormwater system serving a public campus, municipality, military base, prison, or hospital that is located within or discharges to a permitted MS4, or that poses a "significant threat" to receiving water quality (SWRCB 2003). The SWRCB and Central Valley RWQCB have not officially designated any MS4s as "non-traditional."

Sustainable Groundwater Management Act

In 2014, the California Legislature enacted a three-bill law (Assembly Bill-1739, Senate Bill [SB]-1168, and SB-1319), known as the Sustainable Groundwater Management Act (SGMA). The SGMA was created to provide a framework for the sustainable management of groundwater supplies, and to strengthen local control and management of groundwater basins throughout the state with little State intervention. The SGMA is intended to authorize local agencies to adopt groundwater management plans that are tailored to the resources and needs of their communities, such that sustainable management would provide a buffer against drought and climate change, and ensure reliable water supplies regardless of weather patterns. The SGMA is considered part of the statewide, comprehensive California Water Action Plan that includes water conservation, water recycling, expanded water storage, safe drinking water, and wetlands and watershed restoration. The SMGA protects existing surface water and groundwater rights and does not affect drought response measures.

The SGMA requires that local agencies form a local groundwater sustainability agency (GSA) within 2 years (i.e., by 2017). Agencies located within high- or medium-priority basins must adopt groundwater sustainability plans (GSP) within 5 to 7 years. The time frame for basins determined by DWR to be in a condition of "critical overdraft" is 5 years (i.e., by 2020). Local agencies will have 20 years to fully implement GSPs after the plans have been adopted. Intervention by the SWRCB would occur if a GSA is not formed by the local agencies, and/or if a GSP is not adopted or implemented. The "DM-II" Groundwater Sustainability Agency, which includes the Specific Plan Area, was created by the June 30, 2017 deadline. The Northern & Central Delta Mendota GSA groups will be developing and implementing a Groundwater Sustainability Plan (GSP) for an area that encompasses the Specific Plan Area.

The SGMA requires local agencies to develop and implement groundwater sustainability plans in high- and medium-priority groundwater basins throughout the State of California. Although, as described previously, hydrographs near the project site suggest that groundwater levels near the project site recover quickly after pumping ceases, in 2014, DWR designated the Delta-Mendota Subbasin as high priority (DWR 2014). The Delta-Mendota Subbasin is included on DWR's list of critically overdrafted basins (DWR 2016b). Local agencies must form groundwater sustainability agencies by 2017, then agencies in critically overdrafted basins must develop plans by 2020, while agencies in all other high and medium priority basins must prepare plans by 2022.

Regional and Local Plans, Policies, Regulations, and Laws

Westside San Joaquin River Watershed Coalition

The SJVDA, a joint powers agency, is the umbrella organization for the Westside Coalition. Its members are composed of water, irrigation, and drainage districts generally on the west side of the San Joaquin Valley, from Tracy in the north to Tulare Lake in the south, that are interested in a variety of drainage issues. The Patterson

Irrigation District, which owns and operates the Marshall Road Drain, is a member of the Westside Coalition. Little Salado Creek, which carries runoff from the project site, discharges into the Marshall Road Drain.

In 2008, the Central Valley RWQCB approved the *Westside San Joaquin River Watershed Coalition Management Plan*, which describes monitoring and management practice activities that will take place throughout the Westside Coalition area (including the Marshall Road Drain). The management plan contains the following goals (SJVDA 2008):

- Identify the irrigated agriculture source(s), either a general practice or a specific location, that may be causing water quality problems, or prepared a study design to determine the source(s).
- Identify management practices to be implemented to address water quality exceedances.
- Develop a management practice implementation schedule; implementation may occur through another Central Valley RWQCB regulatory program designed to address the specific exceedances.
- Develop management practice performance goals with a schedule.
- Develop a waste-specific monitoring schedule.
- Develop a process and schedule for evaluating management practice effectiveness.
- Identify the participants and coalition group(s) that will implement the management plan.
- Identify a routine schedule of reporting to the Central Valley RWQCB.

A focused watershed management plan for the Marshall Road Drain subwatershed was subsequently prepared in 2013 (SJVDA 2013). The focused watershed management plan includes: determinations of pesticide use, determinations of management practice (MP) implementation, intensified outreach to growers, approaches to implement additional MPs to address water quality exceedances, and monitoring to determine MP effectiveness. The plan was prepared specifically to address issues related to aquatic toxicity, pesticides, sediment toxicity, and sediment discharge.

Stanislaus County Storm Water Management Program

The County's Storm Water Management Program (SWMP) was designed to be consistent with NPDES Phase II MS4 permit procedures to enable the County to comply with CWA. The SWMP sets forth a program that the County will implement to ensure compliance with the General Permit for the Discharge of Storm Water from Small MS4s (Stanislaus County 2004).

A stormwater management program for small municipal separate storm sewer systems must be composed of six elements that, when implemented in concert, are expected to result in substantial reductions of pollutants discharged into receiving water bodies. These six elements, termed "minimum control measures," as contained in the SWMP are as follows:

- Public Education and Outreach
- Public Participation and Involvement

- Illicit Discharge Elimination
- Construction Site BMPs 1 Acre or More
- Post-Construction BMPs
- Municipal Activities

The SWMP requires control of stormwater runoff from construction sites in order reduce pollutants in storm sewer systems from construction sites. NPDES Phase II requires Stanislaus County to:

- Adopt, maintain, and enforce an ordinance, policy, or other regulatory mechanism to require erosion and sediment controls at the construction sites, as well as sanctions to ensure compliance.

- Develop and implement requirements for construction site operators to implement appropriate erosion and sediment control best management practices.

- Develop and implement requirements for construction site operators to control waste, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.

- Develop and implement procedures for site plan review, which incorporate consideration of potential water quality impacts.

- Develop and implement procedures for receipt of and response to information submitted by the public regarding stormwater runoff impacts due to construction projects.

- Develop and implement procedures for site inspection and enforcement of control measures.

The SWMP also requires post-construction stormwater management in order to reduce, long term, the type and quantity of pollutants in stormwater runoff, and the quantity of water delivered to water bodies during storms after construction. The NPDES Phase II MS4 permit requires Stanislaus County to:

- Develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to 1 acre, including projects less than 1 acre that are part of a larger common plan of development or sale, that discharge into Small MS4 by ensuring that controls are in place that would prevent or minimize water quality impacts.

- Adopt and enforce an ordinance, policy, or other regulatory mechanism that requires projects to include long-term operation and maintenance of appropriate BMPs to address post-construction runoff.

- Develop and implement strategies which include a combination of structural and/or nonstructural BMPs appropriate for the community.

- Ensure adequate long-term operation and maintenance of BMPs.

These provisions are implemented primarily through Stanislaus County Code of Ordinances Chapter 14.14, the *Stanislaus County Standards and Specifications* (Stanislaus County 2014), and the County's permit review process.

Stanislaus County Stormwater Management and Discharge Control Ordinance

Chapter 14.14 of the Stanislaus County Code of Ordinances was enacted to control non-stormwater discharges to the stormwater conveyance system from spills, dumping, or disposal of materials other than stormwater; reduce pollutants in urban stormwater discharges to the maximum extent practicable; protect and enhance the water quality of watercourses, water bodies, and wetlands in a manner consistent with CWA; and prohibit non-stormwater discharges into the storm drain system.

The ordinance requires county businesses that may result in pollutant discharges (e.g., maintenance, storage, manufacturing, assembly, equipment operations, vehicle loading or fueling, and outdoor cleanup activities) to develop and implement a SWPPP, which must include an employee training program for the purpose of educating its employees on methods of reducing discharge of pollutants to the stormwater conveyance system.

The ordinance also requires that businesses requiring a hazardous materials release response and inventory plan (Chapter 6.95, Division 20, California Health & Safety Code) include in that plan provisions prohibiting non-stormwater discharges and illegal discharges, and requiring the release of pollutants to be reduced to the maximum extent practicable.

Finally, the County may also require controls, as appropriate, to minimize long-term, post-construction discharges of stormwater pollutants from new developments. Controls may include source control measures to prevent pollution of stormwater and/or treatment controls designed to remove pollutants from stormwater.

Stanislaus County Groundwater Ordinance

Development of the proposed project, including the use of groundwater resources to support project water demands, must comply with the Stanislaus County Groundwater Ordinance (Chapter 9.37 of the Stanislaus County Code), which codifies requirements, prohibitions, and exemptions for permitting new wells with the intent of supporting sustainable groundwater extraction. Stanislaus County's Groundwater Ordinance is aligned with the requirements of Sustainable Groundwater Management Act. Under the ordinance, an applicant that wishes to install a new groundwater well, unless otherwise exempt, must first provide substantial evidence that the well is not unsustainably extracting groundwater, as defined in the Stanislaus County Groundwater Ordinance and in the Sustainable Groundwater Management Act. The ordinance and Sustainable Groundwater Management Act define unsustainable extraction as causing undesirable results, which is defined as one or more of the following:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed, as necessary, to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
- Significant and unreasonable reduction of groundwater storage.
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
- Significant and unreasonable land subsidence that substantially interferes with surface land uses.

- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The proposed project is not exempt from these requirements. Prior to issuing a permit to construct a new groundwater supply well at the project site, the County will make a determination regarding sustainable groundwater extraction.

Stanislaus County General Plan

The County's General Plan includes policies and implementation measures in the Conservation/Open Space, Agricultural, and Safety Elements that relate to hydrology and water quality, including those identified below.

Conservation/Open Space Element

- **POLICY FIVE** – Protect groundwater aquifers and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

  - **IMPLEMENTATION MEASURE 1** – Proposals for urbanization in groundwater recharge areas shall be reviewed to ensure that (1) as much water as possible is returned to the recharge area, (2) the development will not cause discharge of materials detrimental to the quality of the water, and (3) the development will not result in significant groundwater overdrafting or deterioration in quality. The Department of Environmental Resources shall require:

    A. In those areas where groundwaters are susceptible to overdrafting, the project proponent shall perform a hydrogeological analysis and include appropriate mitigation measures in the proposal.

    B. In those areas where groundwater quality is susceptible to deterioration or is already of reduced quality, the level of wastewater treatment shall be such that it will not cause further quality deterioration.

  - **IMPLEMENTATION MEASURE 2** – The Department of Environmental Resources shall identify and require control of point sources for pollutants stored, handled or disposed of on the surface of the soil or in the vadose zone that is located in the zone or aeration immediately above the groundwater level. Potential sources of pollutants to the groundwater may also include high densities of individual on-site sewage treatment units and/or the use of community package treatment plants. The Department of Environmental Resources shall require the adoption of groundwater monitoring programs for projects where hydrogeological assessments indicate the potential for groundwater deterioration is likely.

  - **IMPLEMENTATION MEASURE 4** – Encourage new development to incorporate water conservation measures to minimize adverse impacts on water supplies.

  - **IMPLEMENTATION MEASURE 5** – Continue to implement the landscape provisions of the Zoning Ordinance, which encourage drought-tolerant landscaping and water-conserving irrigation methods.

  - **IMPLEMENTATION MEASURE 6** – During the project and environmental review process, encourage new urban development to be served by community wastewater treatment facilities and water systems rather than by package treatment plants or private septic tanks and wells.

- **POLICY SIX –** Preserve vegetation to protect waterways from bank erosion and siltation.
  - **IMPLEMENTATION MEASURE 2** – Continue to encourage best management practices for agriculture and coordinate with soil and water conservation efforts of Stanislaus County Farm Bureau, Resource Conservation Districts, the U.S. Soil Conservation Service, and local irrigation districts.
- **POLICY SIXTEEN** – Discourage development on lands that are subject to flooding, landslide, faulting or any natural disaster to minimize loss of life and property.
  - **IMPLEMENTATION MEASURE 2** – Development will not be permitted in floodways unless it meets the requirements of Chapter 16.50 of the County Code and is approved by the State Reclamation Board.
  - **IMPLEMENTATION MEASURE 5** – The County shall utilize the California Environmental Quality Act (CEQA) process to ensure that development does not occur that would be subject to natural disasters.

Agricultural Element

- **POLICY 2.6** – Agricultural lands restricted to agricultural use shall not be assessed to pay for infrastructure needed to accommodate urban development.
- **POLICY 3.5** – The County will continue to protect the quality of water necessary for crop production and marketing.
  - **IMPLEMENTATION MEASURE 1** – The County shall continue to require analysis of groundwater impacts in Environmental Impact Reports for proposed developments.
- **POLICY 3.6** – The County will continue to protect local groundwater for agricultural, rural domestic, and urban use in Stanislaus County.
- **IMPLEMENTATION MEASURE 1** – The County shall implement the existing groundwater ordinance to ensure the sustainable supply and quality of local groundwater.

Safety Element

- **POLICY THREE** – Development should not be allowed in areas that are particularly susceptible to seismic hazard.
  - **IMPLEMENTATION MEASURE 3** – Development proposals adjacent to reservoirs shall include evaluations of the potential impacts from a seismically induced seiche.

3.10.3 Environmental Impacts and Mitigation Measures

Methodology

This analysis relies on various publicly available hydrology and water quality studies, as well as site-specific technical planning studies generated to support the proposed development. Hydrology, drainage, and groundwater-related studies reviewed in support of this analysis include the following:

- *Drainage Study for Crows Landing Industrial Business Park, Stanislaus County* (AECOM 2016a)
- *Stanislaus County Standards and Specifications* (Stanislaus County 2014)
- *Groundwater Resources Impact Assessment*, Crows Landing Industrial Business Park (JJ&A 2016)

Impacts associated with drainage, hydrology, flooding, and water quality that could result from construction and operational activities related to buildout of the proposed project were evaluated based on expected construction practice, the materials used, and the locations and duration of the activities. The effects of the proposed development were compared to environmental baseline conditions (i.e., existing conditions) to determine the duration and magnitude of impacts.

Impacts related to water supply are addressed in Section 3.15, "Utilities and Service Systems." Please also see Impact 3.9-2 in Section 3.9, "Hazards and Hazardous Materials" for a discussion of impacts related to water quality associated with the Site 17 Administration Area Plume.

THRESHOLDS OF SIGNIFICANCE

Based on the *CEQA Guidelines*, Appendix G, the proposed project would result in a significant impact related to hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements, including NPDES waste discharge or stormwater runoff requirements, State or federal anti-degradation policies, enforceable water quality standards contained in the Central Valley RWQCB Basin Plan or statewide water quality control plans, or federal rulemakings to establish water quality standards in California;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-site or off-site; or that would increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- create or contribute runoff water that would exceed the capacity (peak flow) of existing or planned stormwater drainage systems;
- otherwise substantially degrade water quality;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a substantial lowering of the level of the local groundwater table;
- place within a 100-year (0.01 annual exceedance probability [AEP]) flood hazard area housing, or structures that would impede or redirect flood flows; or
- expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- create a substantial flooding risk as a result of a seismic seiche.

IMPACT ANALYSIS

IMPACT 3.10-1 **Potential temporary, short-term construction-related drainage and water quality effects.** *Construction activities during project implementation would involve extensive grading and movement of earth, which would substantially alter on-site drainage patterns and could generate sediment, erosion, and other nonpoint source pollutants in on-site stormwater that could drain to off-site areas and degrade local water quality. This impact is considered* ***potentially significant.***

Construction activities associated with the project, including vegetation removal, grading, staging, trenching, and foundation excavation, would expose soils to erosive forces and could transport sediment into local drainages, thereby increasing turbidity, degrading water quality, and resulting in siltation to local waterways. The project site slopes gently from a maximum elevation of approximately 200 feet msl in the southwest corner to approximately 120 feet msl in the northeast corner at the intersection of Marshall Road and SR 33. Intense rainfall and associated stormwater runoff could result in short periods of sheet erosion within areas of exposed or stockpiled soils. If uncontrolled, these soil materials could cause sedimentation and blockage of drainage channels. Further, the compaction of soils by heavy equipment may further reduce the infiltration capacity of soils and increase the potential for runoff and erosion. In addition, off-site activities, such as installation of a sewer line, water conveyance connections if an option involving the City of Patterson or Crows Landing Community Services District, and road widening across the Delta-Mendota Canal, and road widening potentially over other waterways in the vicinity, such as Little Salado Creek or Salado Creek, could also result in sediment transport into these waterbodies.

Non-stormwater discharges could result from activities, such as construction dewatering procedures, or discharge or accidental spills of hazardous substances such as fuels, oils, petroleum hydrocarbons, concrete, paints, solvents, cleaners, or other construction materials. This contaminated runoff could enter on-site and off-site drainage channels, such as Little Salado Creek, Salado Creek, or the Delta-Mendota Canal and ultimately drain off-site to downstream waterbodies, including the Marshall Road Drain, San Joaquin River, and the Delta. Erosion and construction-related wastes have the potential to temporarily degrade existing water quality and beneficial uses by altering the dissolved oxygen content, temperature, pH, suspended sediment and turbidity levels, or nutrient content, or by causing toxic effects in the aquatic environment. Project-related construction activities could violate water quality standards or cause direct harm to aquatic organisms without appropriate planning. This impact is considered **potentially significant**.

Mitigation Measure 3.10-1a: Implement Mitigation Measure 3.8-3a (Prepare and Implement a Grading and Erosion Control Plan).

Mitigation Measure 3.10-1b: Prepare and Implement a Stormwater Pollution Prevention Plan and Associated Best Management Practices.

Prior to the start of earth-moving activities, leaseholders/developers/contractors for each project within the Specific Plan Area and for each off-site infrastructure improvement required to serve development under the Specific Plan shall obtain coverage under any applicable State or local stormwater permit for general construction activity, including the preparation and submittal of a project-specific storm water pollution prevention plan (SWPPP). The leaseholders/developers/contractors shall also prepare and submit erosion and sediment control and engineering plans and specifications for pollution prevention and control to the Stanislaus County Public Works Department.

The SWPPP shall identify and specify an effective combination of robust erosion and sediment control Best Management Practices (BMPs) and construction techniques accepted by the County for use at the time of construction that would reduce the potential for runoff and the release, mobilization, and exposure of pollutants from project-related construction sites. Where applicable, BMPs identified in the SWPPP shall be in place throughout all site work and construction activities and shall be used in all subsequent site development activities.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to any earth-moving activities.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of the above described mitigation measures would reduce the significant impact from short-term, temporary, construction-related drainage and water quality impacts to a **less-than-significant** level. Both the grading and erosion control plan and the SWPPP will be prepared and implemented to prevent erosion and protect water quality during construction activities. The SWPPP is required by law to specify and implement water quality control measures pursuant to the NPDES permit for construction activity (Order 2009-0009-DWQ); the *Waste Discharge Requirements For Storm Water Discharges From Small Municipal Separate Storm Sewer Systems* (SWRCB 2003); the *Storm Water Management Program for Stanislaus County* (Stanislaus County 2004) or more recent version if applicable; and the Stanislaus County Stormwater Management and Discharge Control Ordinance (Chapter 14.14 of the County Code).

IMPACT 3.10-2 Potential increased risk of flooding and hydromodification from increased stormwater runoff. *Project implementation would increase the amount of impervious surfaces, thereby increasing surface water runoff. This increase in surface runoff could result in an increase in both the total volume and the peak discharge rate of stormwater runoff, resulting in a greater potential for on- and off-site flooding. However, the project will include improvements in streambed conductance (infiltration) along Little Salado Creek resulting from construction of a proposed linear detention pond and will implement low-impact development (LID) design standards to treat stormwater on-site to minimize those effects. This impact is considered* ***potentially significant****.*

The proposed project would result in development of industrial, manufacturing, distribution, and other aviation-compatible land uses with associated roadway infrastructure, landscaping, and a large detention basin (approximately 40 acres). Because the project would be developed in phases, agricultural uses would continue on parts of the project site until full buildout. As buildout continues, impervious surfaces would increase. The actual amount of impervious surface is not known at this time, given the nature of this Specific Plan, but for industrial developments, the drainage model used to estimate runoff associated with project development assumes 72 percent impervious area on average. This increase in impervious surfaces could increase the peak discharge rate of stormwater runoff generated on the project site.

The County directed the preparation of a drainage study (AECOM 2016a) to identify the proposed drainage features necessary to detain stormwater runoff and reduce the potential for flooding. The Crows Landing Drainage Study is under separate cover and available for review on file with the County Planning and Community Development Department as an appendix to the Specific Plan. Please refer to Figure 6 of this Study for a

depiction of the planned infrastructure. The proposed project includes the following on-site drainage improvements:

- **Widening Little Salado Creek.** The new channel bottom width would range from 20 to 50 feet and conductivity (infiltration) would increase as part of this effort. The channel widening would occur downstream of the runway and continue approximately 11,500 feet to the site boundary at Marshall Road.

- **Adding Culverts in Little Salado Creek (under runway).** The existing culverts that convey drainage under the runway do not have enough capacity to convey a 100-year flood event. Therefore, additional box culverts would be added to convey water beneath the runway, and the two on-site drainage channels would be improved.

- **Elevating Davis Road.** An off-site portion of Davis Road extending from a location immediately south of its intersection with the Delta-Mendota Canal and Little Salado Creek to the intersection of Davis and Fink Roads would be raised to serve as a levee that would prevent 100-year flood flows from encroaching on the area west of the Delta-Mendota Canal. The approximately 1,200-foot segment of Davis Road would be elevated by at least 4 feet.

- **Constructing an On-Site Detention Basin.** A linear detention basin with a capacity of 380-acre-feet would be constructed on site and parallel to the portion of Bell Road south of its intersection with Marshall Road to detain both on-site and off-site flows that travel through the project site.

The existing watersheds at the project site and in its immediate vicinity were further delineated into 4 subwatersheds based on aerial topography for purposes of preliminary hydraulic modeling (see Exhibit 3.10-1). Excess stormwater runoff (i.e., flooding) is known to accumulate in the northeast portion of the project site because of (1) limited capacity in Little Salado Creek through the project site (including limited capacity through the culverts underneath an existing runway), and (2) limited capacity within the existing 24-inch Marshall Road Drain. During heavy rainfall events, stormwater runoff flows across SR 33, pools against the Union Pacific Railroad tracks (off site), eventually overtops the railroad, and flows northeasterly towards the San Joaquin River. In addition, flood flows migrate north in the direction of the city of Patterson.

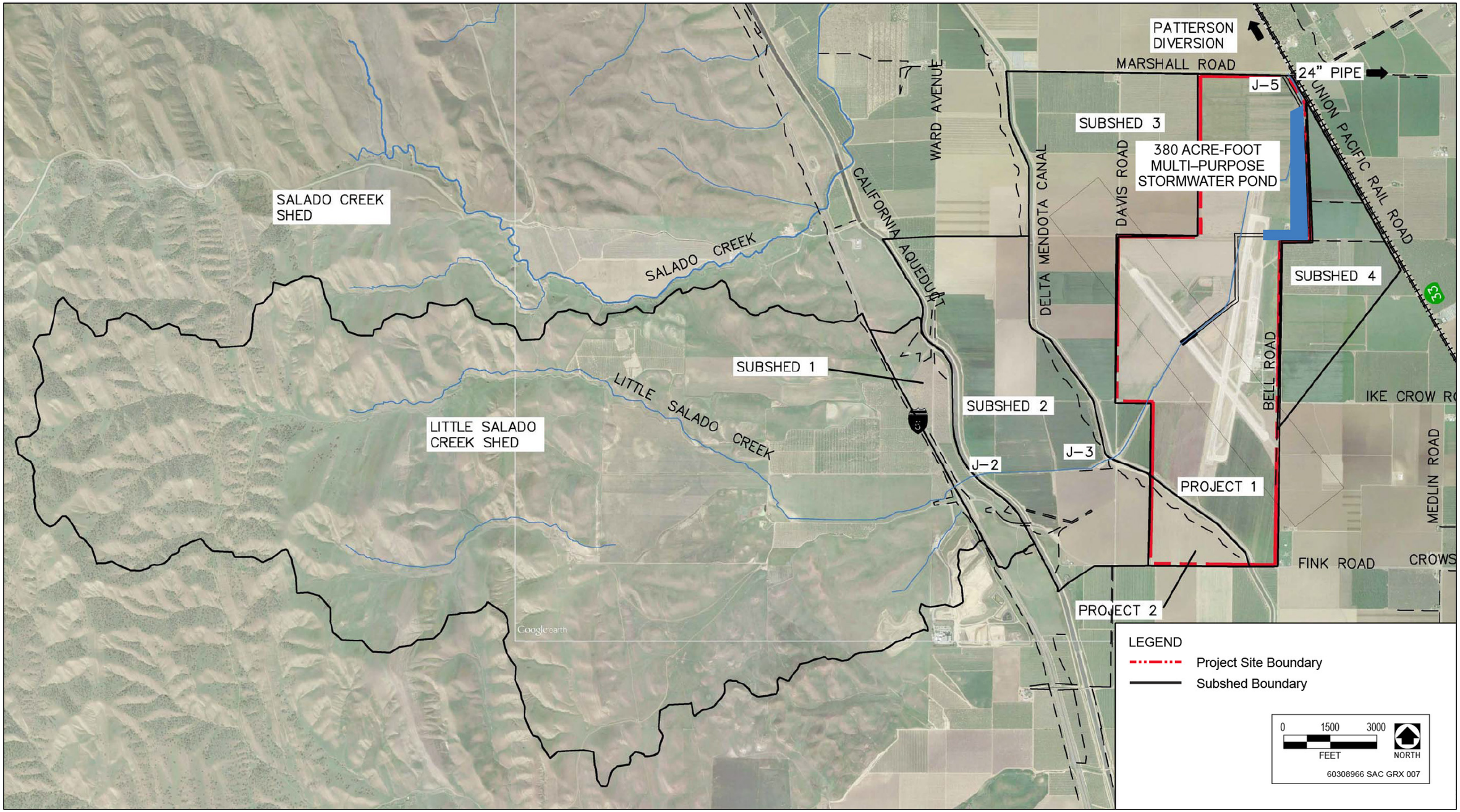
Surface flow data is lacking for Little Salado Creek, due to the absence of flow gauging stations or other hydrologic data collection facilities. As a result, flows were modeled based on procedures outlined in the *Stanislaus County Standards and Specifications* (Stanislaus County 2014: Chapter 4; AECOM 2016a:9). Composite Curve Numbers (CNs) were used to estimate runoff from the watershed areas. Composite CNs were weighted based on the acreage of each particular soil type within a given watershed. A HEC-HMS (version 3.1.0) model was developed for the proposed project to determine the peak flows for the 10-year, 100-year, and 500-year 24-hour design storm events. Flows at 24 locations were determined under existing and developed conditions (locations are shown on Exhibits 3.10-1 and 3.10-2). Modeling results of peak flows at these locations for each of the three design storm events are shown in Table 3.10-6.

Table 3.10-6.
Modeled Peak Flow Rates for 10-, 100-, and 500-Year Storm Events[1]

Modeled Locations	10-Year 24-Hour Storm		100-Year 24-Hour Storm		500-Year 24-Hour Storm	
	Existing Conditions Peak Flow (cfs)	Proposed (Developed) Conditions Peak Flow (cfs)	Existing Conditions Peak Flow (cfs)	Proposed (Developed) Conditions Peak Flow (cfs)	Existing Conditions Peak Flow (cfs)	Proposed (Developed) Conditions Peak Flow (cfs)
Little Salado Creek Shed	938	938	2,306	2,306	3,551	3,551
Subshed 1	33	30	84	78	132	121
J2	971	968	2,389	2,383	3,681	3,671
Little Salado Creek – California Aqueduct Culvert	839	837	1,384	1,382	1,668	1,666
Little Salado Creek from California Aqueduct to Delta-Mendota Canal	838	837	1,384	1,382	1,668	1,666
Subshed 2	86	86	216	216	337	337
J3	924	917	1,584	1,598	1,966	1,992
Project 2	N/A	31	N/A	55	N/A	75
Retention Basin 2	N/A	0	N/A	4	N/A	16
Little Salado Delta-Mendota Canal Culvert	676	679	700	700	700	700
Little Salado Creek	675	678	700	700	700	700
Little Salado Overtopping	250	N/A	250	N/A	250	N/A
J5	N/A	678	N/A	700	N/A	700
Spillway to Detention	N/A	360	N/A	366	N/A	366
Project 1	N/A	836	N/A	1,471	N/A	2,009
Retention Basin 1	N/A	0	N/A	24	N/A	185
Subshed 3	277	112	610	264	910	400
Subshed 4	N/A	42	N/A	97	N/A	147
On-Site Detention	N/A	109	N/A	295	N/A	319
Sediment Pond	527	498	860	729	1,160	933
Patterson[1] Diversion	517	487	850	718	1,149	922
24-inch pipe[1, 2]	8	11	8	11	9	11

Notes: cfs = cubic feet per second; "N/A" = a modeled location that either did not exist under existing conditions or was eliminated under developed conditions.
[1] Modeled off-site flow locations
[2] An increase in post-project flows is shown because modeling indicates that runoff would pool in the area of the 24-pipe higher than it can pool under existing conditions. However, the pipe has capacity for 11 cfs and therefore has capacity to carry the projected runoff.
Source: AECOM 2016a: 16

Peak flows from modeled location Junction J5 (shown on Exhibit 3.10-2) would be routed through a diversion structure that allows flows in Little Salado Creek to continue until the maximum allowable peak flow is reached (i.e., existing conditions). Any additional flows would be routed to a detention basin with a small outlet structure that would allow the basin to drain completely following storm events. A stage-storage-discharge rating, as shown in Table 3.10-7, was developed to model the proposed basin using HEC-HMS. Based on the model results, the basin would require a capacity of approximately 380 acre-feet and would cover an area of approximately 40 acres.



Source: AECOM 2016a

Exhibit 3.10-2. **Developed Conditions Subsheds and Modeled Flow Locations**

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Table 3.10-7
Stage-Storage-Discharge Model Results

Flow (cfs)	Elevation (feet)	Storage (acre-feet)
0	115	0
5	116	39
25	117	80
175	118	123
240	119	168
310	120	215
370	121	264

Note: cfs = cubic feet per second
Source: AECOM 2016a: Table 6

Potential changes to the hydrologic and geomorphic processes in a watershed that could occur as a result of new impervious surfaces and drainage infrastructure from development and off-site improvements include increased runoff volumes and dry weather flows, increased frequency and number of runoff events, increased long-term cumulative duration of flows, as well as increased peak flows. These changes are referred to as "hydromodification." Hydromodification intensifies the erosion and sediment transport process, and often leads to changes in stream channel geometry, streambed and streambank properties, which can result in degradation and loss of riparian habitat, and downgradient sediment deposition causing flooding problems. Hydromodification is one of the leading sources of impairment in streams, lakes, estuaries, aquifers, and other water bodies in the United States.

As described in Chapter 2, "Project Description" the proposed project will be developed in phases, with initial infrastructure including potable and non-potable water, sewer, stormwater management, dry utilities, and circulation improvements completed by Stanislaus County to support initiation of development in Phase 1. Both the County and project developers will be required to prepare site-specific hydromodification studies and incorporate appropriate measures to reduce hydromodification effects in order to comply with the County's MS4 permit requirement. Project proponents also will be required to incorporate Low Impact Development (LID) features into project designs to reduce stormwater runoff.

As required by the Specific Plan, the County would develop and implement approved drainage plans, demonstrating that off-site upstream runoff would be appropriately conveyed through the project site, and that project-related on-site runoff would be appropriately contained in detention basins or managed with through other improvements (e.g., source controls, biotechnical stream stabilization) to reduce flooding and hydromodification impacts.

The plans would include, but not be limited to, the following items:

- an accurate calculation of pre-project and post-project runoff scenarios, obtained using appropriate engineering methods, that accurately evaluates potential changes to runoff, including increased surface runoff;
- runoff calculations for the 10-year, 100-year (0.01 AEP), and 500-year storm events (and other, smaller storm events as required) shall be performed and the trunk drainage pipeline sizes confirmed based on alignments and detention facility locations finalized in the design phase;

- a description of the proposed maintenance program for the on-site drainage system;
- project-specific standards for installing drainage systems;
- Stanislaus County flood control design requirements and measures designed to comply with them;
- use of LID techniques in the project-specific site designs to limit increases in stormwater runoff at the point of origination (these may include, but are not limited to: surface swales; replacement of conventional impervious surfaces with pervious surfaces [e.g., porous pavement]; impervious surfaces disconnection; and vegetation to intercept stormwater);
- implementation of stormwater management BMPs that avoid increases in the erosive force of flows beyond a specific range of conditions needed to limit hydromodification and maintain stream geomorphology.

These BMPs and hydromodification measures would be designed and implemented in accordance with applicable requirements of the Post Construction Standards Plan (Stanislaus County 2015), the Stormwater Best Management Practice Handbook, New Development and Redevelopment (CASQA 2003), and policies outlined in the Specific Plan. BMPs and hydromodification measures may include, but are not limited to, the following:

- detention basins that minimize flow changes and changes to flow duration characteristics;
- bioengineered stream stabilization to minimize bank erosion, utilizing vegetative and rock stabilization, and inset floodplain restoration features that provide for enhancement of riparian habitat and maintenance of natural hydrologic and channel to floodplain interactions;
- minimize slope differences between any stormwater or detention facility outfall channel with the existing receiving channel gradient to reduce flow velocity; and
- minimize to the extent possible detention basin, bridge embankment, and other encroachments into the channel and floodplain corridor, and utilize open bottom box culverts to allow sediment passage on smaller drainage courses.

The drainage plan will contain the 100-year (0.01 AEP) flood flows to prevent risk to people or damage to structures within or down gradient of the project site and prevent increased hydromodification that could change existing stream geomorphology.

The drainage plan showing the final designs and specifications, such as the on-site stormwater collection and conveyance system throughout the project site that would serve proposed development and measures designed to protect long-term water quality and volume of stormwater discharged from the project site will be reviewed and approved prior to issuing permits and beginning construction. Furthermore, the drainage plan will be required to sufficiently present details on BMPs, erosion control features, LID design features, and hydromodification techniques, such that it would not interfere with the U.S. Bureau of Reclamation and Patterson Irrigation District's Two Drains project.

The project would add impervious surfaces that could increase the peak discharge rate of stormwater runoff generated on the project site. This impact is considered **potentially significant.**

Mitigation Measure 3.10-2: Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan.

All development shall implement all applicable design details within the County's approved drainage plan and shall provide project-specific details showing design measures to (1) protect long-term water quality; (2) ensure that future development continues to contain the 100-year (0.01 AEP) flood flows to avoid risk to people or structures within or down gradient of the project site; and (3) avoid an increase in hydromodification compared to pre-development levels that could change existing stream geomorphology. Plans demonstrating compliance with County drainage standards and project-specific details meeting the County's requirements and performance standards of this mitigation measure shall be submitted to and approved by the Stanislaus County Public Works Department. Plans shall contain supporting calculations, as determined necessary by the Public Works Director.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of grading or building permits and/or implementation of project construction.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measure 3.10-2 would reduce the significant effect associated with increased risk of flooding and hydromodification from increased stormwater runoff to a **less-than-significant** level, because each tenant/leasehold developer would demonstrate to Stanislaus County that the future project phases would conform with applicable regulations pertaining to surface water runoff, including the measures outlined in the applicable version of the *2015 Post Construction Standards Plan* (Stanislaus County 2015) and the *Stanislaus County Standards and Specifications* (Stanislaus County 2014: Chapter 4), which are designed to meet applicable State and local regulations pertaining to stormwater runoff. County design standards require flood protection during the 10-, 100-, and 500-year storm events, safe conveyance of on-site and off-site flows, avoidance of effects of hydromodification on stream channel geomorphology, and prevention of substantial increased flood hazard on downstream areas by limiting peak discharges of flood flows to levels that are at or below pre-project conditions.

IMPACT 3.10-3 Create long-term operational water quality and hydrology effects as a result of agricultural and urban runoff. *Project implementation would change the type, amount, and timing of potential long-term operational pollutant discharges in stormwater and other urban runoff discharged from the project site. Development would be phased, and some on-site agricultural operations would continue to contribute to agricultural discharges until the site is fully developed. The project will include improvements in streambed conductance (infiltration) along Little Salado Creek, the construction of a detention/retention pond, and the implementation of LID design standards to treat stormwater, with the incorporation of BMPs to treat runoff prior to discharging off-site. Site-specific methodologies to treat stormwater prior to off-site discharge will be identified and designed as projects are implemented under the Specific Plan. This impact is considered* ***potentially significant****.*

Project implementation would involve redevelopment of a former airstrip and the conversion of agricultural land to urban uses. The actual amount of impervious surface is not known at this time, but for industrial developments,

the drainage model used to estimate runoff associated with project development assumes 72 percent impervious area on average. The conversion of agricultural land to urban land uses would alter the types, quantities, and timing of contaminant discharges in stormwater runoff. Overall, the potential for the proposed project to cause or contribute to long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash) into the stormwater drainage system and ultimate receiving waters may shift, when compared to existing conditions. Some contaminants associated with existing on-site agricultural activities (e.g., sediment, nutrients, pathogens, agricultural chemicals) would likely decrease as these land uses change during project development. However, the potential discharges of contaminated urban runoff from paved and landscaped areas could increase or could cause or contribute to adverse effects on aquatic organisms in receiving waters. Urban contaminants typically accumulate during the dry season and may be washed off when adequate rainfall returns in the fall to produce a "first flush" of runoff. The amount of contaminants discharged in stormwater drainage from developed areas varies based on a variety of factors, including the intensity of urban uses, such as vehicle traffic, types of activities occurring on-site (e.g., office, commercial, industrial), types of contaminants used on-site (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), contaminants deposited on paved surfaces, and the amount of rainfall.

As described in Chapter 2, "Project Description," the proposed project will be developed in phases, with initial infrastructure completed by Stanislaus County and future development by project proponents. As such, both the County and project developers are required to incorporate appropriate measures to reduce hydromodification effects in order to comply with the County's MS4 permit requirement. Project developers are also required to incorporate LID features into project designs to reduce stormwater runoff.

The project will be completed in multiple phases over several years and project applicant(s) will need to develop site-specific methodologies to treat stormwater prior to off-site discharge beyond the backbone infrastructure to be implemented by the County. This impact is considered **potentially significant**.

Mitigation Measure 3.10-3a: Implement Mitigation Measure 3.10-2 (Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan).

Mitigation Measure 3.10-3b: Prepare and Implement a Long-Term Site-Specific Operational Stormwater Quality Management Plan.

The County shall implement a site-specific long-term operational stormwater quality/drainage management plan and incorporate procedures into all leases, contracts, and/or permits. The plan shall be designed to meet the requirements of relevant permitting requirements, while acknowledging site-specific conditions and the presence of a nearby public-use airport. The plan shall outline the water quality improvements developed for the backbone infrastructure and provide detailed information about the structural and nonstructural BMPs proposed for phased project development. The plan shall include:

- A quantitative hydrologic and water quality analysis of proposed conditions incorporating the site-specific drainage design features (including LID features).

- Pre-development and post-development calculations demonstrating that the proposed water quality BMPs meet or exceed requirements established by Stanislaus County.

The operational stormwater quality management plan shall contain a list of long-term operational BMPs that would be implemented throughout the project site to:

- eliminate non-stormwater discharges;
- educate future on-site employees about the stormwater program requirements and the penalties for non-stormwater discharges;
- reduce the amount of pollutants carried by on-site stormwater; and
- treat on-site stormwater prior to off-site discharge.

Vegetation will be incorporated in to individual development plans, in accordance with Specific Plan policies. In addition, the project site shall be developed to include stormwater management facilities that promote evapotranspiration, infiltration, harvest/use, and biotreatreament of stormwater and it shall include provisions to maintain these facilities in perpetuity. The facilities shall be designed using either volumetric or flow-based criteria as follows:

Volumetric Hydraulic Sizing Design Criteria

- The maximized capture stormwater volume for the tributary area, on the basis of historical rainfall records, determined using the formula and volume capture coefficients as required by Stanislaus County (i.e., approximately the 85th percentile 24-hour storm runoff event); or
- The volume of annual runoff required to achieve 80 percent or more capture, determined in accordance with the methodology in Section 5 of the California Stormwater Quality Association (CASQA's) *Stormwater Best Management Practice Handbook, New Development and Redevelopment* (2003), using local rainfall data.

Flow-Based Hydraulic Sizing Design Criteria

- The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or
- The flow of runoff produced from a rain event equal to at least 2 times the 85th percentile hourly rainfall intensity as determined from local rainfall records.

In addition, any future land use within the project site that includes a high-risk pollutant discharge source shall provide additional site-specific treatment to address pollutants of concern prior to the flow reaching the infiltration facility. The adequacy of site-specific source treatment shall be determined by the County, and may include facilities, such as oil and grease separators and settling tanks.

The operational stormwater quality management plan for each proposed leasehold development shall be submitted to the County for review and approval.

Implementation: Stanislaus County and leaseholders/developers/contractors.

Timing: Prior to issuance of grading or building permits.

Enforcement: Stanislaus County.

Mitigation Measure 3.10-3c: Implement an Agreement between Project Leaseholders and Stanislaus County to Provide Maintenance, Monitoring, and Funding for Long-Term Operational Stormwater Quality Control.

Prior to issuance of building permits for proposed development in the Specific Plan Area, leaseholders shall be required to enter into an agreement with the County that specifies the long-term maintenance, monitoring, and funding for operational stormwater quality controls at the project site.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of grading or building permits.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measures 3.10-2, 3.10-3a, and 3.10-3b would reduce potentially significant impacts from long-term operational water quality issues to a **less-than-significant** level. because site-specific drainage plans would be prepared that incorporate BMPs and include LID features to treat stormwater runoff, a site-specific stormwater quality management plan for long-term operational treatment of stormwater prior to discharge would be prepared and implemented, and because the developer(s) would enter into an agreement with the County to provide maintenance, monitoring, and funding for long-term implementation of the stormwater quality management plan.

IMPACT 3.10-4 Potential impacts on groundwater recharge and aquifer volume. *The development of additional impervious surfaces and the use of groundwater for the project's water supply could affect groundwater levels. This impact is considered potentially significant.*

The proposed project would result in development of light industrial, manufacturing, distribution, and other aviation-compatible land uses on the project site with associated infrastructure. Most of the unpaved areas of the site are currently used for agriculture (i.e., row crops). Because the project would be developed in phases, agricultural uses would continue until an area is needed for a specific project. Agricultural land uses at the project site and in the region represent a substantial source of groundwater recharge, since a significant portion of the applied irrigation water and stormwater percolates through the soil to the aquifer. As indicated in Table 3.8-2 (see Section 3.8, "Geology, Soils, Minerals, and Paleontological Resources"), the project site is primarily composed of soils that are classified as hydrologic groups B and C, which indicates that high to moderate amounts of recharge occur from irrigation and stormwater runoff.

Site development will be required to detain stormwater runoff associated with a 100-year storm event on-site. At full buildout, much of the project site would consist of impervious surfaces (i.e., roof tops, walkways, patios, driveways, parking lots, storage areas, and roadways). The proposed project is anticipated to include landscaped areas scattered throughout the project site and implement LID design features, including pervious pavers, drought

tolerant landscaping (xeriscape), and other design features, along with development of an approximately 40-acre detention basin, and improvements to Little Salado Creek to promote infiltration. Proposed LID features could improve infiltration under developed conditions, although the construction of approximately 1,000 acres of impervious surfaces would reduce the amount of water available for local groundwater recharge.

As discussed in the *Water Supply (Potable & Non-Potable) Infrastructure and Facilities Study* (VVH Consulting Engineers and AECOM 2016), groundwater will be used to meet the project's water demands during both construction and operation. Project-related water demands include potable, irrigation, fire water, and other non-potable water needs, which will be supplied from a combination of existing and new groundwater supply wells. As discussed in the *SB 610 Water Assessment* (AECOM 2016b), additional on-site wells would be necessary to supply the project's water demands.

To estimate total future water demands for buildout of the proposed project, water-demand factors were applied to the acreage for each land use designation that generates water use within the project. As shown in Table 4.2 and Table 4.10-7 of the Water Supply Study (VVH Consulting Engineers and AECOM 2016: 25), which are summarized in Table 3.10-8, below, the project's projected potable water demand at full buildout would be 1.34 million gallons per day (MGD) (1,496 afy) average daily demand, and 5.35 MGD peak hour demand. The project's projected non-potable water demand at full buildout would be 1.18 MGD (1,323 afy) average daily demand. These totals do not assume any water conservation measures would be implemented at the project site and, therefore, provide a conservative estimate that would tend to overestimate actual demands associated with implementation of the project. The implementation of water-conserving landscaping identified in the Specific Plan can result in a non-potable water demand reduction of several hundred acre-feet (JJ&A 2016:2-3).

As described by Jacobson James & Associates, Inc. (JJ&A) in the *Groundwater Resources Impact Assessment*, historical records of groundwater pumped from the on-site well to meet existing agricultural needs indicate that total average annual production was 834 afy, which equates to approximately 0.74 MGD for agricultural use, as compared to a total (potable and non-potable) projected water demand for the proposed project of 2.52 MGD average daily demand. Therefore, the proposed project would increase overall groundwater use compared to existing conditions.

Two new potable groundwater wells will be constructed in the confined aquifer underlying the Corcoran clay to serve the project's potable water needs through full buildout. Existing non-potable water supply wells would be capable of meeting non-potable water supply demands through Phase 1 (2017–2026) (JJ&A 2016); however, the construction of one new non-potable groundwater well, in the unconfined shallow aquifer, is proposed to meet the non-potable water supply demands of the proposed project at buildout. Potable and non-potable water demands, as well as groundwater supply sources proposed to meet those demands are summarized in Table 3.10-8.

Table 3.10-8
Projected Demand/ Supply Balance, by Project Phase (afy)

Water Demand and Supply Source	Phase 1 (2017–2026)	Phase 2 (2027–2036)	Phase 3 (2037–2046)
Projected Water Demands			
Total Potable Water Demand	739	1,036	1,496
Total Non-Potable Water Demand	818	1,017	1,323
Total Projected Water Demand	**1,557**	**2,053**	**2,819**
Water Supply Sources			
Potable Water Supply from New Groundwater Wells[1]	739	1,036	1,496
Non-Potable Water Supply from Existing Groundwater Wells[2,3]	818	834	834
Non-Potable Water Supply from New Groundwater Well[4]	0	183	489
Total Groundwater Supply	**1,557**	**2,053**	**2,819**

Note: afy = acre-feet per year
[1] The new potable groundwater wells would be installed in the confined aquifer underlying the Corcoran clay.
[2] The non-potable water supply from the existing groundwater wells assumes the existing groundwater wells would have an average production of 834 afy.
[3] Two of the existing non-potable groundwater wells pump groundwater from the unconfined, shallow aquifer overlying the Corcoran clay while the third non-potable groundwater well likely pumps from the confined aquifer underlying the Corcoran clay.
[4] The new non-potable groundwater well would be installed in the unconfined, shallow aquifer overlying the Corcoran clay.
Source: JJ&A 2016:2-2

New wells completed in the confined aquifer would be completed above the base of fresh water and separated from the existing hydrocarbon plume in the shallow aquifer by the Corcoran clay. Therefore, proposed pumping from the confined aquifer would not draw from areas where water is known to have low quality, and would not interfere with shallow aquifer remediation efforts (JJ&A 2016:5-2). Pumping from the shallow aquifer to meet non-potable water demands would occur outside of the existing 2,000-foot pumping restriction around the IRP Site 17 Administration Area Plume to avoid capture of contaminated water or interference with remediation efforts. Please see Section 3.9, "Hazards and Hazardous Materials," for more detail.

The *Groundwater Resources Impact Assessment* was prepared for this project to determine the effects on groundwater levels from pumping of groundwater and from the proposed impervious surface coverage. This Assessment is under separate cover and available for review at the County Planning and Community Development Department as an appendix to the Specific Plan.

JJ&A developed an analytical model to evaluate the reasonable range of drawdown that could occur from groundwater extraction related to development of the proposed project; four modeling scenarios were developed using a superposition approach to simulate drawdown under a reasonable range of conditions (JJ&A 2016:4-9). The *Groundwater Resources Impact Assessment* assumed that new potable water wells would be installed into the confined aquifer underlying the Corcoran clay and would pump groundwater from the full usable depth of this aquifer (JJ&A 2016:2-3). The *Groundwater Resources Impact Assessment* also assumed non-potable water demand in excess of 834 afy would be supplied using new confined aquifer wells installed on-site.

Shallow groundwater demand in excess of the historical average shallow aquifer extraction rate (183 afy at Phase 2 buildout and 489 afy at Phase 3 buildout) would be offset by an equivalent volume of increased recharge, such

that the net groundwater extraction rate from the shallow aquifer would not increase above historical levels (JJ&A 2016:2-2). Consistent with Specific Plan Water Policy WP 4:

> "Groundwater for potable and non-potable use shall result in a sustainable yield through both water conservation and groundwater recharge measures, such as:
>
> - compliance with state and county conservation requirements for potable water use;
> - requirement for climate appropriate landscaping in both the public and private realms that reduce applied water to the greatest extent feasible once plants are established; and
> - construction of naturalized stormwater management systems (e.g., natural swales, improved/ restored creekways, and detention areas) that maximize opportunities for groundwater recharge without creating potential wildlife hazards to aircraft operations."

As detailed in Section 4.3 of the Specific Plan under the heading, "Water Supply and Distribution," recharge will be derived from a combination of a dual-purpose stormwater pond in the northeastern portion of the project site and a requirement for future development to meet recharge performance standards through a combination of on-site LID non-potable water demand reduction. Shallow aquifer recharge would be derived from a combination of widening Little Salado Creek and redirecting the portion beneath the runway using open-bottom, box culvert construction with trench drains to enhance the recharge of stormwater runoff; implementing LID elements that promote on-site stormwater retention and recharge; and implementing in-lieu recharge methods. Thus, the proposed project would not result in any net increase in groundwater demand from the shallow aquifer, and it is unlikely that localized drawdown around shallow aquifer pumping wells would extend as far as the San Joaquin River and have any associated adverse impacts on groundwater-dependent ecosystems (JJ&A 2016:5-1).

The *Groundwater Resources Impact Assessment* determined that placing Little Salado Creek underground could yield an average of approximately 100 afy of additional annual stormwater recharge, that implementing LID elements could capture and infiltrate up to approximately 200 afy of stormwater, and that implementing in-lieu recharge methods[2] could decrease water demand by 200 afy (JJ&A 2016:2-2, 2-3).

Groundwater modeling performed for the *Groundwater Resources Impact Assessment* predicted maximum drawdown in the confined aquifer beneath the Delta-Mendota Canal ranging from 1 to 6 feet at completion of Phase 1 buildout, 2 to 9 feet at completion of Phase 2 buildout, and 3 to 13 feet at completion of Phase 3 buildout (JJ&A 2016:4-13). The assessment further concluded that drawdown in the confined aquifer at completion of Phase 3 buildout ranges from 2 to 7 feet near the city of Patterson and from approximately 1 to 4 feet beneath the city of Newman (JJ&A 2016:4-13). This suggests that project-related drawdown would contribute slightly to the cones of depression northwest and south of the project site. The predicted maximum drawdown in the confined aquifer beneath the Delta-Mendota Canal would be approximately 13 feet at buildout of Phase 3 of the proposed project. However, project-related drawdown would be in the range of 1 to 10 percent of the observed drawdown in these areas to date, between 50 to 100 feet based on fall 2015 data (JJ&A 2016:4-6). Drawdown in the shallow aquifer from pumping in the confined aquifer is expected to be negligible; the proposed project would not result in any net increase in groundwater demand from the shallow aquifer or a substantial depletion in regional supplies (JJ&A 2016:5-4).

[2] In lieu recharge may be derived from landscape development using xeriscape techniques.

However, if shallow wells located near the project site boundary are pumped excessively, nearby off-site domestic wells could experience drawdown in excess of 5 feet, which could potentially result in a significant diminution in yield in a very shallow well (JJ&A 2016:5-4). The impact is **potentially significant**.

Mitigation Measure 3.10-4a: Provide Setbacks for New Shallow Wells

New shallow groundwater extraction wells shall be located at least 250 feet from project site boundaries to minimize potential drawdown effects on shallow aquifer wells located on nearby properties.

Implementation: Stanislaus County.

Timing: Ongoing.

Enforcement: Stanislaus County.

Mitigation Measure 3.10-4b: Conduct and Report Groundwater Level Monitoring

The County shall coordinate with the Groundwater Sustainability Agency to prepare on groundwater monitoring conducted as a part of implementation of the Groundwater Sustainability Plan for the vicinity of the Specific Plan Area. The exact construction, placement, and monitoring methodology will be defined in a groundwater level monitoring program in the Groundwater Sustainability Plan. Groundwater level monitoring activities, findings, and reporting schedule will also be defined in the Groundwater Sustainability Plan, along with the Minimum Thresholds and Measurable Objectives required in a Groundwater Sustainability Plan that govern when investigation and intervention is required and what adjustments to well field operation or other actions are required to avoid effects to existing off-site wells. Groundwater level monitoring shall commence prior to project implementation to establish baseline conditions.

Implementation: Stanislaus County and the Groundwater Sustainability Agency.

Timing: Ongoing.

Enforcement: Stanislaus County and the Groundwater Sustainability Agency.

Mitigation Measure 3.10-4c: Implement Mitigation Measure 3.10-2 (Prepare and Implement Drainage Plan Demonstrating Compliance with the County's Drainage Plan).

Mitigation Measure 3.10-4d: Implement Mitigation Measure 3.10-3b (Prepare and Implement a Long-Term Site-Specific Operational Stormwater Quality Management Plan).

Mitigation Measure 3.10-4e: Implement Mitigation Measure 3.10-3c (Implement an Agreement between Project Leaseholders and Stanislaus County to Provide Maintenance, Monitoring, and Funding for Long-Term Operational Stormwater Quality Control).

Mitigation Measure 3.10-4f: Implement Mitigation Measure 3.8-2c (Conduct Subsidence Monitoring).

Significance after Mitigation

Mitigation Measure 3.10-4a is proposed to place new shallow wells at least 250 feet from the nearest project site boundary. In addition, Mitigation Measure 3.10-4b is proposed to implement a groundwater level monitoring program, and adjust well field operation or take other actions if required by the Groundwater Sustainability Plan. The *Groundwater Resources Impact Assessment* concluded that the shallow and confined aquifers beneath the project site would provide adequate groundwater supplies to meet project potable and non-potable water demands without causing or contributing to undesirable results as defined in the Stanislaus County Groundwater Ordinance, Sustainable Groundwater Management Act, and the California Water Code with implementation of Mitigation Measures 3.10-4a and 3.10-4b (JJ&A 2016:5-5). In addition, implementation of Mitigation Measures 3.10-4c through 3.10-4f would require the implementation as well as maintenance and monitoring of infiltrative elements (LID and detention pond) to ensure that the increase in pumping is offset by increased recharge.

Implementation of Mitigation Measures 3.10-4c and 3.10-4d would reduce potentially significant impacts from interference with groundwater recharge because site-specific drainage plans and a long-term operational stormwater quality management plan would be prepared that incorporate LID features to improve infiltration. Mitigation Measure 3.10-4e would ensure that LID features are operated and maintained to continue to provide long-term infiltration and groundwater recharge.

Implementation of Mitigation Measure 3.10-4a would require setbacks in order to prevent interference drawdown to off-site wells, and implementation of Mitigation Measure 3.10-4b would avoid drawdown to shallow off-site wells in coordination with the San Joaquin Valley Delta-Mendota Groundwater Sustainability Agency (DM-II).[3] The County will continue to coordinate with the Groundwater Sustainability Agency for local governance of groundwater conditions under the Sustainable Groundwater Management Act of 2014. DM-II encompasses the entirety of the Specific Plan Area. The Groundwater Sustainability Plan currently under development is scheduled to take effect on or before February 1, 2020. Finally, implementation of Mitigation Measure 3.10-4f would require monitoring to detect signs of subsidence and require additional investigation and possible changes to groundwater pumping to arrest further subsidence from occurring. This impact would be reduced to a **less-than-significant** level with implementation of Mitigation Measures 3.10-4a through 3.10-4f.

In addition, development of groundwater resources to support the project must comply with the Stanislaus County Groundwater Ordinance adopted in November 2014 (Chapter 9.37 of the Stanislaus County Code), which codifies requirements, prohibitions, and exemptions for permitting new wells with the intent of supporting sustainable groundwater extraction. Under the Ordinance, an applicant that wishes to install a new groundwater well must first provide substantial evidence that the well is not unsustainably extracting groundwater as defined in the Ordinance. The Ordinance defines unsustainable extraction as meaning one or more of the following:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

[3] For more details about the San Joaquin Valley Delta-Mendota Groundwater Sustainability Agency, please see: http://sgma.water.ca.gov/portal/gsa/print/301.

- Significant and unreasonable reduction of groundwater storage.
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
- Significant and unreasonable land subsidence that substantially interferes with surface land uses.
- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

Prior to issuing a permit to construct a new groundwater supply well, the County must review information and make a determination whether it constitutes substantial evidence that the proposed groundwater extraction will not cause or contribute to one or more of the above undesirable results. The *Groundwater Resources Impact Assessment* fulfills the substantial evidence requirement for demonstrating compliance with the sustainable groundwater management requirements in the Stanislaus County Groundwater Ordinance. The Assessment is available under separate cover for review at the Stanislaus County Planning and Community Development Department, as an appendix to the Specific Plan.

IMPACT 3.10-5 **Placement of structures that would impede or redirect flood flows within a 100-year flood hazard area.** *Incorporation of the proposed drainage improvements at the project site would reduce the 100-year floodplain to the area comprising the Little Salado Creek stream channel. On-site and off-site overcrossings of stream channels and the Delta-Mendota Canal could restrict flood flows within the floodplain. Therefore, this impact is considered* ***potentially significant.***

The most recent FEMA floodplain map (2008, as cited in AECOM 2016a: 21) indicates that the project site is partially within Zone A (100-year floodplain, no elevations determined) and partially within Zone X (500-year floodplain). FEMA allows the County Flood Plain Manager to permit development in Zone A areas if base flood elevations have been determined and the proposed development would be outside the limits of the 100-year floodplain. Letters of Map Revision (LOMR) are required for proposed development in Zone A areas in order to modify the FIRM. Zone X areas do not require LOMRs or flood insurance.

AECOM (2016) determined that the portion of Zone A area within the project site was incorrectly mapped, because the FEMA floodplain limits did not correlate to any topographic features. Therefore, a floodplain study was performed by AECOM. The limits of the 100-year floodplain were determined for the existing conditions by developing a one-dimensional hydraulic model using HEC-RAS (Exhibit 3.10-3). The existing conditions model simulates a 100-year flood event using hydrologic inputs from HEC-HMS that incorporate flood flows that enter Little Salado Creek from the Delta-Mendota Canal culvert. During a 100-year storm event, Little Salado Creek would experience overtopping at locations where the creek channel is too narrow and also at the culverts convey creek flow under the existing airstrip.

To determine the limits of the floodplain, the County developed stream and overbank cross-sections at intervals sufficient to adequately characterize the flow carrying capacity. Cross-sections were developed using a USGS topographic survey (National Elevation Dataset) augmented by GPS survey points collected during field visits. The additional GPS points were taken at culvert crossings, along the existing Little Salado Creek channel, and at select roads and railroad locations. These cross-sections were used to create the geometry file for the existing conditions floodplain analysis.

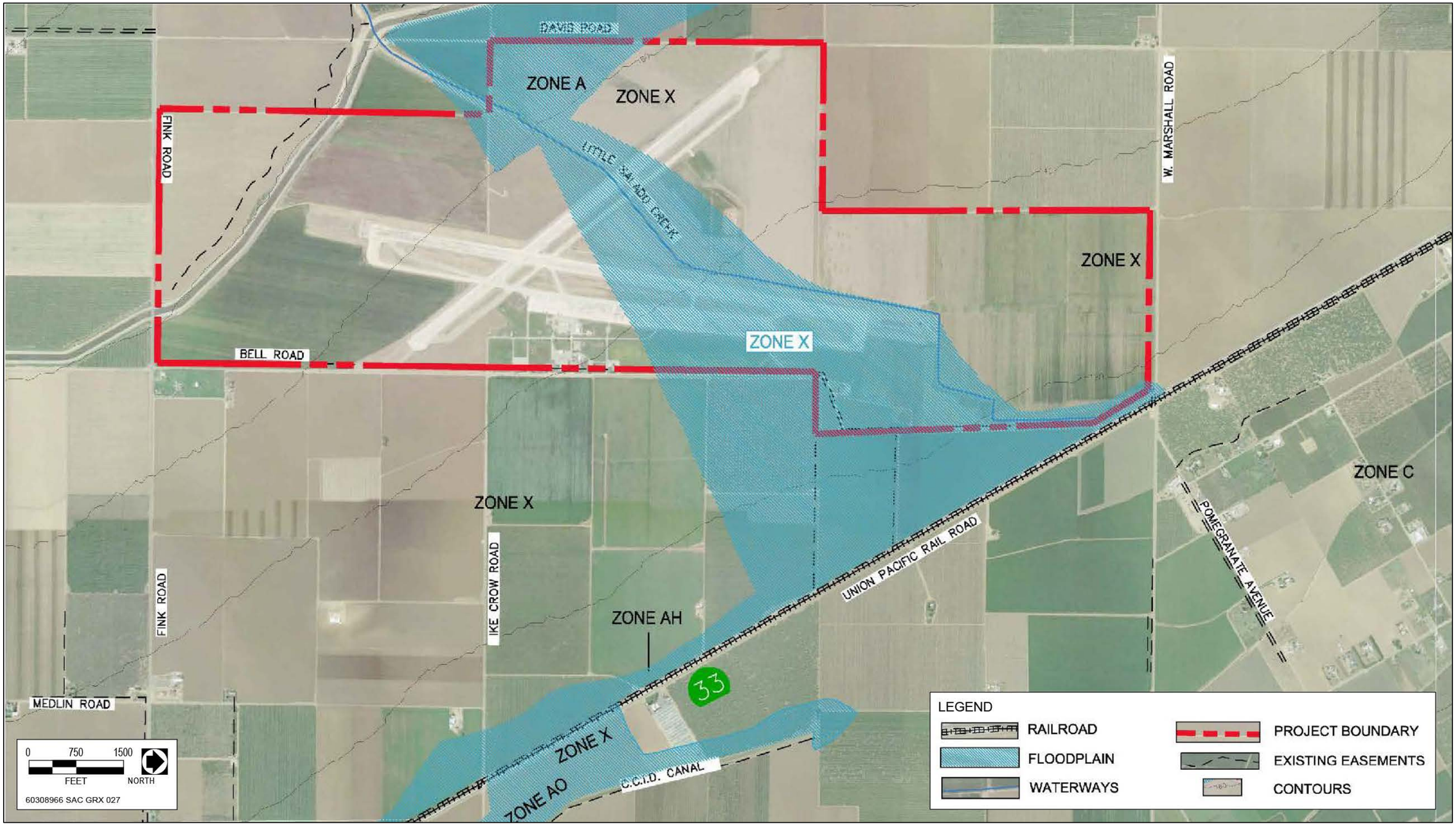

Exhibit 3.10-3. **Floodplains - Pre-Project Conditions**

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At each cross-section, Manning's coefficients were used to define the roughness of the channel and bank. In addition to the geometry data file, a HEC-RAS flow file was developed for the unsteady-state flow simulation. An unsteady flow model was required because over-flowing of the channel would occur and the ground continues to slope away from the channel on the right bank. The beginning downstream boundary condition was based on the HEC-HMS simulation results.

As part of the floodplain study, the County also determined peak flows on Salado Creek to investigate the possibility that runoff from that watershed might be combining with runoff from Little Salado Creek, thereby creating more floodplain at the project site (AECOM 2016a). If this were the case, it would explain the location of the FEMA-determined floodplain boundaries. However, the results of this analysis showed that the over-chute across the Delta-Mendota Canal that carries runoff from Salado Creek towards Patterson only carries approximately 112 cfs during a 100-year event, even though it has capacity for approximately 700 cfs. Therefore, it does not appear that flows from Salado Creek are traveling south to Little Salado Creek. Exhibit 3.10-3 illustrates the revised 100-year existing conditions floodplain compared to the original Zone A boundaries as previously determined by FEMA at the project site.

As a result of the drainage improvements that are proposed at the project site (see Chapter 2, "Project Description" and Impact 3.10-2), nearly all of the 100-year floodplain at the project site would be eliminated, with only a narrow floodplain corridor remaining along Little Salado Creek under developed conditions, as shown in Exhibit 3.10-4.

The proposed project does not include construction of housing. However, it may be necessary to install bridges or culverted crossings in the Little Salado Creek channel to support future industrial, manufacturing, distribution, and other aviation-compatible land uses on the project site. In addition, off-site infrastructure improvements such as the proposed new sewer pipeline along Marshall Road and proposed widening of various roadways would also require waterway overcrossings. These new bridges or culverts, or suspension of new pipelines underneath existing bridges, could impede flows in the stream channel (i.e., the 100-year floodplain) during storm events, thereby resulting in localized flooding. Therefore, this impact is considered **potentially significant**.

> Mitigation Measure 3.10-5: Prepare Site-Specific Hydraulic Studies to Appropriately Design Water Crossings to Pass 100-Year Flood Flows.
>
> Prior to construction of any roadway crossings over any waterbodies (e.g., Little Salado Creek, or the Delta-Mendota Canal, a licensed civil engineer shall be retained to prepare a site-specific hydraulic analysis investigating the channel capacity of the waterbody above and below the proposed crossing structure. The report shall determine site-specific streamflow volume and velocity under 100-year flood stage conditions at the proposed stream crossing locations, as required by the *Stanislaus County Standards and Specifications* (Stanislaus County 2014). Overcrossings over the Delta-Mendota Canal shall be coordinated with the Delta-Mendota Water Authority and/or DWR, respectively. The analysis shall include runoff calculations for any upstream development that may have occurred between preparation of this EIR and the time of the site-specific hydraulic analysis, either off or on-site. The hydraulic analysis shall be used to determine the appropriate bridge or culverted crossing design, and the results of the hydraulic analysis shall demonstrate that the proposed creek crossing structure will not impair 100-year flood flows associated with the waterbody. The hydraulic report, along with the proposed bridge or culverted crossing design, shall be submitted to the Stanislaus County Departments of Public Works for review and approval. All bridge and culvert designs shall be in accordance with the California

Department of Transportation's Bridge Design Specifications and *Stanislaus County Standards and Specifications* (Stanislaus County 2015). For example, current county specifications require that for pipe culverts, all headwalls or other appurtenant structures must be located adjacent to the right-of-way and the maximum fill slope over culverts must be 4 to 1 or flatter. The County also requires all fill placed within 2 feet above the 100-year flood (Q_{100}) elevation be protected from erosion by slope protection.

Implementation: Stanislaus County.

Timing: Prior to construction of any roadway crossing over Little Salado Creek or the Delta-Mendota Canal.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measure 3.10-5 would reduce the impact from placement of structures within the 100-year floodplain to a **less-than-significant** level because a site-specific stream channel and floodflow hydraulic analysis would be prepared for the location of each proposed bridge or culvert crossing in Little Salado Creek, and the results of the hydraulic analysis would be used to design the crossing structures such that 100-year flood flows would not be impeded.

In addition, as stated in Section 4.6.1 of the proposed Specific Plan, if necessary and feasible to provide adequate flood protection and minimize stormwater runoff, the County may also implement one or more of the following improvements:

- Increase the capacity of the culvert under the Delta-Mendota Canal to allow runoff to pass under the canal to prevent Plan Area ponding. This option would require increasing the capacity of the proposed stormwater pond and the channel.
- Placing fill on the parcel to raise the site to prevent ponding. The fill would result in a similar condition as the raising of Davis Road and would require other improvements to address runoff on properties to the northwest.
- Restrict development to areas outside the floodplain. This would result in about 20 acres of land that could not be developed but could be used as open space and for the required detention from the on-site runoff.

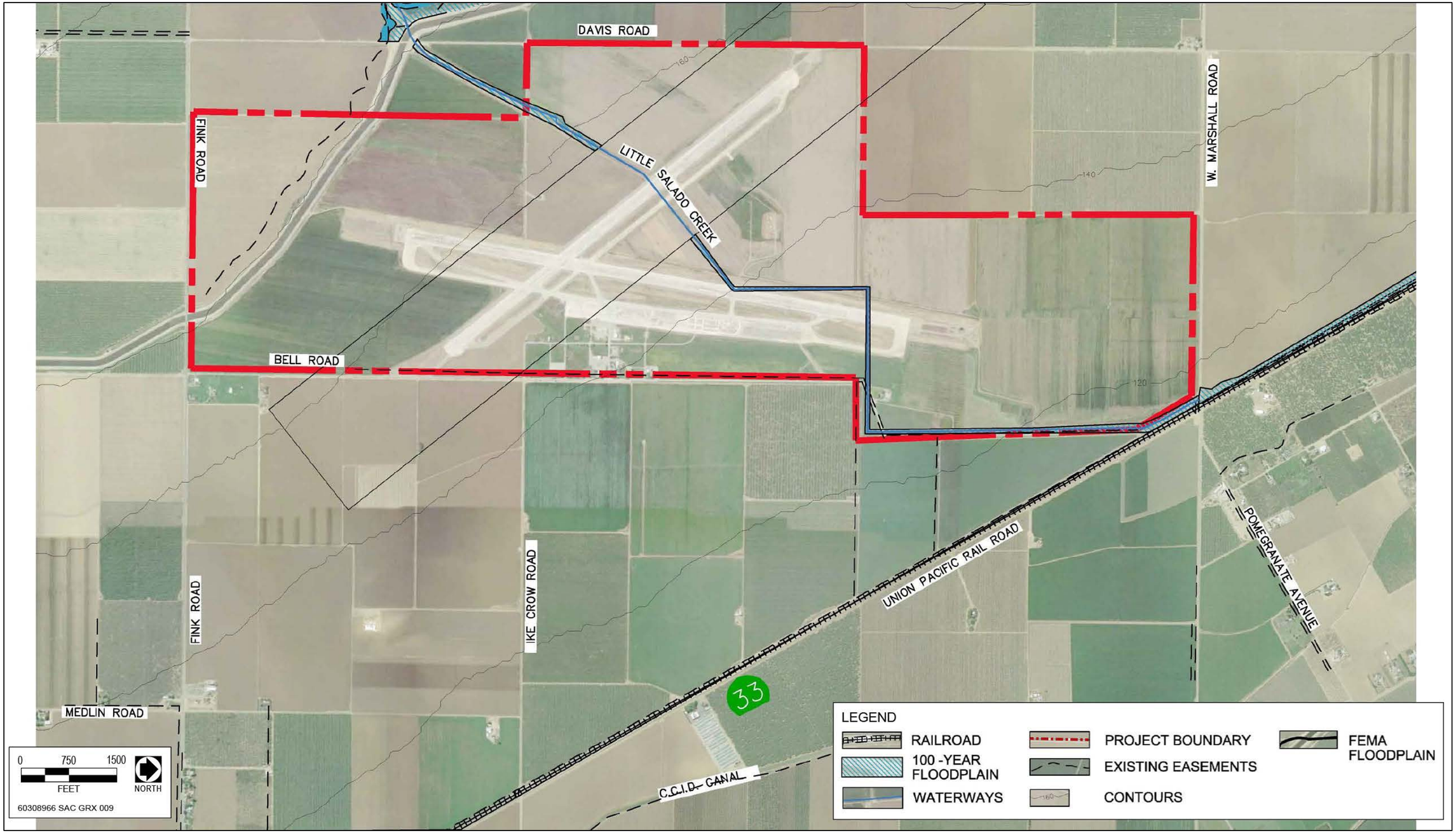

Exhibit 3.10-4. **100-Year Floodplain – Developed Conditions**

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IMPACT 3.10-6 Potential exposure of people or structures to a significant risk of flooding as a result of the failure of a levee or dam, including flooding from a seismic seiche. *The proposed project includes elevating Davis Road to serve as a levee for flood protection. The height of the elevated roadway along with crown widths, side slopes, and appropriate construction techniques to provide stability have not been investigated or designed by licensed geotechnical and civil engineers. Therefore, this impact is considered potentially significant.*

The proposed project includes construction and operation of an approximately 40-acre linear detention basin adjacent to Bell Road to contain stormwater flows. As explained above in subsection 3.10.1, "Environmental Setting," seismic seiches and associated flooding do not represent a significant hazard. Furthermore, the probability that a 100-year flood event would occur concurrently at the same time as an earthquake is very low. Therefore, this impact is considered **less than significant.**

A portion of the Delta-Mendota Canal runs through the southwestern part of the project site, and bridges over the canal are located adjacent to the project site on Fink Road and west of the site on Marshall Road. The Delta-Mendota Canal was constructed in 1951 and is operated by the U.S. Bureau of Reclamation and the San Luis Delta Mendota Water Authority. The Delta-Mendota Canal was designed and constructed according to federal standards intended to provide stability. As stated in Chapter 2, "Project Description," development would not occur within the right-of-way. Therefore, implementation of the proposed project would not affect the stability of the canal. Although project implementation could expose additional people and structures to flooding hazards if the canal were to fail, the canal was designed according to federal standards to ensure stability, and the proposed project would not increase the hazard of canal failure.

The project site is located approximately 4.5 miles west of the San Joaquin River and situated at an elevation of approximately 115 feet above msl (at the lowest point), which is approximately 65 feet above the river's elevation of 50 feet msl. A levee failure along the San Joaquin River would flood the project site.

The proposed project would include raising the approximately 1,200-foot segment of Davis Road between its intersection with the Delta-Mendota Canal and Fink Road to prevent 100-year flood flows (under developed conditions) from encroaching on the area west of the Delta-Mendota Canal. The road would be elevated by at least 4 feet and would function as a levee. Because the drainage study prepared for the proposed project is conceptual in nature, site-specific project designs, including the design for the David Road levee has not yet been prepared. The exact height of the elevated roadway that would be necessary for flood protection, along with crown widths, side slopes, and appropriate construction techniques to provide stability have not been investigated or designed by licensed geotechnical and civil engineers. Therefore, this impact is considered **potentially significant**.

Mitigation Measure 3.10-6: Prepare a Site-Specific Levee Design Report and Incorporate Appropriate Design and Engineering Recommendations.

Depending on the height of the Davis Road Levee, the project could be subject to Division of Safety of Dams (DSOD) jurisdiction. If so, the levee shall be designed, operated, and maintained according to applicable DSOD criteria. If not, the levee shall be designed according to standard geotechnical and civil engineering criteria by a California-licensed engineer, which may include specifications such as those contained in USACE Engineering Manual 1110-2-1913 *Design and Construction of Levees* (USACE

2000), Engineering Technical Letter (ETL) 1110-2-569, *Design Guidance for Levee Underseepage* (USACE 2005), and ETL 1110-2-555, *Design Guidance on Levees* (USACE 1997).

Implementation: Stanislaus County.

Timing: Prior to construction of Davis Road Levee.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measure 3.10-6 would reduce impacts from potential failure of the Davis Road levee to a **less-than-significant** level, because site-specific design recommendations of a geotechnical engineer to reduce potential failure would be incorporated into the engineering plans for design and construction of the roadway. Furthermore, the Davis Road levee would be designed and constructed either according to DSOD criteria or according to standard California engineering practices for stability, which may include specifications such as those contained in USACE Engineering Manuals and ETLs.

3.11 LAND USE AND PLANNING AND POPULATION, HOUSING, AND EMPLOYMENT

3.11.1 ENVIRONMENTAL SETTING

EXISTING AND ADJACENT LAND USES

The proposed Crows Landing Industrial Business Park (CLIBP) would be constructed entirely within the boundaries of the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility. The approximately 1,528-acre project site is located in an unincorporated area of western Stanislaus County (County). The project site is bounded by West Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road and agricultural land to the west (see Exhibits 2-1 and 2-2 in Chapter 2, "Project Description"). Infrastructure would be constructed both on- and off-site to support project development.

Approximately 1,100 acres of the site are currently leased for the production of row crops. All but two structures, the former air traffic control tower and airfield lighting vault, were razed in 2013 to prevent vandalism. Concrete and asphalt pads, paved roads, landscaping, and disturbed ground remain (Yee 2015). The Delta-Mendota Canal runs through the project site in a northwest-southeast direction. A channelized creek, Little Salado Creek, is east of the Delta-Mendota Canal and traverses the site. Smaller ditches and basins are also present.

The area surrounding the project site is rural and used primarily for agriculture, with rural residences scattered to the east, west, and south. The community of Crows Landing lies approximately 1.4 miles east of the project site and the city of Patterson is about 1.5 miles to the north.

POPULATION

Much of the population growth in Stanislaus County during the last 20 years was due to the County's location near the San Francisco Bay Area Region. The combination of Bay Area job markets, freeway access, and inexpensive land for housing development in Stanislaus County contributed to increased development in its cities (Stanislaus County 2015:5).

As of January 2015, approximately 79 percent of the County's population resides in its cities (420,231), and 21 percent reside the unincorporated areas (112,066) (DOF 2015). The California Department of Finance (DOF) estimates that Stanislaus County's total population increased from 438,724 in 2000 to 514,453 in 2010, which was a 17-percent increase over the 10-year period (DOF 2010, Stanislaus County 2015). Most of the recent population growth in the county occurred in the cities. Between 2000 and 2015, the incorporated population increased by 24 percent (from 340,212 to 420,231), and the unincorporated population increased by 5 percent (from 106,785 to 112,066) (DOF 2010, 2015).

The population in Stanislaus County is expected to increase to 681,703 by 2035 (DOF 2015). This represents an increase of 28 percent over the 2015 estimated population (DOF 2015). Population growth in unincorporated areas is anticipated to take place in the communities of Denair, Diablo Grande, Keyes and Salida, which are guided by community and specific plans and served by special districts that provide the sewer and water systems necessary to accommodate development (Stanislaus County 2015). The Stanislaus Council of Governments (StanCOG) population projections show a 21-percent increase in population for the unincorporated portion of the county between 2010 and 2035 (Stanislaus County 2016a).

HOUSING

According to the DOF, the total number of housing units in Stanislaus County in 2015 was 180,418, with an average household size of 3.16 persons per unit (DOF 2015). Approximately 79 percent of the housing units were attached and detached single-family homes (DOF 2015). The share of single-family units and the average household size are both larger in unincorporated areas compared to the County as a whole. In unincorporated areas, single-family detached and attached units comprise approximately 84 percent of the housing stock and have an average of approximately 3.33 persons per household (DOF 2015).

The number of housing units in Stanislaus County is expected to increase to 237,185 by 2035, which represents an increase of 31 percent over the estimated 2015 population (StanCOG 2014). The number of households in the county is anticipated to increase from approximately 165,200 households in 2010 to 224,000 households in 2035, which represents a 36-percent increase (StanCOG 2014). The CLIBP Specific Plan does not propose or permit residential development. Any proposal within or adjacent to the CLIBP Plan Area would require further land use entitlement subject to additional CEQA review. Residential development would further be subject to approval by the majority vote of Stanislaus County voters in accordance with a 30-Year Land Use Restriction Measure (Measure E).

EMPLOYMENT

Many County residents commute to the San Francisco Bay Area or other distant employment centers for work. According to the Stanislaus County Economic Development Strategy report, more than 16,000 Stanislaus County workers commuted to the San Francisco Bay Area alone in 2010. In total, 42,305 Stanislaus workers commuted out of Stanislaus County (Stanislaus County Economic Development Action Committee 2016:5).

Unemployment rates throughout the Central Valley, and Stanislaus County in particular, have historically exceeded unemployment rates throughout California. The estimated labor force in the county in 2014 was 241,400 residents and 214,400 were employed (EDD [Employment Development Department] 2015). The county's labor participation rate is 89 percent. The county's unemployment rate in 2014 was 11.2 percent, while California's unemployment rate was 7.5 percent (EDD 2015).

The largest industry sector in the county in terms of local employment is education, health care, and social assistance, comprising approximately 22 percent of the jobs in Stanislaus County, followed by the retail trade (14 percent) and manufacturing industries (12 percent) (U.S. Census Bureau 2015).

StanCOG estimates that 158,500 jobs were available in Stanislaus County in 2010 (StanCOG 2014). Based on the current employment totals and projections that assume CLIBP development, Stanislaus County could have approximately 222,874 jobs by 2035, which represents a 41-percent increase over the number of jobs in 2010 (StanCOG 2014).

Jobs/Housing Balance

The relationship between the location of jobs and housing can have important environmental ramifications. A better match between the number and types of jobs and the number of households and interests/skills of the local labor force can help to alleviate traffic congestion, shorten commute times, and reduce vehicle miles traveled (VMT) and the associated air pollutant emissions and noise associated with vehicular travel. Balancing jobs and

housing in a smaller area can provide increased opportunities to use transit, bike, or walk to work rather than driving. Commuting results in more traffic congestion, air quality degradation, greenhouse gas generation, and noise generation.

To maximize the environmental benefits of a jobs/housing balance, there must be a nexus between the types and cost of housing located near jobs, the education/skills required by those jobs relative to the local labor force, and the income levels associated with those jobs. In the broadest sense, the balance of jobs and housing in a metropolitan region is defined as an adequate supply of housing of the types and costs to support workers employed in a defined geographic area, such as a community, a city, or other subregion. Alternatively, a jobs/housing balance can be defined as adequate provision of employment in a defined area that generates enough local workers to fill the housing supply. An area that has too many jobs relative to its housing supply is likely (in the absence of offsetting factors) to experience substantial in-commuting, escalations in housing prices, and intensified pressure for additional residential development. Conversely, if an area has relatively few jobs in comparison to the number of employed residents, many of the workers are required to commute to jobs outside of their area of residence.

The simplest measure of jobs/housing balance is an index based on the ratio of employed residents, which is influenced by the number of homes, to jobs in the area. An index of 1.0 indicates that the supply of jobs and housing are balanced. An index greater than 1.0 indicates that employment growth is outpacing housing growth, there are more jobs than employed residents, and suggests that many employees are commuting into the community. An index below 1.0 indicates that housing growth is outpacing employment growth, there are more employed residents than jobs, and suggests that many residents are commuting to jobs outside of the community.

In 2010, there were approximately 158,500 jobs and 165,000 households located in Stanislaus County, which is a ratio of 0.96 jobs for every 1 household. A more balanced ratio would be substantially higher than 1, since many households have multiple individuals in the labor force (StanCOG 2014). It is anticipated that the jobs/housing index will be 0.94 in 2035 (StanCOG 2014, Appendix J). Even if there is a numeric balance between jobs and housing, there can still be substantial commuting activity if the types of jobs are not matched with the skills and experience of the local labor force. Another important factor in commuting is wages for local jobs compared to wages available for jobs in more distant locations. Many county residents commute to the San Francisco Bay Area or other distant employment centers. More than 16,000 Stanislaus workers commuted to the San Francisco Bay Area alone in 2010 and in total, 42,305 Stanislaus workers commuted out of Stanislaus County (StanCOG 2014). As detailed in Chapter 2 of the EIR, the project objectives are focused on providing local jobs and also for providing sustainable-wage employment.

3.11.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to land use and planning and population, housing, and employment are applicable to this project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Planning and Zoning Law

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

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

A specific plan is a planning tool used to guide land use change, conservation, and public facilities and infrastructure improvements for a subarea of a general plan. Specific plans must be consistent with the overarching general plan (California Government Code, Section 65450). Specific plans describe the distribution, location, and extent of the land uses and the associated infrastructure, as well as standards governing future development. Specific plans must include a statement of the relationship between it and the general plan (California Government Code, Section 65451, subd. [b]).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Stanislaus County Regional Transportation Plan/Sustainable Communities Strategies

The Stanislaus County *2014 Regional Transportation Plan/Sustainable Communities Strategy* (2014 RTP/SCS) is the region's blueprint for future transportation improvements and investments based on specific transportation goals and objectives defined by the Stanislaus Council of Government (StanCOG), the public, and elected officials (StanCOG 2014). The 2014 RTP/SCS strengthens the link between land use and transportation planning, recognizing the significant connection between these two areas and its impact on the region's quality of life. The plan presents a strategy to accommodate the substantial expected growth in the region, while promoting economic vitality, providing more housing and transportation choices, promoting healthy living, and improving communities through an efficient and well-maintained transportation network (StanCOG 2014).

Stanislaus County Airport Land Use Compatibility Plan

The Stanislaus County Airport Land Use Commission (ALUC) is responsible for the preparation of an Airport Land Use Compatibility Plan (ALUCP) for each public-use airport in Stanislaus County. The creation of an ALUC and the preparation of compatibility plans for public-use airports are requirements of the California State Aeronautics Act (California Public Utilities Code [PUC] Section 21670 *et seq.*).

The purpose of the ALUCP is to promote compatibility between a public-use airport and the land uses in its vicinity to the extent that the areas have not already been devoted to incompatible uses. To accomplish this, the ALUCP establishes a set of compatibility criteria that the ALUC uses to evaluate the compatibility of proposed land uses and projects within an ALUC-established Airport Influence Area (AIA).

The County and the jurisdictions with land use authority over areas within the AIA incorporate certain criteria and procedural policies from the proposed ALUCP into their general plan and zoning ordinances in an effort to ensure that future land use development in the airport vicinity would be compatible with long-term airport operations. Each agency also has the option of overruling the ALUC in accordance with the steps defined by State law and summarized in the ALUCP. It is important to note that neither the proposed ALUCP nor the ALUC has authority over existing land uses, airport operations, or over State, federal, or tribal lands.

The current ALUCP for Stanislaus County provides policies for three airports: The Modesto City-County Airport, the Oakdale Municipal Airport, and the Crows Landing Naval Auxiliary Landing Field. The Stanislaus County ALUCP was revised in 2016 to address the most recent long-range airport plans available for both the Modesto City-County Airport and the Oakdale Municipal Airport. However, the policies associated with the Crows Landing Naval Auxiliary Landing Field were not revised, and the AIA and airport-specific policies for the dual-runway military airfield presented in the County's 2004 ALUCP remain in effect. Under the 2004 ALUCP policies, housing would be prohibited on the former military property, but most of the industrial, logistics, and business park uses would be allowed or conditionally permitted.

The proposed project includes an amendment to the County's ALUCP that includes revised policy maps for the proposed Crows Landing Airport that are based on the Airport Layout Plan and Narrative Report, which are also part of the proposed project.

Stanislaus County General Plan

The County's General Plan provides a blueprint to guide the physical development, preservation, and conservation of areas within the unincorporated areas of the county. The County General Plan designates the project site as Agriculture. The Agriculture designation is intended to restrict land uses to those that are compatible with agricultural practices, including natural resources management, open space, outdoor recreation and enjoyment of scenic beauty. This designation recognizes the value and importance of agriculture by acting to preclude incompatible urban development within agricultural areas.

The following goals, policies, and implementation measures from the Land Use Element are related to land use and planning and population, housing, and employment.

Land Use Element

- **GOAL ONE** – Provide for diverse land use needs by designating patterns which are responsive to the physical characteristics of the land as well as to environmental, economic and social concerns of the residents of Stanislaus County.

- **POLICY ONE** – Land will be designated and zoned for agricultural, residential, commercial, industrial, or historical uses when such designations are consistent with other adopted goals and policies of the General Plan.

- **IMPLEMENTATION MEASURE 1** – In reviewing proposals for amendments to land use designations, the County shall evaluate how the proposal would advance the long-term goals of the County.

- **POLICY THREE** – Land use designations shall be consistent with the criteria established in this element.

- **GOAL THREE** – Foster stable economic growth through appropriate land use policies.

- **IMPLEMENTATION MEASURE 3** – Specific plans shall be encouraged when non-agricultural uses are proposed within areas designated for agriculture.

- **POLICY EIGHTEEN** – Promote diversification and growth of the local economy.

- **IMPLEMENTATION MEASURE 1** – Stanislaus County shall continue to work with economic development entities to promote Stanislaus County as a profitable location for industry.

- **IMPLEMENTATION MEASURE 2** – The Board shall support the use of financial mechanisms supporting the introduction and growth of businesses in the County.

- **IMPLEMENTATION MEASURE 4** – Encourage the development of new industries and the retention of existing industries that help the community reduce, recycle, and/or reuse waste that would otherwise require disposal.

- **IMPLEMENTATION MEASURE 9** – Encourage reuse of the Crows Landing Air Facility as a regional jobs center.

- **POLICY NINETEEN** – Accommodate the siting of industries with unique requirements.

- **IMPLEMENTATION MEASURE 1** – The criteria described in the LAND USE DESIGNATIONS section of this element shall be applied in the siting of industries with unique requirements.

Stanislaus County Zoning

The project site is zoned by the County as A-2-40 (General Agriculture) with a 40-acre minimum lot size. The A-2 zoning designation is intended to support and enhance agriculture as the predominant land use in the unincorporated areas of the county; to protect open space lands; and to ensure that all land uses are compatible with agriculture and open space, including natural resources management, outdoor recreation, and enjoyment of scenic beauty.

The project site is proposed to be developed as a Specific Plan Area consistent with direction in Chapter 21 of the County Code. Under the County Code, the Specific Plan (S-P) zoning district may be used either as a specific zone that stands on its own or in conjunction with other districts as an overlay or combining district. Each specific plan must be developed in accordance with the County's Specific Plan Guidelines and approved by the Board of Supervisors. Following adoption, only those uses, and development standards, and criteria in identified in the Specific Plan would be permitted in the S-P zoning district (Specific Plan Area).

3.11.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Evaluation of the potential impacts of the proposed project on land use and planning and population, housing, and employment was based on a review of the following planning documents pertaining to the proposed project and surrounding area:

- *Stanislaus County General Plan* (Stanislaus County 2016b);
- *Stanislaus County General Plan 2015–2023 Housing Element* (Stanislaus County 2015);
- *Stanislaus County Comprehensive Economic Development Strategy 2016 – 2021* (Stanislaus County Economic Development Action Committee 2016);
- *Stanislaus County 2014 Regional Transportation Plan/Sustainable Communities Strategy* (StanCOG 2014); and
- *Stanislaus County Airport Land Use Compatibility Plan* (Stanislaus County ALUC 2016c).

Additional background information on population, housing, and employment was obtained from the DOF, the EDD, and the U.S. Census Bureau.

THRESHOLDS OF SIGNIFICANCE

Based on the CEQA Guidelines, Appendix G, the proposed project would result in a significant impact related to land use and planning and population, housing, and employment if the project would:

- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental impact;
- conflict with any applicable habitat conservation plan or natural community conservation plan;
- physically divide an established community;
- induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure); or
- displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere.

Issues Not Discussed Further in this EIR

Physically Divide an Established Community – Rural residences are located on adjacent properties to the east, west, and south of the project site. Construction of new roadways would occur within the project site and improvements to *existing* off-site roadways (i.e., improvements to Marshall Road, Davis Road, Bell Road, West Ike Crow Road, and widening portions of State Route 33 and Marshall Road from two to four lanes) would not

create a barrier between residences (see Section 3.14, "Traffic and Transportation," for further discussion of proposed roadway improvements).

The closest established communities include the city of Patterson, located approximately 1.5 miles north of the project site, and the unincorporated community of Crows Landing, which lies about 1.4 miles east of the project site. The project site is entirely located within the former NASA Crows Landing Air Facility, which includes agricultural land use and the remnants of former naval aviation and support facilities. No proposed project activities would physically divide an established community, and this issue is not discussed further in this EIR.

Conflict with Any Applicable Habitat Conservation Plan or Natural Community Conservation Plan – The project site is not located within the plan area of any habitat conservation plan or natural community conservation plan. Therefore, this impact is not evaluated further in this EIR.

IMPACTS ANALYSIS

IMPACT 3.11-1 Consistency with Stanislaus County Adopted Policies, Land Use Designations, and Zoning. *With approval of the General Plan amendment, adoption of the Specific Plan, and rezoning of the project site, implementation of the Specific Plan would not conflict with adopted County General Plan policies, land use designations, and zoning. This impact is considered* ***less than significant****.*

The proposed project is located in an unincorporated area of Stanislaus County, and the County has planning jurisdiction over the project site. California Government Code Section 65300 *et seq*. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. Zoning ordinances, which define allowable land uses within a specific district, are required to be consistent with the applicable general plan and any applicable specific plans. A specific plan is a planning tool used to guide land use change, conservation, and public facilities and infrastructure improvements for a defined portion of the general plan area. Pursuant to California Government Code, Section 65454, a specific plan must be consistent with the local government's general plan, and findings of consistency with the General Plan will be required for this proposed Specific Plan.

The project includes the adoption of a Specific Plan. The land associated with the former Crows Landing airfield would be rezoned from General Agriculture (A-2) to a Specific Plan Area [S-P(2)] to support the development of various aviation-compatible land uses on the former military site. An Airport Layout Plan (ALP) would be adopted by the County Board of Supervisors, and an amendment to the Stanislaus County Airport Land Use ALUCP would be adopted by the ALUC that includes new policies specific to the proposed public-use airport. The proposed ALUCP policies would apply to the Airport Influence Area associated with the new airport, which includes unincorporated area within Stanislaus County and a portion of the city of Patterson. Each jurisdiction would be required to amend its general plan to be consistent with the ALUCP.

The policies under Goal 1 of the General Plan are focused on providing for diverse land uses by designating patterns that are responsive to the physical characteristics of the land, as well as to environmental, economic, and social concerns of the residents of Stanislaus County. Policies 1 and 3 relate to consistency with General Plan adopted goals and policies and land use designations. As noted, the approval of the General Plan amendment and approval of the Specific Plan require a finding of consistency with the County's General Plan.

The policies under Goal 3 are focused on fostering stable economic growth through appropriate land use policies. The proposed project would be consistent with Policy Eighteen of the General Plan, which is intended to promote diversification and growth of the local economy, and Policy Nineteen of the General Plan, which focuses on accommodating the siting of industries with unique requirements. The proposed project would create a regional employment center that provides locally based, sustainable-wage employment, and promotes work force development through on-the-job training, and supports locally based small businesses.

The proposed Specific Plan would accommodate a range of aviation-compatible land uses including logistics, light industrial and manufacturing, and municipal and professional offices, a public-use airport, aviation-related uses, and open space.

The project site will be developed under a Specific Plan in accordance with Title 21 of the County Code, and the Plan Area will be rezoned from General Agriculture (A-2) zoning designation to Specific Plan Area [S-P(2)].

In addition, the proposed project would amend the General Plan to change the designation of the site from Agriculture to a Specific Plan and rezone site from A-2-40 to S-P. Implementation of the proposed project would not conflict with County General Plan policies, land use designations, or zoning that would result in any adverse physical impacts beyond those addressed in detail in the environmental sections of this EIR (air quality, biological resources, cultural resources, etc.). Therefore, this impact is considered **less than significant**. No mitigation is required.

IMPACT 3.11-2 Consistency with Stanislaus County Airport Land Use Compatibility Plan (ALUCP). *The proposed project is consistent with the current ALUCP policies associated with the former Crows Landing Navel Auxiliary Airfield. The proposed project includes the adoption of the Crows Landing ALP and an amendment to the County's ALUCP to include the proposed Crows Landing Airport. Following adoption of the ALP and ALUCP, the proposed project would be consistent with the Stanislaus County ALUCP policies. This impact is considered* ***less than significant****.*

The proposed project includes the adoption of an *Airport Layout Plan (ALP) and Narrative Report* for the proposed Crows Landing airport, which will reuse one of the two former military runways. The primary purpose of the ALP and Narrative Report is to describe the extent, type, and approximate schedule of development needed to accommodate the opening of, and future aviation demand for, the proposed Crows Landing Airport. The ALP provides forecasted operations, and it identifies the facilities and improvements needed to support the anticipated operations. The ALP and Narrative Report serve as the basis for amending the Stanislaus County ALUCP to include policies that reflect the presence and operation of a new public-use, general aviation airport rather than a dual-runway military facility.

The County adopted a new ALUCP in 2016 to comply with the State Aeronautics Act and California Department of Transportation (Caltrans) guidance. The 2016 ALUCP provides revised County-wide procedural policies and airport-specific policies for the Modesto City-County Airport and the Oakdale Municipal Airport. However, the airport-specific policies for the Crows Landing Naval Auxiliary Airfield, which were developed in 2004, remain in place and still reflect the presence of the two military runways. The proposed project includes the development of an Airport Layout Plan for the new public-use airport. The Caltrans Division of Aeronautics has approved the use of the proposed Crows Landing ALP and Narrative Report to serve as the basis of the proposed ALUCP

amendment to provide airport-specific policies for the proposed Crows Landing Airport. The Narrative Report, which includes a copy of the Airport Layout Plan set, is provided as Appendix B to the EIR.

Background

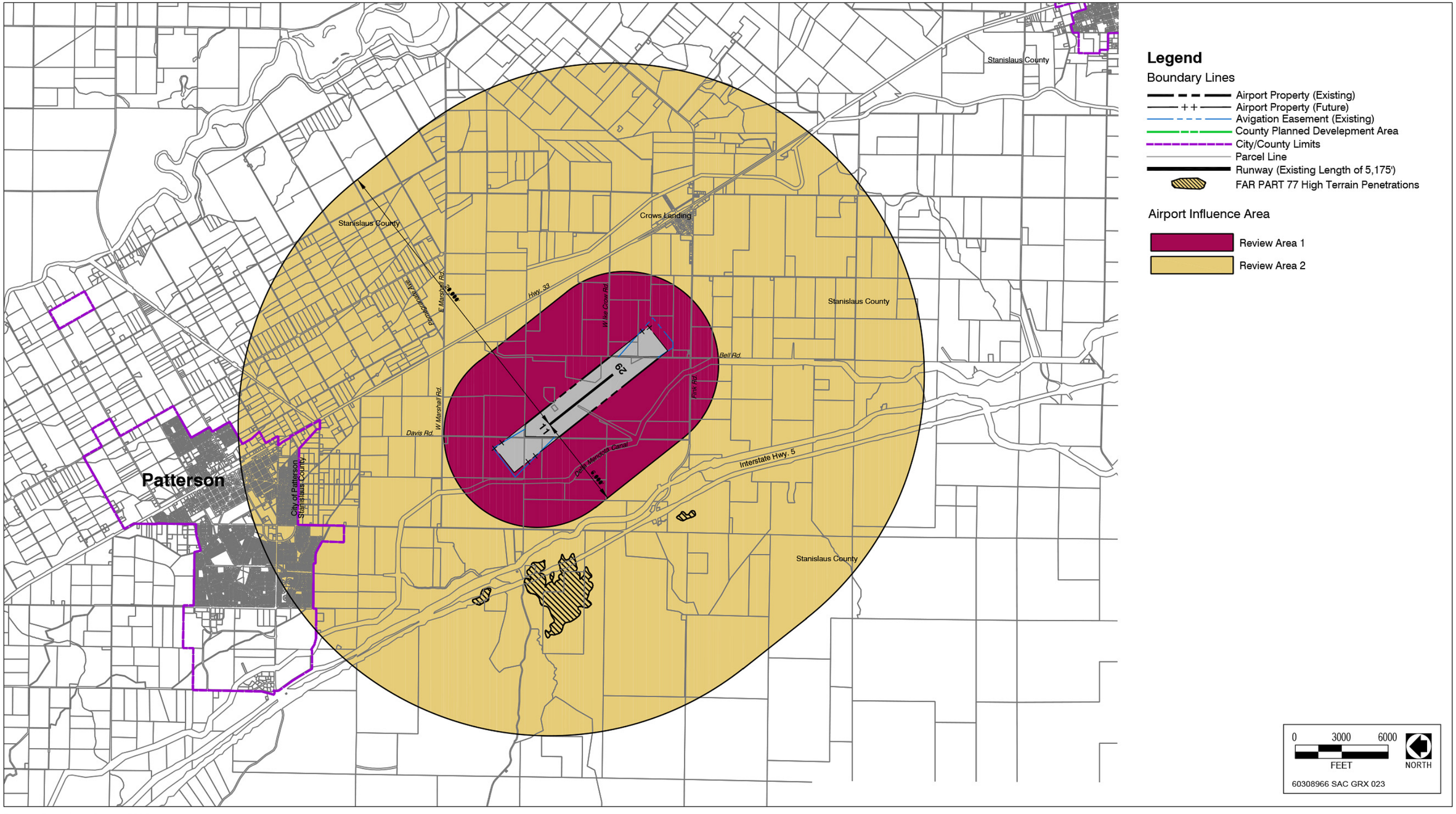
The Stanislaus County Airport Land Use Commission (ALUC) is responsible for the preparation of Airport Land Use Compatibility Plans (ALUCPs) for public-use airports in Stanislaus County. The policies currently in place were developed in 1978 to reflect the presence of the Crows Landing Naval Auxiliary Airfield. Since that time, military operations have ceased and a new airport is proposed as part of the CLIBP that would reuse one of the former military runways to create a much smaller airfield.

The proposed ALUCP amendment would also allow the policies associated with the new airport to reflect the smaller airfield configuration proposed and would comply with guidance set forth by the Caltrans Division of Aeronautics. In 2011, Caltrans updated its guidance regarding the preparation of ALUCPs and published a revised edition of the *California Airport Land Use Planning Handbook (Handbook)*. The 2016 County-wide ALUCP for Stanislaus County was prepared in accordance with these changes, but the Airport Influence Area and policies associated specifically with the Crows Landing Airport must also be updated to reflect that guidance. The following discussion evaluates the potential effect of the proposed 2015 ALUCP on planned land uses in the jurisdictions that would be affected by its implementation.

The creation of an ALUC and the preparation of compatibility plans for public-use airports are requirements of the California State Aeronautics Act (Public Utilities Code [PUC] Section 21670). In accordance with PUC Section 21674.7, the 2016 ALUCP for Stanislaus County was guided by the latest edition of the *Handbook* (October 2011). The proposed ALUCP amendment to address the Crows Landing Airport reflects the anticipated opening and forecasted operations for the proposed Crows Landing Airport for the next 30 years, which exceeds the 20-year horizon required by PUC Section 21675(a). The ALUCP was developed in coordination with the County Planning team charged with the development of the CLIBP Specific Plan to promote consistency between airport operations and land use identified in the Specific Plan.

The purpose of the ALUCP is to promote compatibility between each public-use airport and the land uses in its vicinity to the extent that these areas have not already been devoted to incompatible uses. To accomplish this, the ALUCP establishes a set of compatibility criteria that the ALUC will use to evaluate the compatibility of land use and airport proposals within the ALUC-established Airport Influence Area (AIA) (Exhibit 3.11-1). Exhibit 3.11-2 presents the airport land use planning boundary and safety zones associated with the former Crows Landing Naval Auxiliary Airfield, which remains in effect. Exhibit 3-11-3 presents the safety zones associated with the proposed Crows Landing Airport, which were developed in accordance with the Caltrans *Handbook*.

The County of Stanislaus and the City of Patterson are the jurisdictions with land use authority over areas within the AIA for the proposed Crows Landing airport, and both are expected to incorporate certain criteria and procedural policies from the proposed ALUCP into their general plan and zoning ordinances in an effort to ensure that future land use development will be compatible with long-term airport operations. Each agency also has the option of overruling the ALUC in accordance with the steps defined by state law and summarized in the ALUCP.



Source: Stanislaus County 2016

Exhibit 3.11-1. **Airport Influence Area**

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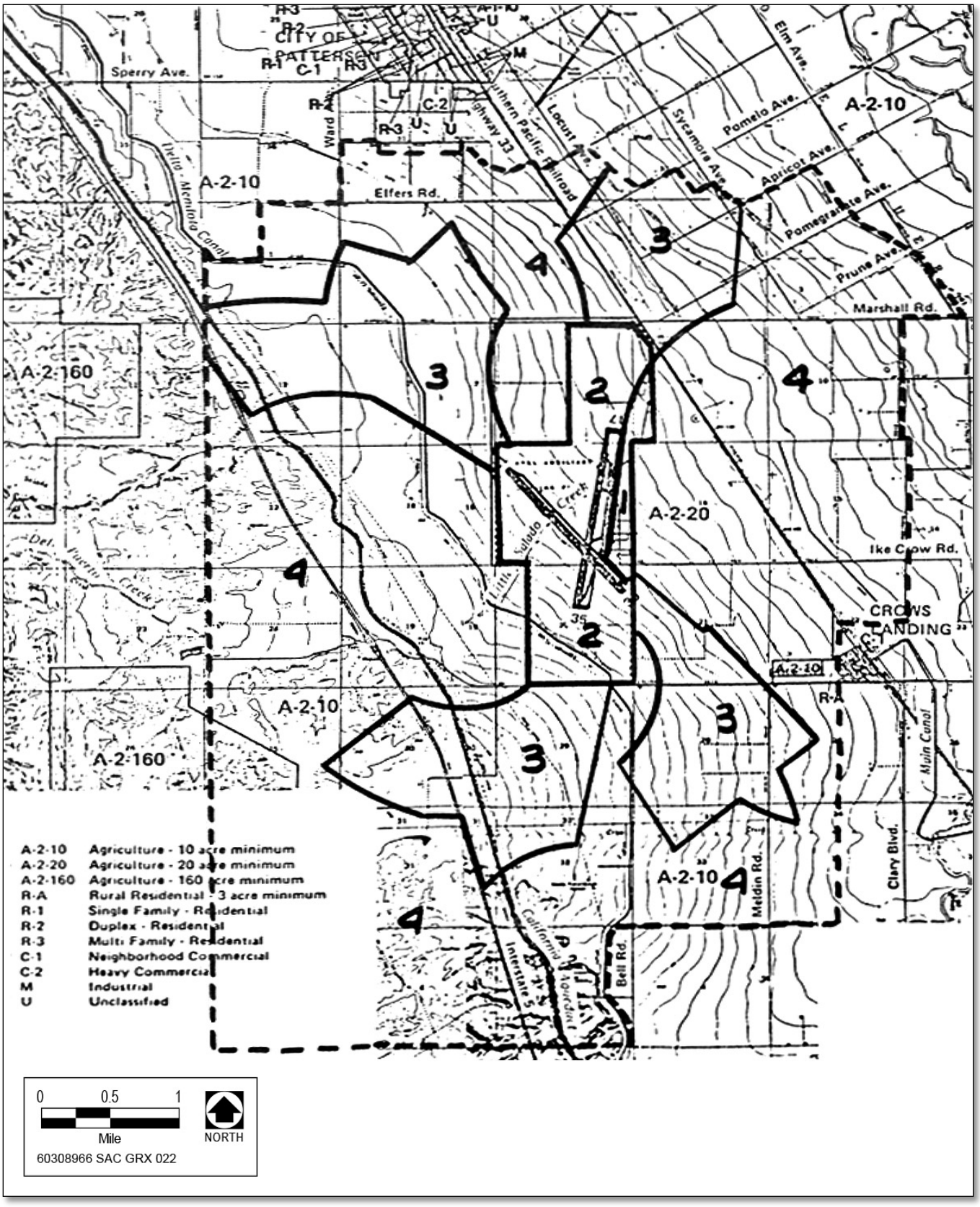


Source: Stanislaus County Airport Land Use Commission 2004

Exhibit 3.11-2. **Existing Safety Zones**

Regulatory Nature of the ALUCP

It is important to note that the proposed ALUCP does not apply to existing land uses. Neither the proposed ALUCP nor the ALUC has authority over existing land uses, airport operations, or over federal, State, or tribal lands.

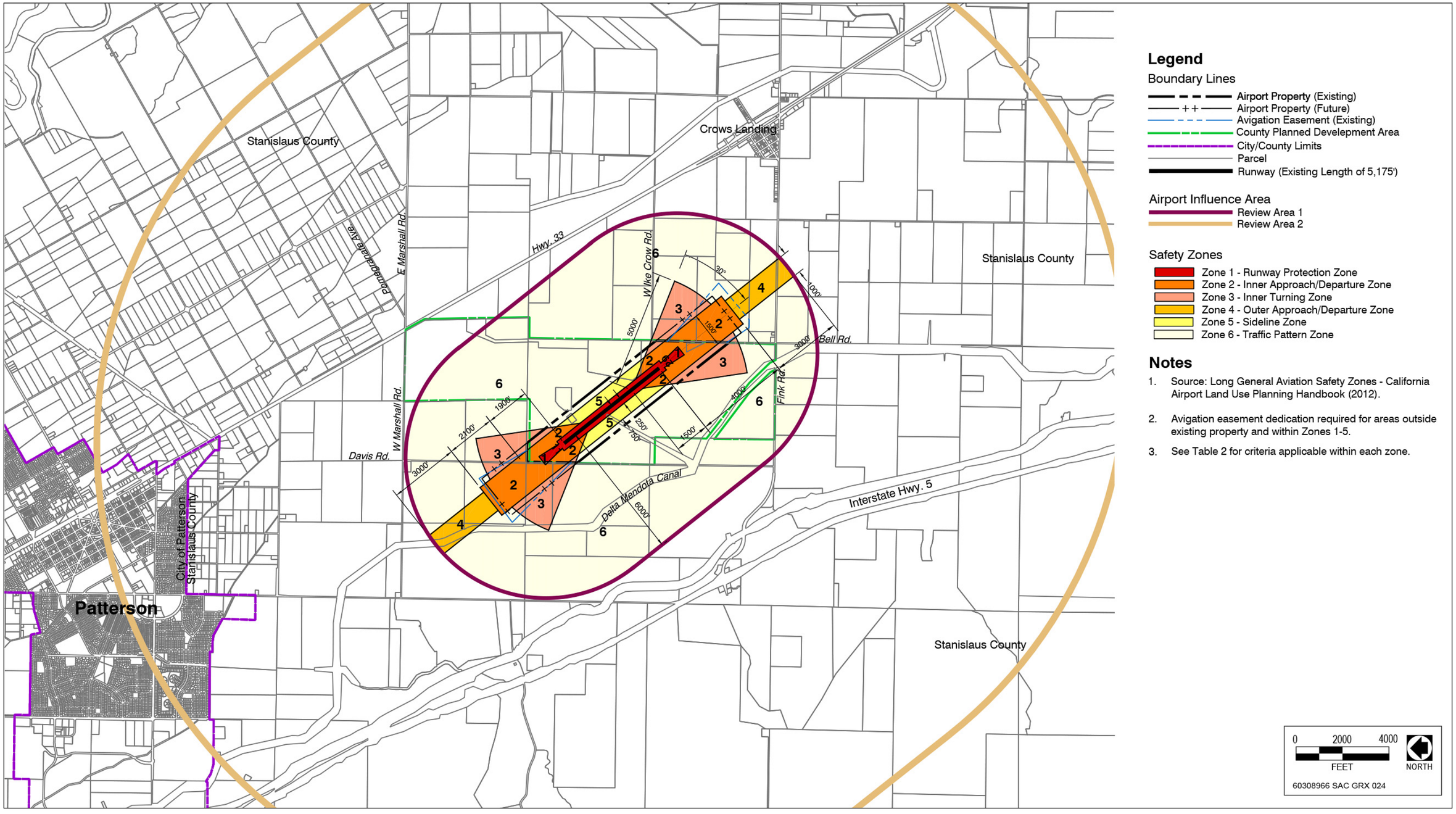
The proposed ALUCP amendment does not prohibit future development in the vicinity of the new Crows Landing Airport, but it could affect where development could occur within the AIA. The proposed ALUCP amendment seeks to guide the compatibility of future land uses by limiting the density, intensity, and height of new uses so as to avoid potential conflicts with aircraft operations and to preserve the safety of aviators and those living and working around the Airport. Therefore, the proposed ALUCP amendment could indirectly influence future land use development patterns in the vicinity of the Crows Landing Airport by enabling development in some locations and constraining development in other locations.

Major Changes between the 2004 ALUCP Policies for the Crows Landing Naval Airfield and the Proposed ALUCP Amendment

Public Utilities Code Section 21675 (a) requires that ALUCPs be based on upon a long-range airport master plan that is adopted by the airport owner/proprietor or, if such a plan does not exist for a particular airport, an airport layout plan (ALP) may be used with the approval of the California Division of Aeronautics. Further, the ALUCP must reflect "the anticipated growth of the airport during at least the next 20 years."

The proposed ALUCP amendment for the Crows Landing Airport is based on the proposed *Airport Layout Plan and Narrative Repor*t that was prepared by the County in conjunction with the CLIBP Specific Plan. The Crows Landing Airport will be developed on 370-acres located entirely within the boundaries of the CLIBP as a public-use airport under Airport Reference Code B-II. The Airport Reference Code identifies the size and type of aircraft that would be accommodated by the airport. Operational forecasts were developed for a 30-year timeframe to correspond with the 30-year timeframe associated with the CLIBP buildout. The forecasts were developed using historical data for airports in the region, the type of aircraft likely to use the airport, and FAA guidance. Aircraft noise data was developed based on the likely type of aircraft that would be likely to use the proposed airport both at opening (during the first 10 years of airport operations) and in the future (years 11 to 30). Approximately 4,000 annual operations are anticipated for first 10 years of the planning horizon, and 34,000 annual operations are anticipated by the end of the planning horizon (year 30).

The ALP also identified an "Ultimate" buildout, which extends beyond the 30-year timeframe. Facilities in the Ultimate buildout scenario include a precision approach and a 1,000-foot runway extension. However, this Ultimate buildout scenario would occur beyond the 30-year planning horizon associated with the CLIBP, and the proposed improvements would be developed only when funding is available and when the facilities are warranted by user demand. Since there is neither available funding nor demand for these facilities, they are not reasonably foreseeable at this time. Subsequent land use entitlement and environmental studies pursuant to CEQA will be required prior to further planning and adoption of the "Ultimate" scenario. However, the potential cumulative land use effects of the Ultimate buildout are considered in Section 5, "Other CEQA Considerations" As previously stated, the proposed ALUCP amendment provides airport-specific policies for the proposed Crows Landing Airport and reflects the guidance set forth by the Caltrans Division of Aeronautics in its current 2011 *Handbook*. The Caltrans Division of Aeronautics significantly revised its guidance pertaining to the preparation of ALUCPs three times since previous policies associated with the Crows Landing Naval Auxiliary Airfield were adopted by the ALUC.



Source: Stanislaus County 2016

Exhibit 3.11-3. **Proposed Airport Influence Areas and Airport Safety Zones**

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The overall shape and size of the Airport Influence Area and safety zones associated with the proposed Crows Landing Airport (Exhibit 3.11-3) vary significantly from those previously developed in association with the former Crows Landing Naval Auxiliary Airfield (see Exhibit 3.11-2). The proposed AIA and safety zones presented in Exhibit 3.11-3 were developed as part of the proposed project to reflect the presence of a single runway and a general aviation fleet mix rather than military aircraft. The proposed AIA was developed using new technologies and tools, such as Geographic Information Systems (GIS) and improved noise models, which provide greater precision in measuring the extent of aircraft noise and safety hazards. In addition, the AIA and policies associated with the proposed Crows Landing Airport (Exhibit 3.11-3) were developed to reflect the four compatibility factors required by the Caltrans *Handbook*:

- **Safety.** The configuration of the proposed safety zones are consistent with the geometry provided in the 2011 Handbook, which considers accident distribution patterns around public-use airports. Six safety zones are identified for the proposed airport, compared to the four zones identified for the former military airfield. The new zones were identified based on accident data/risk calculations for similar airports and runway lengths.

- **Noise.** The revised ALUCP identifies noise contours specific to the likely fleet mix associated with the proposed Crows Landing Airport, and the new policies will correspond to those presented in the County-wide ALUCP. For example, the FAA's current noise model considers the influence of topography on noise exposure.

- **Airspace Protection.** The surfaces establish the maximum height that objects on the ground can reach based on criteria set forth in Title 14 of the Code of Federal Regulations [CFR] Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace." Airspace associated with the proposed ALUCP amendment differs substantially, as the new airport will include only one runway and a substantially different fleet mix than those associated with the former military operations.

- **Overflight.** The area refers to the geographic area over which aircraft routinely fly at altitudes of 3,000 feet or less. Land use restrictions are not associated with overflight areas. (Overflight criteria were not addressed previously for the Crows Landing facility.)

Copies of ALUCP policy maps are provided in Appendix C to this EIR.

CLIBP Specific Plan Area

As shown on Exhibit 3.11-2, which presents the safety areas identified for the former Crows Landing Naval Auxiliary Airfield, the CLIPB would be constructed in the area designated as Planning Areas 1 and 2. The proposed CLIBP land uses would be generally consistent with the 2004 ALUCP, which identifies those uses as either permitted or conditionally permitted.

The new Crows Landing Airport would be developed entirely within the CLIBP Specific Plan Area, and the proposed CLIBP land uses, including the densities and intensities associated with those uses and their locations, would also comply with County-wide policies presented in the 2016 ALUCP:

- Based upon the proposed ALUCP noise policy map, none of the proposed land uses within the Specific Plan would be inconsistent with County-wide ALUCP policies associated with aircraft noise exposure. (Refer to Section 3.12, "Noise and Vibration," for a discussion of aircraft noise).

- Following amendment of the ALUCP safety zone policy map, nearly all proposed CLIBP development would occur in Safety Zone 6, for which there are few land use restrictions. The density/intensity of land use associated with Zone 6 (300 to 1,000 persons per acre) exceeds the densities/intensities proposed for CLIBP land uses. Although a portion of the Bell Road Corridor (approximately 55 acres) immediately south of the proposed airport would occur in Safety Zone 3, the typical densities and intensities of the uses identified for this area would be consistent with ALUCP policies. In this area, the density/intensity of uses would be restricted to 100 to 300 persons per acre.

All subsequent development in the CLIBP Specific Plan Area would be subject to the Specific Plan's objectives, goals and design guidance, which were developed specifically to promote compatibility with the development of Runway 11-29 (former military runway 12-30) as a public-use airport and amenity to the CLIBP. The proposed CLIBP Specific Plan is available for review under separate cover at the County Planning and Community Development Department. No conflicts with ALUCP policies would occur. The impact is considered **less than significant.** No mitigation is required.

IMPACT 3.11-3 Temporary Increase in Employment and Subsequent Housing Demand during Construction. *Implementation of the Specific Plan would generate a temporary increase in employment during construction. Based on the pool of available construction workers locally and the anticipated 30-year timeframe associated with project buildout, project-related construction is not anticipated to cause substantial population growth or cause substantial increase in housing demand in the region. This impact is considered* ***less than significant****.*

Implementation of the project would generate a temporary increase in construction jobs. Construction activities would occur at intervals throughout the 30-year buildout of the proposed project. The proposed project would be developed in three phases as a combination of large single projects or several smaller projects, depending on market conditions, the needs of specific future end users, and other factors. The number of construction workers that would be employed during the 30-year buildout period will vary. Construction workers serving the proposed project can be expected to come from Stanislaus County, nearby communities, and elsewhere in the surrounding region.

According to labor data available from the U.S. Census Bureau's *American Community Survey*, 14,164 residents of Stanislaus County were employed in the construction industry in 2014 (U.S. Census Bureau 2014). This pool of existing residents who are employed in the construction industry, as well as new residents that move to the area for other reasons, may be available during project buildout. Based on the number of construction workers that may be available locally and the 30-year duration associated with project buildout, it is not anticipated that construction of the proposed project would cause substantial population growth or a substantial increase in housing demand that would result in significant adverse physical environmental effects. Furthermore, if construction workers residing outside the region were employed at the project site, the temporary nature of the work suggests that it would be unlikely that workers would change their residence to work at the proposed project site. The impact related to a temporary increase in population growth and resultant housing demand associated with construction of the proposed project is considered **less than significant**. No mitigation is required.

IMPACT 3.11-4 Induce Population Growth. *The proposed project would accommodate the development of employment-generating uses. Implementation of the proposed project would result in of new employment opportunities that could, in turn, encourage households to relocate to residences within Stanislaus County or some other location proximate to the project site. It cannot be determined if the proposed project would contribute to housing demand in the future that would result in a significant adverse physical impact to the environment. Based on the level of employment that could be offered at the project site at buildout, the County conservatively assumes the impact could be* ***significant****.*

Population growth by itself is not considered a significant environmental impact. However, development of housing, infrastructure, and facilities and services to serve this growth can have environmental impacts through land conversions, commitment of resources, and other mechanisms.

Implementation of the proposed project could indirectly facilitate population growth through the development of more than 14,000 jobs in Stanislaus County, which may lead to additional housing demand. Overall, the new jobs that could be facilitated at the project site at buildout represent approximately 7 percent of the 224,300 total jobs estimated for Stanislaus County in 2035 (StanCOG 2014, page 23). Within Stanislaus County, the 2014 unemployment rates exceeded 11 percent, which is higher than surrounding areas and California as a whole. In December of 2015, the unemployment rate in Stanislaus County had dropped to 9.1 percent, which is substantially higher than California as a whole (5.8 percent) and almost twice the national unemployment rate during the same period (4.8 percent) (EDD 2016). In December 2015, approximately 22,000 participants in the civilian labor force in Stanislaus County were unemployed. In addition, there may be residents in the region at the time jobs are available at the project site that may be working part-time, when they would prefer to work full-time, or may otherwise be underemployed.

The purpose of the proposed project is to reuse the former Crows Landing military facility to create a regional employment center that will provide local job opportunities to the residents of Stanislaus County, some of whom may be unemployed at the time jobs are available at the project site. In addition, as described in Chapter 2, "Project Description," one of the objectives of the project is to provide sustainable-wage jobs. CLIBP employees could reside in communities along the Interstate 5 and State Route (SR) 33 corridors. Because the proposed project is located along primary transportation corridors, CLIBP employees also could be drawn from adjacent San Joaquin and Merced counties. There is existing housing in communities located along these corridors that could potentially serve employees, and over the 30-year buildout of the project, it is likely that additional housing opportunities will be developed.

Future CLIBP employees could commute from dispersed locations across the region or travel from certain communities that include a labor force with skills and experience to align with the types of jobs envisioned at the CLIBP. As noted in the Project Description (Chapter 2) and other sections of this EIR, one of the objectives of the project is to create employment opportunities in some of the industry sectors and subsectors that require county residents to commute long distances to earn a sustainable wage. However, the purpose of the Specific Plan is to prepare the site for future development, and no specific end users have been identified at this time. Therefore, it is not possible to determine what proportion of jobs would be filled by formerly unemployed or underemployed residents of Stanislaus County or how many of these employees would be attracted from more distant areas, which could cause them to relocate their households closer to the CLIBP. In addition, it is unknown whether the jobs associated with the CLIBP would provide opportunities for more than one job in a single household. Housing opportunities are currently available in the vicinity of the project site. The vacancy rate in the unincorporated

County is 7.5 percent, and in the county as whole, the vacancy rate is 7 percent (DOF 2016). The County cannot determine the success of the CLIBP in creating new jobs, nor can it reasonably anticipate other factors that might spur the need for residential development in Stanislaus or nearby counties during the next 30 years.

Impacts of population and employment growth are analyzed and mitigated, where appropriate, in various sections of this EIR. No substantial additional impacts from population and employment imbalances were identified beyond those considered comprehensively throughout the other sections of this EIR. However, the proposed project would provide a relatively large number of jobs, and it is possible that the additional jobs could create a need for additional residential development within commuting distance of the project site. The County conservatively assumes the impact could be **significant**.

The mitigation measures presented throughout this EIR directly address the environmental issues associated with buildout of the Specific Plan. The County's General Plan was subject to environmental review, and future projects proposed in the vicinity of the project site would require environmental review if a discretionary action were required by the County or another lead agency. The County's General Plan includes policies and implementation measures that are designed to reduce the potential environmental impact of projects accommodated under the General Plan. The purpose of the proposed project is to provide employment opportunities for county and nearby residents. There are current housing opportunities available within commuting distance of the project site, and over the course of buildout of the project, it is likely that new housing opportunities will be developed. However, it is not possible for the County to determine the location or extent of possible future residential development associated with project-related employment. Therefore, no feasible mitigation is available to reduce this impact to a less-than-significant level without changing the purposes of the proposed Specific Plan. The impact is considered **significant and unavoidable**.

IMPACT 3.11-5 Jobs-Housing Balance. *Implementation of the Specific Plan would result in the development of employment-generating uses and up to approximately 14,000 new jobs within Stanislaus County at buildout. These jobs could help to align the number of jobs in the County and the number of employed residents. It is anticipated that the proposed project could draw from the local employment pool, including residents of Stanislaus County that may have been unemployed prior to CLIBP development. This impact is considered less than significant.*

As mentioned previously, there are fewer jobs in Stanislaus County than the number of working residents. Many residents commute to the San Francisco Bay Area or other distant employment centers. More than 16,000 Stanislaus workers commuted to the San Francisco Bay Area alone in 2010 and in total, 42,305 Stanislaus workers commuted out of Stanislaus County. The jobs/housing index is anticipated to be 0.94 in 2035, indicating there would be more employed residents than jobs in Stanislaus County than under current conditions (StanCOG 2014, Appendix J).

Even if a community has a statistical balance between jobs and housing, considerable in-commuting and out-commuting would occur if the available employment opportunities did not match the skills, education, and experience of the local labor force. The proposed project is anticipated to offer a range of job types at full buildout including manufacturing, warehousing, logistics, uses that occupy professional offices, research and development, workforce training, and others. The County anticipates that future jobs at the project site could require a range of education and training. The County's intent is to increase the number and diversity of locally available jobs, and it is anticipated that the proposed project would draw from the local employment pool. Uses anticipated as a part of

the project could add more than 14,000 new jobs at buildout. These jobs would contribute to a better numeric match between the number of jobs in the county and the number of employed residents. However, it is not possible to predict the number of jobs that would be filled by county residents or others.

The proposed project capitalizes on the site's proximity to Interstate 5, Interstate 580, State Route 33, and other regional transportation facilities. The same advantages that this location offers for future employers also could facilitate longer-distance commutes by future employees. Approximately 17,000 workers from the manufacturing, transportation, and wholesale sectors live within a 30-minute drive of the site. The proposed project would provide over 60,000 residents in the Stanislaus, San Joaquin, and Merced Counties with an alternative to traveling to distant work centers in the Bay Area, Sacramento, or elsewhere (Stanislaus County Economic Development Action Committee 2016:60).

The potential CLIBP tenants/end users are unknown. However, the potential impacts of population and employment growth, including changes in the balance between local jobs and population, are analyzed and environmental mitigation measures are identified in other sections of this EIR. No additional impacts associated with population and employment imbalances are anticipated. Although there is no guarantee that CLIBP employees would reside in the county, based on the available evidence and historical data, the County anticipates that implementation of the proposed project would help contribute toward a more balanced relationship between jobs and housing. The impact is considered **less than significant**. No mitigation is required.

IMPACT 3.11-6 *Displace Substantial Numbers of People or Existing Housing. There is no housing on the project site and the project does not propose to remove existing housing. The proposed project includes the amendment of the 2016 County-wide ALUCP to guide future land use decisions in the vicinity of the proposed Crows Landing Airport. The ALUCP amendment would identify safety zones that could affect number of dwellings or prohibit new residential development on parcels located within safety zones associated with the proposed airport. However, the area in the CLIBP vicinity that would be overlaid by the new ALUCP safety zones is designated for agriculture. The density/intensity of residential development in areas zoned for agriculture is more restrictive than the densities/intensities of residential development specified by ALUCP policies. Therefore, no impact would occur.*

There is no housing on the project site and the project does not propose to remove existing housing. In order to attain consistency with the proposed ALUCP, no direct conflicts should exist between planned land uses shown on each jurisdiction's general plan land use map and the proposed ALUCP criteria. For example, a conflict would exist when general plan densities would exceed the ALUCP density criteria (i.e., allow more residential units to be developed than would be permitted under the ALUCP). If such conflicts occur, then the proposed ALUCP could alter future land use development patterns by shifting or "displacing" the location of future land use development to less restrictive areas of the AIA or to areas outside of the AIA.

The need to analyze displacement as part of the environmental impact analysis is associated with a 2007 California State Supreme Court Case, *Muzzy Ranch Co. v. Solano County Airport Land Use Commission*. In its decision for that case the court found that:

> "…placing a ban on development in one area of a jurisdiction may have the consequence, notwithstanding existing zoning or land use planning, of displacing development to other areas of the jurisdiction. While an ALUCP does not and need not determine where the displaced development would move to—and,

indeed, ALUCs have no authority by which to make such a decision—the extent of the conflict that results in the displacement must be analyzed."

CLIBP Specific Plan Area

No residences exist within the CLIBP Specific Plan Area, and current ALUCP policies prohibit residential development on the former 1,528-acre Crows Landing military property. The CLIBP Specific Plan also would prohibit residential development within planning area boundaries. Therefore, the proposed project would not displace housing within the project site.

Off-site Areas within the Airport Influence Area

The safety policies presented in the County's 2016 ALUCP identify the specific land uses and density/intensity associated restrictions for proposed development within Safety Zones 1 through 6 in Referral Area 1 of the AIA. The amendment to include the proposed Crows Landing Airport in the County-wide ALUCP would identify the locations of the safety zones in the vicinity of the new airport, and the County-wide policies would apply to those areas. Exhibit 3.11-3 presents the proposed safety zones associated with the proposed Crows Landing Airport. Table 3.11-1 summarizes County-wide ALUCP policies that would apply to residential development within the safety zones for the proposed Crows Landing airport.

As shown on Exhibit 3.11-3, proposed Safety Zones 2 and 5 would be situated within CLIBP boundaries. The current ALUCP policies associated with this area prohibit residential development, and residential development would not be permitted within the CLIBP. No conflict would occur. All of the off-site areas associated with Safety Zones 2, 3, 4, and 6 are located in an unincorporated area of Stanislaus County that is zoned as A-2-40 (General Agriculture, 40-acre minimum parcel size). Up to two residences may be constructed on each 40-acre parcel for a site wide average of two dwelling units per 20 acres. For legal parcels less than 20 acres in land area, a single dwelling is permitted. The County's policies pertaining to the density/intensity of residential development are more restrictive than the County-wide ALUCP policies that would apply to the proposed Crows Landing Airport, and no conflicts would occur. Following the adoption of and implementation of the proposed project, no displacement would occur to prevent the County from achieving its RHNA allocation. **Therefore, no impact would occur.** No mitigation is required.

Table 3.11-1. Summary of Safety Zone Policy Restrictions, Stanislaus County Airport Land Use Compatibility Plan		
Safety Zone	Applicable ALUCP Policies	Analysis
Zone 1 Runway Protection Zone	New residential development shall be prohibited. New agriculture is allowable use, except residences, livestock, aquaculture, wet farming (e.g., rice). New cultivation is not allowed in Object Free Area.	Zone 1 is located entirely with the airport boundaries. Proposed CLIBP Specific Plan policies would prohibit residential development. **No conflict.**
Zone 2 Inner Approach/ Departure Zone	Single-family residential development is incompatible at a density >1 dwelling unit/10 acres. Dwelling unit should be situated outside of safety zone boundaries where feasible. Agriculture permitted	County policies pertaining to the density/intensity of residential development in Agricultural areas densities are more restrictive than ALUCP policies. Zone 2 extends beyond CLIBP boundaries to adjacent parcels. All unimproved parcels in which Zone 2 occurs also include land that is outside of the safety zone. Dwelling sites can be constructed on the portion of the parcel that is outside of Zone 2. **No conflict.**
Zone 3 Inner Turning Zone	Single-family residential development is incompatible at a density >1 dwelling unit/5 acres or a sitewide average of 0.2 dwelling unit per any single acre. Agriculture permitted.	County policies pertaining to the density/intensity of residential development in Agricultural areas densities are more restrictive than ALUCP policies. **No conflict.**
Zone 4 Outer Approach/Departure Zone	Single-family residential development is incompatible at a density >1 dwelling unit/5 acres or a sitewide average of 0.2 dwelling unit per any single acre. Agriculture permitted.	County policies pertaining to the density/intensity of residential development in Agricultural areas densities are more restrictive than ALUCP policies. **No conflict.**
Zone 5 Sideline Zone	Residential uses prohibited. Agriculture permitted.	Zone 5 is located entirely within the airport boundaries subject to CLIBP Specific Plan policies, which prohibit residential development. **No conflict.**
Zone 6 Traffic Pattern Zone	New residential development is not restricted. Agriculture permitted.	**No conflict.**

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3.12 NOISE AND VIBRATION

Section 3.12 provides an evaluation of the potential noise and vibration impacts attributable to the proposed project.

3.12.1 NOISE AND VIBRATION FUNDAMENTALS

Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise.[1]

The perception of sound is subjective and varies substantially from person to person. Noise can be generated by mobile sources (transportation sources), such as automobiles, trucks, and airplanes, and stationary sources (non-transportation noise sources), such as construction sites, machinery, and commercial and industrial operations. Common sources of noise and noise levels are presented in Exhibit 3.12-1.

Directly measuring sound pressure fluctuations requires the use of a large and cumbersome range of numbers. The decibel (dB) scale was introduced to provide a more practical way of expressing the range of sound pressures.[2] The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed. The standard weighting networks are identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels (dBA). Expressing sound levels in terms of dBA can help predict community response to noise. For the purposes of this report, all sound levels are in terms of A-weighted decibels unless specifically stated otherwise.

As acoustic energy propagates between the source and receiver, noise levels attenuate (decrease) as a function of the distance from the source (divergence), ground absorption, atmospheric conditions, and the presence of physical barriers. Physical barriers to noise may be any natural or human-made feature such as a hill, tree, building, wall, or berm.[3]

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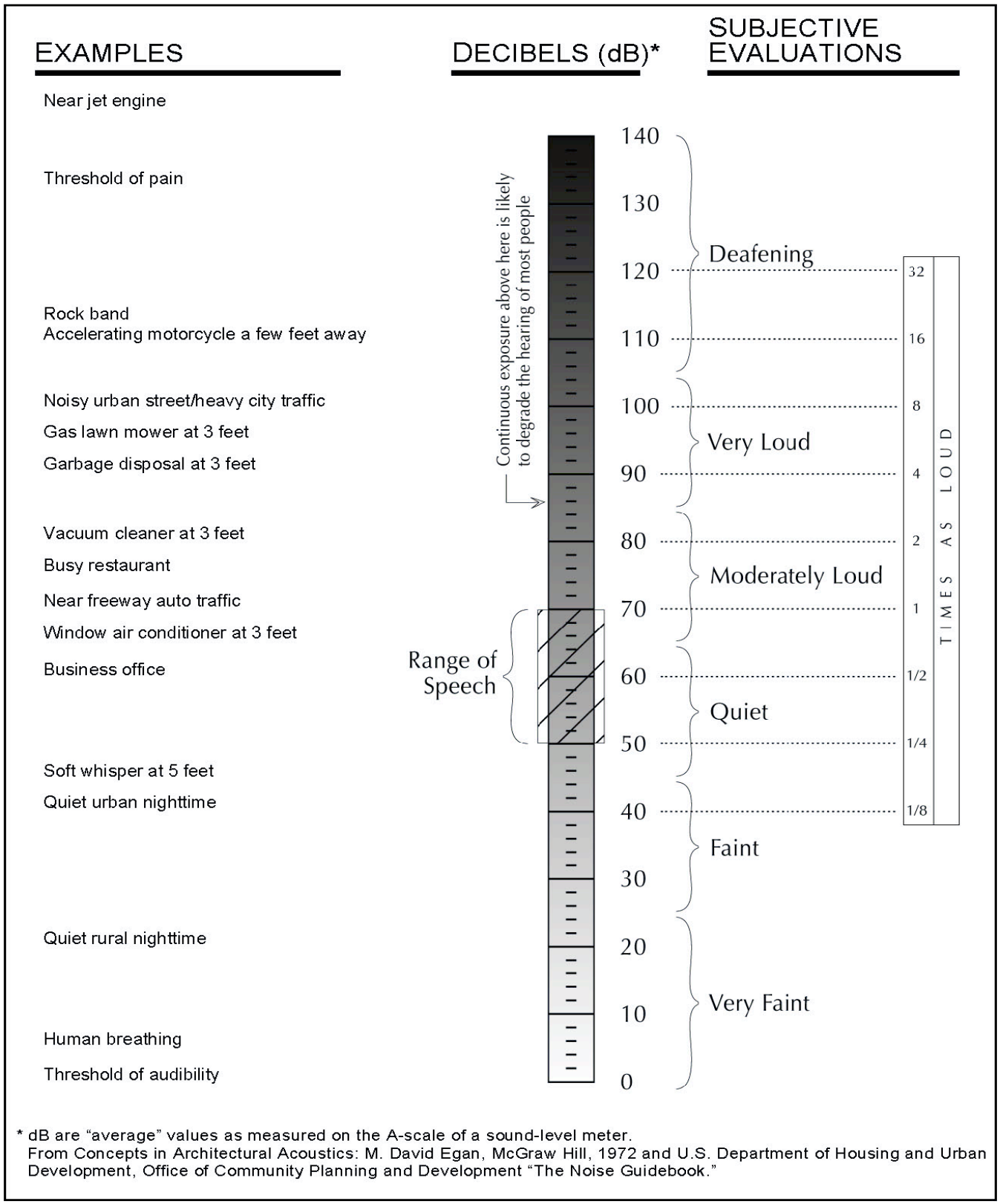
1 A sound wave is initiated in a medium by a vibrating object (e.g., vocal chords, the string of a guitar, the diaphragm of a radio speaker). The wave consists of minute variations in pressure, oscillating above and below the ambient atmospheric pressure. The number of pressure variation cycles occurring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

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

3 Noise from mobile sources generally is attenuated at a rate of 3 dB (hard surfaces, such as asphalt) to 4.5 dB (soft surfaces, such as grasslands) per doubling of distance. Acoustic energy from stationary sources propagates over a spherical area, and is attenuated at a rate of 6 dB (hard surfaces) to 7.5 dB (soft surfaces) per doubling of distance. Atmospheric conditions such as wind speed, turbulence, temperature gradients, and humidity may affect the propagation of noise and levels at a receiver. Furthermore, the presence of a large object (e.g., barrier, topographic features, and intervening building façades) between the source and the receptor can provide significant attenuation of noise levels. The amount of noise level reduction or "shielding" provided by a barrier primarily depends on the size of the barrier, the location of the barrier in relation to the source and receivers, and the frequency content of the noise source. Natural barriers such as berms, hills, or dense woods, and human-made features such as buildings and walls may be used as noise barriers. The actual amount of attenuation depends on the barrier size and frequency of the sound.



Source: AECOM 2010

Exhibit 3.12-1. **Common Noise Sources and Levels**

NOISE DESCRIPTORS

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

- *SEL (Sound Exposure Level):* The equivalent sound level over a 1-second time interval for a discrete sound event (e.g., aircraft overflight).
- L_{max} *(Maximum Noise Level):* The highest root-mean-square noise level during a specific period of time.
- L_n *(Statistical Descriptor):* The noise level exceeded n% of a specific period of time. For example, L_{50} is the median noise level, or level exceeded 50% of the time.
- L_{eq} *(Equivalent Noise Level):* The average noise level.[4] The L_{eq} represents an average of the sound energy occurring over a specified time period. In effect, the L_{eq} is the steady-state sound level containing the same acoustic energy as the time-varying sound that actually occurs during the same period. The 1-hour, A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- L_{dn} *(Day-Night Average Noise Level):* The 24-hour L_{eq} with a 10 dB "penalty" for noise events that occur during the noise-sensitive hours between 10 p.m. and 7 a.m. In other words, 10 dB is "added" to noise events that occur in the nighttime hours, and this generates a higher reported noise level when determining compliance with noise standards. The L_{dn} attempts to account for the fact that noise during this specific period of time is a potential source of disturbance with respect to normal sleeping hours.
- *CNEL (Community Noise Equivalent Level):* The CNEL is similar to the L_{dn} described above, but with an additional 5-dB "penalty" added to noise events that occur during the noise-sensitive hours between 7 p.m. and 10 p.m., which are typically reserved for relaxation, conversation, reading, and other activities that could be disrupted by noise. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dB higher than the L_{dn}.

A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level L_{eq} which corresponds to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually 1 hour). The L_{eq} is the foundation of the composite noise descriptors, such as L_{dn} and CNEL, as defined above, and shows very good correlation with community response to noise.

[4] This is also sometimes called the equivalent or energy-averaged sound level.

HUMAN RESPONSE TO NOISE

Excessive and chronic exposure to elevated noise levels can result in hearing loss and interference with communications, sleep, and learning.[5] The degree to which noise results in annoyance and interference is highly subjective and may be influenced by several non-acoustic factors. The number and effect of these non-acoustic environmental and physical factors vary depending on individual characteristics of the noise environment such as sensitivity, level of activity, location, time of day, and length of exposure. One key aspect in the prediction of human response to new noise sources is the individual level of adaptation to an existing noise environment. The greater the change in the noise levels that are attributed to a new noise source relative to the environment to which an individual has become accustomed, the less tolerable the new noise source will be to the new noise source.

One way of anticipating a person's subjective reaction to a new noise is to compare the new noise with the existing noise environment to which the person has become adapted, i.e., the "ambient" noise level. Generally, a 1-dB increase in noise level is imperceptible, a 3-dB increase is barely perceptible, a 6-dB increase is clearly noticeable, and a 10-dB increase is perceived as approximately twice as loud (Caltrans 2013).[6] A noise level increase of 3 dB or more is typically considered a substantial degradation of the ambient noise environment.

FUNDAMENTAL NOISE CONTROL OPTIONS

Any noise problem is composed of three basic elements: noise source; transmission path; and receiver. The appropriate acoustical treatment for a given project considers the nature of the noise source and the sensitivity of the receiver. The problem may be defined in terms of appropriate criteria (L_{dn}, L_{eq}, or L_{max}), location of the sensitive receiver (inside or outside), and time that the noise occurs (daytime or nighttime). Noise control techniques may then be selected to provide an acceptable noise environment for the sensitive receiver (for example, on-site daycare or off-site residence), while remaining consistent with local aesthetic standards and practical structural and economic limits. Descriptions of potential noise control options are provided below.

Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and the receiving use. Examples of setback areas applicable to development projects can take the form of recreational areas (e.g., parks), drainage features, and other types of open space. The available noise attenuation from this technique is limited by the characteristics of the noise source and the area available for setback, but it is generally between 4 and 6 dB.

Site Planning and Design

Thoughtful site planning and design can address noise exposure issues, while avoiding the additional up-front and ongoing maintenance expense of barriers. For example, buildings can shield outdoor gathering areas from intruding noise and prevent an increase in noise levels attributable to surface reflections. Site design should

[5] The non-auditory physiological health effects of noise on humans have been the subject of considerable research attempting to discover correlations between exposure to elevated noise levels and health problems, such as hypertension and cardiovascular disease. The mass of research infers that noise-related health issues are predominantly the result of behavioral stressors and not a direct noise-induced response. The extent to which noise contributes to non-auditory health effects remains a subject of considerable research, with no definitive conclusions.

[6] These reactions to changes in noise levels was developed on the basis of test subjects' reactions to changes in the levels of steady-state pure tones or broad-band noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50 dB to 70 dB, as this is the usual range of voice and interior noise levels.

account for building placement to avoid creating reflecting surfaces that may increase on-site noise levels. For example, two buildings placed at an angle facing a noise source may cause noise levels within that angle to increase by up to 3 dB. The open end of U-shaped buildings should point away from noise sources for the same reason.

A transportation network that distributes rather than concentrates traffic can address transportation noise issues. With a highly connected and distributed transportation network, no single route would experience high traffic volumes, which can help to address land use/noise compatibility issues.

Building Façades

When interior noise levels pose concern in a noisy environment, noise reduction may be obtained through the acoustical design of building façades. Standard construction practices provide an interior to exterior noise reduction of 10 to 15 dB for building façades with doors and windows open and a noise reduction of approximately 25 dB when doors and windows are closed. Thus, an exterior-to-interior noise reduction of 25 dB can be obtained with adequate ventilation systems that allow windows to remain closed under any weather condition.

Acoustical treatment of the building facades can achieve even greater noise reduction. Reducing the window surface area of building façades is the most effective control technique followed by providing acoustical glazing (thicker glass or increased air space between panes) in frames with low air infiltration rates, using fixed (non-movable) acoustical glazing, or eliminating windows. Noise transmitted through walls can be reduced by increasing wall mass (using stucco or brick in lieu of wood siding), isolating wall members through the use of double or staggered stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways can be provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments can also reduce noise by increasing the mass of plywood sheathing under roofing materials.

Vegetation

Trees and other vegetation are often perceived by the public to provide noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve 5 dB attenuation of traffic noise. Vegetation can be used to acoustically “soften” intervening ground between a noise source and a receiver, by increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting trees and shrubs also offers aesthetic and psychological value that could reduce adverse public reaction by removing the noise source from view.[7]

Barriers

Shielding by barriers can be obtained by placing walls, berms, or other structures (e.g., buildings) between the noise source and the receiver. The effectiveness of a barrier depends on its ability to block the line of sight between the source and receiver. Effectiveness is improved when sound must travel a longer distance to pass over

[7] It should be noted, however, that trees planted on the top of a noise-control berm can actually slightly degrade the acoustical performance of the barrier by diffracting (bending) noise over a barrier. Typically, evergreen trees acoustically perform better than broad leaf foliage, which could act as a reflective surface.

the barrier than if it were traveling in a straight line from source to receiver.[8] Barrier effectiveness also depends upon the relative heights of the source, barrier, and receiver. In general, barriers are most effective when placed close to either the receiver or the source.[9]

There are practical limits to the noise reduction provided by barriers. For vehicle traffic or railroad noise, a noise reduction of 5 to 10 dB may often be attained. Noise barriers within a development may inadvertently reflect noise back to a noise-sensitive area unless located carefully and complemented with landscaping materials.[10]

Earth, in the form of berms or the face of a depressed area, can be an effective barrier material. The use of an earth berm in-lieu of a solid wall may provide up to 3 dB additional attenuation over that attained by a solid wall alone because of the absorption provided by the earth. Berm/wall combinations offer slightly better acoustical performance than solid walls alone, and they are often preferred for aesthetic reasons. Often, berm/wall combinations are used.

VIBRATION

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

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006:7-1 – 7-8; Caltrans 2004:5-7). PPV and RMS vibration velocity are normally described in inches per second (in/sec).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response to vibration. The response of the human body to vibration relates well to average vibration amplitude. Therefore, vibration impacts on humans are evaluated in terms of RMS vibration velocity. Similar to airborne sound, vibration velocity can be expressed in decibel notation as vibration level (VdB).[11]

Typical outdoor sources of perceptible groundborne vibration include construction equipment, steel-wheeled trains, and traffic on rough roads. Although the effects of vibration may be imperceptible at low levels, moderate and high levels of vibration may be detectible and produce damage to nearby buildings (e.g., loosening and

[8] The difference between the distance over a barrier and a straight line between source and receiver is called the “path length difference” and is the basis for calculating barrier noise reduction.

[9] An intermediate barrier location yields a smaller path length difference for a given increase in barrier height than does a location closer to either source or receiver. The path length difference is the difference between the straight line distance the noise travels to the receptor with and without the barrier.

[10] For maximum effectiveness, barriers must be continuous and airtight along their length and height. To ensure that sound transmission through the barrier is insignificant, barrier mass should be about 4 pounds per square foot, although a lesser mass may be acceptable if the barrier material will still ensure that a substantial amount of transmission loss does not occur. Satisfaction of the above criteria requires substantial and well-fitted barrier materials placed to intercept the line of sight to all substantial noise sources.

[11] Just as with noise levels, the logarithmic nature of the decibel serves to compress the broad range of numbers required to describe vibration.

cracking of plaster or stucco coatings). The range of vibration that is relevant to this analysis occurs from approximately 50 VdB, which is the typical background vibration level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings (FTA 2006:8-1 – 8-8).

3.12.2 ENVIRONMENTAL SETTING

EXISTING NOISE SOURCES

The existing noise environment in the vicinity of the project site is influenced primarily by off-site sources surface transportation, but also includes contributions from off-site train traffic, and both on- and off-site agriculture equipment and operations. Vehicle traffic noise levels are attributed primarily to State Route (SR) 33, Fink Road, West Marshall Road, and Bell Road. The project site is approximately 1 mile from Interstate 5 (I-5), as measured from the closest project boundary. Primary train operations noise (i.e., warning horn at local grade crossings) is attributed to operations on the Union Pacific Railroad (UPRR) mainline, which is parallel to SR 33. The rail line is located approximately 125 feet east of the site's northeastern corner, and SR 33 is located at the project's northeastern site boundary. Noise levels associated with these sources, as perceived within the vicinity of the Specific Plan Area, are discussed separately below.

Ambient Noise Level Survey

Ambient noise surveys were conducted from November 10 to 13, 2015, to document the noise environment and noise sources. Dominant sources of ambient noise identified in the ambient noise sources consisted of local and distant traffic, and natural sources (wind, birds, etc.).[12] Ambient noise level survey locations are shown in Exhibit 3.12-2. The results at each ambient noise level measurement location are summarized in Table 3.12-1. Average daytime hourly noise levels documented during the 24-hour measurements ranged from approximately 43 to 67 dB L_{eq}, with maximum noise levels between 69 and 105 dB L_{max} (horn blast at grade crossing). The noise environment has not substantially changed since the surveys.

Roadway Traffic

Table 3.12-2 summarizes the modeled traffic noise levels 100 feet from the centerline of the major roadways in the vicinity of the project site. Traffic noise level modeling occurs at this distance because 100 feet is a representative distance from the roadway centerline to adjoining noise sensitive uses. Table 3.12-2 shows the modeled noise levels and estimated distances to the 70 dB L_{dn}, 65 dB L_{dn}, and 60 dB L_{dn} traffic noise contours, based on the traffic data provided to support this EIR. As shown in Table 3.12-2, the location of the 60 dB L_{dn} contour ranges from 5–557 feet from the centerline of the modeled roadways. Noise contours under existing conditions are also shown in Exhibit 3.12-3.[13]

[12] Short-term 15-minute and continuous 24-hour long-term measurements of ambient noise levels were taken in accordance with applicable American National Standards Institute (ANSI) standards at four locations using Larson Davis Laboratories (LDL) Models 820 and 824 precision integrating sound level meters. The sound level meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure measurement accuracy. The equipment used meets all pertinent ANSI specifications for Class 1 sound-level meters (ANSI S1.4-1983[R2006]).

[13] The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) combined with the California Vehicle Noise (Calveno) Reference Energy Mean Emission Levels was used to predict existing traffic noise levels within the vicinity of the project site.

Source: AECOM 2015

Exhibit 3.12-2. **Ambient Noise Measurement Sites**

Table 3.12-1.
Summary of Ambient Noise Level Survey Results – November 10–13, 2015

Site	Noise Sources	Date	Start Time	Duration	Average Measured Hourly Noise Levels, dB: Daytime (7 a.m.-10 p.m.) L_{eq}	Daytime (7 a.m.-10 p.m.) L_{max}	Nighttime (10 p.m.-7 a.m.) L_{eq}	Nighttime (10 p.m.-7 a.m.) L_{max}	L_{dn}
LT-01-01	Project Site, Public Facilities Area, Between Bell Road and W Ike Crow Road, Crows Landing, CA 95313	10-Nov	11-Nov 15:00	24 Hours	46	78	39	65	48
LT-01-02	Project Site, Public Facilities Area, Between Bell Road and W Ike Crow Road, Crows Landing, CA 95313	11-Nov	12-Nov 15:00	24 Hours	43	69	43	74	50
LT-01-03	Project Site, Public Facilities Area, Between Bell Road and W Ike Crow Road, Crows Landing, CA 95313	12-Nov	13-Nov 15:00	24 Hours	58	93	38	64	56
LT-02-01	By 18318 CA-33 Patterson, CA 95363	10-Nov	11-Nov 16:00	24 Hours	67	105	54	80	66
LT-02-02	By 18318 CA-33 Patterson, CA 95363	11-Nov	12-Nov 16:00	24 Hours	57	84	62	102	68
LT-02-03	By 18318 CA-33 Patterson, CA 95363	12-Nov	13-Nov 16:00	24 Hours	62	100	64	104	70
LT-03-01	By 1909 Fink Rd Crows Landing, CA 95313	10-Nov	11-Nov 17:00	24 Hours	49	76	50	80	56
LT-03-02	By 1909 Fink Rd Crows Landing, CA 95313	11-Nov	12-Nov 17:00	24 Hours	49	78	49	77	55
LT-03-03	By 1909 Fink Rd Crows Landing, CA 95313	12-Nov	13-Nov 17:00	24 Hours	52	90	51	76	58
ST-01	Northwest corner of Fink Road and Medlin Road Crows Landing, CA 95313	Friday, November 13, 2015	16:51	15 Minutes	68	82	NA	NA	NA

Notes: L_{dn} = Day-Night Average Noise Level; dB = A-weighted decibels; L_{eq} = Equivalent Noise Level; L_{max} = maximum instantaneous noise level during a specific period of time; ST= Short Term; LT= Long Term; NA = Not Applicable
Source: Data compiled by AECOM in 2015

Table 3.12-2.
Traffic Noise Contours – Existing Conditions

Roadway	Roadway Segment	dB, L_{dn} at 100 feet	Distance to Contours, feet		
			70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}
Fink Road	From Ward Avenue to Davis Road	60	22	48	104
Fink Road	From Davis Road to Bell Road	60	21	45	97
Fink Road	From Bell Road to SR 33	60	23	49	105
SR 33	From Newman Waste Way to Stuhr Road	68	68	146	314
SR 33	From Stuhr Road to Fink Road	65	49	107	229
SR 33	From Fink Rd to W Ike Crow Road	64	39	84	182
SR 33	From W Ike Crow Road to W Marshall Road	64	39	83	180
SR 33	From W Marshall Rd to Sperry Ave	65	43	93	200
Ike Crow Road	From SR 33 to Bell Road	40	1	2	5
Bell Road	From Fink Road to Ike Crow Road	45	2	5	10
Davis Road	From South of W Marshall Road to W Marshall Road	47	3	6	14
Marshall Road	From SR 33 to Davis Road	57	13	27	58
Marshall Road	From Davis Road to Ward Avenue	56	12	27	57
Ward Avenue	From W Marshall Road to Patterson City Limits	59	19	42	89
Crows Landing Road	From Fink Rd to W Marshall Road	62	30	64	138
W. Main St.	West of Carpenter Road	67	63	135	292
Crows Landing Road	From Carpenter Road to W. Main Street	66	50	108	233
W. Main Street	East of Crows Landing Road	66	57	123	266
I-5	North of Sperry Avenue	71	120	258	557
I-5	From Fink Rd to Sperry Ave	71	116	250	538
I-5	South of Fink Road	71	114	245	529

Notes: dB = A-weighted decibels; L_{dn} = Day-Night Average Noise Level
Source: Modeling conducted by AECOM in 2015

Railroad Noise

Railroad operation in the vicinity of the project site is another source of existing noise. A long-term (over 2 days) noise measurement at location LT-02 (Exhibit 3.12-2) captured the existing noise from the railroad line. Noise measurement along SR 33 (LT-02) was set up to capture train activity along this railroad line (noise levels greater than 90 dB and lasting for more than 5 seconds). Review of noise measurement data (LT-02) showed two train events per day, occurred during three days of monitoring (November 10 through November 13, 2016). Freight rail use on this branch line is not expected to exceed two trains per day under normal conditions, and operations would be limited to daytime hours (7 a.m. to 10 p.m.). Currently, this branch line is infrequently used, based on the long-term noise level measurement conducted along SR 33 (LT-02). However, this branch line may have occasional use under existing conditions not recorded during the noise level measurements.

The mean sound equivalent level of the events measured was calculated to evaluate the effects of noise from railroad operations on the project site. Distances of 222 feet to the 70 dB L_{dn}, 103 feet to the 65 dB L_{dn}, and 48 feet to the 60 dB L_{dn} train noise contours were estimated using the mean sound equivalent level (107 dB SEL), the number of rail operations per day (2) and a noise level of 67 dBA day-night average level (L_{dn}) at 80 feet from the center of the railroad tracks. As shown in Table 3.12-1, existing noise levels at LT-02, located at 80 feet from the center of the railroad tracks, range from 66 to 70 dBA L_{dn}. These noise levels also include other ambient noise sources, such as roadway traffic.

Aircraft Noise

Aircraft operations ceased at the Naval Auxiliary Airfield with site closure. The closest airport is the Modesto City-County Airport, which is approximately 15 miles from the project site.

STATIONARY NOISE SOURCES

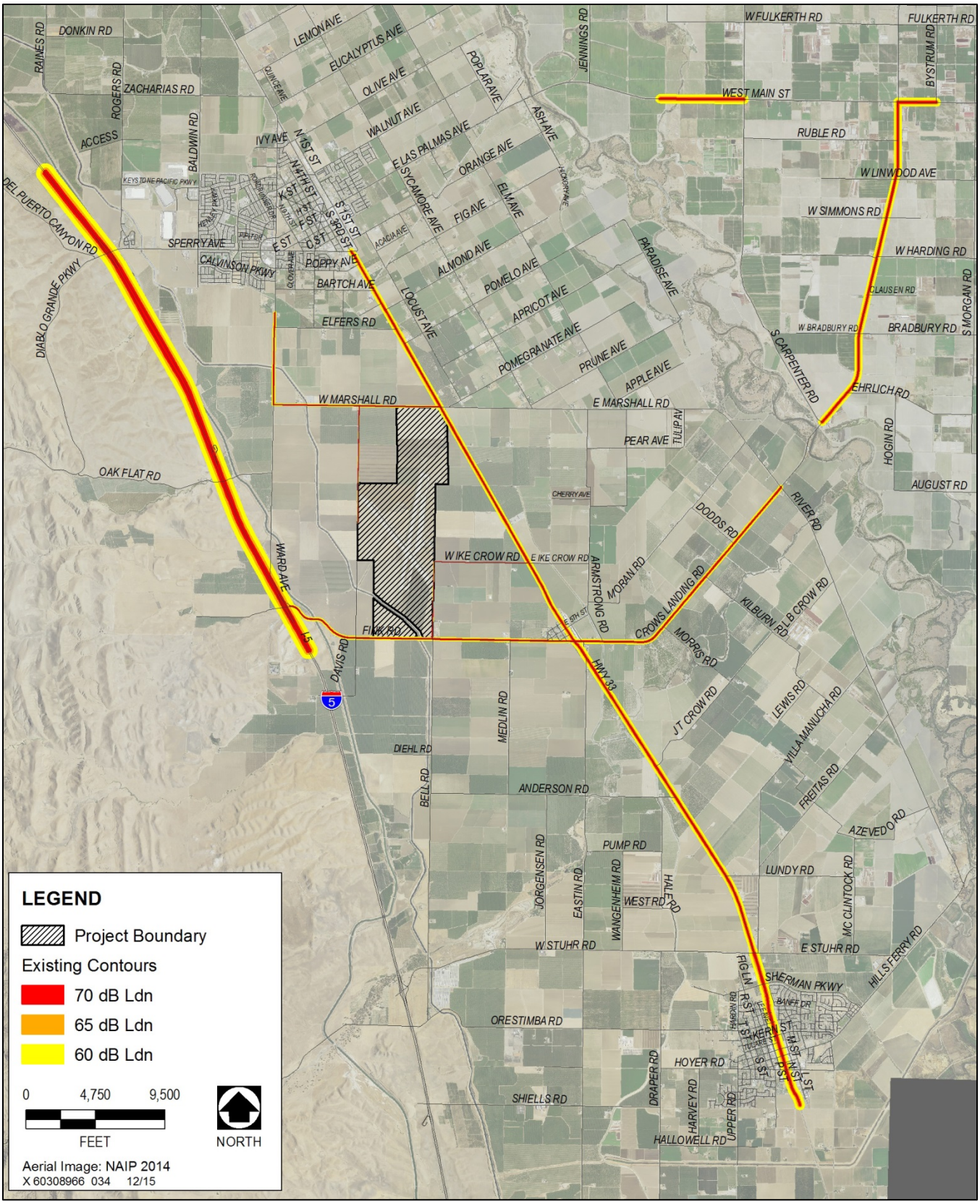
Agricultural operations occur on site and in the surrounding area. Noise generated by agricultural equipment contributes to the local noise environment. While conducting noise level measurements, no agricultural equipment appeared to be operating. Noise generated from agricultural lands is not expected to be a substantial source of noise at the project site, because noise generated by traffic along SR 33 and Fink Road would be dominant. Tractors can generate noise levels of 84 dB L_{max} and 80 dB L_{eq} at a distance of 50 feet (FHWA 2006). Approximately 1,100 acres of the project site are currently in cultivation, which is anticipated to continue until an area is identified for development during the 30-year buildout period.

EXISTING VIBRATION

The existing vibration environment, similar to that of the noise environment, is dominated by transportation-related vibration from roadways and railway in the vicinity of the project site. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, pavement conditions and the intervening soil type. However, groundborne vibration levels generated from vehicular traffic are not typically perceptible outside of the road right-of-way. The primary source of existing groundborne vibration in the project vicinity would be the UPPR located just east of the project site. The closest vibration-sensitive uses would be the existing residential uses 100 feet from the railroad tracks to the northeast of the project site (see location LT-02, Exhibit 3.12-2). Based on Federal Transit Administration (FTA) data, heavy rail vehicles operating at 50 miles per hour (mph) would generate groundborne vibration of approximately 0.07 PPV (85 vibration decibels [VdB]) at a distance of 50 feet (approximately 0.03 PPV [78 VdB] at a distance of 100 feet) from the track's centerline (FTA 2006:Figure 10-11, reproduced below as Exhibit 3.12-4).

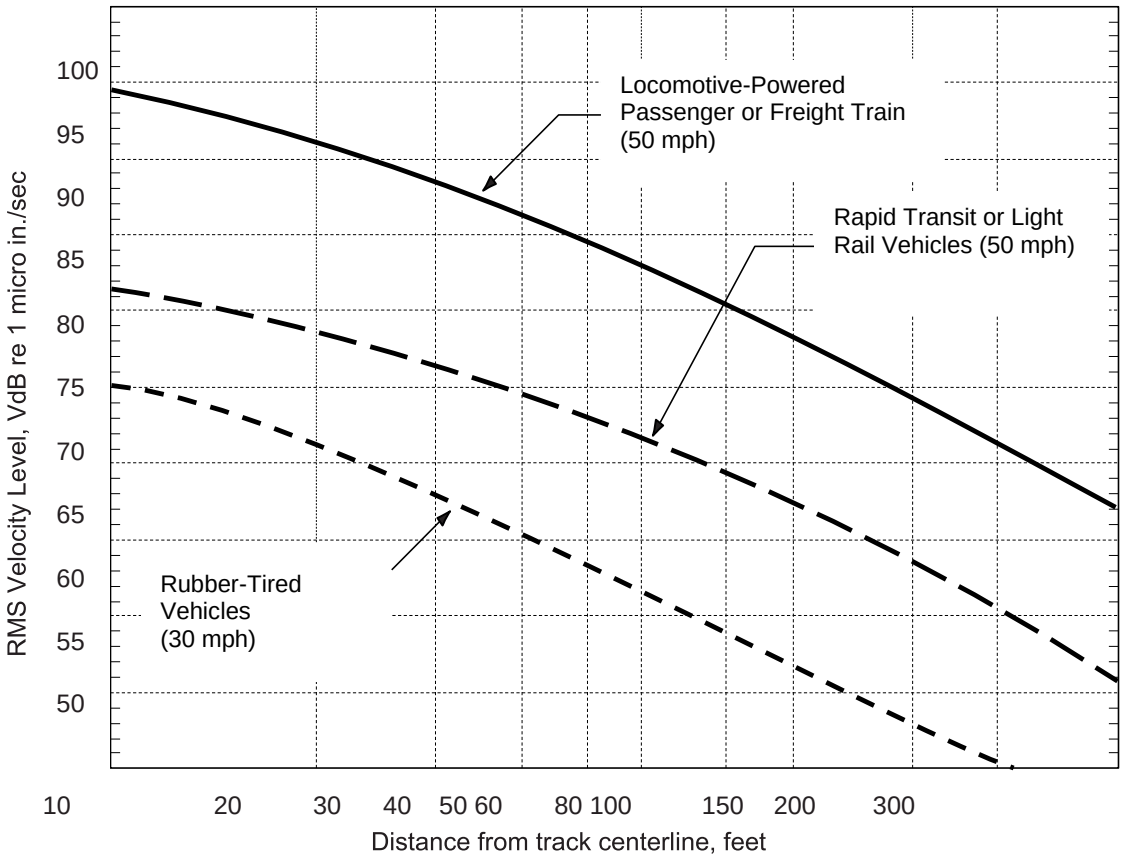
NOISE-SENSITIVE LAND USES

Noise-sensitive land uses are those uses for which quiet is an essential element of the purpose of the subject land use. Residential uses are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Schools, places of worship, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses. Parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior noise levels.



Source: AECOM 2015

Exhibit 3.12-3. **Modeled Roadways – Existing Traffic Noise Contours**



Source: FTA 2006, adapted by AECOM in 2015

Exhibit 3.12-4. Ground-Surface Vibration Curves

Off-Site Sensitive Land Uses

Noise-sensitive land uses in the vicinity of the project site include residences at the following locations:

- Approximately 50 feet east of the project site on Bell Road, just north of the intersection of Fink and Bell Road;
- Approximately 400 feet east of the project site and approximately 90 feet north of Fink Road;
- Approximately 270 feet east of the project site, approximately 400 feet north of Fink Road and east of Bell Road;
- Approximately ½ mile west of the project's northwestern border at the intersection of Davis and West Marshall Road;
- Approximately ½ mile southwest of the site (south of Fink Road)
- Approximately 700 feet to the northeast along SR 33 and north of West Marshall Road; and
- South of West Marshall Road located, approximately 1 mile west of the project site.

On-Site Sensitive Land Uses

Most uses proposed for the site would not be considered sensitive land uses. However, an on-site daycare center to support site workers would be considered an allowable use within the project site.

3.12.3 REGULATORY FRAMEWORK

Various public agencies have established noise guidelines and standards to prevent the development of in compatible land uses and to protect citizens from potential hearing damage and other adverse physiological and social effects associated with noise and vibration. Although many of the referenced standards would not directly apply to the project, the research conducted to support the referenced standards helps to frame the impact analysis provided at the end of this section.

FEDERAL PLANS, GUIDELINES, POLICIES, REGULATIONS, AND LAWS

Environmental Protection Agency

The U.S. Environmental Protection Agency's (EPA) Office of Noise Abatement and Control was originally established to coordinate federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, establishing programs and guidelines to identify and address the effects of noise on public health, welfare, and the environment. In 1981, EPA administrators determined that noise would be better addressed by state and local governments. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to state and local governments.[14]

U.S. Department of Housing and Urban Development

The U.S. Department of Housing and Urban Development (HUD), in its efforts to "provide decent housing and a suitable living environment for all Americans," has established an "acceptable" exterior noise exposure limit, compatible with residential uses, of 65 dB L_{dn} or less. HUD has established an interior noise exposure limit of 45 dB L_{dn}.

Federal Transit Administration

To address human response to groundborne vibration, Federal Transit Administration (FTA) has maximum-acceptable vibration criteria for different land uses. These guidelines recommend 65 VdB for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities), 80 VdB for residential uses and buildings where people normally sleep, and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices). These levels are calculated based on the measured RMS velocity amplitude relative to a reference velocity amplitude of 1 micro-inch per second (μin/sec) (FTA 2006:8-3).

[14] However, noise control guidelines and regulations contained in EPA rulings in prior years remain in place by designated federal agencies, allowing more individualized control for specific issues by designated federal, state, and local government agencies.

STATE PLANS, GUIDELINES, POLICIES, REGULATIONS, AND LAWS

State of California

Title 24 of the California Code of Regulations, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout the state. The code provides acoustical regulations for both exterior-to-interior sound insulation, as well as sound and impact insulation between adjacent spaces of various occupied units. Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dB L_{dn}, with windows closed, in any habitable room for residential uses.

The *State of California General Plan Guidelines 2003*, published by the California Governor's Office of Planning and Research (OPR), provides guidance for land use compatibility planning within areas of specific noise exposure. Table 3.12-3 presents typically acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. Stanislaus County's own land use/noise compatibility criteria are based on those provided by the State of California. Most of the uses identified in Table 3.12-3 are prohibited at the CLIBP, with the exception of: an on-site park/monument, office building, business/professional, industrial, manufacturing, utilities and agriculture.

Table 3.12-3
State of California Land Use Noise Compatibility Guidelines

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

Notes: CNEL = Community Noise Equivalent Level; L_{dn} = Day-Night Average Noise Level; dB = A-weighted decibels

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

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

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

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

Sources: State of California, Governor's Office of Planning and Research 2003:244-254

California Department of Transportation

For the protection of fragile, historic, and residential structures, Caltrans recommends a threshold of 0.2 in/sec PPV for normal residential buildings and 0.08 in/sec PPV for old or historically significant (as defined under CEQA) structures (Caltrans 2004:17). These standards are more stringent than the recommended guidelines established by FTA, presented above.

State Aeronautics Act

Public Utilities Code (PUC) Section 21669 requires Caltrans to adopt—to the extent not prohibited by federal law—noise standards applicable to all airports operating under a State permit. The California Airport Noise Regulations are the airport noise standards promulgated in accordance with PUC Section 21669, and they are set forth in Section 5000 *et seq.* of the California Code of Regulations (Title 21, Division 2.5, Chapter 6). The current version of the regulations became effective in March 1990.

In Section 5006, the regulations state that:

> "The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep and community reaction."

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Stanislaus County General Plan

The County's General Plan addresses environmental noise in the Noise Element, including goals, policies, and implementation measures identified below.

Noise Element

- **GOAL ONE** – Prevent the encroachment of incompatible land uses near known noise producing industries, railroads, airports, and other sources to protect the economic base of the County.
- **POLICY ONE** – It is the policy of Stanislaus County to utilize the noise exposure information contained within the General Plan to identify existing and potential noise conflicts through the Land Use Planning and Project Review processes.
- **GOAL TWO** – Protect the citizens of Stanislaus County from the harmful effects of exposure to excessive noise.
- **POLICY TWO** – It is the policy of Stanislaus County to develop and implement effective measures to abate and avoid excessive noise exposure in the unincorporated areas of the County by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise sensitive land uses.

- **POLICY THREE** – It is the objective of Stanislaus County to protect areas of the County where noise-sensitive land uses are located.

- **IMPLEMENTATION MEASURE 1** – Require the evaluation of mitigation measures for projects that would cause the L_{dn} at noise-sensitive uses to increase by 3 dBA or more and exceed the "normally acceptable" level, cause the L_{dn} at noise-sensitive uses to increase 5 dBA or more and remain normally acceptable, or cause new noise levels to exceed the noise ordinance limits (after adoption).

- **POLICY FOUR** – It is the objective of Stanislaus County to ensure that the Noise Element is consistent with and does not conflict with other elements of the Stanislaus County General Plan or adopted Airport Land Use Compatibility Plan(s) (ALUCP).

The Stanislaus County General Plan Noise Element establishes acceptable noise level limits for both transportation and non-transportation noise sources. The primary objective of the Noise Element is to prescribe policies that lead to the preservation and enhancement of the quality of life for the residents of Stanislaus County by securing and maintaining an environment free from excessive noise.

The project does not propose residential uses. However, for residential uses affected by transportation noise sources (off-site traffic in this case), the Noise Element identifies 60 dB L_{dn} (or CNEL) shown in Table 3.12-4. This is consistent with State of California standards recommended for transportation noise sources. Agricultural uses are not considered to be noise sensitive, but for the purposes of this assessment, residential dwellings located on agriculturally designated properties were considered to be sensitive, and the 60 dB L_{dn} criterion was assumed to be applicable.

Table 3.12-4
Maximum Allowable Noise Exposure for Transportation Noise Sources Stanislaus County Noise Element of the General Plan (General Plan Figure 3)

Land Use Category	Exterior Noise Exposure (L_{dn} or CNEL, dBA)	
	Normally Acceptable[1]	Conditionally Acceptable[2]
Residential—Low Density Single Family	60*	70
Residential— Multifamily	65*	70
Transient Lodging—Motel, Hotel	65*	70
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	70	70
Playgrounds, Neighborhood Parks	70	70
Office Building, Business Commercial, and Professional	70	70
Industrial, Manufacturing, Utilities, Agriculture	75	75

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel; L_{dn} = day-night average noise level

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

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

***** Where it is not possible to reduce exterior noise due to these sources to the prescribed level using a practical application of the best available noise-reduction technology, an exterior noise level of up to 65 L_{dn} (or CNEL) will be allowed. Under no circumstances will interior noise levels be allowed to exceed 45 L_{dn} (or CNEL) with the windows and doors closed in residential uses.

Source: Stanislaus County General Plan 2005: Noise Element, Figure 3.

Noise analyses in environmental assessments typically identify a threshold of significance and then compare the project impact to that threshold. For stationary noise sources, such as aggregate extraction and processing operations, Stanislaus County regulates the level of noise that may impact adjacent noise-sensitive uses. For this project, the evaluation period is considered to be the worst-case hour during which on-site equipment would operate. If the proposed project has the potential to exceed the County's noise exposure limits at the closest noise-sensitive uses, such an impact would likely be considered significant. The noise exposure limits applicable to this project are summarized in Table 3.12-5.

Table 3.12-5
Maximum Allowable Noise Exposure for Stationary Noise Sources Stanislaus County Noise Element of the General Plan (General Plan Table 4)

	Daytime Standard (7 a.m.–10 p.m.)	Nighttime Standard (10 p.m.–7 a.m.)
Hourly L_{eq}, dB	55	45
Maximum Level (L_{max}), dB	75	65

Notes: dBA = A-weighted decibels; L_{eq} = equivalent or energy-averaged sound level; L_{max} = maximum instantaneous noise level during a specific period of time

Source: Stanislaus County General Plan 2005: Noise Element, Table 4.

Stanislaus County Code

Noise standards for Stanislaus County are contained in the Stanislaus County Code Title 10, Chapter 10.46, Section 10.46.050 which states that it is unlawful for any person at any location within the unincorporated area of the county to create any noise or to allow the creation of any noise which causes the exterior noise level, when measured at any property situated in either the incorporated or unincorporated area of the county, to exceed the noise level standards. The following exterior noise level standards apply to all properties within the designated noise zone, as shown in Table 3.12-6.

Table 3.12-6
Exterior Noise Level Standards – Maximum A-Weighted Sound Level as Measured on a Sound Level Meter (L_{max}), Stanislaus County Code (Table A)

	Daytime Standard (7 a.m.–10 p.m.)	Nighttime Standard (10 p.m.–7 a.m.)
Noise Sensitive	45	45
Residential	50	45
Commercial	60	55
Industrial	75	75

Notes: L_{max} = maximum instantaneous noise level during a specific period of time.

Source: Stanislaus County 2015.

Construction and maintenance activities performed under the direction of a public entity or public utility are exempt from the County's noise requirements (Section 10.46.080).

The noise zones defined in Table 3.12-6 include:

1. Noise sensitive, which is defined as a public or private school, hospital, church, convalescent home, cemetery, sensitive wildlife habitat, or public library regardless of its location within any land use zoning district;

2. Residential consists of all parcels located within a residential land use zoning district;

3. Commercial, defined as parcels located within a commercial or highway frontage land use zoning district;

4. Industrial. Includes all parcels located within an industrial land use zoning district; and

5. The noise zone definition of any parcel not located within a residential, commercial, highway frontage, or industrial land use zoning district shall be determined by the Director of Stanislaus County Planning & Community Development Department, or designee, based on the permitted uses of the land use zoning district in which the parcel is located. (Ord. CS 1070 §2, 2010)

In addition to the above requirements, the County has cumulative duration allowance standards that shall not exceed the following criteria as listed in Table 3.12-7, below.

Table 3.12-7
Cumulative Duration Allowance Standards, Stanislaus County Code (Table B)

Cumulative Duration	Allowance Decibels (dB)
Equal to or greater than 30 minutes per hour	Table 3.12-6 plus 0
Equal to or greater than 15 minutes per hour	Table 3.12-6 plus 5
Equal to or greater than 5 minutes per hour	Table 3.12-6 plus 10
Equal to or greater than 1 minute per hour	Table 3.12-6 plus 15
Less than 1 minute per hour	Table 3.12-6 plus 20

Notes: dB = decibels.
Source: Stanislaus County 2015.

Allowance decibels as listed in the table would not allow noises such as those originating from commercial to exceed 60 dB between the hours of 7:00 a.m.—9:59 p.m. for more than 30 minutes per hour. Residential could not produce a noise of 65 dB from 10:00 p.m.—6:59 a.m. for more than 1 minute per hour. The noise sensitive could only produce 55 dB between the hours of 7:00 a.m.—9:59 p.m. for no more than 5 minutes per hour.

The Stanislaus County Code, Title 9, Chapter 9.32, Sections 9.32.020 through 9.32.080 address nuisance complaints associated with agricultural related activities which includes noise. Pursuant to Section 9.32.020 Findings and Policy C, the County requires a transfer disclosure statement where the seller of a piece of land shall disclose all information on the property to prospective buyers including:

> If the property is adjacent to or near property used for agricultural operations or on agricultural lands, you may be subject to inconveniences or discomforts arising from such operations, *including but not limited to noise*, odors, fumes, dust, the operation of machinery of any kind during any 24-hour period (including aircraft), the storage and disposal of manure, and the application by spraying or otherwise of chemical fertilizers, soil amendments, herbicides and pesticides. Stanislaus County has

> determined that inconveniences or discomforts associated with such agricultural operations shall not be considered to be a nuisance if such operations are consistent with accepted customs and standards. Stanislaus County has established a grievance committee to assist in the resolution of any disputes which might arise between residents of this County regarding agricultural operations. If you have any questions concerning this policy or the grievance committee, please contact the Stanislaus County Planning and Community Development Department.

In addition, Section 9.32.050 Right-to-Farm Notice provides all property owners with constructive notice of Stanislaus County's right-to-farm policy. As a condition of approval for final recorded parcel and subdivision maps involving agricultural lands, or adjacent to such lands, the following note must be included on the map:

> All persons purchasing lots within the boundaries of this approved map should be prepared to accept the inconveniences associated with agricultural operations, *such as noise*, odors, flies, dust or fumes. Stanislaus County has determined that such inconveniences shall not be considered to be a nuisance if agricultural operations are consistent with accepted customs and standards.

Failure to comply with any provision in the regulation shall not prevent the recording of any document, nor shall it affect title to real property or any mortgage or deed of trust made in good faith or for value. However, any person who violates any provisions is guilty of an infraction punishable as set forth in Section 1.36.020 of the Stanislaus County Code.

Section 10.46.070 of the Stanislaus County Code addresses vibration complaints associated with construction activities, as following:

> Operating or permitting the operation of any device that creates vibration that is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at one hundred fifty feet from the source if on a public space or public right-of-way is prohibited. For the purpose of this section, "vibration perception threshold" means the minimum ground-borne or structure-borne vibration motion necessary to cause a reasonable person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects, or a measured motion velocity of 0.01 in/sec over the range of one to one hundred Hertz. (Ord. CS 1070 §2, 2010).

Construction Hours

Stanislaus County Code Title 10, Chapter 10.46, Section 10.46.060 requires the proposed project be subject to the following additional standards. Failure to comply with these additional standards constitutes a separate violation:

> B. Power Tools and Equipment. No person shall operate any power tools or equipment between the hours of ten p.m. and seven a.m. such that the power tools or equipment are audible to the human ear inside an inhabited dwelling other than a dwelling in which the power tools or equipment may be located. No person shall operate any power tools or equipment at any other time such that the power tools or equipment are audible to the human ear at a distance greater than one hundred feet from the power tools or equipment; and
>
> E. Construction Equipment. No person shall operate any construction equipment so as to cause at or beyond the property line of any property upon which a dwelling unit is located an average sound level greater than seventy-five decibels between the hours of seven p.m. and seven a.m.

The proposed project would include both short and long-term noise that will be generated from construction equipment and truck traffic during operations.

As noted, construction and maintenance activities performed under the direction of a public entity or public utility are exempt from the County's noise requirements (Section 10.46.080).

Airport Land Use Compatibility Plan

Stanislaus County's 2016 Airport Land Use Compatibility Plan (ALUCP) includes compatibility policies pertaining to aircraft noise exposure near public-use airports. The purpose of noise compatibility policies is to avoid the establishment of noise-sensitive land uses in areas exposed to significant aircraft noise.

The ALUCP considers not just the loudness of single noise events, but the number of events over time. Cumulative exposure to aircraft noise is depicted by a set of contours to illustrate the greatest annualized noise impact measured as CNEL. The contours represent the noise generated by the aircraft operating over a defined period.

As part of the proposed project, the County's ALUCP would be amended to include new noise contours to depict the anticipated noise exposure contours associated with the 30-year project buildout period, and the ALUCP policies would apply to the new Airport Influence Area associated with the proposed Crows Landing airport. Noise contours were not developed previously in relation to the former military airfield.

The ALUCP policies set forth in Section 3.2 of the County's ALUCP will apply to the new Airport Influence Area. The policies include:

- Policy 3.2.1 Evaluating noise compatibility of new development. ALUCP Table 1 (replicated below as Table 3.12-8) provides the maximum acceptable CNEL exposure for residential uses and a range of non-residential land uses within various noise exposure ranges which can be considered "normally compatible", "conditional" or "incompatible";

- Policy 3.2.2 Maximum acceptable exterior noise levels (residential and non-residential development);

- Policy 3.2.3, Maximum acceptable interior noise levels (residential and non-residential development)

- Policy 3.2.4, Avigation easement dedication requirements for areas exposed to significant levels of aircraft noise.

Table 3.12-8
Table 1 from the ALUCP

Land Use Category Multiple land use categories and compatibility criteria may apply to a project Land uses not specifically listed shall be evaluated using the criteria for similar uses	Exterior Noise Exposure [1] (CNEL dB)					Criteria for Conditional Uses Interior noise level limits shown in yellow cells also apply *(see Policy 3.2.3)* An acoustical study may be prudent for noise-sensitive uses proposed in areas exposed to CNEL 60 dB or greater *(see Policy 3.2.3(d))*
	≤ 55	55–60	60–65	65–70	**≥ 70**	
Legend (see last page of table for interpretation)	*Normally Compatible*			*Conditional*	*Incompatible*	
Outdoor Uses (limited or no activities in buildings)						
Natural Land Areas: woods, brush lands, desert						Compatible at levels indicated, but noise disruption of natural quiet will occur
Water: flood plains, wetlands, lakes, reservoirs						
Agriculture (except residences and livestock): crops, orchards, vineyards, pasture, range land						
Livestock Uses: feed lots, stockyards, breeding, fish hatcheries, horse stables						Exercise caution with uses involving noise-sensitive animals [2]
Outdoor Major Assembly Facilities (capacity ≥1,000 people): spectator-oriented outdoor stadiums, amphitheaters, fairgrounds, zoos						Exercise caution if clear audibility by users is essential [3]
Group Recreation (limited spectator stands): athletic fields, water recreation facilities, picnic areas						Exercise caution if clear audibility by users is essential [3]
Small/Non-Group Recreation: golf courses, tennis courts, shooting ranges						Exercise caution if clear audibility by users is essential [3]
Local Parks: children-oriented neighborhood parks, playgrounds						Exercise caution if clear audibility by users is essential [3]
Camping: campgrounds, recreational vehicle/motor home parks						
Cemeteries (excluding chapels)						Compatible at levels indicated, but noise disruption of outdoor activities will occur
Residential and Lodging Uses						
Single-Family Residential: individual dwellings, townhouses, mobile homes, bed & breakfast inns		45				
Multi-Family Residential (≥8 d.u./acre)		45				
Long-Term Lodging (>30 nights): extended-stay hotels, dormitories		45				
Short-Term Lodging (≤30 nights): hotels, motels, other transient lodging (except confer-ence/assembly facilities)		45				
Congregate Care: retirement homes, assisted living, nursing homes, intermediate care facilities		45				
Educational and Institutional Uses						
Family day care homes (≤ 14 children)		45				
Children's Schools: K-12, day care centers (>14 children); school libraries		45				
Adult Education classroom space: adult schools, colleges, universities (excluding aviation-related schools)		45	45			Applies only to classrooms (acoustical study may be warranted); offices, laboratory facilities, gymnasiums, outdoor athletic facilities, and other uses to be evaluated as indicated for those land use categories
Community Libraries		45				
Indoor Major Assembly Facilities (capacity ≥1,000 people): auditoriums, conference centers, concert halls, indoor arenas			45	45		

Table 3.12-8
Table 1 from the ALUCP

Land Use Category Multiple land use categories and compatibility criteria may apply to a project Land uses not specifically listed shall be evaluated using the criteria for similar uses	Exterior Noise Exposure [1] (CNEL dB)					Criteria for Conditional Uses Interior noise level limits shown in yellow cells also apply *(see Policy 3.2.3)* An acoustical study may be prudent for noise-sensitive uses proposed in areas exposed to CNEL 60 dB or greater *(see Policy 3.2.3(d))*
	≤ 55	55–60	60–65	65–70	**≥ 70**	
Legend (see last page of table for interpretation)	*Normally Compatible*			*Conditional*		*Incompatible*
Indoor Large Assembly Facilities (capacity 300 to 999 people): movie theaters, places of worship, cemetery chapels, mortuaries			45	45		Acoustical study may be warranted for noise-sensitive uses (e.g., places of worship) *See Policy 3.2.3(d)*
Indoor Small Assembly Facilities (capacity <300 people): places of worship, cemetery chapels, mortuaries, meeting halls			45	45		Acoustical study may be warranted for noise-sensitive uses (e.g., places of worship) *See Policy 3.2.3(d)*
Indoor Recreation: gymnasiums, club houses, athletic clubs, dance studios				45		
In-Patient Medical: hospitals, mental hospitals			45			Acoustical study may be warranted *See Policy 3.2.3(d)*
Out-Patient Medical: health care centers, clinics			45	45		
Penal Institutions: prisons, reformatories			45			
Public Safety Facilities: police, fire stations				45		
Commercial, Office, and Service Uses						
Major Retail: regional shopping centers, 'big box' retail				50		Outdoor dining or gathering places incompatible above CNEL 65 dB
Local Retail: community/neighborhood shopping centers, grocery stores				50		Outdoor dining or gathering places incompatible above CNEL 65 dB
Eating/Drinking Establishments: restaurants, fast-food dining, bars						Outdoor dining or gathering places incompatible above CNEL 65 dB
Limited Retail/Wholesale: furniture, automobiles, heavy equipment, lumber yards, nurseries						Noise attenuation required for office areas *See Policy 4.2.3*
Offices: professional services, doctors, finance, civic; radio, television & recording studios, office space associated with other listed uses				50		
Personal & Miscellaneous Services: barbers, car washes, print shops				50		
Vehicle Fueling: gas stations, trucking & transportation terminals					50	Noise attenuation required for office areas *See Policy 3.2.3*
Industrial, Manufacturing, and Storage Uses						
Hazardous Materials Production: oil refineries, chemical plants				50	50	Noise attenuation required for office areas *See Policy 3.2.3*
Heavy Industrial				50	50	Noise attenuation required for office areas *See Policy 3.2.3*
Light Industrial, High Intensity: food products preparation, electronic equipment				50	50	Noise attenuation required for office areas *See Policy 3.2.3*
Light Industrial, Low Intensity: machine shops, wood products, auto repair				50	50	Noise attenuation required for office areas *See Policy 3.2.3*
Research & Development				50		Noise attenuation required for office areas *See Policy 3.2.3*
Indoor Storage: wholesale sales, warehouses, mini/other indoor storage, barns, greenhouses						
Outdoor Storage: public works yards, automobile dismantling						
Mining & Extraction						

Table 3.12-8
Table 1 from the ALUCP

Land Use Category Multiple land use categories and compatibility criteria may apply to a project Land uses not specifically listed shall be evaluated using the criteria for similar uses	Exterior Noise Exposure [1] (CNEL dB)					Criteria for Conditional Uses Interior noise level limits shown in yellow cells also apply *(see Policy 3.2.3)* An acoustical study may be prudent for noise-sensitive uses proposed in areas exposed to CNEL 60 dB or greater *(see Policy 3.2.3(d))*
	≤ 55	55–60	60–65	65–70	**≥ 70**	
Legend (see last page of table for interpretation)	*Normally Compatible*			*Conditional*		*Incompatible*
Transportation, Communication, and Utilities						
Rail & Bus Stations					50	Noise attenuation required for public and office areas *See Policy 3.2.3*
Transportation Routes: road & rail rights-of-way, bus stops						
Auto Parking: surface lots, structures						
Communications Facilities: emergency communications, broadcast & cell towers						
Power Plants						
Electrical Substations						
Wastewater Facilities: treatment, disposal						
Solid Waste Disposal Facilities: landfill, incineration						
Solid Waste Transfer Facilities, Recycle Centers						
Source: Stanislaus County's 2016 Airport Land Use Compatibility Plan (ALUCP)						

Table 3.12-9 below from the ALUCP provides the interpretation.

Table 3.12-9

Land Use Acceptability		Interpretation/Comments
	Normally Compatible	*Indoor Uses:* Either the activities associated with the land use are inherently noisy or standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL). For land use types that are compatible because of inherent noise levels, sound attenuation must be provided for associated office, retail, and other noise-sensitive indoor spaces sufficient to reduce exterior noise to an interior maximum of CNEL 45 dB. *Outdoor Uses:* Except as noted in the table, activities associated with the land use may be carried out with minimal interference from aircraft noise.
	Conditional	*Indoor Uses:* Building structure must be capable of attenuating exterior noise from all noise sources to the indoor CNEL indicated by the number in the cell (40, 45 or 50). See *Policy 4.2.3*. *Outdoor Uses:* Caution should be exercised with regard to noise-sensitive outdoor uses; these uses are likely to be disrupted by aircraft noise events; acceptability is dependent upon characteristics of the specific use.[2]
	Incompatible	*Indoor Uses:* Unacceptable noise interference if windows are open; at exposures above CNEL 65 dB, extensive mitigation techniques required to make the indoor environment acceptable for performance of activities associated with the land use. *Outdoor Uses:* Severe noise interference makes the outdoor environment unacceptable for performance of activities associated with the land use.

Notes

1 For the purposes of these criteria, the exterior noise exposure generated by aircraft activity at airport involved is defined by the projected noise contours illustrated in Chapter 3 of this *Compatibility Plan*.

2 This caution is directed at the project proponent and is not intended to preclude approval of the project.

3 Noise-sensitive land uses are ones for which the associated primary activities, whether indoor or outdoor, are susceptible to disruption by loud noise events. See *Policy 1.2.26* for examples of noise-sensitive uses.

3.12.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

The noise and vibration analysis is based on Chapter 2 "Project Description," along with information obtained during on-site noise monitoring. This information was used to identify sensitive receptors and proposed noise- and vibration-generating land uses. Noise-sensitive land uses and major noise sources near the project site were identified based on existing documentation and site reconnaissance data. Also, as described in "Project Description," the land uses under the proposed project would be developed in three 10-year phases. Phase-to-phase noise and vibration impacts were also evaluated.

Construction Noise

To assess temporary and short-term construction noise impacts on sensitive receptors, the sensitive receptors and their relative exposure to the impacts were identified based on distance between noise source and noise-sensitive uses. The construction noise that would be generated by the phased implementation of the project was predicted by using the Federal Highway Administration (FHWA)'s Roadway Construction Noise Model (2006). The emission noise levels referenced and the use factors were based on the FHWA Roadway Construction Noise Model. The noise levels of the construction equipment that would be used and the resulting noise levels where sensitive receptors are located were calculated.

Traffic Noise

The FHWA Traffic Noise Model was used to calculate traffic noise levels in the vicinity of the project site. The roadways analyzed were consistent with traffic counts and vehicle trips analyzed in Section 3.14 of this EIR, "Traffic and Transportation." Roadway segment traffic volumes (average daily traffic [ADT] volumes) and traffic speeds, fleet mixes (i.e., percent auto, medium truck, and heavy truck), and day/night traffic distributions were used to calculate unmitigated traffic noise levels at a distance of 100 feet from the roadway segment centerlines. Additionally, the FHWA Model was used to estimate the locations of 70 dB L_{dn}, 65 dB L_{dn}, and 60 dB L_{dn} traffic noise contours for the studied roadway segments, and traffic noise levels were calculated for specific receiver locations in the vicinity of the project site.[15]

Vibration

Groundborne vibration impacts were assessed based on existing documentation (*e.g.*, vibration levels produced by specific construction equipment operations associated with proposed project development) and the distance of sensitive receptors from the given source (Caltrans 2004:26, FTA 2006:12-12).

Aircraft Noise

The proposed project includes the reuse of one of the former military runways for the development of a new public-use general aviation airport. The operational forecasts and likely fleet mix were considered to identify aircraft noise exposure. Other factors considered in the analysis of aircraft noise exposure included:

[15] All modeled traffic noise levels were assumed to be conservative since the noise-level reduction effects associated with topographical shielding, excess ground absorption, and atmospheric absorption were not considered in the calculations.

- Distribution of aircraft operations by time of day for each aircraft type
- Amount of noise transmitted by operations by time of day for each aircraft type
- Average takeoff profile, and standard slope used by each aircraft type
- Amount of noise transmitted by each aircraft type measured at various distances from the aircraft.
- Runway configuration and length
- Runway utilization distribution by aircraft type and time of day
- Geometry of common aircraft flight tracks
- Distribution of operations for each flight track.

Using this data and FAA's Integrated Noise Model, noise contours were generated to identify areas that would be affected by aircraft noise.

THRESHOLDS OF SIGNIFICANCE

Significance criteria are based on Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact with respect to noise/vibration if implementation would:

a) Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

b) Expose people to or generate excessive groundborne vibration or groundborne noise levels;

c) Produce a substantial permanent increase in noise levels relative to the ambient condition in the project vicinity;

d) Produce a substantial temporary or periodic increase in noise levels relative to the ambient condition in the project vicinity;

e) Expose people residing or working in the project area to excessive aircraft noise levels. This is applicable to projects 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; or

f) Expose people residing or working in the project area to excessive aircraft noise levels. This is applicable to projects located within the vicinity of a private airstrip.

IMPACT ANALYSIS

IMPACT 3.12-1 *Potential exposure of noise-sensitive receptors to groundborne noise and vibration. Implementation of the project could result in exposure of sensitive noise receptors to groundborne noise and vibration. This impact is considered potentially significant.*

Construction

Construction activities have the potential to result in varying degrees of temporary and short-term ground vibration, depending on the specific construction equipment used and operations involved. Ground vibration levels associated with various types of construction equipment are summarized in Table 3.12-10. Based on the representative vibration levels identified for various construction equipment types, sensitive receptors located near

construction activities could be exposed to groundborne vibration levels exceeding the recommended FTA and Caltrans guidelines of 80 VdB and 0.2 in/sec PPV, respectively.

Table 3.12-10
Representative Vibration Source Levels for Construction Equipment

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

Notes: in/sec = inches per second; VdB = vibration decibels
[1] Where PPV is the peak particle velocity.
[2] Where Lv is the root mean square velocity expressed in vibration decibels (VdB), assuming a crest factor of 4.
Source: FTA 2006

Groundborne noise and vibration levels were predicted based on VdB and PPV reference vibration levels shown in Table 3.12-10. A groundborne noise and vibration-sensitive receptor would need to be located within 50 feet from vibration-induced construction activities in order to perceive noticeable groundborne noise or vibration (greater than 80 VdB or 0.2 in/sec PPV). Assuming a maximum construction vibration level of 87 VdB at 25 feet with an attenuation rate of 9 VdB per doubling of distance from the source, construction activities located within approximately 40 feet of sensitive receptors could result in vibration levels in excess of FTA's standard of 80 VdB.

The proposed project would involve widening of SR 33 and portions of Marshall Road, Bell Road, Ike Crow Road, and the portion of Davis Road south of the proposed airport. Residences along SR 33 and along Marshall Road to the north of the project, and residences along Bell Road to the southeast of the project site would be 50 feet or more from the project site in a location where construction equipment would be expected to operate. In addition, the analysis assumes construction related to water connections and sewer lines along Marshall Road to the north, and a new lift station within the project area to the northeast. The South Patterson Trunk Sewer would be constructed along Bartch Avenue from Ward Avenue to SR 33, extending to the northeast to Locust Avenue, Gang Avenue, Sycamore Avenue, East Las Palmas Avenue and Poplar Avenue to Walnut Avenue. All these roadways are located 50 feet or more from the existing residences.

However, it is possible that day care uses could be constructed within the project site during Phase 1 within 50 feet of construction activities that occur during later phases of site buildout. If project construction were to use heavy vibration-inducing equipment on the project site within 50 feet of an on-site day care center, this could create a **potentially significant** construction-related vibration impact.

Mitigation Measure 3.12-1: Implement Noise and Vibration Measures from Construction Traffic.

For construction traffic that could affect sensitive receptors:

- Prepare a truck route plan. For vibration impacts, the truck route plan will route heavily loaded trucks away from roads where residences are within 50 feet of the edge of the roadway. Heavily loaded

trucks will not be routed on West Marshall Road and any other roads that are located within 50 feet of residential or any other vibration-sensitive buildings. For noise impacts, the truck route plan will route trucks away from residential streets where residences or noise-sensitive uses are within 640 feet of the roadway.

- Operate earthmoving equipment on the construction lot as far away from vibration-sensitive sites as possible.

- Phase earthmoving and other construction activities that would affect the ground surface so as not to occur in the same time period.

- Large bulldozers and other construction equipment that would produce vibration levels at or above 86 VdB shall not be operated within 50 feet of adjacent, occupied residences. Small bulldozers shall be used instead of large bulldozers in these areas, if construction activities are required. For any other equipment types that would produce vibration levels at or above 86 VdB, smaller versions or different types of equipment shall be substituted for construction areas within 50 feet of adjacent, occupied residences.

- Construction activities shall not occur on weekends or federal holidays and shall not occur on weekdays between the hours of 7 p.m. and 7 a.m.

Implementation: Leaseholders/developers/contractors and Stanislaus County.

Timing: During all construction phases.

Enforcement: Stanislaus County.

Significance after Mitigation

With implementation of Mitigation Measure 3.12-1, construction activities would be limited to daytime hours (would be prohibited from 7 p.m. and 7 a.m.). Construction equipment would be operated as far away from vibration-sensitive sites as possible. Earthmoving and ground-impacting operations would not occur in the same time period. Small bulldozers would be used instead of large bulldozers in areas where construction activities occur within 50 feet of sensitive uses. The total vibration level produced could be significantly less when each vibration source operates separately. Mitigation Measure 3.12-1 would reduce vibration levels from the project construction below the FTA's standard of 80 VdB for residential uses, and would reduce construction vibration exposure at vibration-sensitive receivers in all cases. The number of sensitive users on site would be minimal. Noise-sensitive areas are not envisioned in relation to industrial, warehouse, or business park uses. Implementation of Mitigation Measure 3.12-1 would reduce this impact to a **less-than-significant** level.

Operation

Warehousing and logistics under the operation of the proposed project would be expected to involve heavy-duty trucks. Certain types of industrial activities that could be established on-site could potentially involve vibration. Heavy truck traffic can generate groundborne vibration, which varies considerably depending on vehicle type, weight, pavement conditions and the intervening soil type. However, groundborne vibration levels generated from rubber-tired vehicles (vehicular traffic) are not typically perceptible outside of the road right-of-way (FTA 2006:

Figure 10-11, reproduced above as Exhibit 3.12-4). This impact is considered **less than significant**.

IMPACT 3.12-2 *Increase traffic noise levels at noise-sensitive receptors. Implementation of the proposed project would add traffic to the roadway network, increasing traffic noise levels. The impact is considered* ***potentially significant.***

Implementation of the proposed project would result in an increase in traffic volumes and, consequently, an increase in traffic noise that could exceed acceptable levels. To assess traffic noise impact on existing noise sensitive receptors, traffic noise levels with and without the project were estimated for affected roadway segments using FHWA's Highway Noise Prediction Model (FHWA-RD-77-108) (FHWA 1978).[16]

Existing and Existing plus Project Buildout Traffic Noise

Table 3.12-11 summarizes modeled CNEL/L_{dn} at 100 feet from the roadway centerline for affected roadway segments under existing conditions and with project implementation. The estimated distances to the 70 dB L_{dn}, 65 dB L_{dn}, and 60 dB L_{dn} traffic noise contours with implementation of the project are also summarized in Table 3.12-11. Noise contours under existing condition and existing plus project buildout are also shown in Exhibits 3.12-3 and 3.12-5, respectively.

Modeled roadway noise levels assume no natural or artificial shielding and, therefore, these estimates should be considered conservative (potentially overestimating impacts). Actual traffic noise exposure levels in the vicinity of the project site would vary depending on a combination of factors, such as variations in daily traffic volumes, shielding provided by existing and proposed structures, and meteorological conditions. Refer to Appendix E for complete modeling inputs and results.

Exterior Noise Exposure

As shown in Table 3.12-11, modeled traffic noise levels exceed 60 dB L_{dn} under existing conditions. Implementation of the proposed project is estimated to result in changes in traffic noise levels ranging from -11 dB to +20 dB, relative to existing noise levels. In general, a 1-dB increase in noise level is imperceptible, a 3-dB increase is barely perceptible, and a 6-dB increase is clearly noticeable. Increases of more than 6 dB occur along Marshall Road from SR 33 to Davis Road, and along Ike Crow Road from SR 33 to Bell Road. However, there are no noise-sensitive uses along these roadway segments.[17]

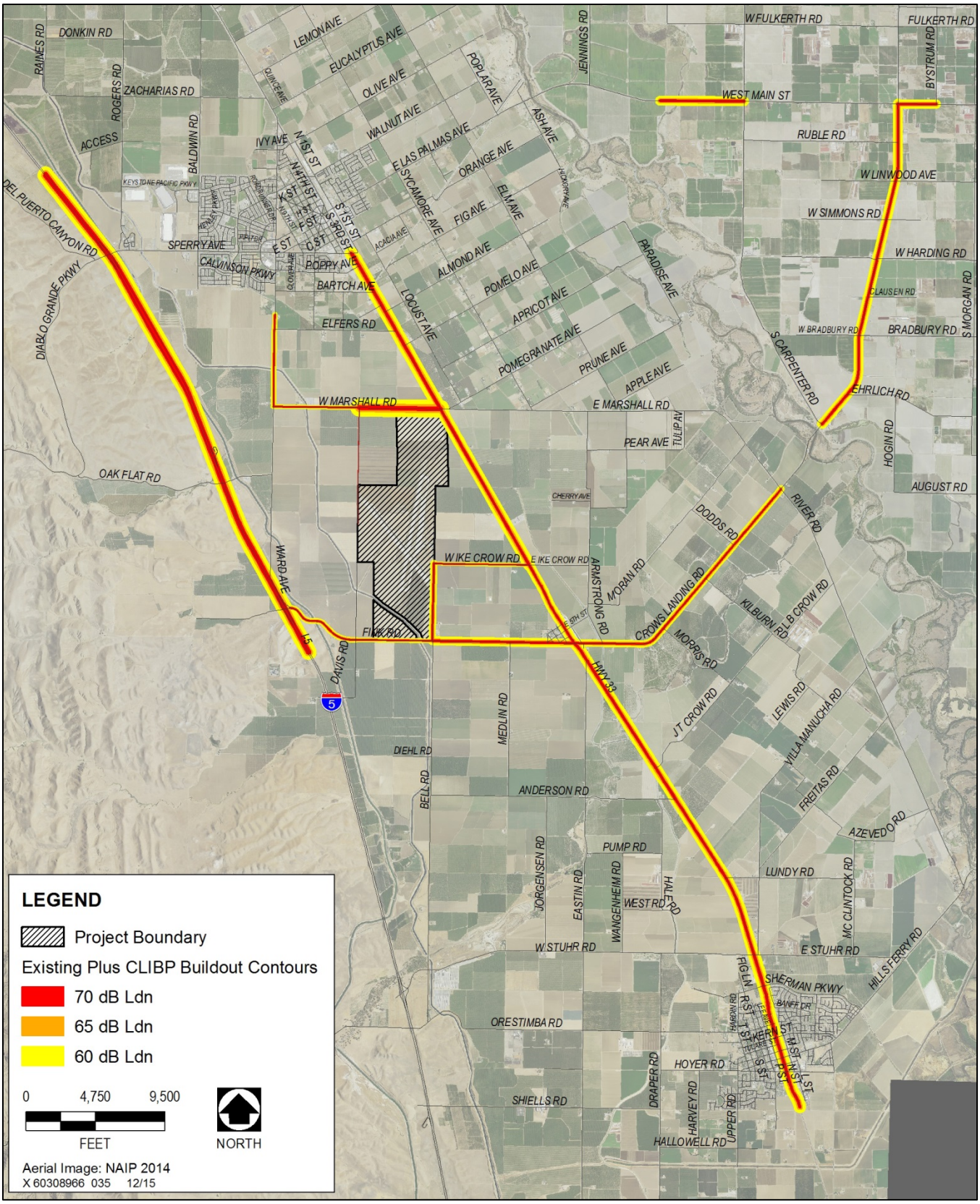
[16] This model is based on the California vehicle noise (Calveno) reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and ground attenuation factors. The traffic noise levels presented represent an application of conservative traffic noise modeling methodologies, which assumes no natural or human-made shielding (e.g., the presence of vegetation, berms, walls, or buildings) from existing or proposed structures or topography. The proposed project's contribution to the existing and cumulative traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without project-generated traffic. Actual traffic noise exposure levels in the vicinity of the Project Area would vary depending on a combination of factors, such as variations in daily traffic volumes, shielding provided by existing and proposed structures, and meteorological conditions. Refer to Appendix E for complete modeling inputs and results.

[17] One residence is located just to the west of the segment of West Marshall Road between SR 33 and Davis Road.

Table 3.12-11
Traffic Noise Contours – Existing and Existing plus Project Buildout

Roadway	Roadway Segment	Existing No Project dB, L_{dn} at 100 feet	Existing Plus CLIBP Buildout				Increase from Project
			dB, L_{dn} at 100 feet	Distance to Contours, feet			
				70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}	
Fink Road	From Ward Avenue to Davis Road	60	63	35	75	161	3
Fink Road	From Davis Road to Bell Road	60	62	28	61	131	2
Fink Road	From Bell Road to SR 33	60	67	59	128	276	**7**
SR 33	From Newman Waste Way to Stuhr Road	68	69	85	182	393	1
SR 33	From Stuhr Road to Fink Road	65	68	77	165	356	3
SR 33	From Fink Rd to W Ike Crow Road	64	67	64	139	299	3
SR 33	From Ike Crow Road to W Marshall Road	64	69	79	171	368	5
SR 33	From W Marshall Rd to Sperry Ave	65	69	89	192	414	4
Ike Crow Road	From SR 33 to Bell Road	40	60	23	49	105	**20**
Bell Road	From Fink Road to W Ike Crow Road	45	65	45	96	207	**20**
Davis Road	From South of W Marshall Road to W Marshall Road	47	36	1	1	2	-11
Marshall Road	From SR 33 to Davis Road	57	71	124	267	576	**14**
Marshall Road	From Davis Road to Ward Avenue	56	61	26	55	119	5
Ward Avenue	From W Marshall Road to Patterson City Limits	59	63	33	71	153	4
Crows Landing Road	From Fink Rd to W Marshall Road	62	65	47	101	218	3
W. Main St.	West of Carpenter Road	67	67	67	144	309	0
Crows Landing Road	From Carpenter Road to W. Main Street	66	67	66	142	306	1
West Main Street	East of Crows Landing Road	66	67	60	130	280	1
I-5	North of Sperry Avenue	71	70	101	218	470	-1
I-5	From Fink Rd to Sperry Ave	71	70	98	210	453	-1
I-5	South of Fink Road	71	70	96	206	444	-1

Notes: FHWA-RD-77-108 = Federal Highway Administration Highway Traffic Noise Prediction Model; dB = A-weighted decibels;
L_{dn} = Day-Night Average Noise Level
Source: Modeling conducted by AECOM in 2015



Source: AECOM 2015

Exhibit 3.12-5. Modeled Roadways – Existing plus Project Buildout Traffic Noise Contours

Noise-sensitive uses occur within 100 feet along Bell Road from Fink Road to Ike Crow Road, and along Fink Road from Bell Road to SR 33. The traffic noise levels increase by more than 6 dB along these two roadway segments and were estimated to be 65 dB L_{dn} and 67 dB L_{dn}, respectively. These levels also exceed the threshold of 60 dB L_{dn} by 5 to 7 dB. Because the proposed project would result in a perceptible increase in noise levels, the proposed impact associated with project-related traffic noise under existing plus project buildout is considered **potentially significant**.

According to the Caltrans Noise Protocol (Caltrans 2011), abatement measures are considered acoustically feasible if a minimum noise reduction of 5 dB at impacted receptor locations is predicted with implementation of the abatement measures. In addition, barriers should be designed to intercept the line-of-sight from the exhaust stack of a truck to the first tier of receptors, as required by the Highway Design Manual, Chapter 1100. Other factors that affect feasibility include topography, access requirements for driveways and ramps, presence of local cross streets, utility conflicts, other noise sources in the area, and safety considerations. The Caltrans' acoustical design goal is that a barrier must be predicted to provide at least 7 dB of noise reduction at one benefited receptor. This design goal applies to any receptor and is not limited to impacted receptors.

The Protocol defines the procedure for assessing reasonableness of noise barriers from a cost perspective. Based on 2014 construction costs, an allowance of $80,000 is provided for each benefited receptor (i.e., receptors that receive at least 5 dB of noise reduction from a noise barrier). The total allowance for each barrier is calculated by multiplying the number of benefited receptors by $80,000. If the estimated construction cost of a barrier is less than the total calculated allowance for the barrier, the barrier is considered reasonable from a cost perspective.

As discussed above, noise-sensitive uses occur within 100 feet along Bell Road from Fink Road to Ike Crow Road, and along Fink Road from Bell Road to SR 33. A sound wall would need to be extended at least 500 feet from the impacted receivers and with no gaps to provide feasible reduction. However, there are driveways, and intersections along these roadway segments. Therefore, a sound wall along these two roadways segments would not be feasible. Also, not enough residences are located along these roadway segments to make the sound walls reasonable and cost effective. However, implementation of Mitigation Measure 3.12-2 "Surfacing the Pavement along the Impacted Roadway Segment with Rubberized Asphalt Material" would reduce this impact to a **less-than-significant** level since this material can reduce noise levels between 40 and 88 percent or between 3 and 8 dB (Sacramento County 1999).

Interior Noise Exposure

With respect to interior noise impact, typical residential construction (i.e., wood siding or two-coat stucco, STC 30-31 windows, door weather-stripping and thresholds, exterior wall insulation, composition plywood roof) would be expected to provide an exterior-to-interior noise level reduction of no less than 25 dB with exterior doors and windows closed (EPA 1974). Therefore, residential building facades exposed to traffic noise levels of 70 dB L_{dn} or less would be expected to comply with the County's interior maximum transportation noise exposure standard of 45 dB L_{dn}/CNEL (70 dB – 25 dB = 45 dB). Second-floor building facades would typically be exposed to noise levels of approximately 3 dB higher than those at first-floor facades due to the reduced effects of ground attenuation. There are no roadway segments affected by project traffic within 100 feet of residential properties that would include noise levels at or above of 70 dB L_{dn}. Interior traffic noise would not be expected to exceed the County's 45 dB L_{dn} limit, further demonstrating that the proposed project's off-site traffic noise impacts would be **less than significant**.

Mitigation Measure 3.12-2: Surfacing the Pavement along the Impacted Roadway Segment with Rubberized Asphalt Material

Resurfacing of Bell Road from Fink Road to Ike Crow Road, and Fink Road from Bell Road to SR 33 shall use rubberized asphalt, in accordance with Chapter 1100 of the California Highway Design Manual.

Implementation: Stanislaus County.

Timing: Prior to completion of Phase 1.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementing asphalt rubber surfacing would reduce traffic noise (primarily tire noise). Significant reductions in traffic noise, ranging from 40 to 88 percent, have been measured not only for open-graded but also for gap-graded RAC. Surfacing the Pavement along the Impacted Roadway Segment with Rubberized Asphalt Material would reduce traffic noise by 3 to 8 dB (Sacramento County 1999). Implementation of the above described mitigation would reduce this impact to a **less-than-significant** level.

IMPACT 3.12-3 Long-term exposure of sensitive receptors to non-transportation noise sources. *Project implementation would result in development of on-site, noise-sensitive and on-site and off-site noise-producing uses. Noise levels at sensitive receivers could exceed levels required by applicable noise policies. This impact is considered potentially significant*.

The proposed project includes on-site development of various aviation-compatible land uses. As described in Chapter 2, “Project Description,” seven general land uses categories were identified for development on the project site that could include noise-generating uses including industry and manufacturing uses, and mechanical equipment (e.g., air conditioning or HVAC units). The County would install a new lift station within the northeast portion of the project area. Land uses within the project area could also include limited noise-sensitive land uses (such as an on-site day care for use by workers). The project does not propose residential or other noise-sensitive uses. Development within the project site will be required to comply with the County Code, which includes restrictions on noise generation. Depending on the distance of noise-sensitive uses to noise generating land uses within the project site, noise levels associated with operation of new facilities within the project site could potentially expose future day care uses to stationary sources of noise. This impact is considered **potentially significant**.

Mitigation Measure 3.12-3: Placement and Orientation of Day Care Uses.

Future day care uses shall be located and/or oriented so that noise-sensitive outdoor activity areas are not exposed to noise levels exceeding 65dB CNEL, the level of noise deemed acceptable in the vicinity of an airport according to the California Code of Regulations.

Implementation: Leaseholders/developers/contractors.

Timing: Ongoing.

Enforcement: Stanislaus County.

Significance after Mitigation

Selecting quieter noise generating mechanical equipment (e.g., HVAC units) and/or shielding or locating equipment at a distance that would reduce noise levels at noise-sensitive outdoor activity areas would reduce noise levels to those considered acceptable under the Stanislaus County General Plan. A combination of distance, design, and shielding has been shown to be effective in substantially reducing mechanical noise. Therefore, implementation of the above described mitigation would reduce this impact to a **less-than-significant** level.

IMPACT 3.12-4 Short-Term Exposure of Sensitive Receptors to Construction Noise. *Project implementation would result in temporary, short-term construction activities. Project-related construction activities could expose sensitive receptors to elevated noise levels. This impact is considered* ***potentially significant****.*

Construction Equipment Noise

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., demolition/land clearing, grading and excavation, erection). Construction noise in any one particular area would be temporary and short-term and would include noise from site preparation, truck hauling of material, pouring of concrete, and use of power tools. Noise would also be generated by construction equipment, including earthmovers, material handlers, and portable generators, and could reach high levels for brief periods of time.

Although noise ranges are generally similar for all construction phases, the grading phase tends to involve the noisiest equipment. EPA has found that the noisiest equipment types operating at construction sites typically range from 88 dB to 91 dB L_{max} at 50 feet (Table 3.12-12). Typical operating cycles may involve 2 minutes of full power, followed by 3 or 4 minutes at lower settings. Average noise levels at construction sites typically range from approximately 65 to 89 dB L_{eq} at 50 feet, depending on the activities performed (FTA 2006:12-6).

Exterior Noise Exposure

Temporary noise during construction could expose existing (off-site) sensitive receptors to noise levels that exceed County exterior noise policies. Assuming a reference construction noise level of 89 dB L_{eq} at 50 feet and spherical spreading loss (-6 dB per doubling of distance), noise-sensitive uses within 2,500 feet of heavy construction operations may experience unmitigated noise exposure in excess of the County's 55 dB L_{eq} daytime exterior limit identified in Table 3.12-5 (General Plan Table 4), and a 60 dB L_{eq} daytime exterior limit that would apply since in certain locations, the existing ambient conditions may exceed the exterior limit. Also, existing noise-sensitive uses within 250 feet of heavy construction operations may experience unmitigated construction average noise exposure in excess of the 75 dB L_{max} identified under County Code above for construction noise. As noted previously, construction and maintenance activities performed under the direction of a public entity or public utility are exempt from the County's noise requirements (Section 10.46.080).

Table 3.12-12
Typical Construction Equipment Noise Levels

Equipment Item	Typical Maximum Noise Level (dB) at 50 Feet
Earthmoving	
Backhoes	80
Bulldozers	85
Front Loaders	80
Graders	85
Paver	85
Roller	85
Scrapers	85
Tractors	84
Slurry Trencher	82
Dump Truck	84
Pickup Truck	55
Materials Handling	
Concrete Mixer Truck	85
Concrete Pump Truck	82
Crane	85
Man Lift	85
Stationary Equipment	
Compressors	80
Generator	82
Pumps	77
Impact Equipment	
Compactor	80
Jack Hammers	85
Impact Pile Drivers (Peak Level)	95
Pneumatic Tools	85
Rock Drills	85
Other Equipment	
Concrete Saws	90
Vibrating Hopper	85
Welding Machine / Torch	73

Notes: dB = decibels
Noise levels are for equipment fitted with properly maintained and operational noise control devices, per manufacturer specifications.
Sources: FTA 2006

The proposed project would involve widening of SR 33 and improvements to West Marshall Road, Bell Road, West Ike Crow Road, and Davis Road. Residences along SR 33 and West Marshall Road to the north of the project, and residences along Bell Road to the southeast of the project site would be within 50 feet of the project site in a location where construction equipment would be expected to operate. In addition, assumes new water line connections and a new sewer line along West Marshall Road to the north, and a new lift station within the project area to the northeast. The South Patterson Trunk Sewer would be constructed along Bartch Avenue from Ward Avenue to SR 33, extending to the northeast to Locust Avenue, Gang Avenue, Sycamore Avenue, East Las

Palmas Avenue and Poplar Avenue to Walnut Avenue. All these roadways are located within 50 feet of existing residences.

Also, as stated above, the land uses associated with the proposed project would be developed in three 10-year phases. Noise-sensitive land uses developed on-site would be exposed to construction noise from development of land uses in later phases. This impact is considered **potentially significant**.

Interior Noise Exposure

With respect to interior noise impact, typical residential construction (*i.e.*, wood siding or two-coat stucco, STC 30-31 windows, door weather-stripping and thresholds, exterior wall insulation, composition plywood roof) would be expected to provide an exterior-to-interior noise level reduction of no less than 25 dB with exterior doors and windows closed (EPA 1974). Therefore, construction noise levels of 70 dB L_{eq} or more at residential building facades would exceed the interior noise level standard of 45 dB (70 dB – 25 dB = 45 dB). As stated above, average noise levels at construction sites typically range from approximately 65 to 89 dB L_{eq} at 50 feet, depending on the activities performed (FTA 2006:12-6). Assuming a reference construction noise level of 89 dB L_{eq} at 50 feet and spherical spreading loss (-6 dB per doubling of distance), noise-sensitive uses within 500 feet of heavy construction operations may experience unmitigated construction average noise exposure in excess of 45 dB L_{eq}. All roadways that would be widened or rebuilt, as well as the roadways along which the South Patterson Trunk Sewer would be constructed, are located within 50 feet of existing residences. This impact is considered **potentially significant**.

Mitigation Measure 3.12-4: Implement Construction Equipment Noise Reduction Measures.

The following measures shall be implemented to minimize construction noise impacts for powered construction equipment operating within 500 feet of existing noise-sensitive uses:

- Construction activities shall not occur on weekends, federal holidays, or on weekdays between the hours of 7 p.m. and 7 a.m.
- Locate fixed/stationary equipment (e.g., generators, compressors) as far as possible from noise-sensitive receptors. Shroud or shield all impact tools, and muffle or shield all in-take and exhaust ports on powered construction equipment.
- Store and maintain equipment as far as possible from noise-sensitive receptors.
- Properly maintain and equip all construction equipment with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- Shut down all motorized construction equipment when not in use to prevent excessive idling noise.

Implementation: Leaseholders/developers/contractors for future developments and Stanislaus County for County-led infrastructure improvements.

Timing: During all construction phases.

Enforcement: Stanislaus County.

Significance after Mitigation

With implementation of Mitigation Measure 3.12-4, construction activities would be limited to daytime hours (would not take place between 7 p.m. and 7 a.m.) and would not be allowed on weekends and holidays. Construction equipment would be properly maintained and equipped with noise control components, such as mufflers, in accordance with manufacturers' specifications. However, the County cannot demonstrate that these mitigating efforts would reduce average construction noise exposure to 75 dB L_{eq} or less at noise-sensitive receivers in all cases. Existing noise-sensitive uses along Bell Road to the southeast of the project site shown as location LT-03 in Exhibit 3.12-2 are located within 100 feet of the project site.

In order to provide conservative results, the analytical approach used in this EIR focuses on the worst-case location regarding sensitive receptors and construction activities. Construction activities would include demolition, site clearing and excavation and site preparation, installation of infrastructure, and building construction. Construction activity would temporarily cease between phases, depending on the schedule and timing of each phase. Operation of heavy-duty construction equipment would be intermittent throughout the day during construction. Construction would occur intermittently and construction noise levels would vary over this time. The highest noise levels typically occur in association with foundation construction. Site preparation and foundation work normally lasts for a relatively short amount of time compared to building construction, which would generate substantially lower levels of construction noise. Construction would occur on the interior of the site upon the completion of infrastructure, and in most cases, the distance between noise-sensitive uses in the vicinity of the project site and interior construction would be sufficient to avoid any substantial impact. There is no additional feasible mitigation to avoid, or reduce this impact to a less-than-significant level. As a result, this impact would remain **significant and unavoidable**.

Construction Traffic Noise

Construction of the proposed project would result in additional vehicle trips on the local roadway network from worker commute and the transport of equipment and materials. To provide conservative estimates of potential impacts, the County has evaluated the addition of 500 daily trips. This evaluation of 500 daily trips does not signify any specific threshold or standard – it is simply an analytical assumption to ensure conservative impact assessment results. The number of daily trips required for construction is expected to be substantially less than 500 daily one-way trips.

When added to the traffic volumes used in the "existing condition" assessment, as shown in Table 3.12-13, project-related construction traffic could increase traffic noise levels by as much as 23 dB for the studied roadway segments, assuming 500 vehicles per day. Construction-related traffic noise levels within 100 feet of existing roadways in the project vicinity would range from 63 dB L_{eq} to 72 dB L_{eq} (Table 3.12-11).

Table 3.12-13
Traffic Noise Contours: Existing Traffic Plus Construction Traffic

Roadway	Roadway Segment	Existing dB, L_{eq} at 100 feet	Existing + Construction Traffic dB, L_{eq} at 100 feet	Increase
Fink Road	From Ward Avenue to Davis Road	60	64	4
Fink Road	From Davis Road to Bell Road	60	64	4
Fink Road	From Bell Road to SR 33	60	64	4
SR 33	From Newman Waste Way to Stuhr Road	68	68	0
SR 33	From Stuhr Road to Fink Road	65	66	1
SR 33	From Fink Rd to Ike Crow Road	64	65	1
SR 33	From Ike Crow Road to West Marshall Road	64	65	1
SR 33	From Marshall Rd to Sperry Ave	65	65	0
Ike Crow Road	From SR 33 to Bell Road	40	63	23
Bell Road	From Fink Road to Ike Crow Road	45	63	18
Davis Road	From South of West Marshall Road to West Marshall Road	47	63	16
Marshall Road	From SR 33 to Davis Road	57	63	6
Marshall Road	From Davis Road to Ward Avenue	56	63	7
Ward Avenue	From Marshall Road to Patterson City Limits	59	64	5
Crows Landing Road	From Fink Rd to Marshall Road	62	64	2
W. Main St.	West of Carpenter Road	67	67	0
Crows Landing Road	From Carpenter Road to W. Main Street	66	66	0
W. Main Street	East of Crows Landing Road	66	66	0
I-5	North of Sperry Avenue	71	72	0
I-5	From Fink Rd to Sperry Ave	71	72	0
I-5	South of Fink Road	71	72	0

Notes: dB = decibels; L_{dn} = Day-Night Average Noise Level
Source: Modeling conducted by AECOM in 2015

The applicable County land use compatibility threshold for exterior noise from transportation sources is 60 dB (Table 3.12-4). Noise from mobile sources generally is attenuated at a rate of 3 dB (hard surfaces, such as asphalt) to 4.5 dB (soft surfaces, such as grasslands) per doubling of distance (FHWA 2011). Assuming a 4.5-dB decrease per doubling of the distance, construction-related traffic noise within 640 feet from the centerline of the existing roadways shown with increases of 4 to 23 dB in Table 3.12-13, would increase beyond the applicable County land use compatibility threshold of 60 dB (Table 3.12-4). There are residential uses within 100 feet of the centerline along Bell Road between Fink Road and Ike Crow Road, along Marshall Road and along SR 33. Therefore, traffic noise exposure at the closest noise-sensitive receivers (residences) to these roadways is anticipated to increase beyond the applicable County land use compatibility threshold of 60 dB as a result of the proposed project's construction traffic. The impact of construction vehicle movements is considered **potentially significant**.

Mitigation Measure 3.12-5: Implement Mitigation Measure 3.12-1.

Significance after Mitigation

With implementation of Mitigation Measure 3.12-1, construction activities would be limited to daytime hours (would not take place between 7 p.m. of 1 day and 7 a.m. of the following day). Construction traffic would be routed as far away from noise-sensitive sites as possible. Trucks would operate away from residential streets where homes within and outside the project area are within 640 feet of the edge of the subject roadway. Mitigation Measure 3.12-1 would reduce construction-related traffic noise levels from the project construction below the standard of 60 dB for residential uses, and would reduce construction-related traffic noise exposure at noise-sensitive receivers in all cases. Construction would occur only temporarily. As a result, implementation of Mitigation Measure 3.12-1 would reduce this impact to a **less-than-significant** level.

IMPACT 3.12-5 Exposure of noise-sensitive receptors to aircraft noise. *Project implementation would result in the reuse of a former military runway for the development of a public-use general aviation airport. Project-related aircraft noise would not expose sensitive receptors to elevated levels of aircraft noise. The impact is considered less than significant.*

The closest existing airport is the Modesto City-County Airport, which is located approximately 15 miles east of the project site. However, the proposed project includes the adoption of an Airport Layout Plan (ALP), which describes the anticipated development of a new public-use airport based on the reuse and improvement of former military runway 12–30.

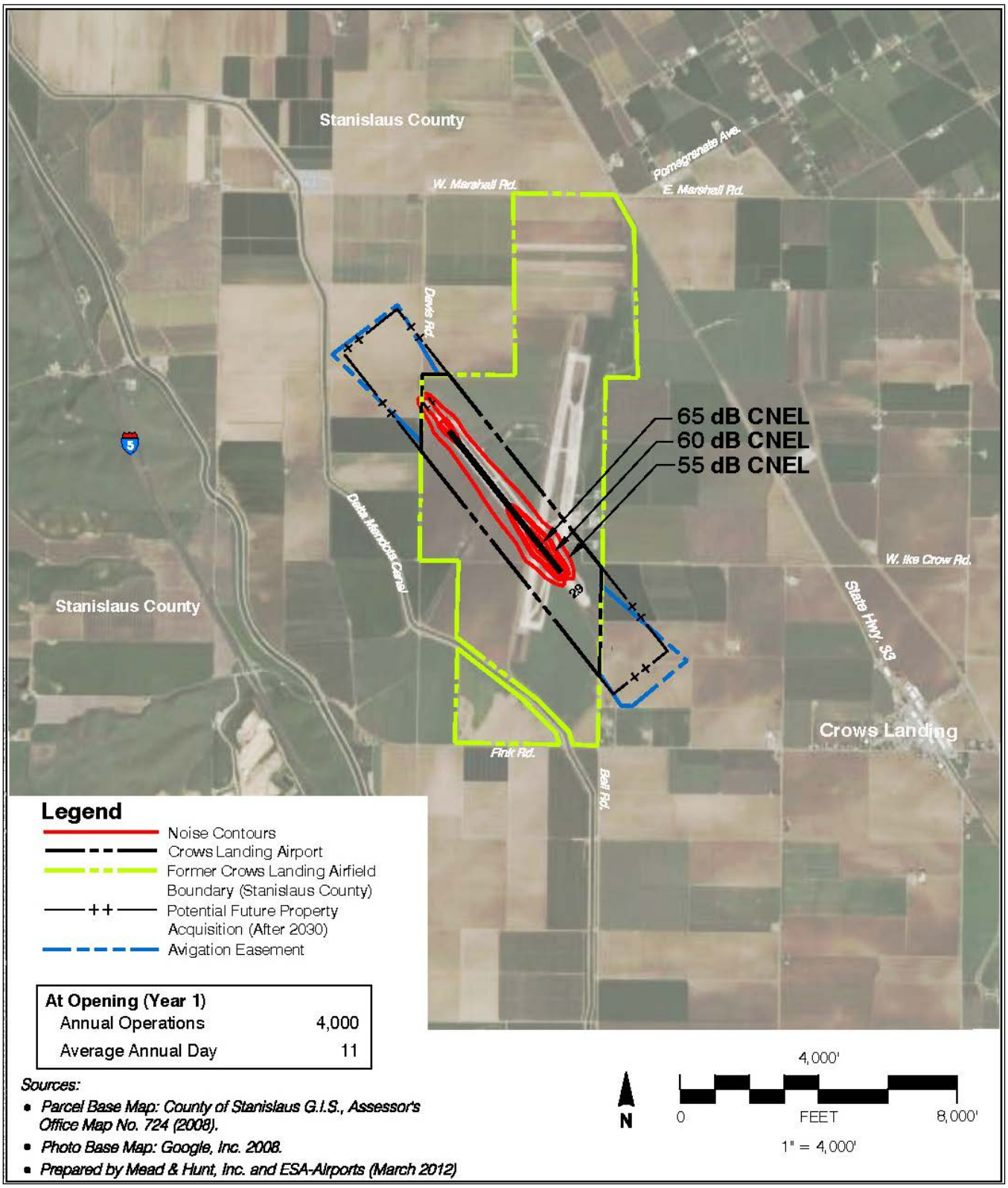
Operational forecasts were developed as part of the ALP to identify potential aircraft noise exposure, as measured using the Community Noise Equivalent Level (CNEL). The results of the CNEL calculations were depicted by a series of points representing points of equal noise exposure in 5dB increments from 50dB to 65dB CNEL. Exhibit 3.12-6 presents the noise contour associated with the airport from its opening day through its first 10 years of operation, which will coincide with Phase 1 of CLIBP buildout. During this period, approximately 4,000 annual operations are anticipated. Exhibit 3.12-7 presents the noise contour associated with airport operations 30 years following opening, when up to 34,000 annual operations are anticipated.

California Code of Regulations

The California Code of Regulations (CCR) states that "The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a CNEL value of 65 dB for purposes of these regulations." As shown on Exhibits 3.12.6, and 3.12.7, the area associated with the 65 CNEL noise contour would remain entirely within the airport boundaries for the first 30 years of airport operation. CLIBP site users would not be exposed to unacceptable levels of aircraft noise exposure. There would be **no impact** to sensitive-receptors as a result of proposed aircraft operations.

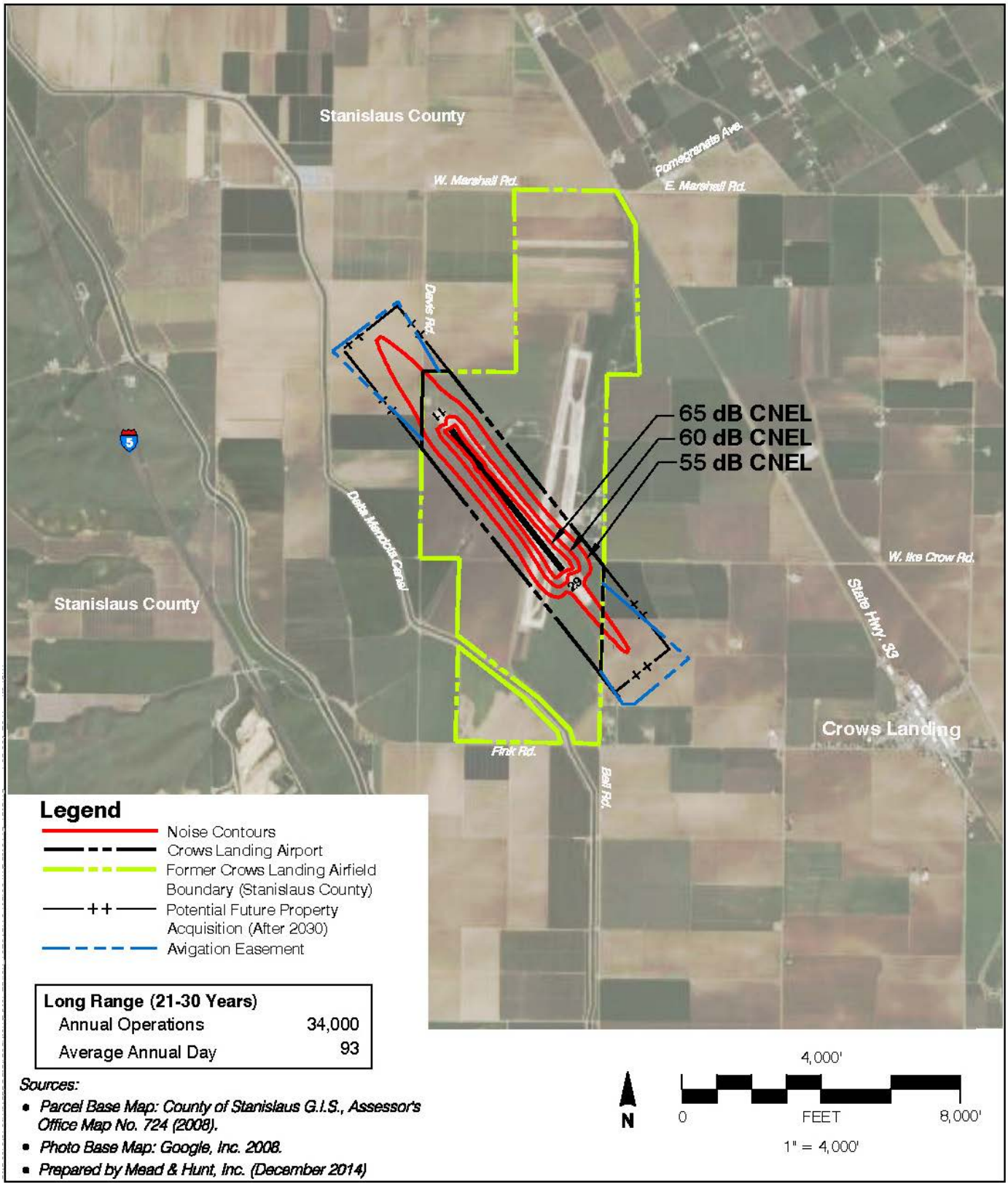
Airport Land Use Compatibility Plan

The County's 2016 ALUCP identifies an Airport Influence Area for the former Crows Landing Naval Auxiliary Airfield based on the presence of two military runways, aircraft, and operations. Although military operations no longer occur at the airport, the County has not yet adopted a Master Plan or Airport Layout Plan for the new Crows Landing airport, and noise contours were not provided for the Crows Landing Airport in the 2004 ALUCP.



Source: Stanislaus County 2014

Exhibit 3.12-6. **Opening Year Airport Noise Contours**



Source: Mead & Hunt 2016

Exhibit 3.12-7. **Long-Term Airport Noise Contours**

The proposed project would include an ALUCP amendment to address airport-specific policies for the new Crows Landing Airport and planned airport development, as identified in the ALP. The ALUCP amendment would provide a new airport noise policy map that reflects the anticipated aircraft noise contours shown in Exhibit 3.12-7, and a revised Airport Influence Area to which all county-wide ALUCP policies will apply.

The proposed project will include a variety of land uses that would occur outside of the 55 CNEL noise exposure contour. As shown, none of CLIBP site or off-site areas within the current ALUCP planning boundaries would be exposed to aircraft noise at unacceptable levels, and all proposed uses would be normally compatible with the county-wide noise policies as shown in Table 1. At full buildout, the 55 CNEL contour would extend off-site to adjacent agricultural land. Agricultural land, with the exception of new residences and grazing land, would be consistent with the county-wide ALUCP noise policies.

The proposed project is consistent with county-wide ALUCP policies. Following ALP adoption and a subsequent ALP amendment, the proposed project is anticipated to remain consistent with the ALUCP. Although site users would be exposed to aircraft noise, exposure would not exceed regulatory levels or ALUCP policies. This impact is considered **less than significant**. No mitigation is required.

3.13 PUBLIC SERVICES

Section 3.13 describes fire protection and law enforcement services, the availability of those resources to serve the CLIBP, and any adverse environmental effects that may be associated with the construction or operation of any additional facilities that may be needed to support the proposed project. The project does not include residential development; therefore, no additional schools, parks, recreation facilities, other public facilities (i.e., libraries) would be necessary as a result of the proposed project. In addition, the project is providing on-site recreational space for employees of, and visitors to the project site.

Please refer to Section 3.11, "Land Use Planning, Population, Housing, and Employment" for a detailed discussion on the relationship between the proposed project and population and employment growth.

3.13.1 EXISTING SETTING

FIRE PROTECTION SERVICES

The West Stanislaus Fire Protection District provides fire protection and emergency medical services to an approximately 625-square-mile service area that consists of unincorporated county areas located west of the San Joaquin River. The District has an automatic mutual-aid agreement with the City of Patterson and neighboring fire agencies within Stanislaus County to provide backup assistance during an emergency.

The West Stanislaus Fire Protection District is staffed by three Chief Officers, three administrative staff, 10 volunteer chief officers, 10 volunteer officers, and 85 volunteer firefighters. The District operates seven stations, including one shared station with the Patterson Fire Department and one with the Newman Fire Department. The closest fire station to the project site is Station 6, which is located at 22012 G Street in Crows Landing, approximately 1.4 miles east of the project site. Station 6 includes two engines (West Stanislaus Fire Protection District 2017).

The Insurance Services Office (ISO) rating is the recognized classification for a fire department or district's ability to defend against major fires. An ISO rating of 1 indicates the highest firefighting capability, and a rating of 10 generally indicates no protection. The West Stanislaus Fire Protection District's ISO rating is 4 (West Stanislaus Fire District 2015). The on-site runway has been used by the California Department of Forestry and Fire Protection in the past for emergency support during a wildfire.

LAW ENFORCEMENT SERVICES

The Stanislaus County Sheriff's Department provides police protection throughout the unincorporated areas of the County and provides contractual law enforcement services for the cities of Riverbank, Patterson, Waterford, and Hughson (Stanislaus County Sheriff's Department 2015). The Sheriff's Department is headquartered at 250 East Hackett Road, Modesto, approximately 16 miles northeast of the project site. The Sheriff's Department is led by the Sheriff-Coroner and the Undersheriff. In addition to the Stanislaus Regional 911 operations, the department includes investigations, patrol operations, the coroner's division, public safety, the men's jail, inmate programs and jail alternatives, adult detention, and court services. The Sheriff's Department includes a K9 unit, a mounted unit, a bomb squad, and other special teams.

The California Highway Patrol (CHP) provides traffic regulation enforcement, emergency management, and vice assistance on state highways, all federal interstate highways, and other major roadways in unincorporated portions of Stanislaus County. The project site is located within the CHP Central Division, which is composed of 15 area offices, one commercial vehicle enforcement facility, three Communications and Dispatch Centers, an Air Operations Unit, the El Protector Program and Safety and Farm Labor Vehicle Education, and Investigative Services Unit, and a Multidisciplinary Accident Investigation Team (CHP 2015).

3.13.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to public services and recreation are applicable to this project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Occupational Safety and Health Administration

In accordance with California Code of Regulations Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration (Cal/OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose sizing requirements; restrictions on the use of compressed air; access roads; and the testing, maintenance, and use of all firefighting equipment.

Fire Code and Guidelines

The California Fire Code (CFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the CFC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire safety requirements for new and existing buildings and the surrounding premises. The CFC contains specialized technical regulations related to fire and life safety.

An important requirement for fire suppression is adequate fire flow, which is the amount of water, expressed in gallons per minute (gpm), available to control a given fire and the length of time that this flow is available. The availability of sufficient water flows and pressure is a basic requirement of the California Building Standards Code. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building are dependent on standards set in the California Fire Code. These fire flow requirements are 1,500 gpm for low- and medium-density residential (2-hour duration), 2,500 gpm for high-density residential (3-hour duration), 3,000 gpm for commercial/office and light industrial (3-hour duration); and 8,000 gpm (4-hour duration) for heavy industrial and warehouse uses.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Stanislaus County General Plan

The County's General Plan includes goals, policies, and implementation measures in the Land Use and Safety Elements related to public services and facilities, as outlined below.

Land Use Element

- **GOAL FOUR** – Ensure that an effective level of public service is provided in unincorporated areas.
- **POLICY TWENTY-FOUR** – Future growth shall not exceed the capabilities/capacity of the provider of services such as sewer, water, public safety, solid waste management, road systems, schools, health care facilities, etc.
- **IMPLEMENTATION MEASURE 1** – The County shall continue to implement its Public Facilities Fees Program, which is intended to help finance public facilities needed to maintain current levels of service.
- **IMPLEMENTATION MEASURE 3** – Benefit assessment districts, County Service Areas (CSAs), Mello-Roos Districts, or other similar districts shall be formed as needed to pay for the cost of providing ongoing appropriate services.
- **IMPLEMENTATION MEASURE 5** – The current level of service of public agencies shall be determined and not allowed to deteriorate as a result of new development.
- **IMPLEMENTATION MEASURE 6** – Rezoning of property for development prior to: 1) annexation to a special district; or 2) inclusion of such property into a newly formed special district that will provide urban services (i.e., sanitary sewer district, domestic water district, or community service district) shall be approved only if the development is adequately conditioned to restrict development from occurring until annexation to, or formation of, the required district is complete.

Safety Element

- **GOAL TWO** – Minimize the effects of hazardous conditions that might cause loss of life and property.
- **POLICY SIX** – All new development shall be designed to reduce safety and health hazards.
- **IMPLEMENTATION MEASURE 1** – Review development proposals and require redesign when necessary to ensure that buildings are designed and sited to minimize crime and assure adequate access for emergency vehicles. The County shall promote the design of structures, streetscapes, pathways, project sites, and other elements of the built environment that allow for surveillance of publically accessible areas.
- **IMPLEMENTATION MEASURE 3** – Development standards shall be imposed to provide street lighting, storm drainage, setbacks, firewalls, and fire safe standards for defensible space, pursuant to California Code of Regulations Title 14, Fire Safe Regulations.

- **IMPLEMENTATION MEASURE 4** – All building permits shall be reviewed to ensure compliance with the California Code of Regulation, Title 24, California Building Codes, and California Code of Regulations Title 14, Fire Safe Regulations.

- **POLICY SEVEN** – Adequate fire and sheriff protection shall be provided.

- **IMPLEMENTATION MEASURE 2** – All discretionary projects in the County shall be referred to the Office of Emergency Services / Fire Warden, and the Local Fire Agency having jurisdiction for comment. The comments of these agencies will be used to condition or recommend modifications of the project as it relates to fire safety and rescue issues, including emergency access and evacuation routes. All projects in State Responsibility Areas or Very High Fire Hazard Severity Zone shall be routed to CAL FIRE for comments.

- **IMPLEMENTATION MEASURE 4** – Discretionary projects shall be considered for approval only when they are found to include adequate fire protection.

- **IMPLEMENTATION MEASURE 5** – New development shall have water to meet the fire flow standards established in the current adopted fire code, and the current California Public Resources Code 4290, and when located within the State Responsibility Area and Very High Fire Hazard Severity Zones, the National Fire Protection Association 1142 Standard on Water Supplies for Suburban and Rural Fire Fighting.[1]

- **IMPLEMENTATION MEASURE 6** – All discretionary projects shall be referred to the Sheriff's Department for comment and evaluation of security issues including crime prevention through design. Comments from the Sheriff will be used to either condition or modify the project.

3.13.3 Environmental Impacts and Mitigation Measures

Methodology

The potential project-related impacts to public services and facilities were evaluated by comparing the existing service capacity and facilities to future demand following project implementation. The reasonably foreseeable service and facilities required to serve the proposed project were also considered. The evaluation was based on a review of the Stanislaus County General Plan (2016). Additional background information on current services, staffing, and equipment was obtained through consultation and review of information from appropriate agencies.

Thresholds of Significance

Based on Appendix G of the *CEQA Guidelines*, an impact related to public services is considered significant if the proposed project would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or

[1] Minimum requirements for available fire flow provided in Appendix 5-A of the County General Plan are 1,000 gpm for low-density residential; 1,500 gpm for duplexes and on-story business; 2,000 gpm for one- and two-story high-density residential, light commercial, and light industrial; and 2,500 gpm for three stories or more of high-density residential, heavy commercial, and heavy industrial.

- result in the 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 fire protection and police protection.

IMPACT ANALYSIS

IMPACT 3.13-1 **Increased demand for fire protection facilities, systems, equipment, and services.** *Implementation of the proposed project would result in an increased demand for West Stanislaus Fire Protection District services and facilities. The project will be required to incorporate California Fire Code, County, and West Stanislaus Fire Protection District standards into project designs. Funding for additional fire facilities and equipment necessary to serve the proposed project would be provided through the payment of the Stanislaus County's Fire Protection Facilities Fee by site tenants. Therefore, this impact is considered* ***less than significant****.*

Implementation of the proposed project would increase demand for West Stanislaus Fire Protection District services and facilities. District Station 6 is located approximately 1.4 miles east of the project site and could provide first-response to the project site.

Project-related development will be required to comply with all CFC requirements. Facility designs will provide for fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, and hazardous materials storage and use. In addition, the County will require tenants to modify their facility designs when necessary to ensure that buildings can provide adequate access for emergency vehicles. Building Permit applications for the Specific Plan Area will be referred to the Stanislaus County Fire Prevention Bureau and the West Stanislaus Fire Protection District. Conditions identified by either the Fire Prevention Bureau or the West Stanislaus Fire Prevention District will be implemented through the building permit process.

Funding to support fire protection services or the construction of additional fire protection facilities will be provided through Stanislaus County's Fire Protection Facilities Fee (Title 24 of the Stanislaus County Municipal Code). The fee is used to ensure that new development pays its fair share to maintain the current level of service, thereby mitigating the impact of development on the fire protection district's ability to provide such service. Fees for applicable development are paid by the project applicant to the fire protection district (in this case, West Stanislaus Fire Protection District), and proof of payment must be presented to the County prior to the issuance of building permits.

As discussed in Section 3.15, "Utilities and Service Systems," the County has prepared a *Water Supply (Potable and Non-Potable) Infrastructure and Facilities Study* and a SB 610 Water Supply Assessment to identify and describe the need for water, including fire flow, and water supply infrastructure to serve the project site. Master plans are appended to the Specific Plan, which is under separate cover and on file for review with the County Planning and Community Development Department.

The County will ready the site for development by providing preliminary or "backbone" infrastructure. Individual tenants/site developers will be responsible for incorporating all CFC, County Fire Protection District, and West Stanislaus Fire District requirements into their designs, and for paying the Fire Protection Facilities Fee as a condition of building permit approval. The implementation of these requirements would provide sufficient fire protection services and personnel to serve the proposed project site. Therefore, the impact associated with

maintaining acceptable service ratios, response times, and other performance objectives for fire protection services is considered **less than significant**. No mitigation is required.

Approximately 15 acres in the southernmost portion of the Public Facilities are located west of the intersection of Ike Crow Road and Bell Road have been designated as an appropriate location for the development of on-site fire and law enforcement facilities (Phase 1). Access would be available from Fink and Bell roads or from West Ike Crow Road. Physical impacts associated with construction and operation of fire and law enforcement facilities are evaluated in the other sections of this EIR.

IMPACT 3.13-2 Increased demand for law enforcement facilities, services, and equipment. *Implementation of the proposed project would increase the demand for Stanislaus County Sheriff's Department law enforcement facilities and services. The project will be required to incorporate all County and Stanislaus County Sheriff's Department standards into project designs and would provide funding for additional police facilities and equipment necessary to serve the proposed project through payment of the County's development impact fees. Therefore, this impact is considered* less than significant.

Implementation of the proposed project would increase demand for the Stanislaus County Sheriff's Department law enforcement facilities and services.

The County collects development impact fees specifically for Sheriff's Department services. The purpose of the fees is to implement the goals and objectives of the County's General Plan and to mitigate the impacts caused by future development. Depending on the type of facility being constructed, the County building department assesses a fee ranging from $10 per 1,000 square feet of warehouse facilities up to $152 per 1,000 square feet of office uses (Stanislaus County 2014).

Because the project would be required to pay its fair share of the costs of fire protection services and facilities through payment of the County's development impact fees, sufficient police protection services and personnel would be available to serve the proposed project. Therefore, the impact associated with maintaining acceptable service ratios, response times, or other performance objectives for police protection services is considered **less than significant**. No mitigation is required.

Approximately 15 acres in the southernmost portion of the Public Facilities are located west of the intersection of West Ike Crow and Bell Roads would provide opportunities for the development of fire/and law enforcement facilities. Access would be available from Fink Road and Bell Road or from West Ike Crow Road. Physical impacts associated with construction and operation of fire and law enforcement facilities are evaluated in the other sections of this EIR. There are no additional significant impacts beyond those comprehensively considered throughout the other sections of this EIR.

3.14 TRAFFIC AND TRANSPORTATION

Section 3.14 presents a summary of transportation impact assessment conducted for the proposed Crows Landing Industrial Business Park (CLIBP). The information used for the analysis is based on current traffic conditions, forecasted traffic volumes, and the potential traffic generated based on the dimension and land use characteristics of the project. Other planning documentations, short- and long-term goals by jurisdiction are also included as part of the analysis. For more detail, please refer to the traffic study, under separate cover and available for review on file with the County Planning and Community Development Department.

The following scenarios were evaluated:

- Existing No-Project Conditions
- Existing plus Project Conditions
- 2035 No-Project Conditions
- 2035 plus Project Conditions

Please see Chapter 5 of this EIR, which addresses cumulative impacts (2035 with and without project scenarios). The project is intended to be developed over three 10-year increments, so 2035 conditions that assume full project buildout, represent a conservative analysis.

3.14.1 ENVIRONMENTAL SETTING

STUDY INTERSECTIONS AND ROADWAY SEGMENTS

The project site is located south of the city of Patterson in unincorporated Stanislaus County. The intersections and roadway segments selected and confirmed by Stanislaus County staff are illustrated in Exhibit 3.14-1. Table 3.14-1 provides an overview of all intersections and roadway segments that are subject to the Level of Service (LOS) analysis. Roadway segments were categorized as local roadway and freeway segments. The following describes important roadways serving the project site:

- **American Eagle Avenue** is a two-lane, north-south collector roadway that runs between Sweet Briar Drive in the south to Ward Avenue in the north, where it continues northeasterly as M Street.
- **Baldwin Road** is a two-lane, north-south collector roadway that provides access between State Route (SR) 33 and Sperry Avenue, terminating south of Sperry Avenue.
- **Bell Road** is a two-lane, north-south collector roadway that runs along the project site's eastern boundary, and links SR 33 in the north with Orestimba Road in the south within unincorporated Stanislaus County.
- **Carpenter Road** is a two-lane, north-south collector roadway that links the city of Modesto in the north with Crows Landing Road in the south.
- **Davis Road** is a two-lane north-south collector roadway that runs along a portion of the project site's western boundary, and provides access between Marshall Road in the north and Fink Road in the south. Davis Road continues 0.75 mile south of Fink Road before turning west to cross I-5 and terminating at an adjacent rural/residential development.
- **Del Puerto Canyon Road** a two-lane, east-west local roadway in Stanislaus County that connects Santa Clara County in the west with the I-5 southbound ramps, where it continues easterly as Sperry Avenue.

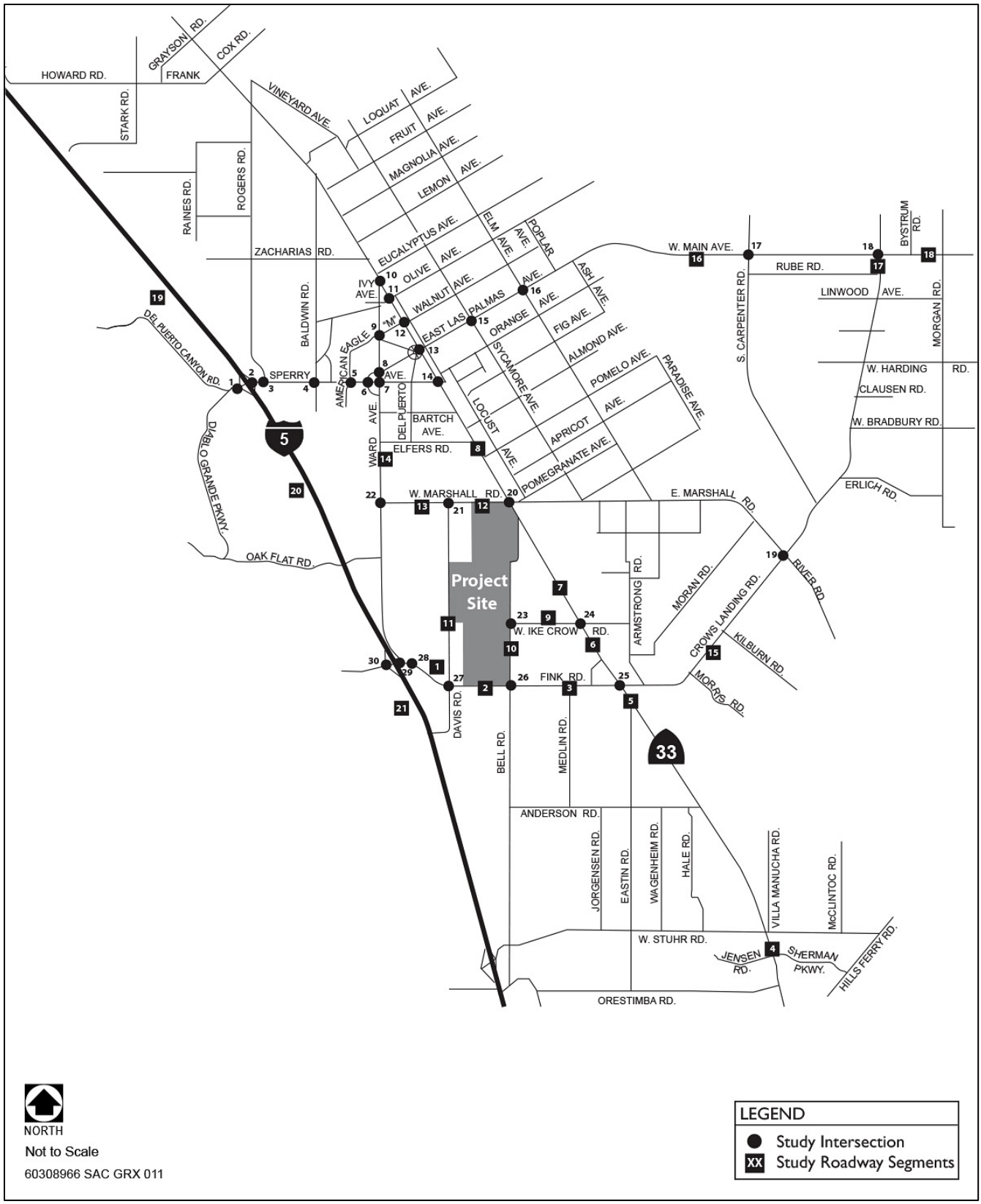


Exhibit 3.14-1. **Intersection and Roadway Segments**

Table 3.14-1
Study Intersections and Roadway Segments

	Intersection	Jurisdiction
1	I-5 SB Ramps / Sperry Ave	California Department of Transportation
2	I-5 NB Ramps / Sperry Ave	California Department of Transportation
3	Rogers Road / Sperry Ave	City of Patterson
4	Baldwin Road / Sperry Ave	City of Patterson
5	American Eagle Way / Sperry Ave	City of Patterson
6	Las Palmas Avenue / Sperry Ave	City of Patterson
7	Ward Avenue / Sperry Ave	City of Patterson
8	Ward Avenue / Las Palmas Avenue	City of Patterson
9	Ward Avenue / M Street	City of Patterson
10	Ward Avenue / SR 33	California Department of Transportation
11	Olive Avenue / SR 33	California Department of Transportation
12	Walnut Avenue / SR 33	California Department of Transportation
13	Las Palmas Avenue / SR 33	California Department of Transportation
14	Sperry Avenue / SR 33	California Department of Transportation
15	Sycamore Ave / Las Palmas Avenue	County of Stanislaus
16	Elm Avenue / Las Palmas Avenue	County of Stanislaus
17	Carpenter Road / W. Main Street	County of Stanislaus
18	Crows Landing Road / W. Main Street	County of Stanislaus
19	Crows Landing Road / Marshall Road	County of Stanislaus
20	Marshall Road / SR 33	California Department of Transportation
21	Marshall Road / Davis Road	County of Stanislaus
22	Marshall Road / Ward Ave	County of Stanislaus
23	Ike Crow Road / Bell Road	County of Stanislaus
24	Ike Crow Road / SR 33	California Department of Transportation
25	Fink Road / SR 33	California Department of Transportation
26	Fink Road / Bell Road	County of Stanislaus
27	Fink Road / Davis Road	County of Stanislaus
28	Fink Road / Ward Avenue	County of Stanislaus
29	I-5 NB Ramps / Fink Road	California Department of Transportation
30	I-5 SB Ramps / Fink Road	California Department of Transportation
	Local Roadway Segments	
1	Fink Road between Ward Avenue and Davis Road	County of Stanislaus
2	Fink Road between Davis Road and Bell Road	County of Stanislaus
3	Fink Road between Bell Road and SR-33	County of Stanislaus
4	SR-33 south of Stuhr Road north of Newman	California Department of Transportation
5	SR-33 between Stuhr Road and Fink Road	California Department of Transportation
6	SR-33 between Fink Road and Ike Crow Road	California Department of Transportation
7	SR-33 between Ike Crow Road and Marshall Road	California Department of Transportation
8	SR-33 between Marshall Road and Sperry	California Department of Transportation
9	Ike Crow Road between SR-33 and Bell Road	County of Stanislaus
10	Bell Road between Fink Road and Ike Crow Road	County of Stanislaus
11	Davis Road south of Marshall Road	County of Stanislaus
12	Marshall Road between SR-33 and Davis Road	County of Stanislaus
13	Marshall Road between Davis Road and Ward Avenue	County of Stanislaus
14	Ward Avenue between Marshall Road and Patterson City Limits	County of Stanislaus

Table 3.14-1 Study Intersections and Roadway Segments		
Intersection		Jurisdiction
15	Crows Landing Road between SR 33 and Marshall Road	County of Stanislaus
16	W. Main Street / Las Palmas Avenue west of Carpenter Road	County of Stanislaus
17	Crows Landing Road between Carpenter Road and W. Main Street	County of Stanislaus
18	W. Main Street east of Crows Landing Road	County of Stanislaus
Freeway Segments		
19	I-5 north of Sperry Avenue	California Department of Transportation
20	I-5 between Sperry Avenue and Fink Road	California Department of Transportation
21	I-5 south of Fink Road	California Department of Transportation
Source: TJKM Transportation Consultants 2017		

- **Elm Avenue** is a two-lane, north-south local roadway that runs between Marshall Avenue in the south to just north of Loquat Avenue, where it terminates.
- **Fink Road** is a two-lane, east-west arterial roadway that links I-5 in the west to the unincorporated community of Crows Landing in the east. East of SR 33, Fink Road becomes Crows Landing Road, which continues northerly to the city of Modesto.
- **Ike Crow Road** is a two-lane, east-west collector roadway that links the project site with SR 33 and Armstrong Road to the east within unincorporated Stanislaus County.
- **Interstate 5 (I-5)** is a major north-south freeway that runs through the western portion of Stanislaus County. It is generally a four-lane freeway with two travel lanes in each direction and extends through the Central Valley of California. The average daily traffic volume on I-5 through Stanislaus Counties is about 40,000 vehicles per day (vpd). I-5 has existing interchanges with Fink Road in the vicinity of the project site and with Sperry Avenue in the city of Patterson.

  The Caltrans I-5 Repaving and Restoration Project will rehabilitate 40 miles of I-5, including freeway ramps in Stanislaus, Merced, and San Joaquin Counties. Affected communities include Newman, Crows Landing, Patterson, and Westley in Stanislaus County. According to the latest available information, Caltrans estimates the project to be complete in 2017 (Caltrans 2016a).
- **Interchange of I-5/Sperry Avenue** is a tight diamond interchange with a narrow, local road underpass and a steep drop in grade next to the northbound on-ramp. The ramps are one lane in all directions; the off-ramps are currently controlled by stop signs. The City of Patterson and Stanislaus County have embarked upon a comprehensive study of the interchange, which could result in improvements, such as signalizing the ramp intersections at Sperry Avenue and the widening of intersection approaches. The most recent capital improvement plan (CIP) for Stanislaus County Fiscal Year 2015 to 2017 includes the "Interstate 5 at Sperry Avenue Interchange" bridge reconstruction project with a completion date of 2021.
- **Interchange of I-5/Fink Road** is a diamond interchange with a narrow local road undercrossing. The Fink Road undercrossing is constrained by columns that support the I-5 Bridge; the off-ramps are currently controlled by stop signs.

- **Las Palmas Avenue** is a three-lane, east-west arterial roadway that includes a center two-way left-turn lane. West of SR 33, four streets form a roundabout at Las Palmas Avenue. Traffic destined for Modesto and Turlock uses Las Palmas Avenue. Las Palmas Avenue carries approximately 13,000 vpd. Outside of the Patterson City limits, Las Palmas Avenue is a two-way roadway and becomes West Main Street east of the San Joaquin River.
- **M Street** is a two-lane, east-west local roadway that links Ward Avenue in the west and SR 33 in the east, where it continues easterly as Walnut Avenue.
- **Marshall Road** is a two-lane, east-west collector roadway that runs along the project site's northern boundary, and links Ward Avenue in the west with Crows Landing Road in the east within unincorporated Stanislaus County. East of Crows Landing Road, Marshall Road becomes River Road and continues southerly to its terminus at Hills Ferry Road northeast of the city of Newman.
- **Olive and Walnut Avenues** are two-lane, east-west roadways that link SR 33 in the west with Poplar Avenue in the east. Olive Avenue continues as Ivy Avenue west of SR 33, and terminates just past Poplar Avenue in the east. Walnut Avenue continues as M Street west of SR 33 and terminates at Poplar Avenue in the east.
- **Rogers Road** is a north-south collector roadway that provides access between SR 33 in the north and Sperry Avenue in the south. From Sperry Avenue to approximately 0.35 miles north, Rogers Road is a five-lane roadway that includes a two-way, left-turn lane. Further north, Rogers Road reduces to two lanes.
- **Sperry Avenue** is a two-lane, east-west arterial roadway that serves as the major route running through the city of Patterson between I-5 to the west and SR 33 to the east, a three-mile distance. The segment of Sperry Road between Baldwin Road and Ward Avenue consists of four lanes. Sperry Avenue carries approximately 12,200 vpd near the I-5 freeway.
- **State Route 33 (SR 33)** is a north-south arterial roadway that runs parallel to the Union Pacific Rail Road (UPRR) with at-grade rail crossings at West Marshall Road, Ike Crow Road, and Crows Landing Road near the project site. SR 33 is located on the eastern edge of the project site, approximately three miles to the east of I-5 and provides access to Patterson, Westley, and Vernalis to the north and Newman, Gustine, and beyond to the south.
- **Sycamore Avenue** is a two-lane, north-south collector roadway in the city of Patterson. Sycamore Avenue links Loquat Avenue to the north and East Marshall Road to the south, a distance of seven miles.
- **Ward Avenue** is a two-lane, north-south collector roadway that runs between Fink Road outside of the Patterson City limits in the south and SR 33 in the north.

EXISTING NO-PROJECT CONDITIONS

Existing traffic volumes of the roadway segments listed in Table 3.14-1 were determined by collecting 24-hour tube counts at each selected roadway segment. In addition, turning movement counts for the assessed intersections were collected during A.M. peak period (7 A.M. to 9 A.M.) and P.M peak period (4 P.M. to 6 P.M.). The traffic counts were collected in January 2014. On I-5 and SR 33 in Patterson, 2015 volumes are unchanged from 2014 volumes. The 2014 volumes are still representative of baseline conditions.

A LOS analysis was conducted to determine existing traffic conditions. LOS describes the level of control delay and congestion using a scoring system of A through F. LOS A indicates the lowest level of delay and congestion, and F the highest, in which excessive delays and congestions occur. The County's goal is at least LOS C for intersections and LOS D for roadway segments. Caltrans strives to maintain its facilities, such as freeway segments, ramps, ramp terminals, and State routes, to be operated between C and D. For detailed criteria by jurisdiction and analysis methodology please refer to Section 3.14.3 and the Transportation Master Plan, which is under separate cover and on file with the County Planning and Community Development Department.

Table 3.14-2 summarizes control delays and LOS for all selected intersections. All intersections meet the respective agency's LOS goal, except for the intersection of Sperry Avenue and SR 33 (Intersection 14) during the P.M. peak period, where it operates at LOS E. Table 3.14-3 shows that existing roadway segments all operate at LOS C or better.

Table 3.14-2
Intersection Level of Service – Existing No-Project Conditions

	Intersection	Traffic Control Type	A.M. Peak Hour			P.M. Peak Hour		
			Delay (sec/veh)	LOS	Meet Signal Warrant	Delay (sec/veh)	LOS	Meet Signal Warrant
1	I-5 SB Ramps / Sperry Ave	OWSC	11.6	B	N	22.2	C	N
2	I-5 NB Ramps / Sperry Ave	OWSC	9.8	A	N	13.4	B	N
3	Rogers Road / Sperry Ave	Signalized	13.5	B	-	13.7	B	-
4	Baldwin Road / Sperry Ave	Signalized	18.5	B	-	16.0	B	-
5	American Eagle Way / Sperry Ave	Signalized	16.5	B	-	13.1	B	-
6	Las Palmas Avenue / Sperry Ave	Signalized	13.8	B	-	16.2	B	-
7	Ward Avenue / Sperry Ave	Signalized	33.4	C	-	21.6	C	-
8	Ward Avenue / Las Palmas Avenue	Signalized	13.2	B	-	9.8	A	-
9	Ward Avenue / M Street	Signalized	42.4	D	-	26.1	C	-
10	Ward Avenue / SR 33	OWSC	13.3	B	N	13.9	B	N
11	Olive Avenue / SR 33	TWSC	14.2	B	N	14.6	B	N
12	Walnut Avenue / SR 33	Signalized	24.4	C	-	18.7	B	-
13	Las Palmas Avenue / SR 33	Signalized	16.5	B	-	15.6	B	-
14	Sperry Avenue / SR 33	TWSC	23.3	C	N	37.2	**E**	N
15	Sycamore Ave / Las Palmas Avenue	Signalized	18.0	B	-	14.5	B	-
16	Elm Avenue / Las Palmas Avenue	Signalized	10.5	B	-	10.6	B	-
17	Carpenter Road / W. Main Street	AWSC	11.0	B	N	12.2	B	N
18	Crows Landing Rd. / W. Main Street	AWSC	14.5	B	N	16.0	C	N
19	*Crows Landing Road / Marshall Rd	AWSC	8.9	A	N	10.1	B	N
20	Marshall Road / SR 33	TWSC	11.4	B	N	11.3	B	N
21	Marshall Road / Davis Road	OWSC	8.6	A	N	8.8	A	N
22	Marshall Road / Ward Ave	OWSC	8.7	A	N	8.8	A	N
23	Ike Crow Road / Bell Road	TWSC	8.8	A	N	0.0	A	N
24	Ike Crow Road / SR 33	TWSC	10.3	B	N	10.9	B	N
25	Fink Road / SR 33	AWSC	11.5	B	N	9.7	A	N
26	Fink Road / Bell Road	TWSC	10.1	B	N	9.5	A	N
27	Fink Road / Davis Road	TWSC	9.8	A	N	9.7	A	N
28	Fink Road / Ward Avenue	OWSC	9.4	A	N	9.2	A	N
29	I-5 NB Ramps / Fink Road	OWSC	8.8	A	N	8.8	A	N
30	I-5 SB Ramps / Fink Road	OWSC	9.4	A	N	9.6	A	N

Notes:
OWSC = One Way Stop Control, TWSC = Two Way Stop Control, AWSC = All Way Stop Control,
LOS = Level of Service
*Intersection19 is currently TWSC but has been approved and is analyzed as AWSC
Source: TJKM Transportation Consultants 2017

Table 3.14-3. Roadway Segment Level of Service – Existing No-Project Conditions						
	Local Roadway Segment/Freeway Segment	Number of Lanes	LOS Threshold	Average Daily Traffic	LOS	Number of Lanes Required
1	Fink Road between Ward Avenue and Davis Road	2	D	1,638	C or Better	2
2	Fink Road between Davis Road and Bell Road	2	D	1,490	C or Better	2
3	Fink Road between Bell Road and SR-33	2	D	1,661	C or Better	2
4	SR-33 south of Stuhr Rd north of Newman	2	C-D	8,197	C or Better	2
5	SR-33 between Stuhr Road and Fink Road	2	C-D	5,123	C or Better	2
6	SR-33 between Fink Rd and Ike Crow Road	2	C-D	3,619	C or Better	2
7	SR-33 between Ike Crow Road and Marshall Road	2	C-D	3,545	C or Better	2
8	SR-33 between Marshall Rd and Sperry Ave	2	C-D	4,161	C or Better	2
9	Ike Crow Road between SR-33 and Bell Road	2	D	27	C or Better	2
10	Bell Road between Fink Road and Ike Crow Road	2	D	50	C or Better	2
11	Davis Road south of Marshall Road	2	D	77	C or Better	2
12	Marshall Road between SR-33 and Davis Road	2	D	656	C or Better	2
13	Marshall Road between Davis Road and Ward Avenue	2	D	641	C or Better	2
14	Ward Avenue between Marshall Road and Patterson City Limits	2	D	1,246	C or Better	2
15	Crows Landing Road between Fink Rd and Marshall Road	2	D	2,396	C or Better	2
16	W. Main Street west of Carpenter Road	2	D	7,342	C or Better	2
17	Crows Landing Road between Carpenter Road and W. Main Street	2	D	5,237	C or Better	2
18	W. Main Street east of Crows Landing Road	2	D	6,692	C or Better	2
19	I-5 north of Sperry Avenue	4	C-D	40,000	B or Better	4
20	I-5 between Fink Rd and Sperry Ave	4	C-D	38,000	B or Better	4
21	I-5 south of Fink Road	4	C-D	37,000	B or Better	4
Source: TJKM Transportation Consultants 2017						

3.14.2 REGULATORY FRAMEWORK

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Facilities under the jurisdiction of Caltrans include freeway segments, ramps, ramp terminals, and State routes. Caltrans standards strive to maintain acceptable traffic operations on State facilities between LOS C and LOS D. This report uses LOS D as the minimum acceptable standard to determine the number of lanes required along freeway segments and State highway segments.

Senate Bill 743

Senate Bill 743 (SB 743) amends the California Public Resource Code to alter significance criteria for aesthetics, parking, and transportation impacts under CEQA, in order to "promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution, promoting the development of a multimodal transportation system, and providing clean, efficient access to destinations." As a part of these amendments, SB 743 calls on the California Office of Planning and Research (OPR) to develop an alternative to (LOS) as a measurement of traffic

impacts. LOS is a metric used to characterize roads and highways based on the level of automobile delay experienced as a result of traffic, and had historically been used as the metric for assessing project-related transportation impacts. SB 743 did not change the discretion that lead agencies have to select methodology or define their own significance thresholds, as with any environmental effect. SB 743 calls on OPR to remove language associated with LOS in the *CEQA Guidelines*, Appendix G, and states that impacts to transportation will no longer be considered significant if LOS is the sole metric used to assess these impacts. The bill provides suggestions for alternate metrics to determine impact significance, such as vehicle miles traveled.

OPR Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA

The January 20, 2016, revised update to the *CEQA Guidelines* provides a draft of the revisions to the CEQA Appendix G with respect to the removal of LOS from transportation impact analyses. The revisions remove all language related to level of service and congestion management. Instead, impacts related to level of service and increased congestion are replaced with "substantial additional vehicle miles traveled (per capita, per service population, or other appropriate efficiency measure)." OPR is working to finalize guidance material that is anticipated to go into effect in 2019.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

Stanislaus County General Plan

The County's General Plan Circulation Element includes guiding principles aimed at "providing a system of roads throughout the County which reflects land use needs, and, support a broad range of transportation modes." It provides guidelines with regard to roadway construction, anticipated improvements and modifications, and a methodology framework for analyses, including level of service and traffic demand modeling. The following goals, policies, and implementation measures from the Circulation Element are related to transportation.

Circulation Element

- **GOAL ONE** – Provide and maintain a transportation system throughout the County for the movement of people and goods that also meets land use and safety needs for all modes of transportation.
- **POLICY ONE** – Development will be permitted only when facilities for circulation exist, or will exist as part of the development, to adequately handle increased traffic and safety needs for all modes of transportation.
- **IMPLEMENTATION MEASURE 3** – Developers will construct or pay the cost of new roadways, including non-motorized elements, necessary to serve the development of all land uses and to mitigate impacts to the existing roadways caused by the development.
- **IMPLEMENTATION MEASURE 4** – The County shall ensure that new development pays its fair share of the costs of circulation improvements, including non-motorized modes, through a combination of public facility fees, transportation impact fees, and other funding mechanisms. The total cost of required improvements shall be paid for by new development.
- **IMPLEMENTATION MEASURE 5** – The circulation systems of development proposals shall be reviewed and approved to ensure there are no adverse effects to adjoining land and the circulation system.

- **IMPLEMENTATION MEASURE 6** – Development proposals shall identify and mitigate, at the developers sole cost, all potential operations and safety impacts to the circulation system.

- **POLICY TWO** – The Circulation system shall be designed and maintained to promote safety by combining multiple modes of transportation into a single, cohesive system.

- **IMPLEMENTATION MEASURE 1** – The County shall maintain LOS D or better for all County roadways (Daily LOS) and LOS C or better at intersections (Peak Hour LOS), except, within the sphere of influence of a city that has adopted a lower level of service standard, the City standard shall apply. The County may allow either a higher or lower level of service standard for roadways and intersections within urban areas such as Community Plan areas, but in no case shall the adopted LOS fall below LOS D.

- **IMPLEMENTATION MEASURE 10** – Traffic control devices (e.g., traffic signals, roundabouts), traffic calming, and other transportation system management techniques shall be utilized to control the flow of traffic, improve traffic safety, and minimize delays.

- **IMPLEMENTATION MEASURE 12** – Development shall be designed to provide open street patterns, with multiple points of ingress and egress, to facilitate emergency response, to minimize traffic congestion, and to facilitate use by diverse modes of transportation.

- **POLICY FOUR** – The circulation shall provide for roads in all classifications as necessary to provide access to all parts of the County and shall be expanded or improved to provide acceptable accessibility and mobility based on anticipated land use.

- **IMPLEMENTATION MEASURE 1** – As required by Federal Transportation Law, the Stanislaus Council of Governments shall maintain and prepare a Congestion Management Process (CMP). The CMP shall identify alternative strategies such as travel demand management (TDM), traffic operational improvements, public transit options, Intelligent Transportation System (ITS), Non-motorized alternatives (bicycle and pedestrian), and smart growth alternative land use strategies as alternatives to manage congestion. Stanislaus County shall follow the guidance and strategies set forth in the CMP.

- **POLICY FIVE** – Transportation requirements shall be considered during planning, design and construction of commercial and industrial development to address safety, mobility, and accessibility needs.

- **IMPLEMENTATION MEASURE 1** – Roadways constructed in zoning districts that allow industrial and commercial uses shall be designed and constructed to accommodate truck traffic. The minimum roadway in commercial zones shall be a Minor Collector (Urban/Rural) and a Minor Collector (Industrial) shall be the minimum required right-of-way width in industrial zones.

- **IMPLEMENTATION MEASURE 2** – Prior to approving new industrial and commercial development, provisions will be made to ensure that roadways providing primary access to these developments from Interstate and state highways are designed and constructed to the standards necessary to accommodate truck traffic.

- **IMPLEMENTATION MEASURE 3** – Industrial and commercial development shall be planned so that vehicle access on local roadways through residential areas is avoided.

- **POLICY SIX** – The County shall strive to reduce motor vehicle emissions and vehicle miles traveled (VMT) by encouraging the use of alternatives to single occupant vehicle.

- **IMPLEMENTATION MEASURE 3** – Facilities to support the use of, and transfer between, alternative modes of transportation (i.e., pedestrian, rideshare, bicycle, bus and train) shall be provided in new development.

- **IMPLEMENTATION MEASURE 5** – Developers will construct or pay the cost of new pedestrian pathways, bikeways, rideshare facilities, transit amenities, and other improvements necessary to serve the development and to mitigate impacts to the existing circulation system caused by the development.

- **POLICY EIGHT** – Promote public transit as a viable transportation choice.

- **IMPLEMENTATION MEASURE 2** – The County shall continue to work with the Stanislaus Council of Governments (StanCOG) to seek funding to market and promote rideshare programs and where possible, encourage all County employees to use public transit to commute to work.

- **IMPLEMENTATION MEASURE 3** – Ensure that provisions are made in proposed development for access to current and future public transit services. In particular, continuous segments of walls or fences should not impede pedestrian access to Expressways, Principal and Minor Arterials, Major and Minor Collectors, with transit service.

- **IMPLEMENTATION MEASURE 4** – Where appropriate, new development projects shall promote the coordination and continuity of all transportation modes and facilities, including park and ride facilities at major activity centers.

Stanislaus County Capacity Levels and LOS Criteria for Link Type

The capacity in vehicles per lane per hour and maximum number of lanes for each link type in the County's General Plan was estimated based on discussions with the County staff and using the StanCOG model capacity classes. Free flow speeds by facility classification and V/C ratio criteria for LOS standards were determined based on the Highway Capacity Manual.

The LOS standard in the General Plan is LOS D or better for all roadways. When measuring LOS, Stanislaus County uses the criteria established in the current edition of the Highway Capacity Manual published by the Transportation Research Board. Turlock has adopted LOS C standards for freeways and expressways, and LOS D for arterials and collector streets. Modesto, Riverbank, and Oakdale have a minimum threshold of LOS D.

City of Patterson General Plan

The *Patterson General (2014) Circulation Element* includes goals and corresponding polices that guide transportation infrastructure and mobility for all modes of users. The following policies are from the Circulation Element of the City's General Plan pertaining to the proposed project:

- **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 impact analyses at the sole expense of the developer for developments determined to be large enough to have potentially significant traffic impacts. These standards do not apply to freeways which are governed by the standards established by Caltrans.

- **Policy T-1.7: Sperry Avenue By-Pass.** The City shall establish a roadway connection between Sperry Avenue and East Las Palmas to divert east-west through traffic from the downtown area. Circulation systems shall be designed and maintained to promote safety and minimize traffic congestion.

- **Policy T-5.1: Regional coordination.** The City shall continue to participate in state, regional, and local transportation planning efforts to ensure coordination of the expansion and improvement of the region's transportation system.

- **Policy T-5.2: Communication among agencies.** The City shall continue to develop formal and informal lines of communication among adjacent jurisdictions to ensure cooperation in the development of transportation systems that cross jurisdictional boundaries.

    - **Implementation Measure T-4:** The City shall prepare and adopt a traffic impact development fee program to pay for local and regional traffic improvements necessitated by new development accommodated by the City of Patterson General Plan, including transit. Such regional improvements include, but are not limited to, the South County Corridor, and the existing and potential future freeway interchanges at I-5 and Zacharias Road, Sperry Avenue, Fink Road, and Stuhr Road.

2009 Congestion Management Process for the Stanislaus County Region

The *2009 Congestion Management Process for the Stanislaus County Region* (CMP) updates the original 1995 StanCOG Congestion Management Process to "improve multimodal mobility and avoid the creation of deficiencies" (StanCOG 2010). The CMP provides StanCOG's congestion management objectives and policies, methodology, and assumptions used, and implementation strategies. The following policies from the CMP make up StanCOG's Travel Demand Management (TDM) program:

- D.CMP.TDMS.

    a Ridesharing

        – Promote Carpool and Vanpool options

- D.CMP.TDMS.

    b Alternative Work Programs

        – Provide incentives to promote Alternative Work Programs such as Telecommuting and alternate work hours local government and private business.

- D.CMP.TDMS.

    c Park and Ride Lots

        – Provide preferential parking

        – Coordination of Park and Ride lots with Transit Service

Caltrans District 10 Interstate 5 Transportation Concept Report

The *Caltrans District 10 Interstate 5 Transportation Concept Report* describes "how a highway will be developed and managed so that it delivers the targeted LOS and quality of operations that are feasible to attain over a twenty-year period" (Caltrans 2012). This concept report analyzes two segments of I-5 that run through Stanislaus County. The concept LOS for each segment of Interstate 5 identifies the optimal utility for that segment. Interstate 5 Segments 1 and 2 throughout Stanislaus County have a concept LOS of D.

Caltrans District 10 State Route (SR) 33 Transportation Concept Report

The *Caltrans District 10 State Route (SR) 33 Transportation Concept Report* provides a long-range planning document to evaluate the current conditions and future needs for SR 33 within Caltrans District 10 (Caltrans 2016b). The SR 33 Concept Report indicates that because SR 33 through Stanislaus County is not on the Interregional Road System, its concept LOS in District 10 is D.

3.14.3 Environmental Impacts and Mitigation Measures

Methodology

Impacts of traffic were determined based on trip generation and the LOS analysis. Operating conditions, for both signalized and unsignalized intersections, at the study area were calculated using the *2000 Highway Capacity Manual (HCM 2000)* published by the Transportation Research Board. Average control delay (seconds per vehicle) and the corresponding LOS were used to present peak-hour traffic conditions.

For County roadway segments and State highways, "Table 3-12. Roadway Segment Level of Service Criteria" in the County's *Standards and Specifications, 2014 Edition* was employed. In accordance with recommendations from Stanislaus County, a table of LOS criteria developed by the Florida Department of Transportation was used to assess freeway segments and streets within the city of Patterson.[1] For further details regarding LOS criteria and thresholds by jurisdiction used in the study, please refer to the Transportation Master Plan, under separate cover and available for review on file with the County Planning and Community Development Department.

Analysis Scenarios

As described in the previous section, the following scenarios were presented as part of the impact analysis:

- Existing No-Project Conditions
- Existing plus Project Conditions
- 2035 No-Project Conditions
- 2035 plus Project Conditions

Trip Generation

Trip generation for the proposed project was estimated based on the rates provided in *Trip Generation (9th Edition)* Published by the Institute of Transportation Engineers. The project is expected to accommodate between

[1] Florida LOS tables are recognized as an industry standard reference source for using daily traffic volumes as an indicator of roadway adequacy.

14,000 to 15,000 jobs at buildout, which could generate approximately 52,422 daily trips, 5,653 trips during A.M. peak hours, and 6,344 trips during P.M. peak hours. The Transportation Master Plan provides detailed information regarding project land use and size, construction phases, and trip generation rates used in trip generation calculations.

Travel Demand Model

The Tri-County Traffic Model for travel demand forecasts was used in the analysis. The model geographically covers the counties of San Joaquin, Stanislaus, and Merced. It was developed by the San Joaquin Council of Governments (SJCOG) and recalibrated so that it closely replicated the existing conditions. In addition, three new traffic analysis zones (TAZs) were developed for the project area, loaded with the ITE trip generation into the model for trip distribution and assignment. The model integrates the network and land use information from the Stanislaus Council of Government (StanCOG) model, the SJCOG travel demand forecasting model, and the Merced County Association of Governments (MCAG) travel demand forecasting model. The combined model provides good coverage of the study area, extending from Tracy-Stockton to the north to Los Banos to the south. The model was used to forecast A.M. and P.M. peak-hour and daily trips.

IMPACT ANALYSIS

The project site is located within commuting distance of many Central Valley communities. The project could potentially attract employees from the Stanislaus County communities of Patterson, Newman, Modesto, Ceres, and Turlock, but could draw visitors from nearby Merced and San Joaquin Counties, as well. The majority of the employee trips are drawn either from Patterson to the north or from communities to the east, such as Turlock and Modesto.

Specific Plan Circulation System

The Specific Plan identifies on-site street system that is consistent with standards recommended by the County's Public Work Department to accommodate project-related traffic. New local industrial roads within the Specific Plan Area would typically have a 120-foot right-of-way with two travel lanes, one center-aligned left-turn lane, a parking lane, drainage swale, and sidewalk on each side. The northern portion of the local industrial road that intersects with the West Marshall Road entrance to the CLIBP will require widening to accommodate four travel lanes. This cross section will maintain the 120-foot right-of-way and will consist of four travel lanes, one center-aligned left-turn lane, as well as paved shoulder, wide drainage swale, and sidewalk on each side.

Exhibit 3.14-2 illustrates the proposed on-site roadway layout. Most of the roadway improvements would have two lanes. For streets with greater traffic demands, a four-lane roadway with a median to accommodate left-turn lanes is recommended. The West Marshall Road entrance to the first intersection and a portion of the road that intersects this entrance are recommended for four lanes, as shown in Exhibit 3.14-2. As shown in Figure 5 of the Transportation Infrastructure Plan, the County plans to rebuild some roadway segments to two lanes, including Marshall Road between Ward Avenue and the project site entrance, Davis Road north of Fink Road, Bell Road between Ike Crow Road and Fink Road, and Ike Crow Road between SR 33 and Bell Road.

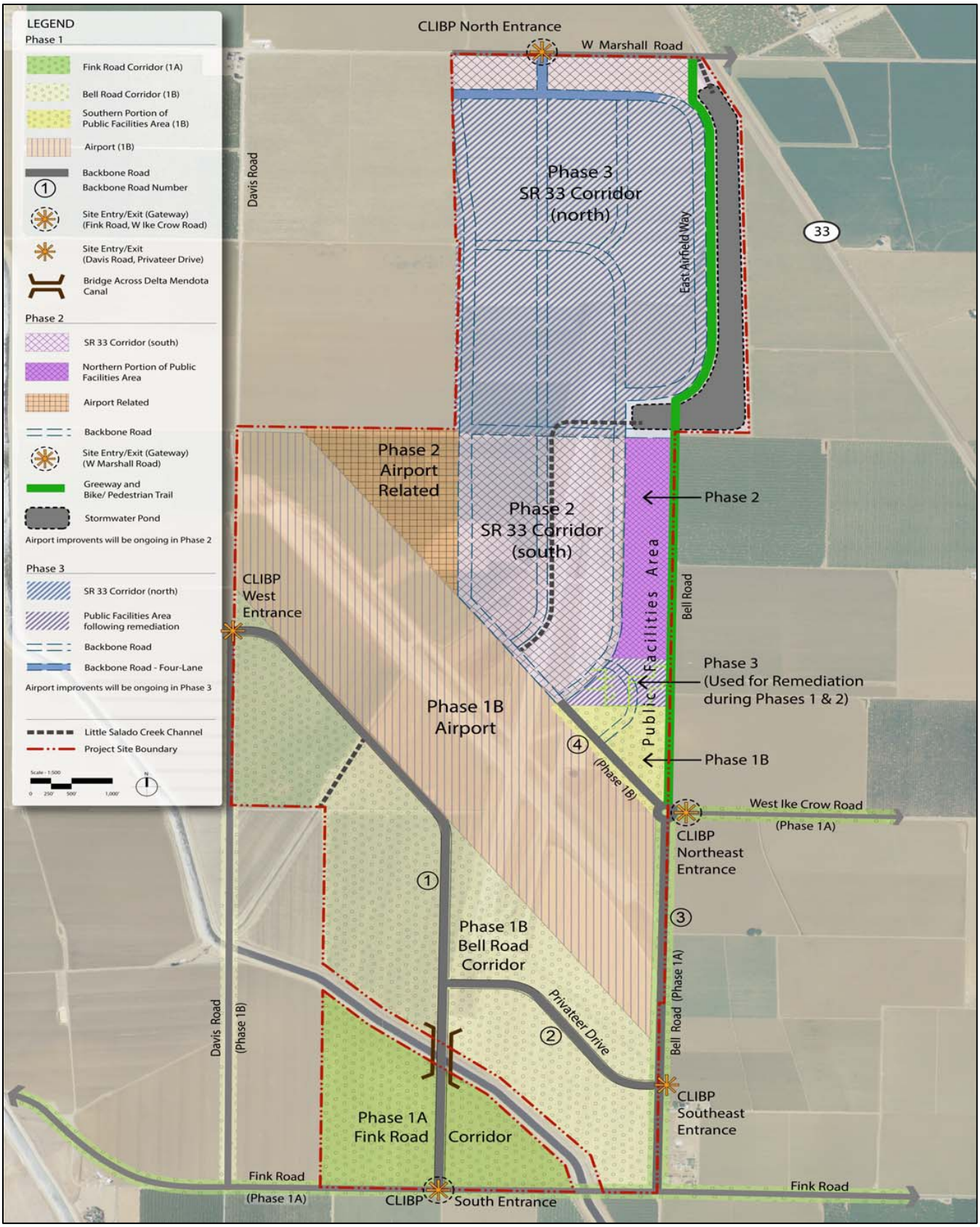


Exhibit 3.14-2. **On-Site Planned Roadway Improvements**

IMPACT 3.14-1 Existing plus project – intersection operations. *The additional traffic generated from the proposed project will degrade level of service at several intersections operating below jurisdictions' thresholds. The impact is considered* ***significant****.*

Implementation of the proposed project would increase automobile trips on roads and highways in Stanislaus County and the surrounding region. The creation of new employment centers at the proposed project's industrial parks, distribution centers, and business parks would be anticipated to generate associated trips related to employment, distribution, and services within the vicinity of the proposed project site and in the surrounding region. The Transportation Infrastructure Plan developed to support this EIR estimates that the proposed project will generate 52,422 daily automobile trips, with 5,653 trips at the a.m. peak hour and 6,344 trips at the p.m. peak hour.

Increased accessibility to transit and alternative transportation options could reduce reliance on automobile trips to and from the proposed project site and alleviate the impacts of increased travel demand. The proposed project includes plans to construct bus/transit stop(s) near the entrance in the public facilities area. These bus/transit stops would allow employees and others visiting the project site to avoid using single occupancy vehicles, and consolidate trips to and from the proposed project site.

The project will generate travel demand at intersections in the vicinity of the project site that will affect the level of service at several intersections. Some unsignalized intersections will meet signal warrants. The potential impact associated with the additional traffic occurs at local roadways around the project site and at nearby freeway ramps. Most of these impacts would occur at unsignalized intersections surrounding the project site, including those along Marshall Road, Fink Road, Ike Crow Road, and SR 33. The level of service would be reduced to unacceptable conditions at the following intersections:

- I-5 SB Ramps / Sperry Ave (F)
- Ward Avenue / Sperry Ave (F)
- Ward Avenue / Las Palmas Avenue (E)
- Sperry Avenue / SR 33 (F)
- Carpenter Road / West Main Street (F)
- Crows Landing Road / West Main Street (F)
- Crows Landing Road / East Marshall Road (F)
- Marshall Road / SR 33 (F)
- West Marshall Road / Ward Ave (F)
- Ike Crow Road / SR 33 (F)
- Fink Road / SR 33 (F)
- Fink Road / Bell Road (F)
- Fink Road / Davis Road (E)
- Fink Road / Ward Avenue (F)
- I-5 NB Ramps / Fink Road (F)

Table 3.14-4 summarizes the intersection level of service during peak hours following implementation of the proposed project. It also shows that some of the survey intersections meet signal warrants, required for installation of traffic signals. The intersections falling below acceptable criteria and requiring signalization are shaded. The impact is considered **significant**.

Mitigation Measure 3.14-1: Off-site Traffic Signal or Roundabout Installations and Intersection Improvements.

The following intersections are expected to meet signal warrants during peak-hour periods when the project is in place. The impact can be alleviated by installing traffic signals at the intersections where LOS would be degraded in exceedance of relevant thresholds. The affected jurisdictions can consider roundabouts as an alternative to traffic signals. The project shall contribute on a fair-share basis to the following improvements.

Phase 1

- Signalize Intersection 14. Sperry Avenue / SR 33 (City of Patterson)
- Signalize Intersection 24. West Ike Crow Road / SR 33 (Stanislaus County)
- Signalize Intersection 26. Fink Road / Bell Road (Stanislaus County)
- Signalize Project Entrance / Fink Road (Stanislaus County)

Fink Road Interchange – Contribute on a fair-share basis to the improvement of the Fink Road interchange. Improvements recommended for the Fink Road interchange include signalizing the northbound ramps prior to completion of Phase 1 and widening the roadway beneath the freeway to create a westbound left turn lane at the southbound ramps intersection.

Phase 2

- Signalize Intersection 22. Marshall Road / SR 33 (Caltrans)
- Signalize Intersection 25. Fink Road at SR 33 (Stanislaus County)

Implementation: Leaseholders/developers/contractors will contribute on a fair-share basis to fee to reimburse for off-site improvements and implementation will be directed by Stanislaus County.

Timing: Prior to completion of Phase 1 and Phase 2, as specified.

Enforcement: Stanislaus County.

Significance after Mitigation

With the signalization of Intersections 24, 26, Project Entrance, 22, and 25, the resultant LOS would be LOS C or better. The impact at these intersections is considered **less than significant with mitigation**.

For Intersection 14, signalization would allow LOS of D or better. However, the County cannot guarantee that this improvement would be implemented since this would be under the jurisdiction of the City of Patterson. This impact is **significant and unavoidable**.

Table 3.14-4
Intersection Level of Service – Existing plus Project Conditions

	Intersection	Traffic Control Type	A.M. Peak Hour			P.M. Peak Hour		
			Delay (sec/veh)	LOS	Meet Signal Warrant	Delay (sec/veh)	LOS	Meet Signal Warrant
1	I-5 SB Ramps / Sperry Avenue	OWSC	67.3	F	N	28.6	D	N
2	I-5 NB Ramps / Sperry Avenue	OWSC	11.9	B	N	16.2	C	N
3	Rogers Road / Sperry Avenue	Signalized	11.6	B	-	11.9	B	-
4	Baldwin Road / Sperry Avenue	Signalized	22.9	C	-	19.6	B	-
5	American Eagle Way / Sperry Avenue	Signalized	18.1	B	-	13.8	B	-
6	Las Palmas Avenue / Sperry Avenue	Signalized	22.1	C	-	18.3	B	-
7	Ward Avenue / Sperry Avenue	Signalized	>150	F	-	99.4	F	-
8	Ward Avenue / Las Palmas Avenue	Signalized	64.4	E	-	34.9	C	-
9	Ward Avenue / M Street	Signalized	47.5	D	-	8.3	A	-
10	Ward Avenue / SR 33	OWSC	18.4	C	N	16.7	C	N
11	Olive Avenue / SR 33	TWSC	18.8	C	N	16.5	C	N
12	Walnut Avenue / SR 33	Signalized	34.6	C	-	22.6	C	-
13	Las Palmas Avenue / SR 33	Signalized	36.8	D	-	22.8	C	-
14	Sperry Avenue / SR 33	TWSC	>150	F	Y	>150	F	Y
15	Sycamore Avenue / Las Palmas Avenue	Signalized	25.2	C	-	24.3	C	-
16	Elm Avenue / Las Palmas Avenue	Signalized	22.4	C	-	19.7	B	-
17	Carpenter Road / W. Main Street	AWSC	>150	F	Y	105	F	Y
18	Crows Landing Road / W. Main Street	AWSC	>150	F	Y	>150	F	Y
19	*Crows Landing Road / Marshall Road	AWSC	>150	F	Y	>150	F	Y
20	Marshall Road / SR 33	TWSC	>150	F	Y	>150	F	Y
21	Marshall Road / Davis Road	OWSC	-	*Note: Davis discontinued with project in place*				
22	Marshall Road / Ward Avenue	OWSC	>150	F	N	>150	E	Y
23	Ike Crow Road / Bell Road	TWSC	30.3	D	N	42.3	E	N
24	Ike Crow Road / SR 33	TWSC	>150	F	N	>150	F	Y
25	Fink Road / SR 33	AWSC	>150	F	Y	>150	F	Y
26	Fink Road / Bell Road	TWSC	>150	F	Y	>150	F	Y
27	Fink Road / Davis Road	TWSC	40.7	E	N	15.2	C	N
28	Fink Road / Ward Avenue	OWSC	>150	F	N	17.7	C	N
29	I-5 NB Ramps / Fink Road	OWSC	139.3	F	Y	9.5	A	N
30	I-5 SB Ramps / Fink Road	OWSC	14.2	B	N	23.4	C	N

Notes:
OWSC = One Way Stop Control, TWSC = Two Way Stop Control, AWSC = All Way Stop Control,
LOS = Level of Service
Shaded = Below acceptable LOS or signal warrant met
*Intersection 19 is currently TWSC but has been approved and is analyzed as AWSC
Source: TJKM Transportation Consultants 2017

For the intersection of I-5 SB Ramps and Sperry Avenue, the interchange improvements are now being planned as a joint City/County/State project that would address LOS with implementation of the project. For the intersection of Ward Avenue and Sperry Avenue, it is possible that there could be a future South County Corridor in this vicinity that could address LOS in this location, but this project is not planned or programmed at this time. While the potential improvements to I-5 SB Ramps / Sperry Avenue, Ward Avenue / Sperry Avenue, and Marshall Road/ SR 33 would improve LOS, since the improvements involve decisions of other agencies, the County cannot guarantee implementation. For this reason, this impact is **significant and unavoidable**.

The Fink Road Interchange includes physical constraints to expansion. Widening the Fink Road undercrossing would be difficult due to the location of existing underpass support columns. The situation is compounded by the limited space within the interchange vicinity for possible construction detours. However, the construction of a west bound left-turn lane would be feasible (TJKM 2017).

IMPACT 3.14-2 Existing plus project – roadway segment operations. *The project-generated traffic in the existing plus project condition is expected to degrade some roadway segment LOS at different levels. Particularly, roadway segment 12, Marshall Road between SR 33 and Davis Road, is anticipated to operate at LOS E, which falls below County's current LOS threshold of D. The impact is considered* ***significant****.*

Implementation of the project would generate travel along roadway segments in the vicinity of the project site. Roadway segment 12, Marshall Road between SR 33 and Davis Road, is anticipated to operate at LOS E, which falls below County's current LOS threshold of D. Table 3.14-5 summarizes roadway segment LOS when the project is in place under existing (2014) condition. The impact is considered **significant**.

Mitigation Measure 3.14-2: Off-site Street Widening to Four Lanes on Marshall Road from Project Entrance to SR 33.

Marshall Road between the project entrance and SR 33 shall be widened from two to four lanes to accommodate project-generated daily traffic.

Implementation: Leaseholders/developers/contractors will contribute on a fair-share basis to fee to reimburse for off-site improvements and implementation will be directed by Stanislaus County.

Timing: Prior to completion of Phase 2.

Enforcement: County of Stanislaus Public Work Department, Caltrans.

Significance after Mitigation

With the widening, the resultant LOS would be D. The impact is **less than significant with mitigation**.

Table 3.14-5
Roadway Segment Level of Service – Existing plus Project Conditions

	Local Roadway Segment/Freeway Segment	Number of Lanes	LOS Threshold	Average Daily Traffic	LOS	Number of Lanes Required
1	Fink Road between Ward Avenue and Davis Road	2	D	4,459	D or Better	2
2	Fink Road between Davis Road and Bell Road	2	D	3,251	D or Better	2
3	Fink Road between Bell Road and SR-33	2	D	10,255	D or Better	2
4	SR-33 south of Stuhr Rd north of Newman	2	C-D	15,957	D	2
5	SR-33 between Stuhr Road and Fink Road	2	C-D	13,954	D	2
6	SR-33 between Fink Rd and Ike Crow Road	2	C-D	10,769	C or Better	2
7	SR-33 between Ike Crow Road and Marshall Road	2	C-D	14,825	D	2
8	SR-33 between Marshall Rd and Sperry Avenue	2	C-D	17,705	D	2
9	Ike Crow Road between SR-33 and Bell Road	2	D	4,171	D or Better	2
10	Bell Road between Fink Road and Ike Crow Road	2	D	6,755	D or Better	2
11	Davis Road south of Marshall Road	2	D	-	-	-
12	Marshall Road between SR-33 and Davis Road	2	D	29,721	E	4
13	Marshall Road between Davis Road and Ward Avenue	2	D	2,746	D or Better	2
14	Ward Avenue between Marshall Road and Patterson City Limits	2	D	3,959	D or Better	2
15	Crows Landing Road between Fink Rd and Marshall Road	2	D	6,704	D or Better	2
16	W. Main Street west of Carpenter Road	2	D	10,982	D or Better	2
17	Crows Landing Road between Carpenter Road and W. Main Street	2	D	11,010	D or Better	2
18	W. Main Street east of Crows Landing Road	2	D	9,444	D or Better	2
19	I-5 north of Sperry Avenue	4	C-D	41,341	C or Better	4
20	I-5 between Fink Rd and Sperry Ave	4	C-D	39,121	C or Better	4
21	I-5 south of Fink Road	4	C-D	37,878	C or Better	4

Notes:
LOS = Level of Service
Shaded = Below acceptable LOS
Source: TJKM Transportation Consultants 2017

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3.15 UTILITIES AND SERVICE SYSTEMS

Section 3.15 provides an overview of existing utilities and service systems applicable to the proposed project, including water supply, wastewater service, electrical service, natural gas service, and communications service. Project-related impacts are focused on the physical environmental effects associated with utility and service system capacity enhancements needed to support project demands.

3.15.1 ENVIRONMENTAL SETTING

Utilities and service systems would be provided to the project site by Stanislaus County, the City of Patterson (wastewater treatment), Turlock Irrigation District (TID) (electricity), Pacific Gas and Electric Company (PG&E) (natural gas), and AT&T Inc. (AT&T) or Global Valley Networks (telecommunications), and Comcast (cable and internet). The following discussion provides an overview of these utility service providers.

WATER SUPPLY

The County currently leases approximately 1,100 acres of the project site to a local agriculturalist, who uses water produced from three on-site wells (JJ&A 2016:3-4). Two of the wells are completed to a depth of approximately 210 feet below ground surface (bgs) in the shallow aquifer system that overlies the Corcoran Clay. One of the shallow wells has not been a reliable groundwater producer, but its yield has decreased over time. The tenant reports that when the well was originally rehabilitated and placed back into service (JJ&A 2016:3-4), it produced groundwater at a rate of approximately 900 gallons per minute (gpm) at the beginning of the irrigation season, but the production rate decreased to approximately 450 gpm by the end of the irrigation season. The yield has continued to decrease, and it did not produce a substantial amount of groundwater in 2015 (JJ&A 2016:3-4). The second shallow well is reliable and pumped continually throughout the irrigation season; however, the yield typically decreases from approximately 1,400 gpm at the beginning of the season to approximately 400 gpm at the end of the season. The third well has consistently produced groundwater at a rate of approximately 900 gpm throughout the irrigation season, suggesting that most or all of the groundwater pumped from this well is derived from the confined aquifer below the Corcoran Clay (JJ&A 2016:3-4).

Groundwater production data based on agricultural uses on the project site from 2012 to 2015, as measured in acre feet per year (afy) is summarized in Table 3.15-1. During this period, total production ranged from a low of 602 afy in 2014 to 942 afy in 2015 (JJ&A 2016:3-7). The average well production over this period was 834 afy. Well production reports from that the County's agricultural tenant indicate that the wells continued to produce groundwater despite drought conditions (AECOM 2016:2-7).

Table 3.15-1
Historic and Existing Groundwater Water Supplies (afy)

Year	2012	2013	2014	2015
Groundwater Production:	940	850	602	942

Note: afy = acre-feet per year

Source: Wheeler, pers. comm. 2016; JJ&A 2016:3-7; and AECOM 2016:2-6

Existing Groundwater Basin Conditions

The project site is located in the San Joaquin River Hydrologic Region, within the Delta-Mendota groundwater basin (Basin 5-22.07).

Groundwater levels in the region have been declining due to the long-term overdraft conditions caused by overpumping. DWR has designated the Delta-Mendota subbasin as a condition of critical overdraft (DWR 2016). To protect the long-term sustainability of groundwater resources, pumping has been substantially reduced in past years, allowing the groundwater subbasins to recover to some extent.

The depth to groundwater for municipal and irrigation wells ranges from 50 to 800 feet (DWR 2006). Groundwater levels in monitoring wells measured from April 2013 through February 2014 indicate that groundwater levels within the upper and shallow water bearing zones have declined by an average of 3.72 feet; and in the deeper water bearing zone directly above the Corcoran Clay layer by 7.25 feet, as compared to the groundwater levels measured in February 2013 (VVH Consulting Engineers and AECOM 2016a:13). A groundwater contour map, which was provided by DWR based on well data, shows that 2006 groundwater levels did not change markedly from 1996 levels (City of Patterson 2011). As discussed in Section 3.10, "Hydrology and Water Quality," some studies of groundwater elevations have shown some decline during recent years, but long-term data indicate that groundwater elevations are relatively stable and indicate a hydrologically balanced condition (VVH Consulting Engineers and AECOM 2016a). Groundwater levels underlying the proposed project site appear to have minimal net change and appear to be hydrologically balanced (AECOM 2016). Section 3.10, "Hydrology and Water Quality," provides a more detailed description of the Delta-Mendota groundwater basin hydrology and storage capacity.

WASTEWATER COLLECTION, CONVEYANCE, AND TREATMENT FACILITIES

The project site is not currently served by a municipal wastewater collection and treatment system. Infrastructure associated with the former sewage storage and treatment system is located on site north of former Runway 16-34. The remnants of the sewer system include approximately 5,400 feet of sewage piping, a processing tank, a sludge drying bed, and three settling ponds. The sewer system was connected to a sink and toilet in former Building 109, which was razed in 2013 (VVH Consulting Engineers and AECOM 2016a, Yee 2015). The County does not anticipate using the existing system (VVH Consulting Engineers and AECOM 2016b:3).

The nearest municipal wastewater conveyance infrastructure is owned by the Western Hills Water District (WHWD), which operates approximately 22 miles of sewer pipeline ranging in size from 4 to 18 inches. The WHWD compasses approximately 5,070 acres and serves Diablo Grande's existing golf course, a winery, a clubhouse/restaurant, and residences. An existing 18-inch sewer trunk line is located in Ward Avenue, approximately 1.5 miles west of the project site. This trunk line currently has an available capacity of 2.5 million gallons per day (mgd) (VVH Consulting Engineers and AECOM 2016b).

Wastewater flows from the WHWD are discharged into the Patterson Trunk Sewer, which conveys sewer flows to the City of Patterson Water Quality Control Facility (WQCF) for treatment (Stanislaus Local Agency Formation Commission [LAFCO] 2016:5). The City of Patterson owns and operates the 240-acre WQCF, which is located approximately 9 miles north of the project site at 14901 Poplar Avenue. The WQCF provides wastewater transmission, treatment, and disposal for both the City of Patterson and the community of Diablo Grande. The City of Patterson WQCF has a current design capacity of 2.25 mgd average dry-weather flow, but it has a reliable

treatment capacity of 1.85 mgd (Blackwater Consulting Engineers 2017).[1] As of 2016, the WQCF treats 1.44 mgd average dry-weather flow (Blackwater Consulting Engineers 2017). The City anticipates that flows to the WQFC at buildout of all known planned development within the City of Patterson, its sphere of influence, and the community of Diablo Grande would exceed the design capacity of the treatment plant. Table 3.15-2 shows the estimated WQCF average dry-weather flow at buildout of the City of Patterson and Diablo Grande.

Table 3.15-2
Estimated City of Patterson Water Quality Control Facility Average Dry-Weather Flow (mgd)

Year	City of Patterson	Diablo Grande	Total
2018	1.51	0.05	1.56
2029	2.15	0.11	2.26
2040	2.49	0.16	2.65
2050	2.80	0.22	3.02
Buildout	5.54	0.75	6.29

Note: mgd = million gallon per day

Source: Blackwater Consulting Engineers 2017

The City has prepared improvement plans and acquired land to expand the WQCF capacity. WQCF expansion, generally referred to as the Phase III Expansion, would increase the plant capacity by 1.25 mgd to bring the total plant capacity to 3.5 mgd with a reliable treatment capacity of 3.1 mgd (Central Valley Regional Water Quality Control Board 2007, Blackwater Consulting Engineers 2017). The Central Valley Regional Water Quality Control Board has already authorized expansion of the facility under Order R5-2007-0147, which was issued in November of 2007 (Central Valley Regional Water Quality Control Board 2007). Additional WQCF expansion will be required to treat wastewater flows at buildout of the City of Patterson and Diablo Grande. Phase IV and Phase V expansions would increase the WQCF reliable treatment capacity to 4.25 mgd and 6.5 mgd, respectively (Blackwater Consulting Engineers 2017). It is expected that future expansions would occur before the WQCF exceeds reliable capacity.

SOLID WASTE

Solid waste collection services in the County are performed by franchised and permitted waste haulers. In 2014, Stanislaus County disposed of approximately 341,166 tons of solid waste (Woolfe, pers. comm. 2016). Solid waste is either disposed of at the Fink Road Landfill, located at 4000 Fink Road, or processed at the Covanta Waste-to-Energy Facility, located at 4040 Fink Road.

The Covanta Waste-to-Energy has a maximum permitted throughput of 1,700 tons per day (tpd) and a total permitted capacity of 3,200 tpd (CalRecycle 2016a). The landfill and Covanta Waste-to-Energy are located within one mile of the project site. The Covanta Waste-to-Energy facility processes at least 243,300 tons of solid waste annually (after community recycling efforts), or approximately 90 percent of the waste by volume, and generates

[1] The existing reliable capacity for the WQCF differs from the permitted capacity. The WQCF's waste discharge requirements identified in Central Valley Regional Water Quality Control Board Order R5-2007-0147 include effluent nitrogen limits that have been challenging for the older treatment facilities at the WQCF to meet. Therefore, the City of Patterson considers the reliable capacity of the WQCF to be less than the permitted capacity to ensure compliance with the waste discharge requirements.

up to 22.5 megawatts of electricity. Excess electricity is sold to Pacific Gas & Electric. The Fink Road Landfill is a Class II and Class III municipal landfill that is permitted to accept general residential, commercial, and industrial refuse for disposal, including municipal solid waste, construction and demolition debris, agricultural debris, asbestos, and ash. According to CalRecycle, the Fink Road Landfill has a maximum permitted throughput of 2,400 tpd and has a total maximum permitted capacity of 14.6 million cubic yards. The landfill has a remaining capacity of approximately 8.2 million cubic yards (CalRecycle 2016b).

CalRecycle estimates that the Fink Road Landfill will have available capacity until 2023. However, based on lower disposal rates, the County recently revised its projections and estimates that the life of the landfill will extend to 2029 for Class III waste and 2043 for Class II (Stanislaus County 2015). In addition, the County has initiated plans for the expansion and reconfiguration of the existing facility to further extend its useful life by another 10 to 15 years beyond the revised projections (Stanislaus County 2009:2-1). The expansion project would be complete prior to the original closure date.

The California Integrated Waste Management Board of 1989 requires local agencies to implement source reduction, recycling, and composting that would result in a minimum of 50 percent diversion of solid waste from landfills, thereby extending the life of landfills.[2] For 2014, the target solid waste generation rate for Stanislaus County 21.2 pounds per day (ppd) per employee, and the actual measured generation rate was 12.3 ppd per employee, which is approximately 8.9 ppd less than the target solid waste generation rate (CalRecycle 2015).

ELECTRICAL SERVICE

Turlock Irrigation District (TID) provides electrical service to portions of Stanislaus County, including the project site. TID currently has a number of overhead facilities in the project area. A TID substation is located at the northeast corner of West Marshall Road and Davis Road. This substation is fed from a double circuit 115-kilovolt (kV) transmission line with a 12-kV underbuild (i.e., attached at a lower point on the same poles) located along Marshall Road on the northern boundary of the project site (VVH Consulting Engineers 2015:2).

Please refer to Section 3.6, “Energy,” for information regarding the amount of electricity generated by TID within its service area and TID’s energy sources.

NATURAL GAS SERVICE

Natural gas service in Stanislaus County is provided by PG&E through approximately 46,000 miles of natural gas distribution pipelines. No natural gas infrastructure is available on the project site. However, a 24-inch diameter transmission pipeline is present along West Marshall Road on the northern site boundary, and a 3-inch diameter gas distribution pipeline is present along the portion of Fink Road from Interstate 5 (I-5) to the unincorporated community of Crows Landing (VVH Engineering Consultants 2015:3).

Please refer to Section 3.6, “Energy,” for information regarding the quantity of natural gas PG&E provided to its services area and the amount of that natural gas delivered to Stanislaus County.

[2] As of 2007, the 50 percent diversion requirement is measured in terms of per-capita disposal expressed as pounds per day (ppd) per resident and per employee. The new per capita disposal and goal measurement system uses an actual disposal measurement based on population, disposal rates reported by disposal facilities, and evaluates program implementation efforts.

COMMUNICATIONS

Neither communications service nor infrastructure exist at the project site. Communications services to the project site would be provided by AT&T or Global Valley Networks (VVH Consulting Engineers 2015:2). AT&T provides local phone service, long distance phone service, and high-speed internet service throughout Stanislaus County. AT&T provides local phone service, long distance phone service, and high speed internet service. Major telephone transmission lines traverse the region and usually follow rights-of-way that parallel major roadways and rail lines. Global Valley Networks provides telephone and internet services to the communities of Patterson, Livingston, San Antonio, Diablo Grande, Westley, Cressey, and Grayson. Comcast will require an extension of its existing fiber optic cable from the unincorporated town of Crows Landing community to provide cable and internet service.

3.15.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

No federal plans, policies, regulation, or laws pertaining to utilities and service systems are applicable to the project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bill 610

The State of California has enacted legislation that applies to the consideration of larger projects under CEQA. Senate Bill (SB) 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code). This legislation requires public water agencies to prepare a water supply assessment for large developments (i.e., more than 500 dwelling units or nonresidential equivalent). These assessments must be prepared by the public water agency responsible for serving the proposed project area or, if no public water agency exists, by the appropriate city or county (in this case, Stanislaus County). A water supply assessment is intended to determine whether existing and projected water supplies are adequate to serve the project, while meeting existing urban and agricultural demands and the needs of other anticipated development in the same service area (see water supply assessment prepared for the proposed project). For projects not covered by an Urban Water Management Plan (UWMP), as is the case with the current proposal, the water supply assessment must also identify whether the system's total projected water supplies (available during normal, single-dry, and multiple-dry water years during a 20-year projection) would meet the project's water demand in addition to the system's existing and planned future uses. A water supply assessment was prepared for the project and is on file under separate cover for review at the County Planning and Community Development Department, as an appendix to the Specific Plan.

Senate Bill 1263

SB 1263, which became effective January 1, 2017, increases oversight by the State Water Resources Control Board (SWRCB) of small public water systems and prevents formation of new small public water systems if larger neighboring systems can provide better service. SB 1263 requires those seeking drinking water permits and where new public water systems would be created to meet several requirements, including examining the feasibility of connecting to adjacent water systems that are within 3 miles of the proposed system. The applicant must prepare and submit a preliminary technical report to the SWRCB at least six months before initiating

construction of any water-related improvement. The technical report must include a cost comparison between a new system and consolidating, annexing, or connecting to an existing water system. Applicants must also identify all proposed water sources for the new system and provide an analysis of supply resilience over a 20-year projection inclusive of normal, single-dry, or multiple-dry water years. The SWRCB may impose permit conditions, requirements for system improvements, and time schedules to ensure an affordable, reliable, and adequate water supply at all times.

If required based on the water supply option selected, Stanislaus County will apply for a drinking water permit from the SWRCB Division of Drinking Water to develop and operate a new potable groundwater wells.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act of 2014, which went into effect on January 1, 2015, provides for local control of groundwater sustainability with State oversight. The law states that groundwater resources should be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses. To achieve its goals, the Act requires local agencies to develop and implement groundwater sustainability plans in critically overdrafted basins by 2020 and high- and medium-priority groundwater basins by 2022. As noted in Section 3.10 of this EIR, "Hydrology and Water Quality," the Delta-Mendota Subbasin was designated as a high-priority basin (DWR 2014).

While the Act identifies specific requirements for groundwater monitoring and use, it does not affect water rights, and it only grants State agencies the power to prohibit groundwater withdrawals after the agencies determine that local efforts are not sustaining groundwater resources. Stanislaus County is currently preparing a plan to meet the requirements of the Sustainable Groundwater Management Act.

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (CIWMA) is the result of two pieces of legislation, Assembly Bill (AB) 939 and SB 1322. The CIWMA was intended to minimize the amount of solid waste that must be disposed of by transformation and land disposal by requiring all cities and counties to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000.

The California Integrated Waste Management Act (CIWMA) created the California Integrated Waste Management Board (now known as CalRecycle). CalRecycle is the agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. CalRecycle provides grants and loans to help cities, counties, businesses, and organizations meet the State's waste reduction, reuse, and recycling goals. CalRecycle promotes a sustainable environment where these resources are not wasted, but can be reused or recycled. In addition, CalRecycle promotes the use of new technologies for the practice of diverting resources away from landfills. CalRecycle is responsible for ensuring that waste management programs are primarily carried out through local enforcement agencies (LEAs).

The State Water Resources Control Board and the Central Valley Regional Water Quality Control Board (RWQCB) also regulate waste disposal. In Stanislaus County, the County is responsible for undertaking the municipal solid waste management planning and compliance efforts required by CalRecycle. The County would require tenants of the Specific Plan Area to implement County recycling programs, such as curbside recycling of paper, plastics, and bottles, to ensure that at least 50 percent of solid waste is reused or recycled.

California Green Building Standards

The proposed project would be required to comply with Title 24 of the California Code of Regulations. Title 24 provides standards for both residential and nonresidential buildings. The Building Standards were most recently revised in 2016 and went into effect January 1, 2017.

The current Green Building Code includes Nonresidential Voluntary Measures that address building energy efficiency, water efficiency and conservation, and material/resource efficiency. Section 5.408 covers construction waste reduction, disposal, and recycling. The code requires reuse or recycling of 65 percent of nonhazardous construction and demolition waste and 100 percent of vegetation and soil from land clearing. Section 5.303 covers indoor water use and includes policies to reduce the overall use of potable water by 20 percent. Section 5.304 covers outdoor water use and requires irrigation controllers and sensors to reduce water use (California Building Standards 2016).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Stanislaus County Groundwater Ordinance

Development of groundwater resources to support the proposed project must comply with the Stanislaus County Groundwater Ordinance adopted in November 2014 (Chapter 9.37 of the Stanislaus County Code), which codifies requirements, prohibitions, and exemptions for permitting new wells with the intent of supporting sustainable groundwater extraction. Stanislaus County's Groundwater Ordinance is aligned with the requirements of Sustainable Groundwater Management Act (see "State Plans, Policies, Regulations, and Laws," above for further discussion). Under the ordinance, unless otherwise exempt, an applicant that wishes to install a new groundwater well must first provide substantial evidence the well is not unsustainably extracting groundwater, as defined in the Stanislaus County Groundwater Ordinance and in Sustainable Groundwater Management Act. The ordinance and Sustainable Groundwater Management Act define unsustainable extraction as causing undesirable results, which are defined as meaning one or more of the following:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
- Significant and unreasonable reduction of groundwater storage.
- Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
- Significant and unreasonable land subsidence that substantially interferes with surface land uses.
- Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The County prepared a Groundwater Resources Impact Assessment to determine the effects of the proposed groundwater wells on the Delta-Mendota Subbasin groundwater levels in the vicinity of the project site (under

separate cover and on file with the County Planning and Community Development Department, as an appendix to the Specific Plan). As discussed in Impact 3.15-1, the Groundwater Resources Impact Assessment determined the project-related drawdown would be unlikely to result in a substantial depletion in regional supplies, and the predicted maximum drawdown in the confined aquifer beneath the Delta-Mendota Canal would be unlikely to result in a substantial depletion in regional supplies (JJ&A 2016:5-3 and 5-4). Drawdown in the shallow aquifer from pumping in the confined aquifer is expected to be negligible, and the proposed project will not result in any net increase in groundwater demand from the shallow aquifer (JJ&A 2016:5-4). The Groundwater Resources Impact Assessment concluded that the shallow and confined aquifers beneath the project site would provide adequate groundwater supplies to meet project demand without causing or contributing to undesirable results as defined in the Stanislaus County Groundwater Ordinance.

Stanislaus County General Plan

The following goals, policies, and implementation measures from the Land Use Element of the County's General Plan are related to utilities and service systems.

Land Use Element

- **GOAL FOUR –** Ensure that an effective level of public service is provided in unincorporated areas.
- **POLICY TWENTY FOUR –** Future growth shall not exceed the capabilities/capacity of the provider of services such as sewer, water, public safety, solid waste management, road systems, schools, health care facilities, etc.
- **IMPLEMENTATION MEASURE 1** – The County shall continue to implement its Public Facilities Fees Program, which is intended to help finance public facilities needed to maintain current levels of service.
- **IMPLEMENTATION MEASURE 2** – Development within a public water district and/or waste water district shall connect to the public water system and/or the waste water treatment facility; except where capacity is limited or connection to existing infrastructure is limiting and an alternative is approved by the County's Department of Environmental Resources. For development outside a water and/or waste water district, it shall meet the standards of the Stanislaus County Primary and Secondary Sewage Treatment Initiative (Measure X) and domestic water.
- **IMPLEMENTATION MEASURE 3** – Benefit assessment districts, County Service Areas (CSAs), Mello-Roos Districts or other similar districts shall be formed as needed to pay for the cost of providing ongoing appropriate services.
- **IMPLEMENTATION MEASURE 5** – The current level of service of public agencies shall be determined and not allowed to deteriorate as a result of new development.
- **IMPLEMENTATION MEASURE 6** – Rezoning of property for development prior to: 1) annexation to a special district; or 2) inclusion of such property into a newly formed special district that will provide urban services (i.e., sanitary sewer district, domestic water district, or community service district) shall be approved only if the development is adequately conditioned to restrict development from occurring until annexation to, or formation of, the required district is complete.

- **IMPLEMENTATION MEASURE 7** – Only development requests which have recognized and mitigated any significant impacts on solid waste reduction, recycling, disposal, reuse, collection, handling, and removal shall be approved.

- **IMPLEMENTATION MEASURE 9** – The County will coordinate development with existing irrigation, water, utility, and transportation systems by referring projects to appropriate agencies and organizations for review and comment.

Stanislaus Local Agency Formation Commission

The County anticipates formation of a County Service Area (CSA) or other long-term tool that will be used to manage service systems to the area. The Specific Plan anticipates provision of wastewater treatment services by the City of Patterson, although on-site systems could also be used and, depending on the option exercised by the County, the project could include water supply with the City of Patterson or the Crows Landing Community Services District or an independent on-site system.

The Stanislaus Local Agency Formation Commission (LAFCO) is responsible for reviewing proposals for the formation of new local governmental agencies, changes in organization of existing agencies, and extensions of service outside of existing agency boundaries. The formation of a CSA and extension of services outside an existing provider's boundaries (e.g., wastewater services from the City of Patterson) will require review and approval from Stanislaus LAFCO. These actions are assessed using criteria set forth in California Government Code Section 56000 *et seq*., as well as Stanislaus LAFCO's adopted Policies and Procedures document. Stanislaus LAFCO requires the preparation of a Plan for Services, consistent with Government Code Section 56653, and will consider factors that include the ability of the agency to provide services, information with respect to how those services will be financed, and efficient delivery of service.

3.15.3 Environmental Impacts and Mitigation Measures

Methodology

Impacts related to utilities and service systems that would result from the proposed project were identified by comparing existing service capacity against future demand associated with implementation of the proposed project. When possible, a quantitative comparison was used to determine future demand. Where this level of detail is not available, impacts were analyzed qualitatively.

The various environmental discussions provided in other sections of this EIR analyze environmental impacts related to the construction and operation of infrastructure to serve the proposed project. The following analysis focuses specifically on impacts related to increased demand for utilities and infrastructure. Impacts related to stormwater management are addressed in Section 3.10, "Hydrology and Water Quality."

Evaluation of potential utility and service system impacts was based on a review of the following planning documents pertaining to the proposed project and surrounding area:

- *Stanislaus County General Plan* (Stanislaus County 2016)

- *County of Stanislaus Crows Landing Industrial Business Park SB 610 Water Assessment* (AECOM 2016)

- *Crows Landing Industrial Business Park Water Supply (Potable and Non-Potable) Infrastructure and Facilities Study* (VVH Consulting Engineers and AECOM 2016a)
- *Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study* (VVH Consulting Engineers and AECOM 2016b)
- *Groundwater Resources Impact Assessment, Crows Landing Industrial Business Park* (JJ&A 2016)
- *Crows Landing Industrial Business Park Dry Utilities Infrastructure and Facilities Study* (VVH Consulting Engineers 2015)
- *Technical Memorandum. Potential Impacts to Patterson Wastewater Facilities from Crows Landing Industrial Business Park* (Blackwater Engineering Consultants 2017)
- *Crows Landing Industrial Business Park Water Supply Alternatives for Consideration in the Environmental Impact Report* (ePUR 2017)
- *Crows Landing Community Services District Water Supply System Capacity, Usage, and Demand Forecast for Resiliency to Support CLIBP Draft Environmental Impact Report* (ePUR 2017)

Additional background information on current services, staffing, and equipment was obtained through consultation with appropriate agencies.

THRESHOLDS OF SIGNIFICANCE

Based on the *CEQA Guidelines*, Appendix G, the proposed project would result in a significant impact related to utilities and service systems if the project would:

- Exceed wastewater treatment requirements of the applicable RWQCB;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Have insufficient water supplies available to serve the project from existing or permitted entitlements and resources, or require new or expanded entitlements;
- Generate solid waste beyond the capacity of existing landfills; or
- Violate federal, State, or local statutes and regulations related to solid waste.

IMPACT ANALYSIS

IMPACT 3.15-1 **Increased demand for water supplies and water treatment facilities.** *Implementation of the proposed project would result in an increased demand for groundwater supplies. The Water Supply (Potable and Non-potable) Infrastructure and Feasibility Study prepared for the proposed project concluded that sufficient groundwater supplies are present to serve the proposed project. This impact is considered* ***less than significant****.*

The proposed project would result in an increased demand for groundwater supplies that would be met by the development of on-site groundwater wells. The County prepared a *Water Supply (Potable and Non-potable) Infrastructure and Feasibility Study* (Water Supply Study) and water supply assessment for the proposed project to determine whether the projected available potable and non-potable groundwater supplies would be available to meet the proposed project's water demand. Both documents are under separate cover and available for review are on file with the County Planning and Community Development Department, as an appendix to the Specific Plan.

In addition, the County prepared a Groundwater Resources Impact Assessment to determine the effects of the proposed groundwater wells on the Delta-Mendota Subbasin groundwater levels in the vicinity of the project site. This document is under separate cover and available for review on file with the County Planning and Community Development Department, as an appendix to the Specific Plan. The following discussion summarizes the water supply and demand analysis performed for these studies (VVH Consulting Engineers and AECOM 2016a, AECOM 2016, and JJ&A 2016).

The volume of groundwater produced from existing on-site wells would surpass the potable and non-potable water supply demands associated with the proposed project. To estimate total future water demands at project build-out, water-demand factors were applied to the acreage for each land use designation that generates water use within the project site (see Tables 3-4 and 3-5 in the Water Supply Study). As shown in Table 3.15-3, the total potable and non-potable demand is estimated to be 2,819 afy at full buildout. This total does not assume any water conservation measures would be implemented on the project site and, therefore, provides a conservative estimate that represents the maximum water supply demands for the proposed project. Actual demands may vary somewhat from the projections based on factors such as the types of industry developed, density, employees per acre, conservation, or other factors.

Table 3.15-3
Crows Landing Industrial Business Park Projected Water Supply Demand (afy)

	2021	2026	2031	2036	2041	2046
Potable Water Demand	329	739	871	1,036	1,241	1,496
Non-Potable Water Demand	364	818	907	1,017	1,153	1,323
Total Water Demand	**693**	**1,557**	**1,778**	**2,053**	**2,394**	**2,819**

Note: afy = acre-feet per year

Source: AECOM 2016:3-4

The Groundwater Resources Impact Assessment assumed that new potable water wells would be installed into the confined aquifer underlying the Corcoran Clay. The Water Supply Study (VVH Consulting Engineers and AECOM 2016a) proposes the construction of three new potable groundwater wells, and the water supply

assessment demonstrates that the combined supply from these wells would be adequate to meet the potable water supply demands of the proposed project at buildout.

As shown on Table 3.15-4, existing non-potable water supply wells would be capable of meeting water supply demands through Phase 1 (2017–2021) (AECOM 2016:3-6 and JJ&A 2016). The Water Supply Study proposes construction of one new non-potable groundwater well, and both the Water Supply Study and the Groundwater Resources Impact Assessment assume that the water supply from this well would be adequate to meet the project's non-potable water supply demands at buildout (Table 3.15-4). The Water Supply Study further assumes that Stanislaus County would construct the potable and non-potable groundwater wells, as described in the Water Supply Study to meet the water supply demands of the proposed project (see Impact 3.15-2 below for further discussion).

Table 3.15-4
Crows Landing Industrial Business Park Projected Water Supply and Demand by Project Phase (afy)

Water Demand and Supply Source	Phase 1 (2017–2026)	Phase 2 (2027–2036)	Phase 3 (2037–2046)
Total Potable Water Demand	739	1,036	1,496
Total Non-Potable Water Demand	818	1,017	1,323
Total Water Demand	**1,557**	**2,053**	**2,819**
Potable Water Supply from New Groundwater Wells[1]	739	1,036	1,496
Non-Potable Water Supply from Existing Groundwater Wells[2, 3]	818	834	834
Non-Potable Water Supply from New Groundwater Well[4]	0	183	489

Note: afy = acre-feet per year

[1] The new potable groundwater wells would be installed in the confined aquifer underlying the Corcoran Clay.

[2] The non-potable water supply from the existing groundwater wells assumes the existing groundwater wells would have an average production of 834 afy.

[3] Two of the existing non-potable groundwater wells pump groundwater from the unconfined, shallow aquifer overlying the Corcoran Clay while the third non-potable groundwater well likely pumps from the confined aquifer underlying the Corcoran Clay.

[4] The new non-potable groundwater well would be installed in the unconfined, shallow aquifer overlying the Corcoran Clay.

Source: JJ&A 2016: 2-2

It is assumed that existing wells will be capable of supporting groundwater extraction at their historical annual extraction volumes of 834 afy, when pumped year round. If the existing wells fail to supply the assumed volumes, the water supply volume would be supplemented, as needed, through the installation of new wells of similar construction (JJ&A 2016:2-3). The Groundwater Resources Impact Assessment also assumed non-potable water demand in excess of 834 afy would be supplied using new shallow aquifer wells installed on-site.

Shallow groundwater demand in excess of the historical average shallow aquifer extraction rate (183 afy at Phase 2 buildout and 489 afy at Phase 3 buildout) would be offset by an equivalent volume of increased recharge, such that the net groundwater extraction rate from the shallow aquifer would not increase above historical levels (JJ&A 2016:2-2). This increased shallow aquifer recharge could be derived from a combination of techniques, such as redirecting the portion of Little Salado Creek beneath the runway area into an open-bottom, box culvert with trench drains to enhance the recharge of stormwater runoff from the Diablo Range; implementing Low Impact

Development (LID) elements that promote on-site stormwater detention and recharge; and implementing in-lieu recharge methods (see Impact 3.10-4 in Section 3.10, "Hydrology and Water Quality"). The Groundwater Resources Impact Assessment determined that redirecting Little Salado Creek into underground, open-bottom culverts could provide an average of approximately 100 afy of additional annual stormwater recharge, implementing LID elements could capture and infiltrate up to approximately 200 afy of stormwater, and implementing in lieu recharge methods could decrease water demand by 200 afy (JJ&A 2016:2-2 and 2-3).

The Groundwater Resources Impact Assessment determined the project-related drawdown would be unlikely to result in a substantial depletion in regional supplies and the predicted maximum drawdown in the confined aquifer beneath the Delta-Mendota Canal would be unlikely to result in a substantial depletion in regional supplies (JJ&A 2016:5-3 and 5-4). Drawdown in the shallow aquifer from pumping in the confined aquifer is expected to be negligible, and the proposed project will not result in any net increase in groundwater demand from the shallow aquifer (JJ&A 2016:5-4). Section 3.10, "Hydrology and Water Quality," provides a detailed discussion of the predicted drawdown in the confined aquifer beneath the Delta-Mendota Canal from implementation of the proposed project.

The Groundwater Resources Impact Assessment concluded that the shallow and confined aquifers beneath the project site would provide adequate groundwater supplies to meet project demand without causing or contributing to undesirable results as defined in the Stanislaus County Groundwater Ordinance, Sustainable Groundwater Management Act, and the California Water Code (JJ&A 2016:5-5).

Based on the assumptions described above, the water supply assessment concluded that with construction of new on-site groundwater wells, the groundwater supply would be sufficient to meet the project-related demands over a 30-year period in all water year types, including normal, single-dry, and multiple-dry years (AECOM 2016:3-6 and 4-1). This impact is considered **less than significant**. No mitigation is required.

IMPACT 3.15-2 Compliance with Senate Bill 1263. *Depending on the water supply option that is selected, Stanislaus County may be required to apply for a drinking water permit from the SWRCB Division of Drinking Water to develop and operate new potable groundwater wells. In this case, the County would be required to comply with the requirements of SB 1263 and examine the feasibility of connecting to the Crows Landing CSD or the City of Patterson water service area. The impact is* less than significant.

Stanislaus County proposes to meet water supply demands of the proposed project through development and operation of on-site groundwater wells, as described in Impacts 3.15-1 and 3.15-3. The County may be required to apply for a drinking water permit from the SWRCB Division of Drinking Water to develop and operate a new potable groundwater wells. In this case, the County would need to comply with applicable requirements of SB 1263 (ePUR 2017a).

SB 1263 requires identification of adjacent water systems that are within 3 miles of the proposed system. The project site is within 3 miles of the Crows Landing Community Service District (CSD) and the City of Patterson water service area (ePUR 2017a). Therefore, the following discussion analyzes the feasibility of the on-site groundwater system connecting to the Crows Landing CSD water supply system or the City of Patterson water supply system.

Crows Landing Community Service District

Crows Landing CSD provides potable water supplies to 130 service connections from two groundwater wells and intends to install a third groundwater well to provide water supply redundancy (ePUR 2017b). An analysis of the Crows Landing CSD water supply and demand conducted by ePUR demonstrated that the Crows Landing CSD has sufficient groundwater supplies to meet current and future water demands during normal, single-dry, and multiple-dry years through 2040 (ePUR 2017b).

The Crows Landing CSD would not provide water supplies to the project site. Rather, the proposed project would develop new on-site groundwater wells that would provide sufficient groundwater supply to meet the project-related demands over a 30-year period in all water year types (see Impact 3.15-1, above). If the project connects to the Crows Landing CSD, water supplies from the project site and the Crows Landing CSD could be blended to produce higher quality drinking water (ePUR 2017a). Therefore, the proposed project could provide water quality benefits for the Crows Landing CSD, but it would not increase the water supply demand for Crows Landing CSD or affect the its ability to meet existing and future water demands within its service area.

City of Patterson Water Service Area

The City of Patterson's UWMP addresses water supply and demand issues, water supply reliability, water conservation, water shortage contingencies, and recycled water use within its service area. The City's UWMP determined that water supplies would be sufficient to meet water demands in the City's service area in normal, single-dry, and multiple-dry years through 2040 from a combination of additional groundwater pumping, recycled water use, stormwater capture and recharge, and additional water conservation (RMC 2016). The project site is not within the City's service area; therefore, the water supply demands for the proposed project were not accounted for in water demand projections contained in the City's UWMP.

The proposed project would develop new on-site groundwater wells that would provide sufficient groundwater supply to meet the project-related demands over a 30-year period in all water year types (see Impact 3.15-1, above). If the project site were connected to the City's water system, water supplies would be treated on-site, and no blending of untreated water with the City's treated water supplies would occur (ePUR 2017a). This option could potentially provide short-term water supply redundancy in the event of service disruptions, maintenance needs, or other operational events within either area (ePUR 2017a). Therefore, the proposed project would not increase the demand for the City's water supplies or affect the ability of the City to meet existing and future water demands within its service area.

Conclusion

Connection to the Crows Landing CSD water supply system or the City of Patterson's water supply system would eliminate the need for a drinking water permit for the proposed development and operation of the on-site groundwater wells, and the County would not be required to comply with SB 1263 requirements (ePUR 2017a). Under any of the water supply options available to the County, proposed on-site groundwater wells would provide sufficient groundwater supply to meet the project-related demands over a 30-year period in all water year types. The proposed project would not increase the demand for the Crows Landing CSD or the City of Patterson's water supplies or affect the ability of these providers to meet existing and future water demands within their service area. This impact is considered **less than significant**. No mitigation is required.

IMPACT 3.15-3 **Increased demand for potable and non-potable groundwater supply wells, storage, and conveyance facilities.** *Implementation of the proposed project would require the construction of on-site water supply production wells, storage, and conveyance facilities to serve the proposed project. The Specific Plan identifies the backbone infrastructure that will be provided by Stanislaus County. Proposed projects or leasehold development in the Specific Plan Area will need to demonstrate consistency with Specific Plan and County requirements as development occurs. The impact is* ***less than significant.***

Implementation of the proposed project would require the construction of on-site potable and non-potable water supply production wells, storage and conveyance facilities (VVH Consulting Engineers and AECOM 2016a). Each phase of the proposed project would include the construction of potable water and non-potable supply system components, including 12-inch to 18-inch potable water distribution pipelines and 18-inch to 24-inch non-potable distribution pipelines. A potable water storage tank, potable groundwater well, and booster pump station would be constructed east of the intersection of Davis Road and Fink Road; potable water storage tanks, potable groundwater wells, and booster pump stations would be constructed near Bell Road in the northern portion of the project site; and a non-potable water storage tank and non-potable groundwater well south of former Runway 16-34 (VVH Consulting Engineers and AECOM 2016a). The Specific Plan identifies the backbone infrastructure that will be provided by Stanislaus County. The Specific Plan states that on-site and off-site public water supply facilities necessary to serve the Specific Plan Area will be designed to accommodate the development envisioned in the Specific Plan. The County is developing the design and phasing for the public infrastructure that includes an infrastructure sequencing program. The infrastructure will be sequenced with first phase improvements put in place to provide the backbone infrastructure and support the initial development, which is currently identified as Phase 1A. Building permits will not be issued until the County's Public Works Director determines that all improvement plans are complete (engineered and approved). Subsequent projects or leasehold development in the Specific Plan Area will need to demonstrate consistency with the Specific Plan's requirements discussed above, as well as County requirements.

The type and placement of water supply infrastructure have been considered as components of the proposed project as identified in Chapter 2, "Project Description," and in the other resource sections of this EIR. Where necessary, these sections identify the mitigation measures that would be necessary to avoid or reduce the potential impacts of infrastructure construction and operation on the physical environment. No additional significant impacts would occur beyond those considered in other sections of this EIR. The impact is considered **less than significant**. No mitigation is required.

IMPACT 3.15-4 **Increased demand for wastewater collection and conveyance facilities.** *Implementation of the proposed project would require the construction of on-site wastewater collection and conveyance facilities. The Specific Plan identifies the backbone infrastructure that will be provided by Stanislaus County. Subsequent projects and leasehold development in the Specific Plan Area will be required to demonstrate consistency with Specific Plan and County requirements as development occurs. The impact is* ***less than significant.***

Implementation of the proposed project would require construction of on-site wastewater collection and conveyance facilities. The *Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study* (Sanitary Sewer Study) was prepared for the proposed project to identify wastewater collection and conveyance facilities design (VVH Consulting Engineers and AECOM 2016b).

Backbone wastewater collection and conveyance infrastructure facilities necessary to serve Phase 1 include

gravity trunk mains, a 2.66-mgd sanitary sewer lift station southwest of the Marshall Road and State Route 33 intersection, a 0.065-mgd sanitary lift station south of the airfield near the Delta Mendota Canal, and an 12-inch force main within Marshall Road to convey effluent to the existing off-site WHWD 18-inch trunk main in Ward Avenue. The gravity trunk mains, lift station, and force main would be sized to accommodate effluent from Phases 1, 2, and 3 (VVH Consulting Engineers and AECOM 2016b:9).

During Phase 1A, the County may allow tenants to construct on-site septic systems to accommodate their wastewater needs until the backbone infrastructure has been completed. Each on-site septic system facility would need to be designed in accordance with Stanislaus County's Guidelines for Septic System Design, and the design would need to be approved by the County prior to the issuance of any building permits (See Section 3.8, "Geology, Soils, Minerals, and Paleontological Resources," for further discussion.) Backbone wastewater collection and conveyance infrastructure facilities required to serve Phases 2 and 3 include gravity trunk mains that will connect to existing sanitary sewer infrastructure constructed during Phase 1 (VVH Consulting Engineers and AECOM 2016b:9 and 10).

The Specific Plan identifies project buildout as it is envisioned to occur in three 10-year phases, and it describes the on- and off-site wastewater collection and conveyance facilities that will be required to support each phase. The County will construct backbone infrastructure to accommodate each phase of site development described in the Specific Plan. The County will not approve building permits for leaseholder development until infrastructure is available to support the proposed development.

The construction of the backbone infrastructure to be provided by the County has been considered as a component of the proposed project in the other sections of this EIR. Where necessary, these sections include mitigation measures to reduce or avoid the impacts of infrastructure construction and operation on the physical environment. No additional impacts will occur beyond those comprehensively considered throughout the other sections of this EIR. The impact is **less than significant.** No mitigation is required.

IMPACT 3.15-5 Increased demand at City of Patterson Water Quality Control Facility (WQCF). *Implementation of the proposed project would result in an increase in wastewater flows that exceed the current City of Patterson WQCF design capacity. This impact is considered* ***significant****.*

Wastewater treatment for the proposed project is anticipated to be provided by the City of Patterson WQCF, which has a current design capacity of 2.25 mgd average dry-weather flow and a reliable treatment capacity of 1.85 mgd (Blackwater Consulting Engineers 2017). As of 2016, the WQCF treats 1.44 mgd average dry-weather flow. The City has prepared improvement plans and acquired land for WQCF expansion to achieve a design capacity of 3.5 mgd, with a reliable capacity of 3.1 mgd.

Phases 1, 2, and 3 of the project could generate an average dry-weather flow of 0.394 mgd, 0.223 mgd, and 0.274 mgd, respectively, for a total of 0.891 mgd average dry-weather flow at site buildout (Blackwater Consulting Engineers 2017). This estimate is based on accepted industry standard loading factors and input from the County of Stanislaus and the City of Modesto. The estimate is conservative and does not consider California Green Building Standards or the Specific Plan policies that reduce water use. Section 5.303 of the California Green Building Standards covers indoor water use and includes policies to reduce the overall use of potable water by 20 percent. Section 5.304 covers outdoor water use and requires irrigation controllers and sensors to reduce water use. Compliance with the California Green Building Standards would reduce water use and associated wastewater

generation. The Specific Plan also promotes water efficiency and conservation, by encouraging energy star appliances, water sensitive design techniques, individual water metering, drought-tolerant and native plant landscaping, and by making reclaimed water available for cooling and other industrial uses.

The City of Patterson did not account for the project's wastewater flows in its planned design expansion to 3.5 mgd. Wastewater treatment capacity is allocated on a "first come, first serve" basis. Early phases of development would generate wastewater flows that could be accommodated by the WQCF, if sufficient capacity is available. Because there are other approved and planned projects in the Patterson area, it is possible that capacity may need to be added to the WQCF to serve one or more phases of the proposed project, should these other projects break ground before the proposed project. The City's Wastewater Master Plan examines alternatives to expansion of the WQCF to handle 7.0 mgd and serve 76,000 residents, 675 acres of commercial development, and 2,227 acres of industrial development. Subsequent projects and leasehold development would be required to pay fair-share fees to the City of Patterson for wastewater treatment. Capacity expansion for the WQCF could be required to provide for the proposed project's long-term wastewater treatment demands. This impact is considered **significant**.

Mitigation Measure 3.15-5: Demonstrate Adequate Wastewater Treatment Capacity.

Before the County will issue any building permit for a use proposing to connect to public sewer or construction of backbone sewer infrastructure connecting to the WHWD sewer line, the project applicant will be required to provide written documentation to verify that existing treatment capacity is, or will be, available to support the proposed development and that any physical improvements required to treat wastewater associated with the proposed development will be in place prior to occupancy.

Implementation: Leaseholders/developers/contractors.

Timing: Prior to issuance of any building permits.

Enforcement: Stanislaus County.

Significance after Mitigation

Implementation of Mitigation Measure 3.15-5 would reduce the potential impact because adequate wastewater treatment capacity would be identified and documented for projects proposing to connect to the public sewer system.

Capacity improvements to the City's WQCF could involve environmental effects. Construction of new buildings or structures could change the aesthetic environment in the vicinity of the WQCF and new construction could involve additional lighting. If additional property is required to expand treatment capacity, this could convert farmland and conflict with Williamson Act contracts. It is possible that improvements could adversely affect Swainson's hawk foraging habitat, western pond turtle habitat, raptor nests, riparian woodland, or habitat for other rare plant and wildlife species. Construction and/or demolition activities could disturb previously unknown subsurface cultural resources and generate criteria air pollutant emissions, precursors, and greenhouse gas (GHG) emissions. Routine maintenance activities, ongoing operations, and employees commuting to the expanded facility would generate criteria air pollutant emissions, precursors, and GHG emissions, as well. It is possible that a capacity expansion could increase odor-generating potential. Existing regulations would likely prevent significant adverse effects to groundwater or surface water quality. It is possible that capacity expansion could be

located in a floodplain. It is possible that a capacity expansion would require additional property. Depending on the design, location, phasing, and operations of the capacity expansion, there could be one or more direct or cumulative impacts. Because the County would not have any role in the design, location, phasing, or operation, the County would not be able to identify methods to reduce or avoid environmental effects in the planning phase or impose mitigation. Although little is known at this time about a possible future capacity expansion, the County acknowledges that there could be **significant and unavoidable** effects associated with such an expansion.

IMPACT 3.15-6 Increased generation of solid waste and compliance with solid waste regulations. *Implementation of the proposed project would result in the increased generation of solid waste. The Fink Road Landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the proposed project, and the proposed project does not include any components that would violate any applicable federal, State, or local solid waste regulations. This impact is considered than* less than significant.

Implementation of the proposed project would generate temporary and short-term debris and waste during construction that would be disposed of at the Covanta Waste-to-Energy or the Fink Road Landfill. The proposed project does not include any components that would violate any applicable federal, State, or local solid waste regulations.

Construction of the proposed project would generate various construction-related wastes, including scrap lumber, scrap finishing materials, various scrap metals, and other recyclable and non-recyclable construction-related wastes. The California Green Building Code (Title 24, Part 11 of the California Code of Regulations) requires all construction contractors to recycle or reuse at least 65 percent of construction waste and demolition debris (Section 5.408). Code requirements include preparing a construction waste management plan that identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on-site or mixed; and identifying diversion facilities where the materials collected will be taken. The code also specifies that the amount of materials diverted should be calculated by weight or volume, but not by both (California Building Standards Commission 2016). In addition, the California Green Building Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

Solid waste generated in unincorporated portions of Stanislaus County is disposed of at the Fink Road Landfill. The employees in the project site would be working in jobs within designated waste categories, such as manufacturing (ranging from 0.2 to 3.1 tons of waste per employee per year), aviation (1.0 ton of waste per employee per year), warehousing (1.9 tons of waste per employee per year), other professional services (1.2 tons of waste per employee per year), and business services (1.7 tons of waste per employee per year) (CalRecycle 2011).[3] To estimate a single business waste–disposal rate for project development, the two anticipated extremes among the categories (0.2 ton and 3.1 tons per employee per year) were averaged, resulting in a generation rate of 1.7 tons per employee per year. The project is anticipated to provide employment opportunities for 14,000 to 15,000 employees. For the purpose of analysis, assuming 15,000 employees are present at full buildout, approximately 25,500 tons of waste would be generated annually (1.7 tons of waste ×15,000 employees) or 69.8 tons per day (tpd).

[3] CalRecycle estimates waste disposal rates for businesses based on the number of employees. It is assumed that businesses of a certain type dispose similar wastes at similar rates (per employee) regardless of the location or size of the business (CalRecycle 2011).

Solid waste collected from the proposed project site would be hauled to the Fink Road Landfill, which has a maximum permitted throughput of 2,400 tpd. The estimated 69.8 tpd of solid waste generated by the proposed project would comprise approximately 3 percent of the maximum amount that could be received at the landfill, as measured in tpd.

CalRecycle estimates that the Fink Road Landfill has a capacity until 2023. However, based on lower disposal rates, the County recently revised its projections for the life of the landfill to 2029 for Class III waste and 2043 for Class II waste (Stanislaus County 2014). In addition, the County has initiated plans to expand and reconfigure of the existing facility to extend its useful life by another 10 to 15 years beyond the revised projections (Stanislaus County 2009:2-1). Therefore, the Fink Road Landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the proposed project. This impact is considered **less than significant,** and no mitigation is required.

IMPACT 3.15-7 Required extension of electrical, natural gas, and telecommunications infrastructure. *Implementation of the proposed project would require construction of new on-site electrical, natural gas, and telecommunications infrastructure. Electrical and natural gas infrastructure would be provided by TID and PG&E, respectively, and AT&T or Global Valley Networks would provide telecommunications infrastructure to the project site through augmentation of existing off-site facilities, as necessary, in the project vicinity and extend service into the project site. Indirect physical impacts associated with construction and operation of new electrical, natural gas, and communications infrastructure are evaluated throughout this EIR. The placement of these utilities has been considered in the other sections of this EIR. The impact is considered less than significant.*

Implementation of the proposed project would increase demand for electricity, natural gas, and telecommunications services, and the proposed project would include the development of new utility infrastructure to deliver services to the project site. Electrical and natural gas service in Stanislaus County is provided by TID and PG&E, respectively, and each utility provider is responsible for upgrading its existing infrastructure to meet the demands of new projects, such as the proposed project.

The proposed project is currently served by TID using overhead electric transmission and distribution lines for electricity. A TID 4-megawatt (MW) substation is located at the northeast corner of Marshall Road and Davis Road. This substation is fed from a double circuit 115-kV transmission line with a 12-kV underbuild located along Marshall Road on the northern boundary of the project site. Infrastructure is also available in the portion of the former airbase near Ike Crow Road, which could support Phase I activities near the airport. On-site electrical infrastructure is anticipated to include 4-inch and 6-inch underground conduits, and pad-mounted switchgear and pad-mounted capacitor banks could be required (VVH Consulting Engineers 2015:3). Substation improvements would be necessary if more than 4 MW was needed. TID has stated it would provide electrical service to the project site (Jeffers, pers. comm.).

PG&E has no existing natural gas facilities within the project site. Within the vicinity of the project site, PG&E has a 24-inch diameter transmission pipeline on the northern boundary of the project site and a 3-inch diameter gas distribution pipeline running from I-5 along the southern boundary of the project site serving the community of Crows Landing. Natural gas infrastructure is anticipated to include construction of natural gas distribution facilities in roadways throughout the project site (VVH Consulting Engineers 2015:3). The existing on-site and

nearby gas line would be realigned to serve the proposed project. PG&E stated that it would have capacity to serve the project site with natural gas.

Based on the initial Dry Utilities Infrastructure and Facilities Study for the proposed project, TID would have capacity to serve the proposed project, but it would need to construct additional electrical distribution infrastructure (VVH Consulting Engineers 2015). This study is available for review under separate cover at the County Planning and Community Development Department.

Both AT&T and Global Valley Networks have indicated they could provide telecommunications service to the project site (VVH Consulting Engineers 2015:3). Either provider would install new 4-inch diameter underground fiber optic cable.

The size, location, and types of electrical facilities required to serve individual development projects proposed pursuant to the Specific Plan is not known at this time. The proposed project would construct a self-contained distribution system that connects to the existing off-site electrical and natural gas systems and existing telecommunications infrastructure described above. Backbone utility infrastructure would be located in joint trenches along the western or southern sides of on-site roadways and along off-site road rights-of-way. The on-site service lines would be sized to meet the demands of the proposed project and public utility easements will be dedicated for all underground facilities. The location of this infrastructure would be planned in collaboration with TID, PG&E, and AT&T and the location of infrastructure would be identified in the final project design. As part of the project approval process, each project applicant would connect to backbone utility infrastructure and would be required to coordinate with, and meet the requirements of TID, PG&E, and AT&T or Global Valley Networks regarding the extension and locations of on-site infrastructure.

Electrical infrastructure may include the extension of existing distribution lines; upgrades to substations; and the construction of new distribution lines, substations, and transformers. Existing aboveground transmission lines would also be installed underground as part of the proposed project. Similarly, PG&E may extend existing natural gas infrastructure using undergrounded pipelines, upgrade natural gas regulator stations, and construct new natural gas regulator stations to serve individual development projects.

The proposed electrical-utility improvements would be required to comply with all existing local and utility requirements, Building Energy Efficiency Standards (Title 24 of the California Code of Regulations), and applicable requirements of the California Building Standards Code. TID and PG&E would provide the necessary electrical and natural gas infrastructure, respectively, and AT&T or Global Valley Networks would provide the necessary telecommunications infrastructure.

Physical impacts associated with construction and operation of new electrical, natural gas, and telecommunications infrastructure are evaluated throughout this EIR, since these facilities are considered to be part of the land uses and development identified by the Specific Plan. The location and construction of these utilities has been considered in the other sections of this EIR, such as Air Quality, Biological Resources, and other resource sections that specifically analyze the potential for project construction and implementation. The impact is **less than significant**. No mitigation is required.

4 ALTERNATIVES

CEQA requires that an EIR describe a range of reasonable alternatives to the proposed project and evaluate their comparative impacts and merits. The discussion must focus on potentially feasible alternatives that can avoid or substantially reduce the significant effects of the proposed project. Alternatives that would impede the attainment of the project objectives to some degree or would be more costly may also be considered.

The alternatives analysis must identify the potential alternatives, and include sufficient information about each to allow meaningful evaluation, analysis, and comparison with the proposed project. Qualitative and quantitative measures of alternative feasibility may include site suitability, economic viability, availability of infrastructure, general plan consistency, consistency or conflict with other plans or regulatory limitations, jurisdictional boundaries, and whether the project applicant can reasonably acquire, control, or otherwise have access to an alternative site. Similarly, if an alternative would cause one or more significant effects, in addition to those that would be caused by the proposed project, the significant effects of the alternative must be discussed, but in less detail than the project analysis. An environmentally superior alternative must be identified among the alternatives considered.

As required by CEQA, an alternatives analysis must evaluate the "no project" alternative. "No project" is defined as what would occur within the project site if the project were not approved. The "no project" alternative may consider what could reasonably occur on the project site if existing development trends continue, to the degree that adopted or proposed general plans and zoning, and existing infrastructure, services, or other relevant conditions allow.

4.1 SELECTION OF ALTERNATIVES

The County has considered a range of alternatives that could feasibly attain most of the basic project objectives and avoid or substantially lessen one or more significant effects. Alternatives were selected for evaluation in this EIR based on criteria in the *CEQA Guidelines* Section 15126.6, which are summarized above. These criteria are:

- Ability of the alternative to attain most of the basic project objectives;
- Feasibility of the alternative; and
- Ability of the alternative to avoid or substantially reduce one or more significant environmental effects of the proposed project.

4.1.1 ABILITY OF THE ALTERNATIVE TO ATTAIN MOST PROJECT OBJECTIVES

Potential alternatives were identified and evaluated with regard to their ability to achieve the objectives of the proposed project. For the purpose of alternatives analysis under CEQA, project objectives may not be defined so narrowly that the range of alternatives is unduly constrained.

PROJECT OBJECTIVES

The County's primary goal in proposing the Crows Landing Industrial Business Park (CLIBP) is to reuse the former military property to create a regional employment center that would provide its residents and those living

in nearby Central Valley communities with opportunities to obtain sustainable-wage jobs that do not require long commute distances. Development of the project site with employment-generating uses is supportive of the County's General Plan and the Comprehensive Economic Development Strategy, the focus of which is to begin to overcome the dramatic disparity between employment rates in Stanislaus County and state and national rates (Stanislaus County 2016). As noted in this Economic Development Strategy:

> Stanislaus County suffers from chronically high unemployment. Between 2000 and 2014, local job growth remained challenged to keep pace with a 19.0% population increase. Payroll job creation has languished even as the population expanded. American Community Survey data averaged for the two years of 2012 and 2013 puts the Stanislaus unemployment rate at 16.6% of the labor force, compared to 8.9% for the nation as a whole. Current unemployment for July 2015 remains at 9.4% while California and total U.S. are at 6.5% and 5.6% respectively. Rankings produced by the State of California's Employment Development Department show Stanislaus County's unemployment rate as recently ranking 49th out of 58 counties in California (Stanislaus County Stanislaus County Economic Development Action Committee 2016, page 4).

This focus on employment development is important for the location and design of the proposed project, as well as the County's flexible approach to land use that is intended to facilitate a range of development and end users.

Specific project-related objectives include the following:

- Create a regional employment center on the former Crows Landing Air Facility property that provides locally based, sustainable-wage employment, and promotes work force development through on-the-job training and support for locally based small businesses.
- Create an attractive location for industrial, manufacturing, distribution, and other aviation-compatible uses within the site boundaries that can capitalize on the site's proximity to I-5, Interstate 580, Highway 33, and other regional, national, and international transportation facilities, while reducing commuter traffic/vehicle miles traveled (VMT) on regional roads.
- Offer a mix of land use classifications to accommodate aviation-compatible uses while remaining flexible in terms of the size and configuration of available parcels, vertical development, and compatibility with surrounding uses and infrastructure.
- Provide services for site workers, such as: transit and alternative transportation options, on-site food service, appropriately located day care facilities, and automated banking opportunities.
- Provide sufficient site infrastructure to enable "shovel-ready" development opportunities. Such infrastructure includes potable and non-potable water, sewer, stormwater management, dry utilities, and circulation improvements (*i.e.*, "backbone development").
- Repurpose former military runway 12–30 for the development of a public-use, general aviation airport to complement the proposed CLIBP and the terms of the property conveyance.
- Provide for an attractive, walkable industrial business park campus that makes a positive statement for the area and for Stanislaus County and respects the needs of its neighbors, adjacent landowners, and the agricultural character of the County's West Side.

- Honor the unique contributions of the former Crows Landing Air Facility and Stanislaus County to our nation's history, while looking ahead to improve the lives of current and future residents.

4.1.2 FEASIBILITY OF THE ALTERNATIVES

Each alternative was evaluated according to the "rule of reason" and general feasibility criteria suggested by the *CEQA Guidelines* Section 15126.6, as follows:

> The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision making.

The inclusion of an alternative in an EIR indicates that lead agency staff has determined that the alternative is potentially feasible. Criteria included the suitability of the site or alternative site; the economic viability of the alternative; the availability of infrastructure; the consistency of the alternative with the General Plan, zoning, and other plans and regulatory limitations; and the effect of applicable jurisdictional boundaries.

4.1.3 AVOIDANCE OR SUBSTANTIAL REDUCTION OF SIGNIFICANT EFFECTS

The evaluation of alternatives must also take into account the potential of the alternative to avoid or substantially lessen any of the significant effects of the proposed project, as identified in this EIR. The potential environmental effects of the proposed project are summarized in the "Executive Summary" of this EIR.

4.2 ALTERNATIVES CONSIDERED BUT REJECTED FROM DETAILED ANALYSIS IN THE EIR

4.2.1 ALTERNATIVE LOCATION – OFF-SITE ALTERNATIVE

An alternative may be evaluated to consider the possibility of avoiding significant location-related impacts and provide a greater range of possible alternatives to consider in the decision making process. The key question is whether an off-site alternative is available that would feasibly attain most of the basic objectives of the proposed project and avoid or substantially lessen any of the environmental effects of the proposed project (*CEQA Guidelines,* Section 15126.6[a]).

An off-site alternative would not meet the project's basic objectives. The former Crows Landing Naval Auxiliary Landing Field (NALF) was identified and conveyed to the County to further economic development. The reuse of this previously disturbed site and its remaining infrastructure would promote job creation, while avoiding or reducing impacts to agricultural lands within Stanislaus County. Specifically, an off-site alternative would not provide for the reuse of the former Crows Landing and its remaining infrastructure including roads, on-site wells, and other features.

The former military property was conveyed to Stanislaus County by the U.S. Congress through Public Law 106-82. Section 2 of the law identifies the property to be conveyed, terms of the conveyance with regard to environmental remediation, and identifies specific terms for site use by NASA following conveyance. Paragraph

3(c) identifies states, “NASA shall retain the right to use for aviation activities, without consideration and on other terms and conditions mutually acceptable to NASA and Stanislaus County, California, the property described in Section 2.” The proposed project includes retaining one of the two military runways as a general aviation airport, which will provide NASA with the ability to perform aviation activities concurrent with other site development. The development of an off-site alternative would hinder the County’s ability to maintain the site for ongoing aviation use under the terms of Public Law 106-82, and it would not honor the history and unique contributions of the former Crows Landing Air Facility. If an off-site alternative was selected, the County would still need to maintain the airfield pavements.

The County has high-quality farmland, and most of the undeveloped land in the County is under agricultural production. Therefore, if there were an off-site alternative available, it would not likely reduce agricultural impacts when compared with the proposed project. As illustrated by Stanislaus Council of Governments in the 2014 *Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) EIR*, Section 4.2-1, virtually all of the valley portions of Stanislaus County outside developed areas are classified as Important Farmland (StanCOG 2014).

To meet the project objectives related to regional transportation access, it is possible that an off-site alternative would also be located near the scenic vistas and scenic resources along some portions of I-5 in a visually similar site, thus creating similar aesthetic impacts. Impacts to biological resources and wetlands would likely be similar in a comparable setting. Because few noise-sensitive land uses occur in the vicinity of the project site, an off-site alternative would not likely reduce land use compatibility issues related to noise compared to the proposed project.

In addition, many of the potential impacts occur on a regional scale and are not sensitive to the location of the project site. An alternative anywhere in the same air basin would incur similar air quality impacts. Population, housing, and employment impacts would be countywide, as would travel demand and traffic impacts. Many of the off-site infrastructure improvements, such as improvements associated with the I-5 interchange, could still be required by the addition of a similar project location in the region and generate similar impacts.

It is critical in the development of alternatives to consider feasibility. The County does not have access to any other large properties with the unique access to transportation facilities provided at the proposed project site. The location of the proposed project near I-5 is essential; an off-site alternative further from I-5 could increase air quality and other transportation-related impacts because trips could be longer and truck-related trips could pass through developed areas. In addition, the County would prefer to re-use previously disturbed land for this project instead of converting agricultural or vacant land in other locations and this approach would help to reduce potential impacts.

Since the former Crows Landing NALF is the only site in the County that would meet the project objectives; given the likelihood that an alternative site would have similar or increased environmental impacts as the proposed project; and considering feasibility related to site availability and acquisition, the County has elected in this case not to examine an off-site alternative in detail.

4.2.2 ALTERNATIVE USE OF PROJECT SITE

A Notice of Preparation (NOP) was circulated to the public to solicit recommendations for a reasonable range of alternatives to the proposed project. Additionally, two public scoping meetings were held during the public review period to solicit input. One alternative was recommended.

One comment received during the scoping phase of the EIR suggested that the Crows Landing Air Facility property should be developed as an entertainment center with vehicle racing, concerts, air shows, etc. However, development of the project site as an entertainment center would not meet the basic project objectives, specifically to create a regional business park employment center attractive to industrial, manufacturing, distribution, and other aviation-compatible uses, to provide a public-use, general aviation airport, and to provide sustainable-wage jobs. In addition, there is no evidence that this alternative would avoid any of the significant impacts associated with the proposed project.

Any other alternative use of the project site would not achieve the basic project objectives and substantially avoid or reduce any environmental impacts compared to the proposed project. The County has elected not to examine any alternative uses of the project site in detail.

4.3 ALTERNATIVES CONSIDERED IN DETAIL

Section 4.3 provides a comparative analysis of the alternatives that were selected by the County for detailed analysis in the EIR: Alternative 1: No-Project Alternative; and Alternative 2: Reduced Project Boundary.

4.3.1 ALTERNATIVE 1: NO-PROJECT

CEQA Guidelines, Section 15126.6(e)(2), states that a discussion of the "No Project" alternative must consider "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans." The project site is zoned and designated by Stanislaus County to be used for agriculture, and the majority of the site is currently used for agriculture. Therefore, the No-Project Alternative for purposes of this analysis consists of continued agricultural use. The remnants of infrastructure, including the runways, air traffic control tower, remnant roads, and disturbed areas associated with the air facility would likely remain. NASA would continue to be allowed to use the site for aviation, when necessary, as consistent with Public Law 106-82. Without the proposed project, the remaining site facilities, including the runway, could be vulnerable to ongoing vandalism and blight.

ABILITY OF ALTERNATIVE TO MEET PROJECT OBJECTIVES

Alternative 1, No Project, would not meet the project's primary objective, which is the reuse of the former military property to create a regional employment center. This alternative would not meet any of the other project objectives.

4.3.2 ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Instead of reusing the approximately 1,528-acre project site, the County considered an alternative that would provide for the reuse and development of only 810 acres of the site. As shown in Exhibit 4-1, Alternative 2 would be similar to Phase 1 of the proposed project. The County anticipates that Alternative 2 would include on- and

off-site infrastructure, including some off-site roadway improvements. Runway 12-30 would be reused and improved to create a public-use airport. A gateway entrance would be developed at the intersection of Ike Crow and Bell Roads and on Fink Road east of the Delta-Mendota Canal. Another site entrance would be constructed on Bell Road between the intersection with Fink Road and the southern airport boundary.

Development under Alternative 2 focuses on the area south of the proposed airport in two discrete areas identified as the Fink Road Corridor and the Bell Road Corridor:

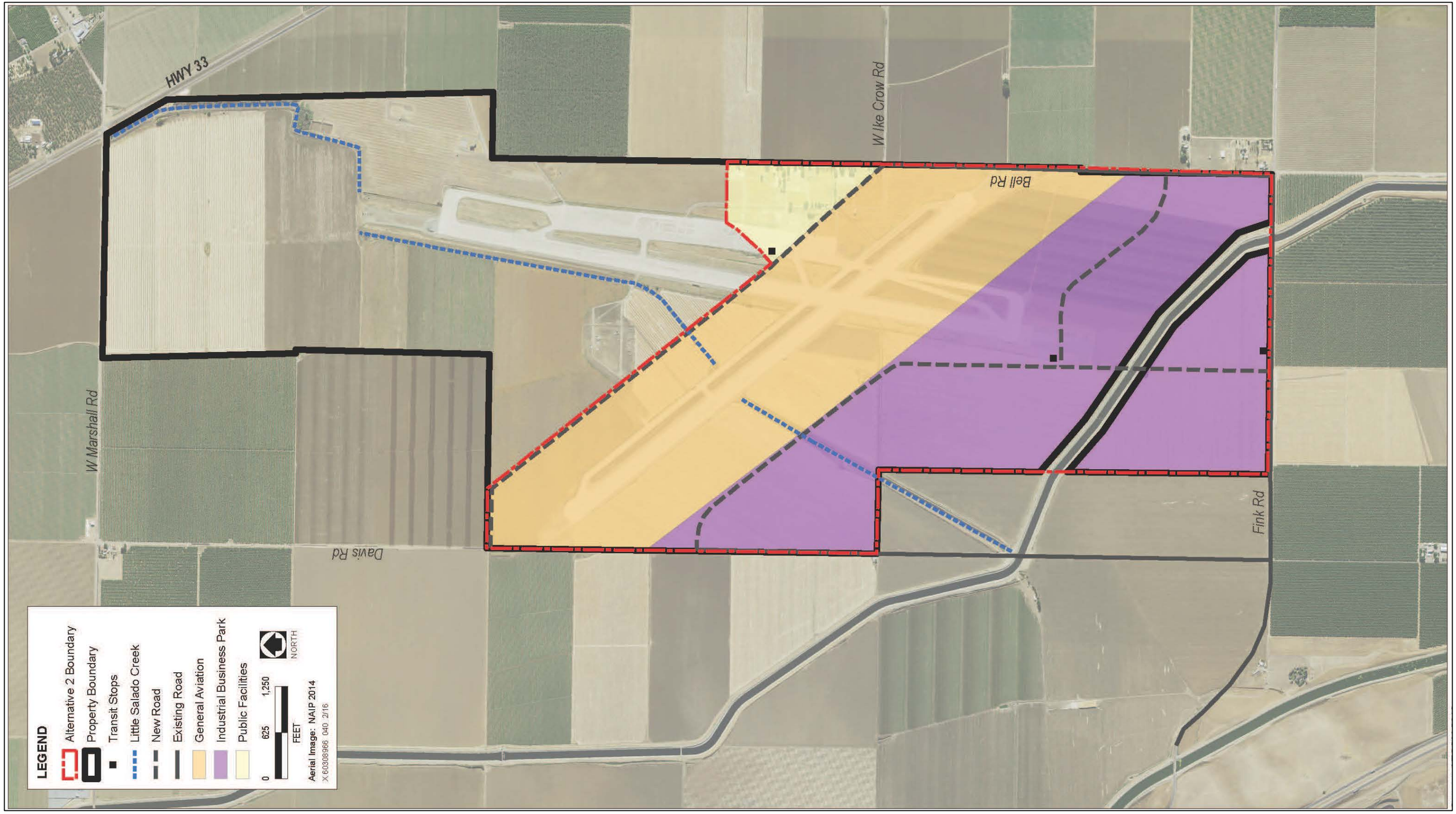
- **Fink Road Corridor.** The approximately 103-acre Fink Road Corridor extends northward from Fink Road to the southern bank of the Delta-Mendota Canal. The parcel is bound to the north and east by the canal, to the south by Fink Road, and to the west by an off-site agricultural area. Industrial, logistics, and business park development are anticipated in this area, which is ideal for site developers requiring more than 1 million square feet of building space and proximity to I-5. Access to the parcel would be provided by I-5 and Fink Road.

- **Bell Road Corridor.** The approximately 276-acre Bell Road Corridor extends northeast from the Delta-Mendota Canal to the southern airport boundary (fence), with a western boundary formed by Davis Road. Industrial, logistics, and business park uses are anticipated in this area. Similar to the Fink Road Corridor, this area is ideal for site developers requiring more than 1 million square feet of building space. Access to the parcel would be provided by I-5, Bell Road, and Fink Road.

- **General Aviation Airport.** A new 370-acre airport would provide opportunities for recreational and business aviation and to serve as an amenity to the proposed CLIBP. Development would include repairing, resurfacing, and remarking of the existing runway and taxiways, providing tie-down and hangar areas, a wash rack, airfield signs, a security fence, an entrance road, a sign, and an airport office. Other facilities would be developed as funding becomes available, in accordance with the sequence provided in the proposed Airport Layout Plan (ALP). Access to the airport would be available from Fink and Bell roads or from SR 33 and the Ike Crow Road extension to Davis Road.

- **Public Facilities.** Under Alternative 2, 15 acres would be developed in the base's former administration area, which contains remnant roadways and infrastructure that might be refurbished or reactivated to support the proposed CLIBP. Specific uses envisioned for the Public Facilities area include local and district government offices, fire suppression and law enforcement facilities, and professional offices, including medical and dental offices exclusive of in-patient care. The public facilities could include employee development facilities, including on-site classroom training facilities or adult instruction spaces.

- **Road Improvements**. Roadway infrastructure would include a new road that extends north from Fink Road to the southern airport boundary and west to Davis Road. A new road would be constructed east of the new internal road to provide a connection to Bell Road. Under this alternative, the County anticipates off-site road improvements to Bell Road between Ike Crow Road and Fink Road, Ike Crow Road between Bell Road and SR 33, Davis Road between Fink Road and Backbone Roadway, and Marshall Road from the project entrance to SR 33. Intersection improvements and signalization would be required at Fink Road interchange and four intersections: Sperry at SR 33, West Ike Crow Road at SR 33, Fink Road at Bell Road, and Fink Road at the project entrance. Transit service would be accommodated, as with the proposed project.



Source: AECOM 2016

Exhibit 4-1. **Alternative 2**

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- **Infrastructure Improvements.** Improvements would focus on the portion of the CLIBP that includes the new airport and the land south of the airport. The County would also develop a wellhead treatment system to provide water to the Fink Road Corridor, Bell Road Corridor, airport, and 15 acres of the Public Facilities area. Infrastructure development would include distribution pipes and valves, the construction of a water storage tank east of the intersection of Davis and Fink roads, and a well booster pump station. Wastewater improvements would include the construction of a gravity trunk line, two new lift stations, and a force main in Marshall Road to convey effluent to the WHWD trunk main in Ward Avenue. Stormwater management improvements would include improvements to the Little Salado Creek channel and replacing/enhancing the on-site culverts that convey flows below the runway. Other proposed improvements include the full retention of flows from each leasehold developed and raising the portion Davis Road west of the Delta Mendota Canal to block flows from ponding on that site.

- **Monument.** The former Air Traffic Control Tower remains on the east side of the site. Although the tower can no longer be used for aviation purposes, the structure which would serve as the focal point for a small green space area and monument to the site's former military use.

Unlike the proposed project, Alternative 2 would not include the development of the SR 33 corridor, the northern portion of the Public Facilities area, the multimodal path, or the additional airport-related use area north of the proposed continuation of Ike Crow Road. The balance of the site would continue to be used for agriculture.

Ability of Alternative to Meet Project Objectives

Alternative 2 has the potential to achieve some of the project objectives, as described below:

- Create a regional employment center on the former Crows Landing Air Facility property that provides locally based, sustainable-wage employment, and promotes work force development through on-the-job training and support for locally based small businesses.

    - Alternative 2 would create a regional employment center on the former Crows Landing Air Facility Property, although not to the extent of the proposed project. It is estimated that Alternative 2 could provide up to an estimated 5,300 jobs at full build out compared to approximately 14,000 to 15,000 for the proposed project.

- Create an attractive location for industrial, manufacturing, distribution, and other aviation-compatible uses within the site boundaries that can capitalize on the site's proximity to I-5, Interstate 580, Highway 33, and other regional, national, and international transportation facilities, while reducing commuter traffic/vehicle miles traveled (VMT) on regional roads.

    - Alternative 2 would create an attractive location for the identified land uses and would still capitalize on the site's proximity to transportation facilities. Alternative 2 would meet this objective.

- Offer a mix of land use classifications to accommodate aviation-compatible uses while remaining flexible in terms of the size and configuration of available parcels, vertical development, and compatibility with surrounding uses and infrastructure.

- Alternative 2 would offer a mix of land use classifications and would be compatible with surrounding uses and infrastructure. Alternative 2 would meet this objective.

- Provide services for site workers, such as: transit and alternative transportation options, on-site food service, appropriately located day care facilities, and automated banking opportunities.

  - Alternative 2 would provide the opportunity for services for site workers, including transit. Alternative 2 would meet this objective, but not to the same extent as the proposed project.

- Provide sufficient site infrastructure to enable "shovel-ready" development opportunities. Such infrastructure includes potable and non-potable water, sewer, stormwater management, dry utilities, and circulation improvements (*i.e.*, "backbone development").

  - Alternative 2 would include the development of infrastructure to enable "shovel-ready" development opportunities on the industrial business park south of the airport. Alternative 2 would meet this objective.

- Repurpose former military runway 12–30 for the development of a public-use, general aviation airport to complement the proposed CLIBP and the terms of the property conveyance.

  - Under Alternative 2, initial infrastructure would be constructed to rehabilitate the former military runway to be used as a public-use, general aviation airport. Future development (additional aircraft tie-downs and hanger sites, additional apron area, heliport construction, and an internal perimeter road) would occur based on user-demands. Alternative 2 would meet this objective.

- Provide for an attractive, walkable industrial business park campus that makes a positive statement for the area and for Stanislaus County and respects the needs of its neighbors, adjacent landowners, and the agricultural character of the County's West Side.

  - Alternative 2 would include a business park campus that would be attractive and walkable. However, the multimodal transportation corridor along Bell Road included as part of the proposed project would not be developed under Alternative 2. Alternative 2 would meet this objective, although not to the same extent as the proposed project.

- Honor the unique contributions of the former Crows Landing Air Facility and Stanislaus County to our nation's history, while looking ahead to improve the lives of current and future residents.

  - Alternative 2 would include a monument intended to honor the area's history and would include development that would improve the lives of current and future residents. Alternative 2 would meet this objective.

4.4 COMPARISON OF ALTERNATIVES

This section compares the potential environmental effects of each alternative to the potential environmental effects of proposed project that are examined in detail in this EIR.

4.4.1 AESTHETICS

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Alternative 1 envisions ongoing agricultural production on the project site. The site's visual character would not change. There would be no impact on scenic vistas or scenic resources within a state scenic highway. There would be no additional sources of light or glare. Aesthetic impacts associated with Alternative 1 would be similar to existing conditions and would be substantially reduced compared to the proposed project. *[Reduced]*

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Alternative 2 would include the same type of development as the proposed project, but the project would involve slightly more than half the acreage associated with the proposed project. Therefore, the type of aesthetics impacts would be similar to those of the proposed project, but the extent of on-site visual change would be reduced.

Alternative 2 would considerably alter existing views of, and from the project site. Views from the scenic vista overlook from I-5 would be affected by on-site development, although, as with the proposed project, these views are limited by distance, road cuts, travel speeds, and vegetation. Alternative 2 would alter the visual character of the project site from both public and private viewing locations, although the extent of on-site visual change would be reduced, when compared with the proposed project.

Section 3.1, "Aesthetics," Exhibit 3.1-1, shows the location of the nine observation points from which the public would view the project. From viewpoints around the southern portion of the project site (Viewpoints 5 to 8), the view would be the same for Alternative 2 compared to the proposed project. Views along SR 33 (Viewpoints 2, 3, and 4) of the project site would also be substantially the same, although the northern portion of the project site would remain under agricultural production. From the scenic vista point on I-5 (Viewpoint 1), the proposed project would be visible although, as with the proposed project, these views are limited by distance, road cuts, travel speeds, and vegetation. Although the northern portion of the project site would remain under agricultural production, development of Alternative 2 would still affect the viewshed. Views from the corner of Ward Avenue and Oak Flat Road (Viewpoint 9) would also be impacted by Alternative 2, although not to the same extent as would occur under the proposed project.

In addition, as with the proposed project, Alternative 2 would bring sources of nighttime lighting and could construct facilities with reflective surfaces that could cause glare. This would increase ambient nighttime lighting and daytime glare in the vicinity of the project. However, with the substantial reduction in the project size, aesthetics, light, and glare impacts would be reduced compared to the proposed project. [*Reduced*]

4.4.2 AIR QUALITY

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Under Alternative 1, the project site would continue to be used for agricultural production. Existing air pollutant emissions associated with agricultural activities would still occur under Alternative 1. However, because no construction or development would occur, the amount of construction-related air pollutants that would be generated under Alternative 1 would be substantially reduced, as compared to the proposed project. Operational

generation of criteria air pollutants and precursors, as well as exposure to toxic air contaminants, would also be reduced compared to the proposed project. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Alternative 2 would allow development on a substantially smaller footprint compared to the proposed project. Just as with the proposed project, construction of Alternative 2 would involve the temporary and short-term generation of criteria air pollutants and precursors, as well as toxic air contaminant emissions resulting from demolition and construction activities. Due to the reduced development footprint, the total amount of daily air pollutant emissions would be reduced under this alternative, as shown in Table 4-1. San Joaquin Valley Air Pollution Control District (SJVAPCD) construction thresholds are based on the maximum emissions in any given year. Thus, both Alternative 2 and the proposed project would exceed SJVAPCD thresholds for ROG and NO_X, but the exceedances under Alternative 2 would be for a shorter period of time than for the proposed project.

Table 4-1
Mitigated Construction-Related Emissions: Proposed Project Compared to Alternative 2

	Emissions (tons) [1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
SJVAPCD Thresholds (tons/year)	10	10	100	27	15	15
Alternative 2 Total Construction Emissions (9 years)	123.42	136.96	404.15	1.10	64.18	19.50
Maximum annual emissions (tons/year)	*15.05*	*23.35*	*58.15*	*0.15*	*8.19*	*2.49*
Exceed thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*
Proposed Project Total Construction Emissions (29 years)	191.20	163.29	525.72	1.46	100.09	29.46
Maximum annual emissions (tons/year)	*15.05*	*23.35*	*58.15*	*0.15*	*8.19*	*2.49*
Exceed thresholds? [2]	*Yes*	*Yes*	*No*	*No*	*No*	*No*

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particular matter less than or equal 2.5 microns in diameter; ROG = reactive organic gases; SJVAPCD = San Joaquin Valley Air Pollution Control District

[1] All emissions are shown in units of tons unless noted otherwise.

[2] Significance is determined using the maximum annual emissions.

Source: AECOM 2016

Total operational emissions under Alternative 2 would be lower compared to the proposed project, as shown in Table 4-2. However, Alternative 2 would still exceed the SJVAPCD thresholds for ROG, NO_x, CO, and PM_{10} emissions. Where the proposed project is estimated to exceed the $PM_{2.5}$ threshold, the $PM_{2.5}$ emissions for Alternative 2 are estimated to be under this threshold.

Table 4-2
Annual Operational Emissions: Proposed Project Compared to Alternative 2

	Emissions (tons/year)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
SJVAPCD Thresholds (tons/year)	10	10	100	27	15	15
Alternative 2 Total Annual Operational Emissions	69.52	170.32	231.96	0.61	22.01	6.96
Exceeds Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*No*	*No*
Proposed Project Total Annual Operational Emissions	175.79	399.71	656.48	1.74	62.29	19.69
Exceeds Thresholds?	*Yes*	*Yes*	*Yes*	*No*	*Yes*	*Yes*

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter less than or equal to 10 microns in diameter; $PM_{2.5}$ = particular matter less than or equal 2.5 microns in diameter; ROG = reactive organic gases; LTO = landing and take-off; SJVAPCD = San Joaquin Valley Air Pollution Control District

Source: AECOM 2016

Both the proposed project and Alternative 2 would exceed SJVAPCD thresholds of significance during operational and construction phases. With the reduction in overall development, Alternative 2 emissions would be reduced, however, when compared to the proposed project. [*Reduced*]

4.4.3 AGRICULTURAL RESOURCES

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

According to the Stanislaus County Important Farmland map, published by the California Division of Land Resource Protection (DOC 2014), approximately 1,178 acres of land within the project site is designated as Prime Farmland and active agricultural land uses on the project site coincide with this farmland designation.[1] Under Alternative 1, the project site would continue to be used for agricultural production. There would be no impact to agricultural resources. *[Reduced]*

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Similar to the proposed project, implementation of Alternative 2 would permanently convert agricultural farmland, including Prime Farmland, to nonagricultural uses. The proposed project would convert 1,178 acres of Prime Farmland, whereas Alternative 2 would permanently convert an estimated 676 acres of Prime Farmland. Alternative 2 would also involve a reduction in the amount of potential agricultural land conversion associated with off-site improvements. Since Alternative 2 would involve less development than the proposed project and would convert less Prime Farmland, there would be a reduced impact to agricultural resources. *[Reduced]*

4.4.4 BIOLOGICAL RESOURCES

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Continued agricultural uses on the existing parcels would not meet the definition of a "project" under CEQA and, therefore, a mitigation monitoring plan with measures to reduce potential adverse effects on biological resources would not be required. However, the County would still be required to comply with Sections 1602, 3503, 3511, 4700, 5050, and 5515 of the California Fish and Game Code, which prohibit diversion or obstruction of streamflow and streambeds, prohibit "take" of protected species (including raptors), and prohibit destruction of nests or eggs of any bird.[2] The County would also still be required to comply with Section 404 of the Federal Clean Water Act, which requires that a permit be obtained from the U.S. Army Corps of Engineers before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Finally, the federal Endangered Species Act (16 U.S.C. Section 1531 *et seq*.) prohibits private parties from engaging in any activity that may result in "take" of a species listed as threatened or endangered.

Because no development would occur under Alternative 1, no impacts to special-status plants and animals and their habitats or to waters of the U.S. would occur. The users of the land would be required to comply with all

[1] Using the Farmland Mapping and Monitoring Program GIS files from the Department of Conservation produces totals for the land area in the project site that are very slightly different from the totals reported elsewhere in this EIR. The difference is less than five acres.

[2] "Take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Fish and Wildlife Service has also interpreted the definition of "harm" to include substantial habitat modification that could result in take.

applicable State and federal regulations that prohibit impacts to special status plants and animals and their habitats and to waters of the U.S. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

As with the proposed project, Alternative 2 would have the potential to adversely affect special-status plants and habitat for special-status species. Impacts related to the loss and degradation of habitat for special-status wildlife and plant species would be similar in type, although they would be reduced due to the smaller development footprint and reduced acreage associated with Alternative 2.

The proposed project would result in the removal or approximately 3.31 acres of seasonal stream habitat, as described in Section 3.4 of this EIR. Alternative 2 would result in the removal of approximately 1 acre of stream habitat (Little Salado Creek). Alternative 2 would result in the removal of approximately 600 acres of cropland that provides suitable foraging habitat for special-status raptors (Swainson's hawk, white-tailed kite, northern harrier, and burrowing owl) and common raptors protected under California Fish and Game Code and the Migratory Bird Treaty Act compared to 1,146 acres for the proposed project.

Implementation of either alternative would result in removal and disturbance of stands of emergent marsh, willow scrub, and saltbush scrub vegetation that provide suitable nesting habitat for tricolored blackbird, loggerhead shrike, and common nesting birds. Other trees and shrubs that provide potential nest sites for loggerhead shrike would also be removed. In addition, implementation of either alternative would remove potential roosting habitat for the pallid bat. Project construction for either alternative could result in direct destruction of active Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, or common raptor nests or disturb nesting raptors located on or near the project site and off-site improvement areas, resulting in nest abandonment by adult birds and abandonment and mortality of chicks and eggs.

The northern area that would remain under agricultural production would continue to provide suitable habitat and foraging areas for special-status species. Alternative 2 would require fewer off-site infrastructure improvements. Although the off-site improvement areas are within and along active roadways traversing urban, residential, and agricultural areas that are highly disturbed, off-site infrastructure improvements could impact special status species and off-site overcrossings of waterways could result in discharge of fill into additional waters of the United States. [*Reduced*]

4.4.5 CULTURAL RESOURCES

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

As stated above, continued agricultural uses on the existing parcels would not meet the definition of a "project" under CEQA and, therefore, a mitigation monitoring plan would not be implemented. However, all property owners would still be required to comply with Section 7050.5 of the Health and Safety Code, which governs the treatment of human remains. In addition, Section 5097.98 of the California Public Resources Code prevents any person from obtaining or possessing Native American artifacts or human remains taken from a grave or cairn.

Archaeological investigations at the project site concluded that no known significant cultural resources are present. Although there is always a potential that previously unknown deposits may be present under the ground surface, the project site has been disturbed by agricultural cultivation and the construction and operation of

military facilities during its more than 50 years of operation, and the identification of surface prehistoric resources during project implementation is unlikely. Because Alternative 1 would involve continuing agricultural uses, a very small amount of earth-moving activities would occur compared to the proposed project. Therefore, the potential for adverse impacts to cultural resources would be substantially lower. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

As with the proposed project, a segment of the Delta-Mendota Canal, listed on the California Register of Historic Places (CRHP), would be affected by implementation of Alternative 2. However, the character-defining features of the canal, particularly its sloped concrete walls, would not be impaired. The addition of the proposed bridge would not alter or diminish the canal's location, design, materials, workmanship, feeling, and association. The potential effect to the Delta Mendota Canal would be the same as that associated with the proposed project.

Archaeological investigations at the project site have determined that no known significant cultural resources are present. Although the project site and off-site improvement areas are within and along active roadways traversing urban, residential, and agricultural areas that are highly disturbed, there is always a potential that previously unknown deposits may be present under the ground surface. The County does not have information that suggests construction at any particular location that would be impacted by the proposed project or that Alternative 2 would have a higher likelihood of encountering unknown cultural resources. Therefore, the potential for cultural resources impacts would be similar. [*Similar*]

4.4.6 ENERGY

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Under Alternative 1, the project site would continue to be under agricultural production. The energy demands would not change compared to baseline conditions unless agricultural operations changed in a way that affects the required use of energy. The County does not have evidence that this would occur under this alternative. *[Reduced]*

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Alternative 2 would consume energy for both construction and operation. However, it is expected that construction-related fuel consumption associated with either the proposed project or Alternative 2, along with associated off-site infrastructure improvements, would not be any more inefficient, wasteful, or unnecessary than similar development in other construction sites in the region. In addition, the proposed commercial and industrial buildings constructed in the Specific Plan Area would be more energy efficient than average, similar use buildings in the county. Current building code energy efficiency requirements are more stringent compared to those the applied in the past, and future effective building code energy efficiency requirements will be more stringent than those that currently apply.

Alternative 2 would increase the diversity of employment opportunities currently available in the County, and it could provide County residents with local employment opportunities that avoid long commute trips. Adding employment opportunities in sectors for which residents currently commute long distances could also help decrease per-capita demand for transportation-related energy over time. The implementation of energy efficiency requirements and renewable energy generation requirements would decrease the overall per-employee energy

consumption within the Specific Plan as it is developed. This alternative – just as with the proposed project – would be required to comply with State building code standards that require a high level of energy efficiency. Considering this information, similar to the proposed project, Alternative 2 and the off-site infrastructure improvements would not be expected to cause the inefficient, wasteful, or unnecessary consumption of energy. While a greater total energy demand may be associated with the proposed project compared to Alternative 2, the efficiency of energy use is anticipated to be similar. *[Similar]*

4.4.7 GREENHOUSE GAS EMISSIONS

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Under Alternative 1, the area would continue to be used for agriculture. Agriculture does produce some greenhouse gas (GHG) emissions, but less than the GHG emissions associated with construction and operation of the proposed project. Thus, the amount of GHG emissions that would be generated under Alternative 1 would be substantially reduced as compared to the proposed project. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Compared to the proposed project, Alternative 2 would have a reduced need for off-site infrastructure improvements. Therefore, the total amount of construction GHG emissions would be reduced under this alternative, as shown in Table 4-3.

In addition to examining the total project GHG emissions, it is also important to consider the *rate* of emissions needed to stay within the project's fair share of the State's emissions mandate embodied in Assembly Bill 32, The Global Warming Solutions Act of 2006 (AB 32), and SB 32, which extends the State's GHG goals to 2030. The rate is calculated as the GHG emissions per employee as shown in Table 4-3. Alternative 2 would facilitate development that could support approximately 5,000 jobs compared to approximately 14,000 to 15,000 jobs for the proposed project, and the rate (per employee) of GHG emissions is estimated to be higher under Alternative 2.

Table 4-3
Construction-Related GHG Emissions: Proposed Project Compared to Alternative 2

Construction Phase (Years)	Emissions (MT CO_2e)
Alternative 2 Total Emissions	83,229
Rate of emissions (per employee)	*16.6*
Proposed Project Total Emissions	109,613
Rate of emissions (per employee)	*7.3*

Notes: MT CO_2e = metric tons of carbon dioxide equivalent.
Source: data compiled by AECOM 2016

Total operation-related GHG emissions would also be reduced compared to the proposed project due to the reduced development provided under Alternative (Table 4-4). However, Alternative 2 is not as GHG efficient (per employee) as the proposed project. As explained elsewhere in this EIR, the unemployment rate in Stanislaus County has been higher than the statewide average for many years. Many residents commute to distant job centers outside of the County, frequently traveling to Sacramento and the San Francisco Bay Area (Bay Area). Efforts to bring employment opportunities, such as the project, to the northern San Joaquin Valley could have benefits for mobile-source criteria air pollutant emission rates. While the County's intent is to facilitate employment

development, and while this could help to reduce commute traffic, where individual households choose to live and to work is beyond the County's control. However, Alternative 2 and the proposed project may have benefits related to reducing the rate of commute-related vehicle miles traveled (VMT) by Stanislaus County residents. Since the proposed project would accommodate a greater number of jobs, it is possible that this type of benefit could also be greater under the proposed project, when compared with Alternative 2.

The total GHG emissions associated with the proposed project would exceed the GHG emissions associated with Alternative 2, but the *rate* (per employee) of GHG emissions associated with the proposed project would be lower when compared with Alternative 2. Both the rate and total amount of emissions are relevant for determining whether the Alternative's impacts are greater or lesser compared to the proposed project. For the purpose of this analysis, the County has determined that, compared to the proposed project, impacts to GHG emissions under Alternative 2 are considered lower. [*Reduced*]

Table 4-4
Annual Operational GHG Emissions (MT CO_2e/year)**: Alternative 2 Compared to the Proposed Project**

Emissions Source	Alternative 2	Proposed Project
Area	0.11	0.42
Energy	170	19,332
Mobile	38,540	65,902
Waste	2,540	11,419
Water	1,697	6,251
Transport Refrigeration Units	36,044	50,469
High-GWP Refrigerants	6,745	19,180
Aircrafts	175	175
Total Annual Operational Emissions	**85,911**	**172,728**
Amortized Construction Emissions [2]	2,774	3,654
Total Annual Alternative 2 Emissions [3]	**88,685**	**178,772**
Project GHG Efficiency (per Employee) [4]	**17.74**	**11.76**

Notes: MT CO_2e = metric tons of carbon dioxide equivalent;
Totals may not appear to add exactly due to rounding.
[1] Aircraft emissions represent the airport operations in the opening year. It is anticipated that airport operations would increase over time based on market conditions.
[2] The proposed project's Phase 1 construction emissions, which were used as a surrogate for Alternative 2 construction emissions, were amortized over 30 years, which is the assumed lifetime of the proposed project. See Table 3.7-3 in Section 3.7, "Greenhouse Gas Emissions" for detailed construction GHG emissions.
[3] Alternative 2 total annual emissions include annual operational emissions added with construction emissions amortized over 30 years.
[4] Alternative 2 is anticipated to provide approximately 5,000 jobs at full buildout.
Source: AECOM 2016

4.4.8 GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Under Alternative 1, the project site would continue to be used for agricultural production. Thus, no site-specific geotechnical reports, grading and erosion control plans, or site-specific paleontological resources reports would be prepared. In addition, no septic system would be developed. Although the site is still located in an area subject to certain geologic hazards, agricultural use would be substantially less at risk than the proposed project. *[Reduced]*

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

The project site and off-site infrastructure improvement areas have a similar geological profile. Project-related facilities and off-site facilities could be subject to hazards from strong seismic ground shaking, liquefaction, and seismically-induced settlement. Facilities constructed at the project site and the off-site infrastructure improvements could be subject to geologic hazards related to settlement from soil compression, subsidence, settlement, and perched groundwater during the winter months. The project site is composed of soils that have a moderate to high potential for expansion when wet and may result damage to proposed structures and infrastructure. With the reduced development potential provided under Alternative 2 and the reduced need for off-site infrastructure improvements, the impacts to geology, soils, minerals, and paleontological resources would be proportionally reduced.

Ground-disturbing activities associated with construction could result in substantial soil erosion or the loss of topsoil at the project site, although the potential impact would be reduced due to the reduced project size and the reduced need for off-site infrastructure improvements.

The same mitigation measures identified for the proposed project would also be available to Alternative 2, such as incorporating recommendations from site-specific geotechnical reports, grading and erosion control plans, and site-specific paleontological resources reports. *[Reduced]*

4.4.9 HAZARDS AND HAZARDOUS MATERIALS

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Since Alternative 1 would not involve any construction, the potential for accidental spills of hazardous materials or construction workers exposure to hazardous materials would be greatly reduced. However, the project site contains a commingled contaminated groundwater plume originating from three sources within the Site 17 Administration Area. Ingestion, inhalation, or dermal contact with contaminated groundwater could cause health impacts. Land use controls have been and would continue to restrict on-site groundwater use until the remedial goals for groundwater are achieved. The property will be remediated to support conveyance under this and any alternative.

Approximately 1,100 acres of the project site is currently used to cultivate row crops. Two above-ground storage tanks (ASTs) of unknown capacity are on site, which are owned by the County's agricultural tenant. These tanks have been used and are expected to be used on an ongoing basis to store fuel for irrigation pumps. Pesticides have been used historically at the site, and ongoing pesticide use could be expected on site and on the adjacent agricultural lands. Agricultural chemical use and fuels in the two ASTs represent potential sources of environmental contamination that could pose a human health and environmental hazard during future activities. This alternative would not change these existing conditions. Overall, the potential hazardous materials impacts associated with the baseline condition and its potential impacts would be reduced compared to impacts associated with implementation of the proposed project. *[Reduced]*

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Soil and groundwater contamination at the site occurred as a result of former activities at the Crows Landing Naval Auxiliary Airfield, and groundwater remediation is ongoing. Even with a reduced project boundary, construction workers could be exposed to presently unknown areas of groundwater contamination, fuel from the

existing ASTs used for agricultural production, and asbestos and lead-based paint in the remaining air traffic control tower. Construction of some of the proposed off-site infrastructure improvements could expose construction workers and the environment to known hazardous materials. Finally, ongoing construction activities could also result in temporary lane closures, increased construction truck traffic, and other roadway effects that could slow or interfere with emergency vehicles, temporarily increasing response times and impeding existing services.

Mitigation strategies identified for the proposed project would also apply to this alternative, such as the preparation of a worker health and safety plan, continued compliance with the land use controls restricting on-site groundwater use, and the development of a construction traffic control plan. Implementation of these measures would reduce the potential impacts. Potential impacts would be similar to the proposed project. *[Similar]*

4.4.10 HYDROLOGY AND WATER QUALITY

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Alternative 1 would enable continued agricultural use of the project site. Under Alternative 1, specific measures to protect water quality identified for implementation of the proposed project would not be implemented. Agricultural production has the potential to affect water quality as a result of increased nutrient loads from fertilizer, the presence of toxic fecal coliform from animal waste, or increased erosion and runoff. However, water quality effects related to livestock are considered unlikely under this alternative. Because the proposed project includes measures to reduce construction-related water quality impacts, and because the project would appropriately collect, convey, and treat stormwater runoff generated during project operation, potential hydrology and water quality impacts from the proposed project would be reduced to a less-than-significant level after mitigation.

However, without the proposed project, the continuing lack of stormwater detention and treatment, and associated water quality impacts would continue both on- and off-site. Specifically, the accumulation of excess stormwater runoff in the northeastern portion of the project site is known to occur and is primarily a result of limited discharge capacity within the existing Marshall Road Drain. During heavy rainfall events, runoff pools against the Union Pacific Railroad tracks at the northeastern corner of the project site, and eventually overtops the railroad and flows northeasterly towards the San Joaquin River. In addition, these flood flows also migrate north, contributing to flooding in the city of Patterson. In summary, the potential effects associated with Alternative 1 and the proposed project are considered similar to the proposed project although some flood-related conditions would be improved. [*Similar*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

With the implementation of Alternative 2, the northern portion of the project site would continue to be used for agricultural production. Hydrological and water quality conditions for this portion of the site would be the same as baseline conditions.

The southern portion of the project site would be developed. Construction and grading activities associated with implementation of Alternative 2 have the potential to cause temporary and short-term increased erosion and sedimentation. Construction-related chemicals, dust, and suspended solids could potentially contribute to pollutant loads in stormwater runoff. With the reduction in the project size and the reduced need for off-site

infrastructure improvements, such as roads, water lines, and sewer lines, the level of temporary, construction-related impacts could be reduced under Alternative 2, when compared with the proposed project.

Alternative 2 would reduce the amount of impervious surfaces added on-site compared to the proposed project and therefore would decrease the peak discharge flow and rate of stormwater runoff generated on the project site. Thus, Alternative 2 would also reduce potential effects related to groundwater recharge compared to the proposed project.

Alternative 2 could include the widening of Little Salado Creek and provide infiltration improvements, but this strategy would not have as much potential for benefits, given the smaller area envisioned to develop under Alternative 2. Mitigation strategies identified for the proposed project could also apply to this alternative. These could include a grading and erosion control plan, a stormwater pollution prevention plan, a drainage plan, a long-term site-specific operational stormwater quality management plan, and the use of best management practices. [*Reduced*]

4.4.11 Land Use and Planning and Population, Housing, and Employment

Alternative 1: No-Project Alternative

The continued use of the project site for agricultural production would not have any impact related to land use and planning, population, housing, or employment. It would not conflict with any applicable land use or habitat conservation plan, displace people or housing, induce population growth, or divide an established community. *[Reduced]*

Alternative 2: Reduced Project Boundary

Alternative 2 would not conflict with any applicable land use or habitat conservation plan, displace people or housing, or divide an established community. Similar to the proposed project, Alternative 2 could be designed to focus on the County's primary objective to provide employment opportunities. Implementation of Alternative 2 could indirectly facilitate population growth through the development of approximately 5,000 jobs, which could lead to additional housing demand in the county and region.

Similar to the proposed project, Alternative 2 would provide local employment opportunities, including opportunities for County residents, some of whom may be unemployed. Alternative 2 would not promote this goal to the same extent as would the proposed project. However, as with the proposed project, it is not possible to determine what proportion of jobs at the project site at buildout would be filled by formerly unemployed or under-employed County residents or how many of these employees would be attracted from more distant areas and relocate their households to the vicinity of the project site. *[Reduced]*

4.4.12 Noise and Vibration

Alternative 1: No-Project Alternative

Because Alternative 1 would involve continued agricultural uses, the on- and off-site construction and operational noise and vibration generated would be substantially lower than under the proposed project. Noise associated with the use of agricultural equipment would continue on the project site. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Under Alternative 2, the same types of construction equipment would be used, but for less time compared to the proposed project, given the substantially reduced development area and extent of development. Noise-sensitive land uses in the vicinity of the project site include residences located approximately 700 feet to the northeast, and residences located approximately 50 feet southeast of the project site, as well as a residence south of Marshall Road located approximately 1 mile to the west of the project site. The residences located to the northeast would have a reduced temporary noise and vibration impact from construction of Alternative 2 compared to the proposed project, because the northeastern portion of the project site is not anticipated for development under Alternative 2.

Alternative 2 would require fewer off-site infrastructure improvements than the proposed project. The improvements needed for the proposed project would generate construction and operational noise and vibration to the north of the project site and through the city of Patterson, closer to sensitive receptors. Without these off-site infrastructure improvements, noise and vibration impacts would be reduced.

The primary type of noise generated during operation of Alternative 2 is airport/aircraft and traffic noise. Airport noise generated by Alternative 2 would be the same as the proposed project, and a less-than-significant impact is anticipated under either alternative. Since Alternative 2 would have less development compared to the proposed project, fewer vehicle trips would be generated. Therefore, traffic noise would be reduced under Alternative 2 compared to the proposed project, specifically along Marshall Road from SR 33 to Davis Road and potentially along SR 33 from Ike Crow Road to Marshall Road. [*Reduced*]

4.4.13 PUBLIC SERVICES AND RECREATION

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Alternative 1, which involves continued agricultural production, would have only a minor, negligible effect related to the provision of law enforcement, fire protection, education, and parks and recreation services. However, vandalism and trespassing have occurred at the site since conveyance, and the site could be vulnerable to vandalism and trespassing under this alternative. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Since Alternative 2 would reduce the development potential on-site, the project's law enforcement and fire protection would be proportionally reduced compared with the proposed project. However, since both Alternative 2 and the proposed project would be required to comply with applicable requirements and pay applicable development impact fees, the impact on public services would be similar. [*Similar*]

4.4.14 TRAFFIC AND TRANSPORTATION

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Because Alternative 1 would involve continued agricultural production and would not require any construction, the volume of construction- and operation-related traffic would be substantially lower than the proposed project. However, no on- or off-site road or multimodal improvements would be made. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Alternative 2 would facilitate reduced development potential compared to the proposed project. Since travel demand is typically determined based on the size and type of development proposed, the traffic and transportation effects would be reduced under this alternative relative to the proposed project. Alternative 2 is expected to produce approximately 37 percent of the traffic expected from the proposed project: up to 5,345 employees that will generate a total of an estimated 19,396 daily trips, 2,092 a.m. peak-hour trips, and 2,347 p.m. peak-hour trips, compared to 14,447 employees that will generate a total of approximately 52,422 daily trips, 5,653 a.m. peak-hour trips and 6,344 p.m. peak-hour trips for the proposed project.

As with the proposed project, with implementation of Alternative 2, roadways may need improvements to add shoulders or to increase lane widths. The roads listed below are in that category, and have poor surface (likely structural) conditions:

- West Ike Crow Road – Bell Road to State Route (SR) 33;
- Davis Road – Fink Road to Airport boundary; and
- Bell Road – West Ike Crow Road to Fink Road.

The following intersections listed below have been included in the City of Patterson General Plan as locations eventually needing traffic signals. These four intersections would likely need signals as a result of implementation of Alterative 2, compared to the proposed project, which would require signals at 11 intersections.

- Sperry at SR 33;
- West Ike Crow Road at SR 33;
- Fink Road at Bell Road; and
- Fink Road at project entrance.

In addition, the Fink Road interchange, which could be used by trucks from the project site, would need to be improved for both Alternative 2 and the proposed project. Under Alternative 2, the recommended improvements to the Fink Road interchange include signalizing the northbound ramps and widening the portion of Fink Road beneath the freeway as much as possible to create a westbound left-turn lane at the southbound ramp.

Construction activities and construction impacts associated with Alternative 2 and the off-site infrastructure improvements would last for a shorter duration compared to the proposed project. Due to the reduced need for off-site circulation system improvements, Alternative 2 would have a lower impact on many environmental resources, including traffic and associated air quality, noise, and greenhouse gas emissions.

Just as with the proposed project, this alternative would be required to comply with County roadway standards, which are designed to reduce any physical traffic-related hazards. This alternative would not include the multimodal transportation corridor included along the eastern portion of the proposed project. [*Reduced*]

4.4.15 UTILITIES AND SERVICE SYSTEMS

ALTERNATIVE 1: NO-PROJECT ALTERNATIVE

Under Alternative 1, agricultural production on the project site would continue. The need for water, wastewater service and treatment, electrical services, natural gas services, and communications services would be reduced

compared the utility needs associated with the proposed project and Alternative 2. Continued agricultural production would use a similar amount of water compared to existing conditions. [*Reduced*]

ALTERNATIVE 2: REDUCED PROJECT BOUNDARY

Table 4-5 presents a conceptual comparison between infrastructure improvements needed to support Alternative 2 and the proposed project. Many of the utility improvements required by the proposed project would also be required under Alternative 2. However, with the reduction in development potential, there would also be a reduction in the level of improvements [*Reduced*].

Table 4-5
Comparison of Infrastructure Improvements Needed

Type	Alternative 2	Proposed Project
Dry Utilities (Electricity, Natural Gas, Communications)	Utility service would be provided by Pacific Gas & Electric Company (PG&E) (natural gas), Turlock Irrigation District (TID, electric) and AT&T (communications). Utilities would be located in joint trenches along the western or southern sides of on-site roadways.	Same as Alternative 2.
Sewer	Alternative 2 would require the construction of gravity trunk mains, a 2.66-Million Gallons per Day (MGD) sanitary sewer lift station southwest of the Marshall Road and State Route 33 intersection, a 0.065-MGD sanitary lift station south of the airfield near the Delta Mendota Canal, and a force main within Marshall Road to convey effluent to the existing Western Hills Water District (WHWD) trunk main in Ward Avenue.	Same as Alternative 2, plus the construction of a force main to convey sewage from the site to the City of Patterson wastewater treatment facility.
Storm Drainage	To accommodate flows on Little Salado Creek, an existing channel south of the airport would be improved. The existing box culverts would be replaced by three 4-by-8-foot box culverts to convey flows beneath the runway.	Same as Alternative 2, plus the creation of a detention basin in the northeast corner of the project site to detain flows.
Water	On-site groundwater wells and wellhead treatment would fulfill site demand. Under Alternative 2, existing on-site groundwater wells would be developed with a wellhead treatment system to provide water to the Fink Road Corridor, Bell Road Corridor, airport, and 15 acres of the Public Facilities area. Infrastructure development would include distribution pipes and valves, the construction of a water storage tank east of the intersection of Davis and Fink roads, and a well booster pump station. As with the proposed project, Alternative 2 could potentially connect with the City of Patterson water system or the Crows Landing Community Services District for blending or redundancy, but not for water supply.	Same as Alternative 2, plus additional infrastructure (pipes, valves, a water tank, and pump station). The project could potentially connect with the City of Patterson water system or the Crows Landing Community Services District for blending or redundancy, but not for water supply.
Roadways	See above under the heading “Traffic and Transportation.”	See above under the heading “Traffic and Transportation.”

4.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Alternative 1: No Project Alternative would be environmentally superior to the proposed project and Alternative 2, as shown in Table 4-6. This alternative provides the greatest opportunity for reduction in environmental effects of the proposed project. If the environmentally superior alternative is the “no project” alternative, CEQA requires

the EIR to identify an environmentally superior alternative from among the other alternatives. CEQA Guidelines Section 15126.6(e)(2).

Alternative 2 would reduce the extent of potential environmental effects compared to the proposed project, even though Alternative 2 would not reduce a significant proposed project impact to a less-than-significant level. Therefore, the Environmentally Superior Alternative is Alternative 2.

Table 4-6
Comparison of Significant Environmental Effects of the Alternatives Compared to the Proposed Project

Environmental Issue Area	Alternative 1: No-Project (No Development)	Alternative 2: Reduced Project Boundary
Aesthetics	Reduced	Reduced
Air Quality	Reduced	Reduced
Agricultural Resources	Reduced	Reduced
Biological Resources	Reduced	Reduced
Cultural Resources	Reduced	Similar
Energy	Reduced	Similar
Greenhouse Gas Emissions	Reduced	Similar
Geology, Soils, Minerals, and Paleontological Resources	Reduced	Reduced
Hazards and Hazardous Materials	Reduced	Similar
Hydrology and Water Quality	Similar	Reduced
Land Use and Planning and Population, Housing, and Employment	Reduced	Reduced
Noise and Vibration	Reduced	Reduced
Public Services and Recreation	Reduced	Similar
Traffic and Transportation	Reduced	Reduced
Utilities, Service Systems, and Energy	Reduced	Reduced
Total Reduced Impact Topics	**14**	**11**

5 OTHER CEQA CONSIDERATIONS

Other CEQA considerations include cumulative impacts, growth-inducing impacts, significant irreversible environmental changes, and significant and unavoidable effects that could be associated with the proposed project.

5.1 CUMULATIVE IMPACTS

Cumulative impacts do not refer to project-related impacts, but the impacts of a proposed project when viewed in connection with the effects of past, present, and probable future projects producing related impacts, as required by Section 15130 of the California Environmental Quality Act Guidelines (*CEQA Guidelines*). Other past, present, and probable future projects that would contribute to environmental impacts of the proposed project are referred to as "related projects."

The *CEQA Guidelines* require that cumulative impacts be analyzed in an EIR. As set forth in the *CEQA Guidelines* (14 CCR Section 15130[b]), the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. "The analysis should be guided by the standards of practicality and reasonableness, and it should focus on the cumulative impacts to which the other identified projects contribute to the cumulative impact" (*CEQA Guidelines*, Section 15130[b]).

As stated in Public Resources Code Section 21083(b)(2), a project may have a significant effect on the environment if "its effects are individually limited but cumulatively considerable." According to the *CEQA Guidelines*, Section 15355:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project which added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Cumulatively considerable "means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects" (*CEQA Guidelines*, Section 15065[a][3]).

In addition, as per the *CEQA Guidelines*: "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable."

There are two primary goals for a cumulative impact analysis:

- first, to determine whether the overall long-term impacts of all such related projects, when considered together, would be cumulatively significant; and

- second, to determine whether the project itself would cause a "cumulatively considerable" (and thus significant) incremental contribution to any such cumulatively significant impacts. (See *CEQA Guidelines,* Sections 15130[a]-[b], Section 15355[b], Section 15064[h], and Section 15065[c]).

In other words, the analysis in this EIR explains the context for the cumulative impacts analysis, evaluates the project's incremental contribution to anticipated cumulative impacts, viewed on a geographic scale well beyond the project site itself, and then to determine whether the project's incremental contribution to any significant cumulative impacts from all related projects is itself significant (*i.e.*, "cumulatively considerable" according to CEQA).

5.1.1 CUMULATIVE CONTEXT

CEQA Guidelines, Section 15130(b)(1), identifies two approaches to analyzing cumulative impacts. The first approach is the "list approach," in which a list of past, present, and probable future projects producing related or cumulative impacts is considered for analysis. *CEQA Guidelines,* Section 15130(b)(1)(A). The second approach is the "summary of projections "approach (also known as the "plan" approach), whereby projections contained in adopted local, regional or statewide plans, or planning documents that evaluate conditions which could contribute to cumulative effects are summarized. *CEQA Guidelines,* Section 15130(b)(1)(B).

For this EIR, the plan approach is used to assess the changes due to the proposed project, in combination with past, present and probable future projects, that could contribute to potential cumulative effects.

REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

The *Stanislaus County 2014 Regional Transportation Plan/Sustainable Communities Strategy* (2014 RTP/SCS) is the region's blueprint for future transportation improvements and investments based on specific transportation goals and objectives defined by the Stanislaus Council of Governments (StanCOG), the public, and elected officials (StanCOG 2014a). The 2014 RTP/SCS is intended to strengthen the link between land use and transportation planning, recognizing the significant connection between these two areas and their impact on the region's quality of life. The plan presents a strategy to accommodate the substantial expected growth in the region while promoting economic vitality, providing more housing and transportation choices, promoting healthy living, and improving communities through an efficient and well-maintained transportation network (StanCOG 2014a). The California Air Resources Board (ARB) established greenhouse gas (GHG) emissions reduction targets for passenger vehicles (on-road light-duty trucks and cars). These targets were used as the basis for developing the SCS. For the StanCOG region, the GHG targets are: providing a 5 percent per-capita reduction from 2005 emissions levels by 2020 and providing a 10 percent per-capita reduction from 2005 emissions levels by 2035 (StanCOG 2014b).

StanCOG prepared an EIR to examine the impacts of regional land use change assumed under the RTP/SCS (State Clearinghouse Number 2013012012) (StanCOG 2014b). This EIR, which helps to establish the cumulative context for the proposed project, is incorporated by reference. Please see Appendix F for a summary of impacts and mitigation measures.

StanCOG's EIR identified significant and unavoidable impacts related to aesthetic changes, loss of agricultural land, construction-related air pollutant emissions, toxic air contaminant exposure, loss of special status species and habitat, loss of known and unknown cultural resources, risk from ground shaking, soil constraints for

development, construction-related GHG emissions, increase in water demand, erosion and runoff, flood hazards, disruption of existing residences and businesses, construction-related noise and vibration, traffic noise, and operational environmental noise exposure.

The RTP/SCS uses land use change assumptions that were developed at the regional level and considered proposed land use changes in San Joaquin County and Merced County, as well as Stanislaus County (both incorporated and unincorporated areas). The impact analysis focused on Stanislaus County, but these other counties were included in order to better understand land use and transportation relationships in the broader region. A baseline year of 2008 was used to prepare the RTP/SCS, as well as a planning horizon of 2040. In 2008, the RTP/SCS analysis identified a total population of 501,597, 169,075 households, and 174,997 employees, including 37,113 employees with a job in the industrial sector. By 2040, the RTP/SCS analysis projects that these figures would increase to a population of 688,730, with 235,433 households, and 236,032 employees, including 51,897 in the industrial sector. This assumed land use change includes unincorporated Stanislaus County, as well as development in the cities of Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford. The countywide population increase was estimated to be 37 percent between 2008 and 2040[1] with a forecast increase of 35 percent in employment and an increase of 40 percent in industrial sector jobs (StanCOG 2016).

For unincorporated Stanislaus County, the RTP/SCS assumed higher rates of growth for population, employment, and industrial employment compared to the county as a whole. The increase in population between 2008 and 2040 was forecast to be 169 percent, the increase in employment was forecast to be 110 percent, and the increase in industrial sector employment was forecast to be 70 percent (StanCOG 2016).

STANISLAUS COUNTY GENERAL PLAN

The other planning document that establishes the cumulative context for the project is the Stanislaus County General Plan. The County's General Plan provides a blueprint to guide the physical development, preservation, and conservation of areas within the unincorporated areas of the County over the long term. The General Plan identifies land use change throughout the county, including areas around cities and in several Community Plan Areas. Community Plans outline the future development pattern of the county's unincorporated towns. Community Plan Areas include Crows Landing, an unincorporated community located 1.4 miles east of the project site, Del Rio, Denair, Keyes, Knight's Ferry, La Grange, Salida, Westley, and Hickman. In addition to various non-residential land uses, the County's General Plan provides the capacity for approximately 5,459 dwelling units on vacant and underutilized land, considering existing General Plan land use designations (Stanislaus County 2016).

5.1.2 GEOGRAPHIC SCOPE

The geographic scope for the cumulative effects analysis generally coincides with Stanislaus County boundaries. However, the County acknowledges that more distant projects may also contribute to cumulative effects. Accordingly, the geographic area associated with an environmental resource analysis varies depending on the type of environmental issue considered. Issues considered in a more local context (*e.g.*, construction noise, public

[1] The California Department of Finance (DOF) provides another point of reference. DOF's population projections show a total of 714,910 Stanislaus County in 2040 (DOF 2014). This is a 34-percent increase compared to the 2015 total of 532,297.

services) are not addressed in a greater regional or statewide context because the impacts associated with these activities/resources generally occur in close proximity to the project site and do not contribute to cumulative impacts. However, the cumulative analysis for other environmental resources includes a larger area. For example, the larger geographic context of transportation, air quality, and greenhouse gas emissions issues include the potential effects of projects occurring in surrounding counties and cities and the state, as appropriate.

Table 5-1 presents the general geographic areas associated with the different environmental topics addressed in this EIR.

Table 5-1
Geographic Scope of Cumulative Impacts

Issue Area	Geographic Area
Aesthetics	Project site and surrounding vicinity
Agriculture and Forestry Resources	Stanislaus County
Air Quality	San Joaquin Valley Air Basin
Biological Resources	Stanislaus County and surrounding region corresponding with affected species and habitat
Cultural Resources	Individual ground disturbance sites, with regional implications
Geology, Soils, Minerals, and Paleontological Resources	Individual ground disturbance sites. For mineral resources, Stanislaus County. For paleontological resources, the significance of potential finds is considered in the context of California.
Greenhouse Gas Emissions	Global with emissions levels and rates established at the statewide level
Hazards and Hazardous Materials	Project site and surrounding areas
Hydrology and Water Quality	Project site and surrounding areas downstream from project site
Land Use	Stanislaus County
Noise	Immediate vicinity of the project site during construction and along roadways affected by traffic noise in the region
Population and Housing	Stanislaus County, including cities of Patterson and Newman
Public Services and Recreation	West Stanislaus Fire Protection District, Stanislaus County Sheriff's Department, Newman-Crows Landing Unified School District, Stanislaus County Department of Parks and Recreation
Transportation and Traffic	Roadways affected by project traffic, including SR 33, I-5, Fink Road, Marshall Road, Sperry Avenue, Ward Avenue, Bell Road, Davis Road, Ike Crow Road
Utilities and Energy	Turlock Irrigation District, City of Patterson, Western Hills Water District, Pacific Gas and Electric Company, and AT&T Inc.

Source: Data compiled by AECOM in 2016

5.1.3 CUMULATIVE IMPACT ANALYSIS

AESTHETICS

Assessment of visual quality is a subjective matter and people may differ as to the aesthetic value of the project site, and whether development of the project site would constitute a substantial degradation of the existing visual character or quality of the site and its surroundings.

The cumulative context for aesthetic resources consists of past, present, and planned projects throughout Stanislaus County and, for some viewer groups, areas beyond the County's boundaries. Past, present, and future development in Stanislaus County has caused and will cause substantial changes to the exiting visual character. From the perspective of a traveler through Stanislaus County and neighboring counties, development of former agricultural land or other open space may create a **significant cumulative impact**.

Important visual resources present in Stanislaus County include the portion of the I-5 corridor that passes through Stanislaus County and is a State-designated scenic highway. The introduction to the Stanislaus County General Plan Conservation/Open Space Element states that open space should be preserved in scenic areas. However, scenic areas are not further defined in the General Plan. Goal One of the Conservation and Open Space Element indicates that the County will "Encourage the protection and preservation of natural and scenic areas throughout the County" (Stanislaus County 2016).

As development occurs in the County and surrounding areas, substantial changes in visual conditions would continue as open viewsheds are replaced by urban development. Increased urban development would also lead to increased nighttime light and glare in the region, more limited views of the night sky, and sky glow effects, and would disrupt the rural nature of the area. As related development proceeds along the State-designated I-5 scenic corridor occurs, the current open space views will be altered. The effect of these changes on aesthetic resources, when considering past, present, and probable future development in the County, is a **significant cumulative impact**.

The project will alter the visual character by converting agricultural lands to developed uses, including agricultural land currently visible from the scenic I-5 corridor, but the effect of these changes would be limited by roadway cuts that limit visibility, speed of travel for viewers, vegetation, and distance. The project would also involve temporary visual impacts as off-site infrastructure is constructed, as well as permanent changes related to transportation improvements, with improved roads, additional lanes, contributions toward signals, and related improvements.

Chapter 3 of the proposed Specific Plan addresses the Built Environment and Design. This Chapter includes guidance for site elements, and Appendix B presents Design and Development standards. These sections of the Specific Plan address such elements as structures, landscaping, street frontage, lighting, and signage, as well as site planning and design elements of the overall industrial park and building siting and architectural elements applicable to individual development parcels. Specific Plan Policy D-12 states that "lighting fixtures and illumination shall be equipped with downward-facing shields and shall not conflict with on-site aviation activities." This policy will also help to prevent light spillage and pollution, and glare. The Specific Plan is intended to ensure that high-quality design and construction are provided; create a cohesive identity for the Specific Plan Area; respect the rural nature of the surrounding environment; and provide visual separation and transition from adjacent land uses through use of vegetated berms and screens, building setbacks, and building

heights. Projects developed within the Specific Plan Area will be required to comply with design guidelines and relevant policies and standards of the Specific Plan, and individual development proposals will be implemented in accordance with the Specific Plan. Compliance with this guidance for community design and other important visual components of site development will help to maintain locally important elements of visual character.

The Specific Plan includes extensive design guidance to ensure a high-quality aesthetic environment. Visual changes to the project site, based on the extensive guidance in the Specific Plan, are not considered to be negative visual changes. There are very few viewers in the vicinity of the project site today that would be exposed to visual changes on-site. However, the project involves physical construction that would make changes to the existing visual environment and the County has conservatively determined this to be a **cumulatively considerable** change. There is no feasible mitigation that would avoid visual changes without changing the purpose of the project. The impact is **significant and unavoidable**.

AGRICULTURAL RESOURCES

The cumulative context for agricultural resources includes past, present, and planned future projects in Stanislaus County. The California Department of Conservation estimated that Stanislaus County included 843,603 acres of agricultural land in 2004, of which 396,979 acres were identified as Important Farmland and 446,624 acres were identified as Grazing Land (DOC 2006). Overall, the total acreage of Important Farmland increased by approximately 5.5 percent over the 10-year period between 2004 and 2014, while the total acreage of agricultural land decreased by 1.3 percent. A similar trend continued between 2008 and 2014, with the percent of Important Farmland increasing by approximately 4.6 percent while the amount of total farmland decreased (by less than a half percent) (DOC 2014). StanCOG reports a similar trend in the RTP/SCS, with an increase in Important Farmland of approximately 6 percent between 2000 and 2012 (StanCOG 2014b).

Measure E, which was enacted by voter initiative in 2008, requires voter approval for proposed redesignation or rezoning of land in unincorporated Stanislaus County unincorporated area from agricultural or open space use to a residential use. County policies direct new development to less productive agricultural areas. However, there is still the potential for development accommodated under the County's General Plan to convert Important Farmland to non-agricultural uses. StanCOG found that some strategies could be applied to reduce the severity of agricultural land conversion, but that the impacts of implementing the RTP/SCS could not be fully mitigated. The agricultural preservation programs of the County and Stanislaus Local Agency Formation Commission (LAFCO) would help reduce potential impacts, particularly related to agricultural land conversion for residential developments. Despite such programs, this is a **significant cumulative impact**.

Off-site improvements to Marshall Road between the project entrance and SR 33, Fink Road along the southern side of the project site, and SR 33 between Marshall Road and Sperry Avenue could require additional right-of-way involving approximately 15.8 acres of lands with Williamson Act contracts and 14.7 acres with A-2-40 zoning. Implementation of the Specific Plan would permanently convert agricultural land, including Important Farmland, to nonagricultural uses. All agricultural uses on the project site would be converted to urban uses at buildout of the proposed project. This would include approximately 1,178 acres of Prime Farmland (DOC 2014) and another 14 acres of Prime Farmland for transportation improvements required to serve the project. Although this level of conversion would be minor in relationship to the County's existing and future acreage Prime Farmland, this amount of farmland conversion is **cumulatively considerable**.

Stanislaus County has developed comprehensive agricultural conservation policies in the Agricultural Element of its General Plan including buffer and setback guidelines. The County's General Plan policies address both the function of the agricultural economy and the conservation of agricultural lands. The policies under Goal 1 of the Agricultural Element are focused on the marketing and promotion of agriculture, storage and processing facilities, and agriculture-related business expansion and development within the County. Policies 1.3 through 1.11 refer to allowable land uses in agricultural areas and minimizing conflicts with ongoing agricultural use. Policies 1.12 through 1.15 address housing for farmworkers. Policies 1.16 through 1.21 provide for local training, education, and technical assistance intended to support agricultural economic development. The policies under Goal 2 are focused on conservation of agricultural lands. The County is committed to the Williamson Act, in which it has participated since 1970 (Stanislaus County General Plan Agricultural Element, page 7-14), which is an effective tool to keep land in agricultural use throughout the County.

In the Agricultural Resources section of this EIR (Section 3.3), the County has described the consideration of agricultural conservation easements as a mitigation tool. As described, the County supports the establishment of agricultural conservation easements as a complement to its suite of policies that promote the agricultural economy and conserve agricultural land. In developing and implementing its policies, the County must balance agricultural conservation strategies with other objectives, such as economic development (in non-agricultural sectors) and local job growth.

One outcome of the County's goal of balancing of agricultural conservation objectives and economic development objectives is the decision to apply agricultural easements to residential projects, but not for non-residential projects. This decision communicates the County's decision that agricultural conservation easements are not appropriate for use in projects that would result in employment generating development, such as the proposed project. Other than the strategies included in the Specific Plan and the application of relevant General Plan policies countywide, there are no additional feasible mitigation measures available to reduce the cumulative contribution of project impacts associated with the permanent conversion of farmland. Therefore, this impact would remain **significant and unavoidable**.

AIR QUALITY

Air quality is inherently a cumulative impact because current emission levels and attainment status are a result of past and present projects. The San Joaquin Valley Air Basin (SJVAB) is designated as nonattainment for the state ozone, and particulate matter (PM_{10}, and $PM_{2.5}$) standards. Each additional project within the SJVAB has the potential to cause a net increase in emissions that would contribute to this cumulative air quality impact. Construction activities throughout the region would emit criteria air pollutants from earthmoving activities and construction equipment. The operation of past, present, and future projects would contribute criteria air pollutant and precursor emissions to the region that when added to the other emissions occurring within the region. Pollutant emissions, taken together could cause an exceedance of National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). The San Joaquin Valley Air Pollution Control District (SJVAPCD) considers projects that would generate air quality emissions that exceed applicable thresholds of significance to be cumulatively considerable (SJVAPCD 2015). Air quality impacts are **cumulatively significant**.

Construction

Construction-related activities would result in temporary and short-term emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment used during site preparation (*e.g.*, excavation, grading, and clearing), trenching for utilities, asphalt paving for roads, and building construction among other miscellaneous activities both on- and offsite. Construction-related diesel particulate matter (PM) emissions would vary throughout the buildout of the project, depending on both market conditions and construction phases. Emissions from construction equipment are likely to be greatest during the initial phases of site development, and would likely decrease during the project's anticipated 30-year construction period. As discussed in Impact 3.2-1, construction-related emissions of ozone precursors and criteria air pollutants would exceed SJVAPCD thresholds of significance. Therefore, the proposed project's construction-related emissions contribution to this significant cumulative impact would be **cumulatively considerable**.

Mitigation Measure: Implement Mitigation Measure 3.2-1a.

Even with mitigation, the proposed project's construction-related emissions would exceed SJVAPCD significance thresholds. As noted, SJVAPCD considers projects that would generate air quality emissions that exceed applicable thresholds of significance to be cumulatively considerable. The impact would be **significant and unavoidable.**

Operation

Operational emissions associated with the proposed project would exceed SJVAPCD thresholds of significance for all pollutants except for SO_2. With respect to ozone, PM_{10}, and $PM_{2.5}$, for which the region is currently nonattainment, exceeding the SJVAPCD operational threshold of significance would result in a **cumulatively considerable** contribution to the significant cumulative operational air quality impact**.**

Mitigation Measure: Implement Mitigation Measure 3.2-1b.

Significance after Mitigation

Following implementation of the proposed mitigation measures, the proposed project's operational emissions would continue to exceed SJVAPCD thresholds of significance. These mitigation measures would reduce long-term operational air quality emissions associated with the proposed project. Mitigation Measure 3.2-1b would include measures to reduce vehicle miles traveled (VMT) and vehicle trips, which would help reduce long-term operational exhaust-related ROG, NO_X, CO, PM_{10}, and $PM_{2.5}$ emissions. Trip and VMT reduction would also reduce entrained PM_{10} and $PM_{2.5}$ road dust emissions. The Specific Plan would accommodate employment options in three of the five industries where there is the most out-commuting by residents, which could provide air quality benefits, although it is not currently possible to quantify this potential benefit. However, even with inclusion of these potential emissions reductions and even with the intent of the Specific Plan to reduce long-distance out-commuting, it is anticipated that the proposed project's long-term emissions would continue to exceed SJVAPCD thresholds of significance. There is no additional feasible mitigation available to the County that would reduce this impact. SJVAPCD considers projects that would generate air quality emissions that exceed applicable thresholds of significance to be cumulatively considerable. Therefore, even with implementation of mitigation the proposed project's operational emissions contribution to this significant cumulative impact would remain cumulatively considerable. This impact would be **significant and unavoidable**.

Toxic Air Contaminants

The County is not aware of large construction projects planned directly adjacent to the project site that would combine with project-related toxic air contaminant (TAC) emissions in such a way that any significant cumulative impact could occur.

Mobile source emissions associated with freeways and major roadways produce TACs that could adversely affect adjacent sensitive receptors. As StanCOG's RTP/SCS EIR concludes, the health effects for people living adjacent to high-volume roadways could exceed impacts associated with air quality elsewhere in the County. The RTP/SCS EIR compared health risks in areas adjacent to high-volume roadways to health risks in other areas of the region, concluding that the impact was potentially significant (StanCOG 2014b). With projected growth described previously under the heading, "Cumulative Context," this is a **significant cumulative** impact.

The proposed project would generate traffic on roadways in the region, and it would include land uses that could result in the use of a relatively higher proportion of diesel-fueled vehicles and/or heavy-duty trucks. Although the exact routes, types of trucks, and intensity of operational activities are not yet known, it is anticipated that some existing receptors could be exposed to substantial pollutant concentrations emitted by heavy-duty diesel trucks following implementation of the project.

To help provide information on land use compatibility and TAC sources, ARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* in 2005 (ARB 2005). The handbook offers advisory recommendations for the siting of sensitive receptors near sources of TACs. The handbook recommends locating sensitive uses at least 500 feet from a freeway, urban road carrying 100,000 vehicles or more per day, and rural roads carrying 50,000 vehicles or more per day based on studies showing a 70-percent drop-off in particulate pollution levels at 500 feet (ARB 2005).

As stated in the Transportation Infrastructure Plan that was developed during preparation of the Specific Plan , the portion of I-5 in the vicinity of the project site is anticipated to carry between approximately 64,000 and 70,000 vehicles per day in 2035 (TJKM 2016). There are no urban roads carrying 100,000 vehicles per day or rural roads carrying 50,000 per day in the broader vicinity that would be expected to handle this level of traffic in 2035. The project would add approximately 1,000 to 2,700 daily trips to this section of I-5, which would represent an increase of approximately 2 to 4 percent. The contribution of the project would be minor compared to future predicted traffic volumes, but the increase in risk to sensitive receptors that is attributable to project traffic is conservatively determined to be **cumulatively considerable.**

ARB has adopted diesel-exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (*e.g.,* tractors, generators). In February 2005, ARB adopted new public-transit bus fleet rule and emissions standards for new urban buses. These rules and standards include: more stringent emission standards for some new urban bus engines beginning with 2002 model year engines; zero-emission bus demonstration and purchase requirements applicable to transit agencies; and reporting requirements under which transit agencies must demonstrate compliance with the public-transit bus fleet rule. Milestones include the low-sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than current vehicles. Mobile-source emissions of TACs (*e.g.,* benzene, 1-3-butadiene, diesel PM) have been reduced significantly over

the last decade, and they will be reduced further in California through a progression of regulatory measures (*e.g.*, Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies.

Implementation of ARB's risk reduction plan was estimated to reduce diesel PM concentrations by 75 percent in 2010 and 85 percent in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

The County does not have the authority to impose restrictions on the use of diesel engines in trucks that may visit the project site in the future, nor the authority to regulate the technology used in heavy-duty trucks to reduce diesel particulate matter generation. As stated above, ARB has imposed regulations that are anticipated to reduce the emissions from the heavy-duty diesel truck fleet over time. There is no additional feasible mitigation available to the County to address this impact. The impact would remain **significant and unavoidable**.

The Transportation Infrastructure Plan prepared for the proposed project evaluated affected intersections under existing and cumulative conditions, with and without the proposed project. For a conservative analysis, the cumulative (2035) plus project intersection volumes were used to compare with the aforementioned screening thresholds. The maximum average daily year 2035 plus project volumes on roadway segments impacting an intersection in the project vicinity would be approximately 32,663 average daily trips (ADT) along West Marshall Road between State Route 33 and Davis Road, and 5,006 ADT along West Marshall Road between Davis Road and Ward Avenue (TJKM 2015). Therefore, the intersection of West Marshall Road and Davis Road would experience approximately 37,669 vehicles per day, which would be the maximally impacted intersection in the project vicinity. It is conservatively assumed that approximately 50 percent of those trips (18,835 vehicles) could occur in a single peak hour, which would be less than the most conservative screening threshold described above (*i.e.*, 24,000 vehicles per hour). In addition, the project site is largely flat and would not include any topographical features (*e.g.*, canyons) or transportation infrastructure (*e.g.*, tunnels) that would substantially limit vertical or horizontal mixing. Therefore, implementation of the proposed project is not expected to have the potential to generate CO hotspots. This impact would be **less than cumulatively considerable**.

Odors

The County does not anticipate land uses within the project site that would generate substantial odorous emissions and contribute to existing or future ambient odor conditions. Following buildout of the proposed land uses, the project is not anticipated to contribute cumulatively considerable odorous emissions to existing odor emissions that would affect a substantial number of people. As noted elsewhere in this EIR, there are existing agricultural operations in the vicinity of the project site that could adversely affect proposed odor-sensitive uses. It is possible that additional agricultural operations, or even agricultural processing facilities that emit odors could become established in the future in the vicinity of the project site, but the County will not speculate as to the level of future change or whether it would increase odor impacts. There is **no significant cumulative impact**.

BIOLOGICAL RESOURCES

Past development in the San Joaquin Valley region of western Stanislaus County, ranging from conversion of land to agricultural production more than a hundred years ago to more recent expansion of urban and residential development, has resulted in a substantial loss of native habitat. This land conversion has had an overall adverse effect on many native plant and wildlife species in the region, and has resulted in loss of special-status species

populations and known suitable and potential habitat for these species. For some species, such as Swainson's hawk, habitat losses have been great and have had a substantial effect on regional population numbers. For Swainson's hawk, row crops provide an important foraging habitat substitute for native grassland habitat that was lost over the past century. As conversion of row crops to urban land uses continues, availability of foraging habitat becomes an increasingly important factor in sustaining local population numbers in an area that is important to the species overall. It is expected that habitat value would continue to decrease as commercial and residential development progresses in the region. This is a **significant cumulative** impact on regional biological diversity.

As described in Section 3.4, "Biological Resources," project site consists primarily of agricultural fields, paved runways, and other developed and disturbed land that formerly housed Naval support facilities; and provides limited habitat value for biological resources Project development would result in potentially significant impacts on special-status plants; Swainson's hawk, white-tailed kite, northern harrier, burrowing owl, and other nesting raptors; tricolored blackbird, loggerhead shrike, and migratory birds; special-status bats; and federally protected waters of the United States; however, these potential impacts would be mitigated to a less-than-significant level with implementation of the mitigation measures described in Section 3.4, "Biological Resources." With mitigation, the project's incremental contribution to the cumulative impact on biological resources in the region would be **less than cumulatively considerable.** The project would not contribute considerably to the effect because the project's contribution would be eliminated or compensated through mitigation.

CULTURAL RESOURCES

Stanislaus County has been inhabited by prehistoric and historic peoples for thousands of years. Cultural resources in the region generally consist of prehistoric sites, historic sites, historic structures, and isolated artifacts. During the 19th and 20th centuries, urbanization and intensive agricultural use in the region has caused the destruction or disturbance of numerous prehistoric sites, while many structures now considered to be historic were erected. From the latter half of the 20th century to the present, prehistoric and historic structures have been disturbed and destroyed. During this period, regulations protecting cultural resources have substantially reduced the rate and intensity of these impacts. However, even with these regulations, cultural resources are still degraded or destroyed as cumulative development in the region proceeds. This is a **significant cumulative** impact.

The proposed project, in combination with other development in the region, could contribute to the loss of significant cultural resources. Because all significant cultural resources are unique and non-renewable members of finite classes, all adverse effects or negative impacts erode a dwindling resource base. The loss of any one archaeological site affects all others in a region since these resources are best understood in the context of the entirety of the cultural system of which they are a part. The boundaries of an archaeologically important site extend beyond the project site. As a result, a meaningful approach to preserving and managing cultural resources must focus on the likely distribution of cultural resources, rather than on project or parcel boundaries. The cultural system is represented archaeologically by the total inventory of all sites and other cultural remains in the region. Proper planning and appropriate mitigation can help to capture and preserve knowledge of such resources and can provide opportunities for increasing understanding of the past environmental conditions and cultures by recording data about sites discovered and preserving artifacts found. Federal, State, and local laws can protect these resources, in most instances.

The proposed project will include earth-moving activities and grading during on- and off-site construction. The potential for an impact on-site is relatively low. The project site has been disturbed by agricultural cultivation and the construction and operation of military facilities during its more than 50 years of operation, and no indication of archaeological resources was encountered during a recent survey of the project site. Nevertheless, the proposed project has the potential to adversely affect significant cultural resources that are unique and non-renewable members of finite classes. Because cultural resources are irreplaceable, any significant impacts to cultural resources have a cumulative effect on resources in the region. However, there are no known resources that will be impacted by the project. Implementing mitigation measures described in Section 3.5, "Cultural Resources," will ensure that any cultural resources encountered during construction, including archaeological features or potential human remains, would be treated in an appropriate manner under CEQA and other applicable laws and regulations. Since the potential for an impact is low, and since the mitigation measures would further reduce the potential for an impact, the impact is considered **less than cumulatively considerable with mitigation**.

ENERGY

The increased demand for electrical and natural gas supplies and infrastructure is a byproduct of development in Stanislaus County and the region. Energy is consumed for heating, cooling, and electricity in homes and businesses; for public infrastructure and service operations; and for agriculture, industry, and commercial uses. Each service provider is responsible for ensuring adequate provision of these utilities within their jurisdictional boundaries and would be responsible for upgrading their existing electrical and natural gas distribution systems or constructing new distribution systems to meet the demands of individual projects.

Stanislaus County and some of the cities within the region implement general plans and other policy documents that include goals and policies to reduce energy demands through the use design features, building materials, and building practices; encourage the use of renewable energy sources; and ensure adequate electricity and natural gas and related distribution systems are available to meet energy demands. In addition, many service providers encourage energy conservation through programs, such as offering rebates for installation of energy efficient appliances and lighting fixtures. The location, density, mix of land uses, and quality of the multi-modal transportation system is directly related to the amount of travel and transportation-related energy demands.

The proposed project and subsequent leasehold/development would be required to comply with the Building Energy Efficiency Standards (Title 24 of the California Code of Regulations), including the Building Energy Efficiency Standards, and the CalGreen Code (which become effective January), resulting in reductions in energy demand. These Codes were developed to enhance the energy efficiency of the design and construction of buildings and construction practices. Since these regulations are likely to change over time, all site development will need to comply with energy regulations or standards that are in effect at the time of construction.

As noted by StanCOG:

> The RTP/SCS would help to minimize energy consumption by improving the overall efficiency of the transportation system. In addition, many RTP/SCS projects (*e.g.*, bikeway and pedestrian projects, rail projects, transit projects, and Transportation Demand Management (TDM) projects) as well as the proposed land use pattern would improve the availability of alternative transportation modes, help reduce congestion, and resultant harmful air quality emissions in the County. Generally, the availability of these alternative modes would be expected to reduce overall motor vehicular trips, vehicle miles traveled, and associated energy consumption (StanCOG 2014b, page 4.6-8).

There is **no significant cumulative** impact, and the project **would not result in a cumulatively significant** incremental contribution to a significant cumulative impact related to the wasteful, inefficient, excessive, and unnecessary consumption of energy.

GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

Geology and Soils

The off-site infrastructure improvements at the proposed Fink Road / I-5 interchange could be affected by surface fault rupture along the San Joaquin Fault. The project site and off-site infrastructure improvements are located in a seismically active area. The project site is underlain by Holocene alluvial fan and terrace deposits, which are potentially susceptible to liquefaction. The project site and most of the locations where the off-site infrastructure improvements would occur are underlain by deposits that could exhibit high compressibility characteristics. Soils within the project site and the locations where off-site infrastructure improvements would be constructed are rated as very limited for construction of buildings and roads because of low soil bearing strength. Due to the high clay content of project site and off-site soils, perched groundwater conditions could occur during the winter months. Implementation of mitigation measures contained in Section 3.8, "Geology, Soils, Minerals, and Paleontological Resources" would reduce these impacts to a less-than-significant level by requiring completion of site-specific geotechnical studies and implementation of construction and design measures developed in response to the studies, in addition to compliance with the California Building Standards Code. Other related projects (in the cumulative context) would have similar requirements. There is **no cumulative** impact.

Development and construction within Stanislaus County, surrounding counties, and the balance of the San Joaquin Valley would involve grading and construction activities for infrastructure and building and road foundations, including vegetation removal, grading, staging, trenching, excavation, and other activities that would result in the temporary and short-term disturbance of soil and would expose disturbed areas to storm events. In addition, soil disturbance during the summer as a result of construction activities could result in soil loss due to wind erosion. This is a **significant cumulative** impact.

Mitigation described in Section 3.8, "Geology, Soils, Minerals, and Paleontological Resources" requires erosion and sediment control measures that could include the use of detention basins, berms, swales, wattles, and silt fencing, and covering or watering of stockpiled soils to reduce wind erosion. Projects within the Specific Plan will require development and implementation of Stormwater Pollutant Prevention Plans (SWPPPs), as well. These measures would reduce short-term construction-related erosion impacts to a less-than-significant level because grading and erosion control plans with specific erosion and sediment control measures would be prepared and implemented, and because a site-specific SWPPP with appropriate best management practices (BMPs) designed to maintain surface water quality conditions in adjacent receiving waters would be prepared and implemented in compliance with the County's NPDES permit. The project impacts are **less than cumulatively considerable with mitigation.**

Mineral Resources

The entire project site and the locations in which off-site infrastructure would be constructed have been classified by CGS as MRZ-3a—areas containing aggregate deposits, the significance of which cannot be evaluated from available data. The project site contains alluvial fans deposits of Little Salado Creek, which CGS has rated with a relatively low potential to contain economically valuable deposits of concrete-grade aggregate. The project site

and the locations where off-site infrastructure improvements would be constructed have a low potential to contain economically valuable mineral deposits. The project would **not have a cumulatively considerable contribution** to any significant cumulative impact.

Paleontological Resources

There have been fossil discoveries resulting from excavation and earth-moving activities associated with development. The value or importance of different fossil groups varies depending on the age and depositional environment of the rock unit that contains the fossils, their rarity, the extent to which they have already been identified and documented, and the ability to recover similar materials under more controlled conditions (such as for a research project). Unique, scientifically important fossil discoveries are relatively rare, and the likelihood of encountering them is site-specific and is based on the type of specific geologic rock formations found underground. These geologic formations vary from location to location. Therefore, a site-specific analysis would be required in order to determine whether any of the related projects contain a source of unique paleontological resources. The County conservatively assumes that loss of resources from past, present, and future projects could represent a **significant cumulative** impact.

It is possible that development of the project and off-site improvement areas could affect some of the same paleontological resources affected by the related projects that comprise the cumulative context. The project site and most of the locations where off-site infrastructure facilities would be constructed are underlain by Holocene-age rock formations that are not likely to have paleontological resources. Most of the off-site infrastructure facilities would be constructed in Holocene-age deposits, and excavation also would not occur to a depth that would be great enough to encounter older Plio-Pleistocene-age formations, and therefore would avoid paleontological resources impacts. However, earthmoving activities associated with the proposed I-5 interchange improvements could potentially occur in older, Plio-Pleistocene rock formations, which may be paleontologically sensitive. This is a **cumulatively considerable** impact.

Section 3.8, “Geology, Soils, Minerals, and Paleontological Resources” includes mitigation that would reduce potentially significant impacts related to damage or destruction of unique paleontological resources. In the event that resources were encountered, fossil specimens would be recovered and recorded and would undergo appropriate curation. When unique, scientifically important fossils are encountered by construction activities, the subsequent opportunities for data collection and study generally provide a benefit to the scientific community. Therefore, because of the site-specific nature of unique paleontological resources; the low probability that any project would encounter unique, scientifically important fossils; and the benefits that would occur from recovery and further study of those fossils if encountered, development of the related projects and other development in the region are not considered to result in a cumulatively considerable impact related to paleontological resources. The impact is **less than cumulatively considerable with mitigation**.

Greenhouse Gas Emissions

Please see Section 3.7, “Greenhouse Gas Emissions,” of this EIR for the analysis of cumulative greenhouse gas emissions impacts. Greenhouse gas (GHG) emissions from past, present, and probable future projects create a significant cumulative impact. The proposed project’s impact is **cumulatively considerable**. Implementation of mitigation detailed in Section 3.7 would reduce impacts, but the County has conservatively determined that the impact is **significant and unavoidable**.

HAZARDS AND HAZARDOUS MATERIALS

Health and safety impacts associated with the past or current uses of a project site usually occur on a project-by-project basis, and are generally limited to the specific project site; in this case, the project site and immediate vicinity, off-site improvement areas, and nearby roadways.

The proposed project, including subsequent leasehold development, would involve the storage, use, disposal, and transport of hazardous materials (such as asphalt, fuel, lubricants, and solvents) to varying degrees during construction and operation. Tenants who use hazardous materials as part of their on-site operations would be required to obtain permits and comply with appropriate regulatory standards designed to avoid hazardous waste releases. The storage, use, disposal, and transport of hazardous materials are extensively regulated by various federal, State, and local agencies, and therefore construction companies and businesses (during the operational phase) that would handle any hazardous substances would be required by law to implement and comply with these existing hazardous-materials regulations. Therefore, there is **no significant cumulative impact**, and the project would not result in a cumulatively significant incremental contribution to a significant cumulative impact associated with hazardous materials storage and transport.

Implementation of the project could result in possible exposure to existing on-site hazardous materials during project construction activities due to contamination from the Navy's use of the property as a military base. The Navy is responsible for site cleanup and is responsible for planning and implementing a cleanup action to remediate contaminated groundwater that resulted from historical site operations. Only two on-site structures remain: the former airfield lighting vault and the former air traffic control tower, which will be refurbished to create a monument to the site's former military use. Further, the control tower could contain asbestos and lead-based paint. However, the demolition or refurbishment of buildings containing hazardous materials is regulated by EPA and Cal-OSHA, and the project includes a mitigation measure that requires compliance with these agencies' regulations. In addition, implementation of mitigation included in Section 3.9, "Hazards and Hazardous Materials" would minimize the potential for exposure of people or the environment to hazardous materials encountered during construction activity. If hazardous materials are encountered on site during construction of the related projects, the associated impacts would be localized to those projects and would not be additive to other hazardous materials-related impacts on the project site. There is **no significant cumulative impact** and implementation of the project would not result in a cumulatively significant incremental contribution to a significant cumulative impact related to hazards and hazardous materials.

Off-site improvement areas would likely be affected intermittently during construction activities resulting in decreased emergency response times. It is unknown if other infrastructure or roadway improvement projects and the proposed off-site improvements would be constructed simultaneously along nearby roadways in the vicinity of the off-site improvement areas. Implementation of mitigation included in Section 3.9, "Hazards and Hazardous Materials" would reduce significant impacts associated with decreased emergency response times during on-site construction and construction of the off-site improvements by requiring preparation and implementation of a construction traffic control plan that would provide for adequate emergency access during construction activities. Implementation of the project **would not result in a cumulatively significant incremental contribution** to any significant cumulative impact related to emergency response times.

HYDROLOGY AND WATER QUALITY

Construction activities associated with development of the project would create the potential for soil erosion and sedimentation of drainage systems, both within and downstream of the project site. The construction process may also result in accidental release of other pollutants to surface waters. Implementation of mitigation measures contained in Section 3.10, "Hydrology and Water Quality," of this EIR would reduce this impact to a less-than-significant level. Just as with the proposed project, related projects would be required to adhere to applicable requirements designed to prevent significant water quality impacts. Therefore, implementation of related projects **would not result in a cumulative impact**, and the project would result in a **less-than-cumulatively-considerable** incremental contribution to temporary, short-term construction-related water quality impacts.

Implementation of the project could change the long-term potential for contaminant discharges at the project site, and there is a potential for the project to cause or contribute to long-term discharges of urban contaminants (*e.g.*, oil and grease, fuel, trash, pesticides, fertilizer). The project would conform with applicable State and local regulations pertaining to surface water runoff, including the measures outlined in the applicable version of the *2015 Post Construction Standards Plan and the Stanislaus County Standards and Specifications*, which are designed to meet applicable State and local regulations pertaining to stormwater runoff. This will require treatment and control of urban runoff generated by planned development. Related projects would be required to meet similar requirements. Therefore, implementation of related projects **would not result in a cumulative impact**, and the project would result in a **less-than-cumulatively-considerable** incremental contribution to cumulative impacts from contaminant discharge.

As a result of the drainage improvements that are proposed at the project site, nearly all of the 100-year floodplain at the project site would be eliminated, with only a narrow floodplain corridor remaining along Little Salado Creek under developed conditions. With drainage planning requirements, there would be no increase in off-site stormwater flows as a result of the project. Some of the projects within the cumulative setting may propose structures in areas designated as 100-year floodplain. However, as with the project, related projects would be required to comply with all applicable State and local regulations regarding flooding and flooding hazards. Implementation of related projects **would not result in a cumulative impact**.

The countywide water budget appears to be in reasonable balance, although there are localized issues with groundwater elevations and quality (Stanislaus County 2008). In the future, the expansion of urbanized areas that rely on groundwater may cause the groundwater levels to decline. Development of the project with related future projects could incrementally reduce groundwater recharge potential. This is a **significant cumulative impact.**

The project would result in a substantial increase in overall groundwater usage as compared to existing conditions. Implementation of the project could result in a reduction in percolation to the groundwater basin underlying the project site due to the conversion of irrigated agricultural land to urban land uses and an increase in groundwater pumping associated with proposed wells. The project site is composed of soils that are classified as hydrologic groups B and C, which indicates that high to moderate amounts of recharge currently occur from irrigation and stormwater runoff. The proposed project is anticipated to include landscaped areas scattered throughout the project site, along with a 40-acre detention basin the northeast corner, and also to incorporate low impact development (LID) features. These features would allow some continued infiltration of stormwater and of applied landscape irrigation water. In addition, groundwater recharge would continue to occur from stormwater and landscape irrigation runoff through the Little Salado Creek Channel. However, at full buildout, most of the

project site would consist of impervious surfaces. This could reduce the amount of water available for local groundwater recharge, and this impact is **cumulatively considerable.**

Mitigation in Section 3.10, "Hydrology and Water Quality," would reduce potentially significant impacts from interference with groundwater recharge to a less-than-significant level because this will require construction of low impact development (LID) features to improve permeability. The Specific Plan calls for roadways that include infiltration swales to help promote groundwater infiltration. Implementation of Mitigation Measures 3.10-4c and 3.10-4d would reduce potentially significant impacts from interference with groundwater recharge to a less-than-significant level because site-specific drainage plans and a long-term operational stormwater quality management plan would be prepared that incorporate LID features to improve infiltration (*e.g.*, increased setbacks from Little Salado Creek, soil quality improvements, vegetated swales and trees, porous pavement, green roofs, vegetated swales, rain harvesting and reuse, bioretention and rain gardens, infiltration trenches, flow-through planters, tree wells, or additional detention basins). Mitigation Measure 3.10-4e would ensure that LID features are operated and maintained to continue to provide long-term infiltration and groundwater recharge. Implementation of Mitigation Measure 3.10-4a would require setbacks for new wells to prevent interference drawdown to off-site wells and implementation of Mitigation Measure 3.10-4b would assess and verify the amount of drawdown induced by project pumping to prevent potential interference drawdown to shallow off-site wells. Finally, implementation of Mitigation Measure 3.104f would require monitoring to detect signs of subsidence and require additional investigation and possible changes to groundwater pumping to arrest further subsidence from occurring. The proposed project would not result in a substantial drop in local or regional well depths or yields, or substantial movement of the contaminated groundwater plume and the impact would be **less than cumulatively considerable with mitigation**.

LAND USE AND PLANNING / POPULATION / HOUSING

The project does not physically divide an existing community. Implementing the project would not conflict with any adopted habitat conservation plan (HCP) or natural community conservation plan (NCCP).

Cumulative development within the region would result in a significant change in land use, and individual projects would need to be considered in context of their compliance with adopted land use plans. Plans with which compliance may be analyzed include general plans, habitat conservation plans, and regional transportation plans. For the project, appropriate plans to consider include Stanislaus County's General Plan and the StanCOG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The County is unaware of any future inconsistencies with these plans that would lead to significant cumulative impacts. The allowable land uses, design approach, and development standards presented in the proposed Specific Plan were developed in accordance with the proposed Airport Land Use Compatibility policies to avoid potential land use conflicts and support the long-range development of the proposed Crows Landing Airport. With adoption of the Crows Landing ALP and approval of the Stanislaus County ALUCP amendment to include the proposed Crows Landing GA Airport, the proposed project would be consistent with the Stanislaus County ALUCP policies. There is no **significant cumulative impact**.

Implementation of the proposed project could indirectly facilitate population growth through the development of approximately 14,000 to 15,000 jobs in Stanislaus County, which may lead to additional housing demand. The County's intent for the project is to provide local employment opportunities, including opportunities for residents of Stanislaus County. It is not possible to determine what proportion of jobs at the project site at buildout would

be filled by residents of Stanislaus County, or how many of these employees would move their households to new residential development in the vicinity of the project site. Further, the County cannot determine the relative influence of the success of the project in facilitating employment development on the project site, compared to other factors in spurring residential development in Stanislaus County or other areas where employees of the project site could reside. The same is true for other developments in the region, which could potentially induce population or employment growth. Land use change assumptions used by StanCOG in development of the RTP/SCS suggest that the jobs-housing balance countywide would change slightly between 2008 and 2040 from 1.04 to 1.00 jobs per household.

Population and employment growth, by itself, is not an environmental impact. However, the direct and indirect effects, such as public facilities and infrastructure needs that are related to population and employment growth, can lead to physical environmental effects, the impacts of which are considered throughout the resource sections of this EIR.

Approval of the project would allow development within an undeveloped portion of Stanislaus County. It is possible that developers and builders would pursue projects in the project site instead of other planned growth areas of Stanislaus County, or in other locations throughout the region. Based on factors beyond the County's control, the various private interests involved in development may find development within the project site to be more favorable compared to development in other locations that are currently planned for development (or locations not planned for development, but where entitlements would have included a plan amendment). The County reviews applications for development, but does not control the decisions of developers, property owners, and builders that lead to the selection of a location for development. It is possible that the availability of land for development within the project site could indirectly influence the rate of growth and development in one or more comparable locations. It is also possible that approval of the project could facilitate development in other locations, if there are complementary relationships. It is beyond the scope of analysis for an EIR to identify complex and dynamic marketplace relationships between development in different locations to determine the influence that the project site may have in speeding up or slowing down growth in other locations. These largely entail economic effects and the County elects **not to speculate** further regarding this topic for the purposes of this EIR.

Residential Displacement

Although the proposed project includes the adoption of an ALP and airport development for a 30-year planning horizon, the proposed Airport Layout Plan (ALP) drawing identifies an "Ultimate" buildout, which extends beyond the 30-year timeframe and includes the construction of a precision approach and 1,000-foot runway extension. However, the Ultimate buildout scenario extends beyond the proposed planning horizon and is not considered part of the proposed project since funding is not available and demand for these facilities is not warranted. Subsequent environmental evaluation pursuant to CEQA will be required prior to further planning and adoption of the "Ultimate" scenario.

To identify potential cumulative effects, the County considered the potential residential displacement that would occur with the development of the Ultimate airport buildout. To provide a conservative evaluation (*i.e.*, maximum displacement), the analysis was based the assumption that no residential development would occur between the opening of the airport and the development of the Ultimate airport planning scenario, because existing development is subject to ALUCP policies.

The Specific Plan prohibits residential development in the Plan Area, but rural residences are located on adjacent properties to the east, west, and south of the project site. In order to attain general plan consistency with an ALUCP, no direct conflicts should exist between planned land uses shown on each jurisdiction's general plan land use map and the proposed ALUCP criteria. To accommodate the "Ultimate" airport buildout, the County's 2016 Airport Land Use Compatibility Plan (ALUCP) would be amended to accommodate the larger safety zones associated with the extended runway and precision approach. As shown on Exhibit 5-1 and Summarized on Table 5-2, the proposed safety zones extend beyond the proposed airport and project site boundaries and include several off-site parcels.

Table 5-2
Summary of Safety Zone Policy Restrictions for Ultimate Airport Buildout (>30 years), Stanislaus County Airport Land Use Compatibility Plan

Safety Zone	Applicable Policies	Potential for displacement
Zone 1 **Runway Protection Zone**	New residential development shall be prohibited in Zone 1.	Potential Conflict.
	New agriculture is allowable use, except residences, livestock, aquaculture, wet farming (*e.g.*, rice).	
Zone 2 **Inner Approach/Departure Zone**	Single-family residential housing is incompatible at density of 1 du/10.0 acres. Dwelling unit should be situated outside of safety zone boundaries where feasible.	County policies pertaining to development densities are more restrictive than ALUCP policies.
	Agriculture permitted	All unimproved parcels in which only Zone 2 occurs include land that is outside of the safety zone. Dwelling sites should be constructed on the portion of the parcel that is outside of Zone 2 where feasible.
		No conflict.
Zone 3 **Inner Turning Zone** **and** **Zone 4** **Outer Approach/Departure Zone**	Single-family residential housing is incompatible at density > 1du/5 acres site-wide average or 0.2 du/any single acre. Agriculture permitted.	County policies pertaining to development densities are more restrictive than ALUCP policies.
		All unimproved parcels in which only Zone 3 or 4 occurs include land that is outside of the safety zone. Dwelling sites can be constructed on the portion of the parcel that is outside of Zone 3.
		Undeveloped parcels greater than 20 acres that include multiple safety zones (Zones 1 through 4) may not include areas without restriction. This is a potential conflict.
Zone 5 **Sideline Zone**	Agriculture permitted.	Located entirely on airport and subject to Specific Plan policies.
	Single-family residential not permitted.	Residential is not permitted within project site boundaries.
		No conflict.
Zone 6 **Traffic Pattern Zone**	New residential development is not restricted.	No conflict.
	Agriculture permitted.	

All of the off-site areas associated with Safety Zones 1-4 are located in the unincorporated area of Stanislaus County and are currently zoned A-2, which has a minimum parcel size of 40 acres for the creation of new parcels. Up to two residences may be constructed on each new parcel of 20 acres or more in size for a site-wide average of

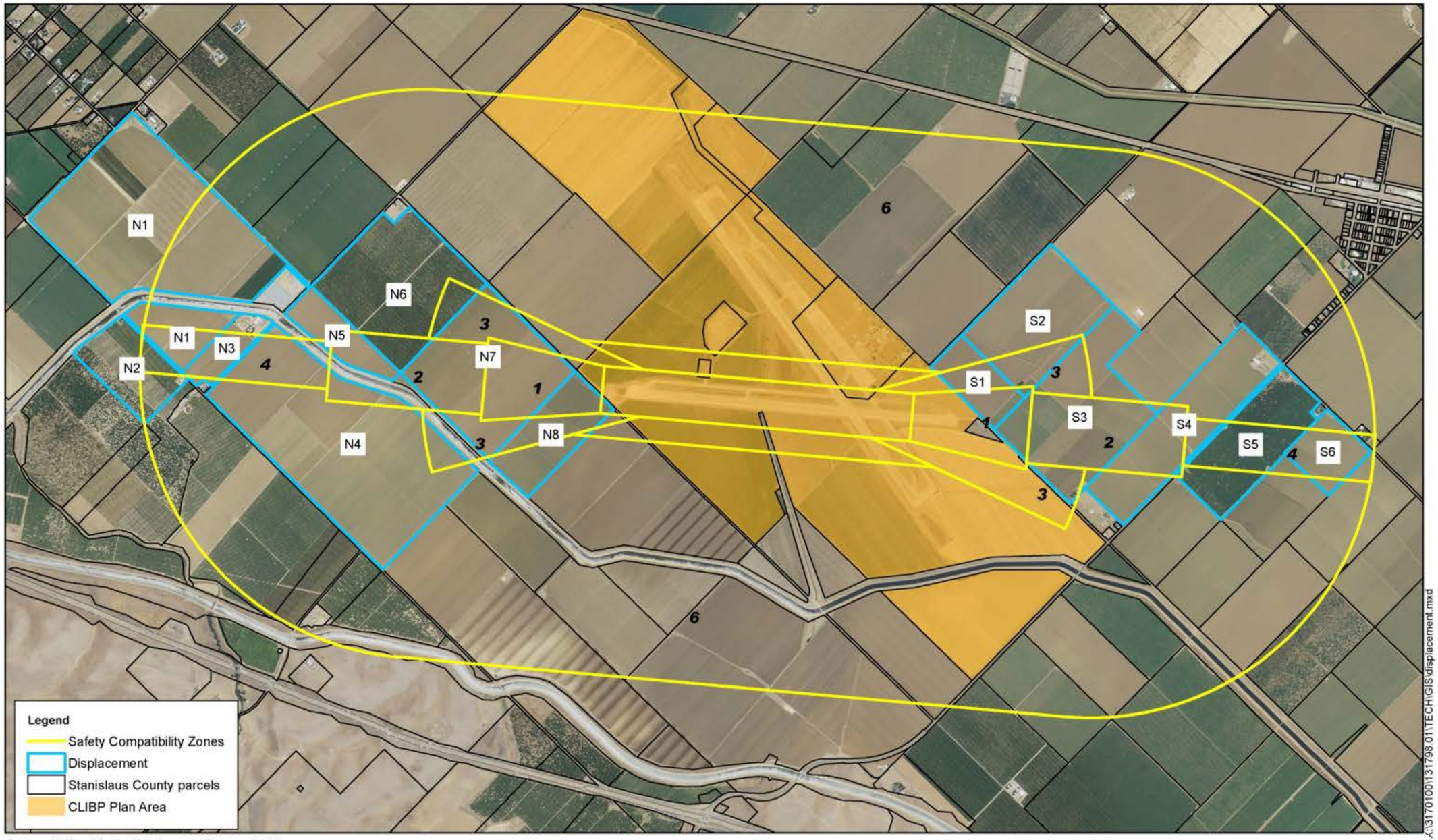
2 dwelling unit per 20 acres. Although the County's policies pertaining to the density/intensity of residential development are generally more restrictive than the County-wide ALUCP, several residential parcels were identified as potentially conflicting with the proposed ALUCP criteria. Although a portion of the AIA extends into the City of Patterson, no restrictions on residential development are associated with this portion of the AIA.

A quantitative analysis was performed to determine the number of future housing units that would be precluded by the proposed Airport Influence Area. As shown on Exhibit 5-1, a total of 14 parcels would be included in Safety Zones 1 through 4 following the construction of the "Ultimate" buildout scenario, should it occur. Parcels N1 through N8 would be associated with compatibility zones northwest of the runway, and Parcels S-1 through S6 would be associated with the compatibility zones southeast of the runway.

As summarized on Table 5-3, ALUCP policies prohibit residential development on Zone 1, a portion of which would extend onto some of the adjacent parcels. Following subdivision, housing would be permitted on nearly all parcels. The only future conflict is associated with Parcel N7, where the potential for developing up to two housing units would be displaced if that parcel were subdivided into three parcels of 40 acres. These units could be located on vacant parcels in other areas of Stanislaus County, and this small number would not prevent the County from meeting its Regional Housing Needs Assessment. Therefore, this impact is **less than cumulatively considerable.**

Table 5-3
Potential Displacement associated with the Ultimate Airport Scenario (>30 Years)

Parcel ID	Compatibility Zone	Total Parcel Acreage	Portion In Safety Zones (acres)	Potential Displacement
N1	Zone 4	317	20	None. Sufficient area exists outside of zone to accommodate housing.
N2	Zone 4	610	9	None. Sufficient area exists outside of zone to accommodate housing.
N3	Zone 4	27	20	None. Sufficient area exists outside of zone to accommodate housing.
N4	Zones 2, 3, and 4	308	65	None. Sufficient area exists outside of zone to accommodate housing.
N5	Zones 2 and 4	39	20	None. Sufficient area exists outside of zone to accommodate housing.
N6	Zones 2 and 3	155	28	None. Sufficient area exists outside of zone to accommodate housing.
N7	Zones 1, 2, and 3	157	154.5 (53.5 - Zone 1)	**Up to two units.** If the parcel were subdivided into six three parcels, of 40 or more acres each, up to six units would be allowed by right. Approximately 53.5 acres are located in Zone 1, where dwelling units are prohibited by ALUCP policy. Following subdivision, it is possible that dwellings would be prohibited on one of the subdivided parcels.
N8	Zones 1 and 3	68.6	39.3 (17.9 - Zone 1)	None. Sufficient area exists outside of zone to accommodate housing.
S1	Zones 1 and 3	40.5	31.3 (15.7 - Zone 1)	None. Sufficient area exists outside of zone to accommodate housing.
S2	Zones 3	115.7	24.86	None. Sufficient area exists outside of zone to accommodate housing.
S3	Zones 1, 2, and 3	153.9	119.5 13.1 - Zone 1	None. Sufficient area exists outside of Zone 1 to accommodate housing
S4	Zones 2 and 4	125.1	45.4	None. Sufficient area exists outside of zone to accommodate housing.
S5	Zones 2 and 4	96.7	41.1	None. Sufficient area exists outside of zone to accommodate housing.
S6	Zone 4	38.3	31.1	None. Sufficient area exists outside of zone to accommodate housing.
TOTAL POTENTIAL DISPLACEMENT				**2 units**



Source: National Agriculture Imagery Program 2012

0 5001,000 2,000 3,000 Feet

Source: Mead & Hunt 2016

Exhibit 5-1. **Displacement**

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NOISE

The traffic noise levels presented in Section 3.12 of the EIR represent the application of conservative traffic noise modeling methodologies, which assume no natural or artificial shielding from existing or proposed structures or topography. Actual traffic noise exposure levels at noise sensitive receptors in the vicinity of the project site would vary depending on a combination of factors, such as variations in daily traffic volumes, shielding provided by existing and proposed structures, and meteorological conditions. Modeled roadway noise levels assume no natural or artificial shielding and, therefore, these estimates should be considered conservative (potentially overestimating impacts). Actual traffic noise exposure levels in the vicinity of the project site would vary depending on a combination of factors, such as variations in daily traffic volumes, shielding provided by existing and proposed structures, and meteorological conditions.

As shown in Table 5-4, modeled traffic noise levels already exceed 60 dB L_{dn} under 2035 no project conditions in several locations in which there could be noise-sensitive receptors. This is a **significant cumulative impact**.

Implementation of the proposed project is estimated to result in changes in traffic noise levels ranging from +0 dB to +22 dB, compared to 2035 no project noise levels. In general, a 1-dB increase in noise level is imperceptible, a 3-dB increase is barely perceptible, and a 6-dB increase is clearly noticeable.

Traffic noise level increases of more than 6 dB would occur along West Marshall Road from SR 33 to Davis Road, and West Ike Crow Road from SR 33 to Bell Road. However, there are no noise-sensitive uses along these roads. Also, traffic noise level along Bell Road from Fink Road to West Ike Crow Road, and along West Marshall Road from Davis Road to Ward Avenue would increase by more than 6 dB. The traffic noise levels along these two roadway segments were estimated to be 65 dB L_{dn} and 64 dB L_{dn}, respectively. These levels also exceed the threshold of 60 dB L_{dn} by 4 to 5 dB. Because the proposed project would result in a perceptible increase in noise levels, the proposed project's traffic noise impact under existing plus project buildout is **cumulatively considerable**.

With respect to interior noise impact, typical residential construction (*i.e.*, wood siding or two-coat stucco, STC 30-31 windows, door weather-stripping and thresholds, exterior wall insulation, composition plywood roof) would be expected to provide an exterior-to-interior noise level reduction of no less than 25 dB with exterior doors and windows closed (EPA 1974). Therefore, residential building facades exposed to traffic noise levels of 70 dB L_{dn} or less would be expected to comply with the County's interior maximum transportation noise exposure standard of 45 dB L_{dn}/CNEL (70 dB – 25 dB = 45 dB).

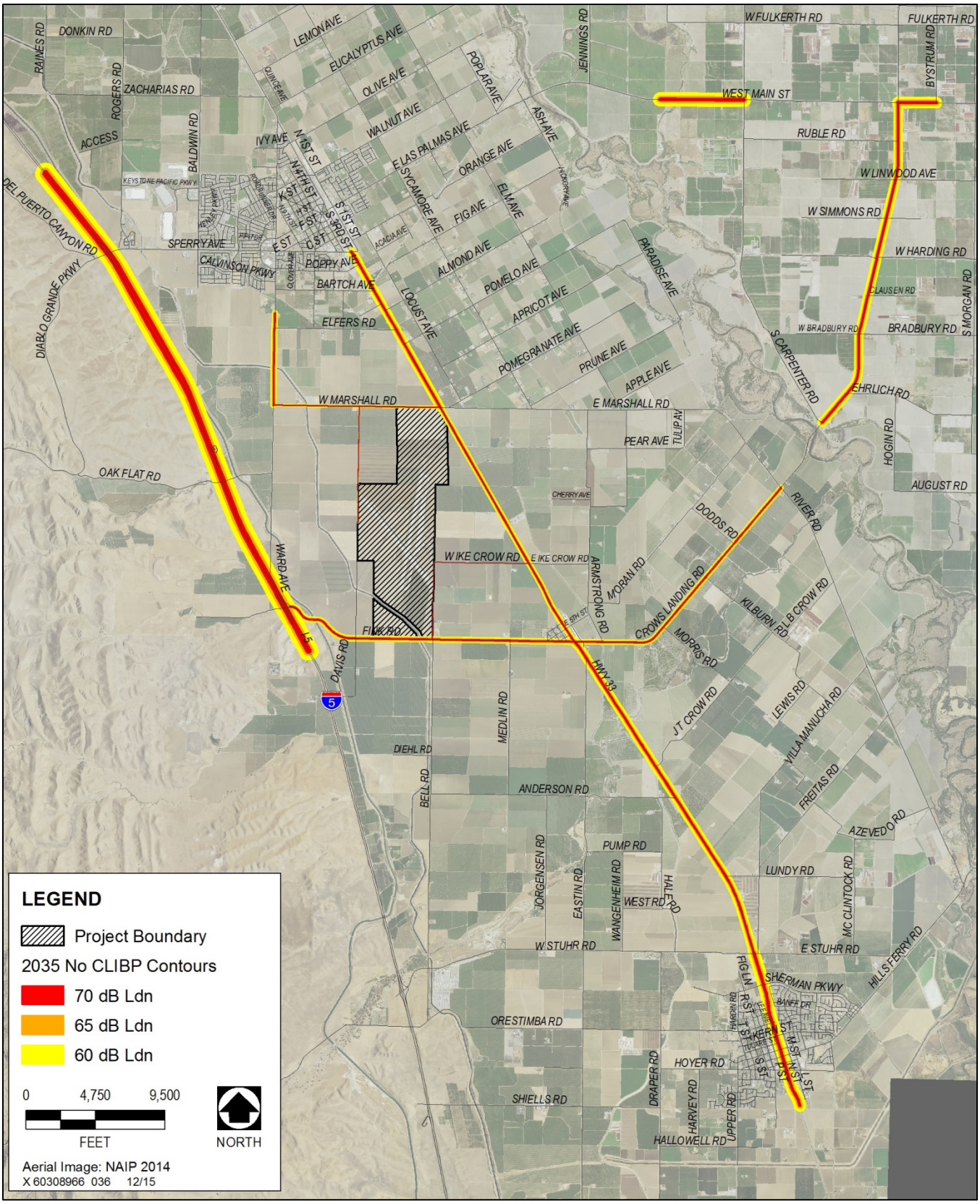
As shown in Table 5-4, there are roadway segments that would be affected by project traffic near residential areas at or above of 70 dB L_{dn}, and would cause interior noise levels to exceed the County's 45 dB L_{dn} limit. Traffic noise levels along SR 33 from Newman Waste Way to Stuhr Road, SR 33 from West Marshall Rd to Sperry Ave, and West Main Street west of Carpenter Road are more than 70 dB L_{dn}. However, implementation of Mitigation Measure 3.12-2 "Surfacing the Pavement along the Impacted Roadway Segment with Rubberized Asphalt Material" would reduce this impact. The impact is **less than cumulatively considerable with mitigation**.

Table 5-4
Traffic Noise Contours – 2035 No Project and 2035 plus Project Buildout

Roadway	Roadway Segment	2035 No Project dB, L_{dn} at 100 feet	2035 Plus Project Buildout				Increase from Project
			dB, L_{dn} at 100 feet	Distance to Contours, feet			
				70 dB L_{dn}	65 dB L_{dn}	60 dB L_{dn}	
Fink Road	From Ward Avenue to Davis Road	64	67	61	132	285	3
Fink Road	From Davis Road to Bell Road	64	66	50	108	232	2
Fink Road	From Bell Road to SR 33	64	68	72	154	332	4
SR 33	From Newman Waste Way to Stuhr Road	69	70	106	229	493	1
SR 33	From Stuhr Road to Fink Road	67	69	89	191	412	2
SR 33	From Fink Rd to Ike Crow Road	64	68	68	147	317	4
SR 33	From Ike Crow Road to Marshall Road	64	68	79	169	364	4
SR 33	From Marshall Rd to Sperry Ave	67	71	111	238	513	4
Ike Crow Road	From SR 33 to Bell Road	38	59	18	38	82	**21**
Bell Road	From Fink Road to Ike Crow Road	43	65	45	97	208	**22**
Davis Road	From South of Marshall Road to Marshall Road	45	NA	NA	NA	NA	NA
Marshall Road	From SR 33 to Davis Road	58	72	132	284	613	**14**
Marshall Road	From Davis Road to Ward Avenue	58	64	38	81	175	**6**
Ward Avenue	From Marshall Road to Patterson City Limits	64	66	56	121	261	2
Crows Landing Road	From Fink Rd to Marshall Road	63	67	59	127	273	4
W. Main St.	West of Carpenter Road	70	70	102	221	475	0
Crows Landing Road	From Carpenter Road to W. Main Street	67	69	88	190	409	2
W. Main Street	East of Crows Landing Road	68	69	86	186	400	1
I-5	North of Sperry Avenue	72	72	137	296	638	0
I-5	From Fink Rd to Sperry Ave	72	72	135	290	626	0
I-5	South of Fink Road	72	72	129	278	600	0

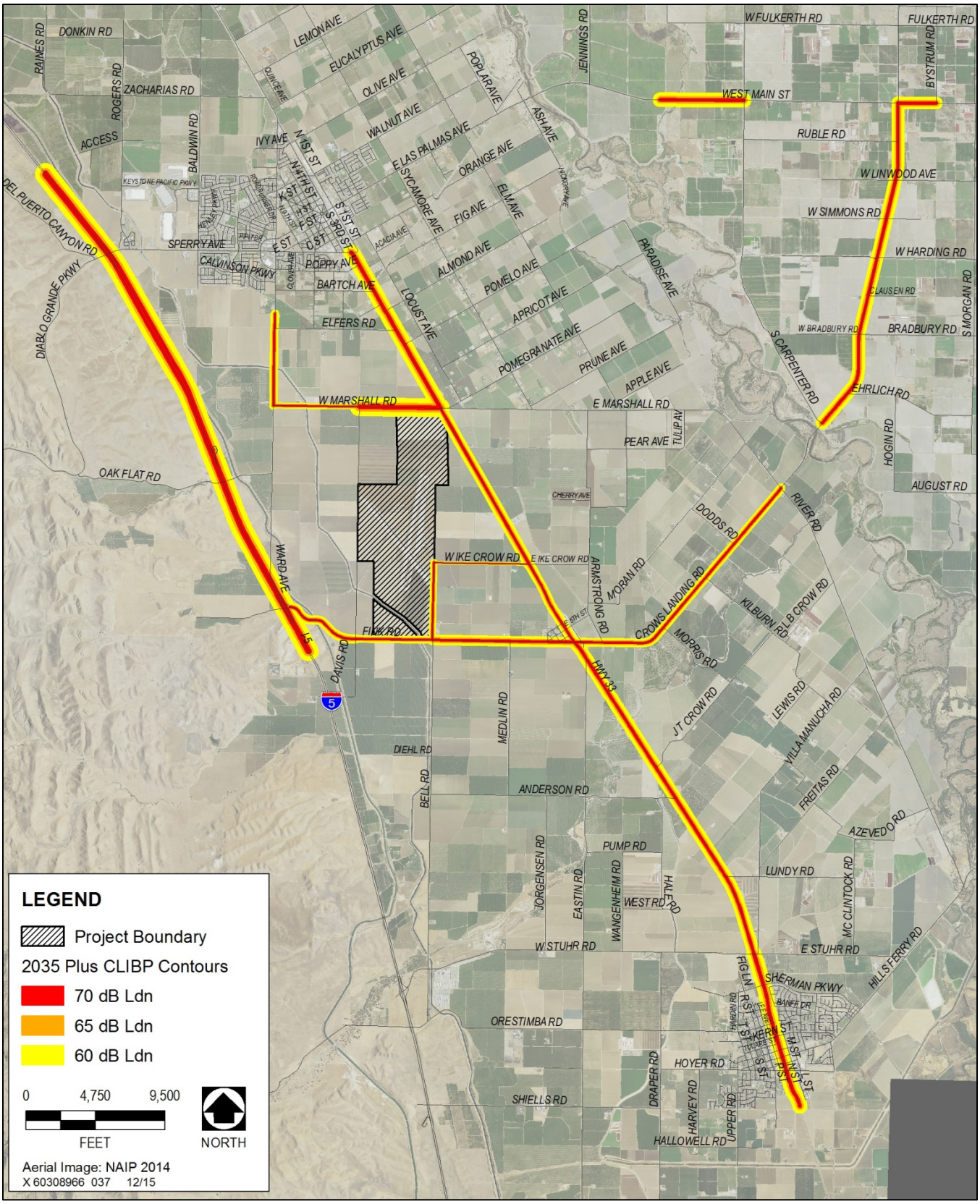
Notes: FHWA-RD-77-108 = Federal Highway Administration Highway Traffic Noise Prediction Model; dB = A-weighted decibels; L_{dn} = Day-Night Average Noise Level

Source: Modeling conducted by AECOM in 2015



Source: AECOM 2015

Exhibit 5-2. **Modeled Roadways – 2035 No Project Traffic Noise Contours**



Source: AECOM 2015

Exhibit 5-3. Modeled Roadways - 2035 plus Project Buildout Traffic Noise Contours

Construction

Construction noise impacts are normally localized and attenuate rapidly with distance. Compliance with applicable noise regulations and mitigation adopted for other, cumulative projects would reduce construction-related noise impacts from other projects in the immediate vicinity of the project site. Construction projects occurring simultaneously would not result in cumulative impacts unless the sites are in close proximity to one another and would expose sensitive receptors to significant noise levels at the same time. Adding construction traffic to the local roadway network would result in increased traffic noise levels in the vicinity of the project site. It is possible that construction occurring outside the project site could add construction traffic to some of the same roadways that would be expected to handle construction traffic during buildout of the project and off-site improvement areas. It is **too speculative at this time** to assess whether there would be other large construction projects directly adjacent to on-site or off-site construction attributable to the project and occurring simultaneously in a way that would create cumulative construction noise impacts.

Aircraft Noise Exposure

The closest existing airport is the Modesto City-County Airport, which is located approximately 15 miles east of the project site. However, the proposed project would include the construction of an on-site airport and proposed Airport Layout Plan (ALP).

Operational forecasts were developed for the 30-year planning horizon to identify potential aircraft noise exposure as measured using the Community Noise Equivalent Level (CNEL). The results of the CNEL calculations were depicted by a series of points representing points of equal noise exposure in 5dB increments from 50dB to 65dB CNEL. Exhibit 3.12-6 presents the noise contour associated with the airport from its opening day through its first 10 years of operation, which will coincide with Phase 1 of Specific Plan buildout. During this period, approximately 4,000 annual operations are anticipated. Exhibit 3.12-7 presents the noise contour associated with airport operations at full buildout, or 30 years following opening, when up to 34,000 annual operations are anticipated. Project site users would not be exposed to unacceptable levels of aircraft noise exposure.

Noise modeling was not performed to identify potential aircraft noise exposure following the 30-year buildout period. Although the ALP identifies that a runway extension may occur after the 30-year planning horizon, the extension would occur only as warranted by user demand and when funding is available. Therefore, this future runway extension is not reasonably foreseeable at this time. In addition, the fleet mix associated with such operations is unknown. Although the area exposed to noise could extend outside of the airport and the Specific Plan Area following the construction of a 1,000-foot runway extension, noise exposure would affect only parcels zoned for agricultural use. Pursuant to countywide ALUCP policies, agriculture is considered a compatible land use within areas exposed to aircraft noise, and new single-family dwellings would be permitted acceptable within the 55-60 CNEL noise contour with the 55-60 CNEL noise contour.

The project would **not contribute to any cumulative impact** related to sensitive-receptors as a result of proposed aircraft operations.

PUBLIC SERVICES AND RECREATION

Future development in the Stanislaus County would increase demand for public services and recreation. In terms of cumulative impacts, appropriate service providers are responsible for ensuring adequate provision of public services within their service boundaries.

Public services would be provided to the project site by the West Stanislaus Fire Protection District and Stanislaus County Sheriff's Department. The California Highway Patrol (CHP) also provides traffic regulation enforcement, emergency management, and vice assistance on State highways, all federal interstate highways, and other major roadways in unincorporated portions of Stanislaus County. Residential projects normally also examine the availability of schools, parks and recreational facilities, and sometimes other types of public facilities, such as libraries. However, the project does not propose any residential use.

New development within the West Stanislaus Fire Protection District service area would increase demand for fire protection services and facilities, potentially resulting in the need for additional staff members, facilities, and equipment. Individual development projects would be required to assess impacts related to fire protection services during the environmental review process to ensure that the West Stanislaus Fire Protection District has sufficient facilities and equipment to meet demand. Development within the unincorporated areas of the County would increase the demand for law enforcement services and facilities. Individual development projects would be required to assess impacts related to law enforcement services during the environmental review process to ensure that the Sherriff's Department has sufficient facilities and equipment to meet demand.

Funding for fire services and facilities resulting from new construction is facilitated through Stanislaus County's Fire Protection Facilities Fee (Title 24 of the Stanislaus County Municipal Code). The fee is used to ensure that new development pays its fair share to maintain level of service, thereby mitigating the impact of development on the fire protection district's ability to provide such service. Fees for applicable development are paid by the project applicant to the fire protection district (in this case, West Stanislaus Fire Protection District) and proof of payment must be presented to the County prior to the issuance of building permits. Developments within the Specific Plan Area will be responsible for paying the Fire Protection Facilities Fee. The County collects development impact fees specifically for Sheriff's Department services. The purpose of the fees is to mitigate the impacts caused by future development. Developments within the Specific Plan Area will be required to pay the County's development impact fees. In addition, approximately 15 acres northwest of the intersection of West Ike Crow Road and Bell Road would provide opportunities for the development of fire/and law enforcement facilities. Access would be available from West Marshall or West Ike Crow Roads. Physical impacts associated with construction and operation of fire and law enforcement facilities are evaluated in the other sections of this EIR, which specifically analyze the potential for project construction and implementation. The impact is **less than cumulatively considerable**.

POPULATION AND HOUSING

The project could generate a temporary increase in employment and potential housing demand as a result of local construction jobs. The number of construction workers on-site at any given time will depend on the pace of development within the Specific Plan Area. More construction workers would be employed during peak periods, when more construction would be expected to occur, whereas fewer construction workers would be employed during nonpeak periods. The number of construction workers involved in the project at any given time will

depend, in part, on market conditions, over which the County exercises no control. Construction workers serving the proposed project can be expected to come from Stanislaus County, from nearby communities, and from elsewhere in the surrounding region. There were approximately 14,164 Stanislaus County residents employed in the construction industry in 2014 (U.S. Census Bureau 2014). Stanislaus County residents who are employed in the construction, along with new residents that move to the area for other reasons, may be available during buildout of the proposed project for construction. With the pool of available construction workers that may be available locally, and considering that the proposed project would be developed in a number of phases over a long period of time, it is not anticipated that construction of the proposed project would cause substantial population growth or a substantial increase in housing demand in the region that could lead to adverse physical environmental effects.

It is possible that successful implementation of the project could indirectly facilitate population growth by adding approximately 14,000 to 15,000 jobs in Stanislaus County. However, it is also possible that future jobs at the project site could be filled by currently unemployed residents in Stanislaus County, currently employed Stanislaus County residents that elect to change jobs, and residents of other counties that choose to commute to their new job at the project site. Unemployment rates in Stanislaus County continue to exceed those of California and the nation as a whole (EDD 2016). In January of 2017, approximately 22,000 participants in the civilian labor force in Stanislaus County were unemployed. The unemployment rate in the County is approximately 8.9 percent, while for the state as a whole, the rate is 5.5 percent (EDD 2017). Stanislaus County currently provides fewer jobs locally than the number of working residents. Many residents commute to the San Francisco Bay Area or other distant employment centers. More than 16,000 Stanislaus workers commuted to the San Francisco Bay Area alone in 2010 and in total, 42,305 Stanislaus workers commuted out of Stanislaus County. In 2010, there were approximately 158,500 jobs and 165,000 households located in Stanislaus County, which is a ratio of 0.96 jobs for every 1 household. A more balanced ratio would be substantially higher than 1, since many households have multiple individuals in the labor force (StanCOG 2014a).

A primary objective of the project is to provide local employment opportunities. However, because of the proposed project's location along the primary transportation corridors, employees for the project could be drawn from San Joaquin and Merced Counties, both of which boarder Stanislaus County. A variety of housing options are available for project employees and over the 30-year buildout of the project. In addition, future housing opportunities will likely be available in nearby communities as future housing projects are constructed. Not only is the project being designed to provide local employment opportunities generally, but as noted in the Project Description (Section 2.0) and other sections of this EIR, the project is being designed to facilitate employment development in some of the specific industry sectors and subsectors experiencing the longest commuting by local residents. Even if a community has a statistical balance between jobs and housing, considerable in-commuting and out-commuting would occur where employment opportunities do not match the skills, education, and experience of the local labor force. The proposed project would be a new regional employment center that is anticipated to offer a range of job types that could include manufacturing, warehousing, logistics, uses that occupy professional offices, research and development, workforce training, among other job types. It is not possible to determine what proportion of jobs at the project site at buildout would be filled by formerly unemployed residents of Stanislaus County, or how many of these employees would move their households to new residential development in the vicinity of the project site. It is also not possible to determine how many of these residents would select homes, apartments, or other types of housing that are currently vacant and how many of these residents would choose newly developed residences. The County has elected **not to speculate** as to whether there

would be any population-related cumulative impact related to schools, parks and recreation facilities, or other types of public services and facilities to which the project could contribute.

As noted in the "Cumulative Context" subsection, StanCOG anticipates that land use change in unincorporated Stanislaus County, Ceres, Hughson, Modesto, Newman, Oakdale, Patterson, Riverbank, Turlock, and Waterford could increase population by 37 percent and employment by 35 percent between 2008 and 2040 (StanCOG 2016). This level of population increase will increase demand for public services and facilities, including those that would be required to serve the project – fire protection and law enforcement. It is possible that regional growth would require additional facilities to be constructed, the construction of which could have potentially significant impacts. This is a **significant cumulative impact**.

TRANSPORTATION AND TRAFFIC

Implementation of the project, along with past, present, and future developments would generate vehicular trips on roadways in Stanislaus County and the surrounding region. The environmental effects associated with the increase in travel demand include criteria air pollutants and toxic air contaminants associated with vehicle trips, GHG emissions associated with increases in VMT, and transportation noise along local and regional roadways. As with population growth, increase in travel demand in and of itself is not an adverse physical environmental impact. The environmental impacts are associated with the burning of fossil fuels necessary to power vehicles, the noise made by engines and interaction with the roadway, and other physical outcomes of an increase in travel demand – both during construction and operational phases. The increase in travel demand associated with buildout of the project is comprehensively analyzed and feasible mitigation identified in the body of this EIR. A regional traffic model was used to analyze impacts of the project, along with projected regional growth. Section 3.2, "Air Quality," comprehensively analyzes and provides feasible mitigation for air pollutant emissions associated with project vehicular trips, during both construction and operational phases. Section 3.7, "Greenhouse Gas Emissions," comprehensively analyzes and provides feasible mitigation for GHG emissions associated with project vehicular trips, during both construction and operational phases. Section 3.12, "Noise and Vibration," comprehensively analyzes and provides feasible mitigation for noise and vibration impacts associated with project vehicular trips, during both construction and operational phases. The cumulative impact for each of these topics is evaluated in this section. Other than the comprehensive analysis of environmental effects associated with the increase in travel demand attributable to the project, there are no other adverse physical environmental impacts associated with this cumulative increase in travel demand.

Cumulative No-Project Conditions

Intersection Operations

The Tri-County Traffic Model employed in conducting traffic demand forecasting for year 2035 includes new roadways in the network that are anticipated to exist in 2035. The model was built to reflect 2035 network and operating conditions.

Intersections located in the north of the project site, generally along Sperry Avenue, West Main Street, and Ward Avenue, are forecast to have growth of traffic, which will degrade the LOS to E or lower. This is a **significant cumulative** impact.

Under cumulative conditions, there is one signalized intersections in Patterson that will have unacceptable levels of service without project traffic:

- Ward Avenue / Sperry Avenue – Even without the Specific Plan, this intersection would not provide sufficient LOS according to City standards. The development of the South County Corridor, which is envisioned as an expressway linking SR 99 and I-5 immediately north of Patterson, is anticipated to reduce traffic pressures in most of the problem intersections (TJKM 2017).

LOS at this intersection without project traffic is a **significant cumulative** impact.

Some intersections, particularly those along SR 33, will require traffic signal installation since signal warrants will be met. Table 5-5 provides detailed LOS and signal warrant results for each study intersection during A.M. peak and P.M. peak hours.

For the following intersections, signalization is required to address cumulative no project delay during peak hours. The lead agency for each improvement is listed in parentheses.

- Intersection 1. I-5 SB / Sperry Road (Caltrans)
- Intersection 2. I-5 NB / Sperry Road (Caltrans)
- Intersection 10. Ward Avenue / SR 33 (Caltrans)
- Intersection 11. Olive Avenue / SR 33 (Caltrans)
- Intersection 14. Sperry Avenue / SR 33 (Caltrans)
- Intersection 17. Carpenter Road / West Main Street (Stanislaus County)
- Intersection 18. Crows Landing Road / West Main Street (Stanislaus County)
- Intersection 19. Crows Landing Road / Marshall Road (Stanislaus County)
- Intersection 20. Marshall Road / SR 33 (Caltrans)
- Intersection 25. Fink Road at SR 33 (Caltrans)

Intersections #1, #2, #11, #14, #17, and #18, included in the "City of Patterson General Plan Update Traffic Study 2010," are identified for signalization or installation of roundabouts.

Roadway Segment Operations

The majority of roadway segments within the study area will have adequate LOS during cumulative conditions, according to standards maintained by Caltrans and the County. However, on West Main Street, west of Carpenter Road and I-5 north of Sperry Avenue, a LOS E is expected for both segments. This is a **significant cumulative** impact.

Table 5-6 summarizes roadway segment LOS analysis on 2035 No-Project Conditions.

Table 5-5
Intersection Level of Service: 2035 No-Project and 2035 plus Project Conditions

	Intersection	Traffic Control Type	2035 No-Project				2035 plus Project			
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	I-5 SB Ramps / Sperry Ave	OWSC	>150	F*	>150	F*	>150	F*	>150	F*
2	I-5 NB Ramps / Sperry Ave	OWSC	>150	F*	>150	F*	>150	F*	>150	F*
3	Rogers Road / Sperry Ave	Signalized	26.1	C	25.2	C	38.9	D	32.3	C
4	Baldwin Road / Sperry Ave	Signalized	25.4	C	30.2	C	45	D	53	D
5	American Eagle Way / Sperry Ave	Signalized	19.5	B	11.9	B	24	C	12	B
6	Las Palmas Avenue / Sperry Ave	Signalized	16.8	B	18.7	B	29	C	21	C
7	Ward Avenue / Sperry Ave	Signalized	59.4	E	33.3	C	144	F	100	F
8	Ward Avenue / Las Palmas Avenue	Signalized	30.1	C	22.9	C	35.1	D	31.4	C
9	Ward Avenue / M Street	Signalized	35.5	D	33.3	C	48.0	D	97	F
10	Ward Avenue / SR 33	OWSC	0>150	F*	107.3	F*	>150	F*	>150	F*
11	Olive Avenue / SR 33	TWSC	>150	F*	>150	F*	>150	F*	>150	F*
12	Walnut Avenue / SR 33	Signalized	37.4	D	29.7	C	44.5	D	39.5	D
13	Las Palmas Avenue / SR 33	Signalized	21.0	C	21.0	C	36.0	C	24.1	C
14	Sperry Avenue / SR 33	TWSC	>150	F*	>150	F*	>150	F*	>150	F*
15	Sycamore Ave / Las Palmas Avenue	Signalized	37	D	20.2	C	44	D	20	C
16	Elm Avenue / Las Palmas Avenue	Signalized	16.3	B	15.6	B	21	C	17	B
17	Carpenter Road / W. Main Street	AWSC	143	F*	98.9	F*	>150	F*	150	F*
18	Crows Landing Rd. / W. Main Street	AWSC	>150	F*	>150	F*	>150	F*	>150	F*
19	*Crows Landing Road / Marshall Rd	AWSC	>150	F*	>150	F*	>150	F*	>150	F*
20	Marshall Road / SR 33	TWSC	>150	F*	>150	F*	>150	F*	>150	F*
21	Marshall Road / Davis Road	OWSC	8.5	A	9.8	A	*Note: Davis discontinued with project in place*			
22	Marshall Road / Ward Ave	OWSC	16.1	C	12.1	B	>150	F*	>150	F*
23	Ike Crow Road / Bell Road	TWSC	8.8	A	8.9	A	37	E	17	C
24	Ike Crow Road / SR 33	TWSC	16	C	15.4	C	>150	F*	>150	F*
25	Fink Road / SR 33	AWSC	>150	F*	118.2	F*	>150	F*	>150	F*
26	Fink Road / Bell Road	TWSC	13.2	B	12.1	B	>150	F*	>150	F
27	Fink Road / Davis Road	TWSC	13.9	B	12.8	B	>150	F*	45	E
28	Fink Road / Ward Avenue	OWSC	26.2	D	14.7	B	>150	F*	>150	F*
29	I-5 NB Ramps / Fink Road	OWSC	14.2	B	12.7	B	>150	F*	15	C
30	I-5 SB Ramps / Fink Road	OWSC	14.4	B	61	F	>150	F*	>150	F

Notes: OWSC = One Way Stop Control, TWSC = Two Way Stop Control, AWSC = All Way Stop Control, LOS = Level of Service

Shaded = Below acceptable LOS

* = Meet signal warrants

Source: TJKM Transportation Consultants 2017

Table 5-6
Roadway Segment Level of Service: 2035 No-Project and 2035 plus Project Conditions

	Local Roadway Segment/Freeway Segment	Number of Lanes	LOS Threshold	2035 No-Project		2035 plus Project	
				ADT	LOS	ADT	LOS
1	Fink Road between Ward Avenue and Davis Road	2	D	5,767	C or Better	10,902	C or Better
2	Fink Road between Davis Road and Bell Road	2	D	5,619	C or Better	8,032	C or Better
3	Fink Road between Bell Road and SR-33	2	D	5,764	C or Better	13,709	D
4	SR-33 south of Stuhr Rd north of Newman	2	C-D	16,757	D	23,599	E*
5	SR-33 between Stuhr Road and Fink Road	2	C-D	10,296	C or Better	18,000	D
6	SR-33 between Fink Rd and Ike Crow Road	2	C-D	5,588	C or Better	12,183	C or Better
7	SR-33 between Ike Crow Road and Marshall Road	2	C-D	5,516	C or Better	14,986	D
8	SR-33 between Marshall Rd and Sperry Ave	2	C-D	10,297	C or Better	25,030	F*
9	Ike Crow Road between SR-33 and Bell Road	2	D	23	C or Better	2,865	C or Better
10	Bell Road between Fink Road and Ike Crow Road	2	D	44	C or Better	6,806	C or Better
11	Davis Road south of Marshall Road	2	D	74	C or Better	-	-
12	Marshall Road between SR-33 and Davis Road	2	D	1,327	C or Better	32,663	D
13	Marshall Road between Davis Road and Ward Avenue	2	D	1,309	C or Better	5,006	C or Better
14	Ward Avenue between Marshall Road and Patterson City Limits	2	D	5,347	C or Better	9,103	C or Better
15	Crows Landing Road between Fink Rd and Marshall Road	2	D	4,334	C or Better	9,715	C or Better
16	W. Main Street west of Carpenter Road	2	D	21,196	E*	22,318	E*
17	Crows Landing Road between Carpenter Road and W. Main Street	2	D	10,626	C or Better	17,849	D
18	West Main Street east of Crows Landing Road	2	D	14,805	D	17,213	D
19	I-5 north of Sperry Avenue	4	C-D	70,368	E*	71,690	E*
20	I-5 between Fink Rd and Sperry Ave	4	C-D	66,883	D	69,628	E*
21	I-5 south of Fink Road	4	C-D	64,328	D	65,338	D

Notes:

ADT = Average Daily Traffic

Shaded = Below acceptable LOS

* = Street widening required (to 4 if originally 2; to 6 if originally 4)

Source: TJKM Transportation Consultants 2017

The following improvements would address cumulative no project conditions to address forecast unacceptable roadway segment LOS.

- Roadway Segment 16. West Main Street west of Carpenter Road: from two to four lanes (Stanislaus County)
- Roadway Segment 19. I-5 north of Sperry Avenue: from four to six lanes (Caltrans)

Regarding the widening of West Main Street and East Las Palmas Avenue, the western section of this roadway from SR 33 to Poplar Avenue is planned to be approximately 13,200 feet in length and three lanes. The three-lane

section is anticipated to be adequate to accommodate project traffic plus regional growth, particularly if a future South County Corridor expressway is implemented on a different alignment (TJKM 2017). The two-lane section of West Main Street between Poplar Avenue and South Carpenter Road is 17,500 feet long. Because the South County Corridor expressway alignment is uncertain, the need for widening for this roadway segment is not certain. This section of roadway includes a 750-foot long bridge over the San Joaquin River, and there is a Stanislaus County project to investigate upgrading this bridge to meet current standards. The County is currently preparing the "South County Corridor Feasibility Study" to evaluate alternative measures to improve West Main Street.

Cumulative with Project Conditions

Intersection Operations

With the addition of project-related traffic to cumulative conditions, additional intersections will exceed the applicable LOS thresholds during peak-hour operations. The impact is **cumulatively considerable**.

Mitigation Measure – Cumulative with Project Transportation 1: Traffic Signal Installation

The project shall contribute on a cumulative fair-share basis to the signalizations for Intersections 1, 2, 10, 11, 14, 17, 18, 19, 20, and 25. The project shall also contribute on a cumulative fair-share basis to the signalization of the following intersections:

- Fink Road / Davis Road (Stanislaus County)
- Fink Road / Ward Avenue (Stanislaus County)
- I-5 NB Ramps/ Fink Road (Caltrans)
- I-5 SB Ramps/ Fink Road (Caltrans)

Implementation: County of Stanislaus / Caltrans

Timing: Prior to completion of Phase 3

Enforcement: County of Stanislaus Public Works Department / Caltrans

The Transportation Master Plan, under separate cover and available for review on file with the County Planning and Community Development Department, presents estimates of the project's fair share of the cost of each of these improvements. The calculation of the project's fair share may change based on planning and development that could occur between the present time and buildout of the project. With signalization of the intersections of Fink Road and Davis Road, Fink Road and Ward Avenue, I-5 NB Ramps and Fink Road, and I-5 SB Ramps and Fink Road, the resultant LOS would be LOS C or better. The Fink Road/Davis Road and Fink Road/Ward Avenue intersection improvements would occur under the jurisdiction of the County. The impact is **less than cumulatively considerable with mitigation**.

The I-5 northbound ramps/Fink Road intersection and I-5 southbound ramps/Fink Road intersection are under Caltrans' jurisdiction. The County cannot guarantee that these improvements would be implemented. There is no additional feasible mitigation. This cumulative impact is considered **significant and unavoidable**.

For the fair-share contributions to recommended improvements identified for the cumulative without project scenario, LOS C or better would be achieved at the intersections of Carpenter Road and West Main Street, Crows

Landing Road and West Main Street, and Crows Landing Road and Marshall Road. In addition, although signalization would achieve LOS C or better for the intersections of I-5 southbound ramps and Sperry Road, I-5 northbound ramps and Sperry Road, Ward Avenue and SR 33, Olive Avenue and SR 33, Sperry Avenue and SR 33, Marshall Road and SR 33, and Fink Road and SR 33, each of these improvements is under Caltrans' jurisdiction and the County cannot ensure implementation. The impact is considered **significant and unavoidable**.

Roadway Segment Operations

With the addition of project-related traffic to cumulative conditions, additional roadway segments will fall below relevant LOS thresholds. The impact is **cumulatively considerable**.

Mitigation Measure – Cumulative with Project Transportation 2: Roadway Widening

The project shall contribute on a cumulative fair-share basis to the improvement to Roadway Segment 16, West Main Street west of Carpenter Road: from two to four lanes, and the improvement to Roadway Segment 19, I-5 north of Sperry Avenue: from four to six lanes. The project shall also contribute on a cumulative fair-share basis to the following roadway widening improvements:

- Roadway Segment 4. SR 33 south of Stuhr Road, north of Newman: from two to four lanes
- Roadway Segment 8. SR 33 between Marshall Road and Sperry Avenue: from two to four lanes
- Roadway Segment 20. I-5 between Fink Road and Sperry Avenue: from four to six lanes

Implementation: Caltrans / County of Stanislaus

Timing: Prior to completion of Phase 3

Enforcement: Caltrans / County of Stanislaus Public Work Department

The Transportation Master Plan (under separate cover and available for review on file with the County Planning and Community Development Department) presents estimates of the project's fair share of the cost of each of these improvements. The calculation of the project's fair share may change based on planning and development that could occur between present and buildout of the project. Providing four lanes on SR 33 between the city of Newman and Stuhr Road would provide LOS D, as would four lanes between Marshall Road and Sperry Avenue. Adding two lanes to I-5 between Fink Road and Sperry Avenue would provide LOS B. However, the County cannot guarantee that these improvements would be implemented because they would be under the jurisdiction of Caltrans and would depend on the availability and prioritization of State and federal funds. There is no additional feasible mitigation available. This impact is **significant and unavoidable**.

For the fair-share contributions to roadway widenings identified under the cumulative no project scenario, a LOS of C or better would be achieved on West Main Street and East Las Palmas Road west of Carpenter Road and on I-5 north of Sperry Avenue. However, the County cannot guarantee that the improvements would be implemented for I-5 because these improvements would be under the jurisdiction of Caltrans and because the improvements would depend on the availability and prioritization of State and federal funds. This cumulative impact is **significant and unavoidable**.

Regarding the widening of SR 33, from Marshall Road to Sperry Avenue, this segment is 12,300 feet in length. In the city of Patterson, the four-lane section of SR 33 has a width of about 60 feet for four-lanes undivided plus parking on one side. Widening is needed by the completion of Phase 2 of the development when combined with 2035 growth traffic. During Phases 2 and 3 of the project, it may be worthwhile to consider adding a third center left turn lane at existing intersections to enhance both the safety and capacity of SR 33 and delay the need for four lanes.

For SR 33 south of Stuhr Road and north of the city of Newman, this section of roadway will exceed two-lane capacity by the end of Phase 3 of the project when combined with 2035 background traffic. SR 33 through Newman appears to have an ultimate width of three lanes in the existing urbanized area. If such a road section were extended north to Stuhr Road with signalization and other intersection improvements at Stuhr Road, this is anticipated to supply adequate capacity (TJKM 2017).

Roadway Segment Operations in the City of Patterson

The City of Patterson requested that additional roadway segments in or near the City be evaluated under 2035 conditions. These are described below:

- Sperry Road between Rogers Road and Ward Avenue: This is planned to be a four lane roadway. This is expected to have a daily count of 19,300 vehicles per day in 2035 with project volumes. The project contributes 24.6 percent of these volumes. With four lanes, this section will operate at LOS C without the project and LOS D with the project.

- Sperry Road from Ward Avenue to SR 33: As a two-lane roadway the expected 2035 plus project volumes will be 9,015 vehicles per day, of which 38.6 percent are project volumes. This roadway operates at LOS B with and without the project.

- Ward Avenue from SR 33 to Patterson City Limits: This two-lane roadway is expected to carry 4,145 vehicles per day under 2035 plus project conditions, of which 31.4 percent are contributed by the project. This roadway operates at LOS A with and without the project.

- SR 33 south of Las Palmas Avenue: This four-lane roadway is expected to have 15,445 vehicles per day in 2035 with project conditions, of which 25.3 percent are contributed by the project. This roadway operates at LOS B without the project and LOS C with the project.

- SR 33 from Zacharias Road to M Street: This two-lane roadway will carry 7,870 vehicles in 2035 with the project, of which 18.8 percent are contributed by the project. The roadway operates at LOS B with and without the project.

Under cumulative conditions, these roadway segments in the City of Patterson will not exceed the applicable LOS thresholds during peak-hour operations without project traffic or with the addition of project traffic (TJKM 2017). The impact is **less than cumulatively considerable**. The project would **not have a cumulatively considerable contribution** to any significant cumulative impact in the City of Patterson.

UTILITIES AND SERVICE SYSTEMS

In terms of cumulative impacts, the appropriate service providers are responsible for ensuring that adequate public utilities are available within their service boundaries. The necessary public utilities would be provided to the project by Stanislaus County, the City of Patterson, Turlock Irrigation District (TID), Pacific Gas and Electric Company (PG&E), and AT&T Inc. (AT&T) or Global Valley Networks. The related projects discussed in this section include some development that would occur within each provider's service area. The following discussion analyzes the cumulative impacts on these service providers from implementation of the project and future, related projects within their respective service areas.

Water Supply

Implementation of the project would result in the increased demand for water supplies. Water supply for the project site would be provided through existing (non-potable) and new (potable) groundwater wells from the Delta-Mendota Groundwater Subbasin. Groundwater levels underlying or near the proposed project site appear to have minimal net change and appear to be hydrologically balanced (AECOM 2016). A groundwater contour map provided by DWR based on well data show that 2006 groundwater levels did not change markedly from 1996 levels (City of Patterson 2011). Some studies of groundwater elevations have shown some decline during recent years attributable to abnormally low rainfall throughout the state and increased groundwater pumping to meet demands that would normally be met from surface water sources, but that over time, groundwater elevations are relatively stable, which would indicate a hydrologically balanced condition (VVH Consulting Engineers and AECOM 2016). The hydrographs for State Well No.'s 06S08E20D002M and 06S08E09E001M span the period from 2011 to the present. In general, these hydrographs suggest that groundwater levels near the project site recover quickly after pumping ceases, as indicated by relatively consistent water elevations by season (see State Well No. 06S08E09E001M). Overall, water levels near the project site have been stable since 2011, which indicates that recent pumping rates near the project site have been sustainable on an annual basis, even during the drought (JJ&A 2016:3-3).

The County has created four Groundwater Management Areas, including the North County, Modesto, Turlock, and the Westside Groundwater Management Areas. The project site is located in the West Side Area. The County has estimated the water supply in the Westside Area to be 383,000 acre-feet per year (afy) (333,500 from surface supplies and 49,500 from groundwater supplies) (Stanislaus County 2008). Westside Area water suppliers include:

- City of Patterson
- City of Newman
- Del Puerto Water District
- Westley Community Services District
- Patterson Irrigation District
- Oak Flat Water District
- Western Hills Water District
- Crows Landing Community Services District
- West Stanislaus Irrigation District
- Eastin Water District
- Central California Irrigation District
- El Solyo Water District

Additional agricultural water demand and urban demand, such as in the City of Patterson, would increase water demand, and projects that rely on groundwater may cause the groundwater levels to decline. Changes in agricultural practices could increase water demand or could increase groundwater recharge, depending on the soils, among other factors. Urban development of agricultural land with relatively higher water demand agricultural operations could represent a net decrease in water demand. The addition of impervious surfaces associated with urban development would decrease groundwater recharge in most cases. At this time, the County is unable to determine whether changes in agricultural practices and development in the Westside Area would increase water demand and reduce groundwater recharge so that supplies become unsustainable. Considering the magnitude of development included in the cumulative context, the County assumes there could be a **significant cumulative impact.**

A water supply assessment (WSA) was prepared in compliance with SB 610 to determine whether the projected available water supplies would meet the project's water demand. The total projected water demand based on proposed land uses in the project site at buildout is an estimated 2,819 afy. The WSA concluded that the proposed potable and non-potable groundwater wells would be sufficient to meet the water supply demands of the proposed project in normal, single-dry, and multiple-dry years. Groundwater levels underlying the near the proposed project site appear to have minimal net change and appear to be hydrologically balanced (AECOM 2016). The Delta-Mendota Subbasin is reported to be relatively stable, with no indication of long-term decline or cone-of-depression. A groundwater contour map provided by DWR based on well data show that 2006 groundwater levels did not change markedly from 1996 levels (City of Patterson 2011).

The Sustainable Groundwater Management Act of 2014 provides for local control of groundwater sustainability with state oversight. The law states that groundwater resources should be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses. To achieve its goals, the Act requires local agencies to develop and implement groundwater sustainability plans in critically overdrafted basins by 2020 and high- and medium-priority groundwater basins by 2022. While the Act identifies specific requirements for groundwater monitoring and use, it does not affect water rights, and it only grants state agencies the power to prohibit groundwater withdrawals after the agencies determine that local efforts are not sustaining groundwater resources. Stanislaus County is currently preparing a groundwater sustainability plan to meet the requirements of the Sustainable Groundwater Management Act.

The Specific Plan includes goals, policies, and design guidelines, including goals to incorporate water-sensitive site design principles in the landscape, infrastructure, and building design, including on-site stormwater management. The Specific Plan calls for water conserving plants, including California natives and drought tolerant plant materials to ensure compliance with State and County water-efficient landscape standards, and minimizing lawns and turf grass. Other than the Specific Plan water-efficient designs, which demonstrate consistency with California and Stanislaus County water-efficient standards, compliance with California Green Building Code standards that reduce indoor potable water demand by 20 percent and landscape water usage by 50 percent, the pursuit of a strategy to supplement groundwater supply with surface water, and the County's preparation and implementation of a groundwater sustainability plan, there is no additional feasible mitigation that would allow the County to achieve the basic project objectives and further reduce water demand. The impact is **significant and unavoidable.**

Water Storage and Conveyance Facilities

The Specific Plan Water Supply Infrastructure and Facilities study identifies on-site wells, treatment, storage, and conveyance needs necessary to serve the project that would be constructed in three phases. Individual development projects would contribute on a fair-share basis to the costs required to construct this backbone infrastructure. The water infrastructure is planned to serve the project's needs, and the construction of water supply infrastructure would not combine with construction of water supply facilities of related projects to create a cumulative impact. A **significant cumulative impact would not occur**, and the proposed project **would not result in a cumulatively considerable contribution** to impacts related to wastewater collection and conveyance facilities.

Wastewater Conveyance Facilities

Implementation of the project would require construction of on- and off-site wastewater collection and conveyance facilities. The Specific Plan Sanitary Sewer Infrastructure and Facilities Study prepared to support development of the Specific Plan describes improvements necessary to serve the project, including gravity trunk mains, sewer lift stations, a force main, connections to existing facilities, and other required infrastructure in all three phases of project development. Individual leasehold development projects in the Plan Area would contribute on a fair-share basis to the costs required to construct backbone infrastructure. The construction of wastewater conveyance infrastructure would not combine with construction of wastewater conveyance infrastructure of related projects to create a cumulative impact. A **significant cumulative impact would not occur**, and the proposed project woul**d not result in a cumulatively considerable contribution** to impacts related to wastewater conveyance infrastructure.

Wastewater Treatment Facilities

The Specific Plan proposes to construct facilities to connect to the Western Hills Water District sanitary sewer effluent conveyance system to transport effluent to and through the City of Patterson's wastewater conveyance system, and ultimately to the City of Patterson Water Quality Control Facility (WQCF) for treatment. As described in the Sanitary Sewer Infrastructure and Facilities Study developed to support the Specific Plan, the County will contribute on a fair-share basis to fund necessary improvements to expand the City's WQCF to accommodate the project's demand.

The City of Patterson WQCF has a current design capacity of 2.25 mgd average dry-weather flow but has a reliable treatment capacity of 1.85 mgd (Blackwater Consulting Engineers 2017).[2] The City anticipates that flows to the WQFC at buildout of all known planned development within the City of Patterson, its sphere of influence, and the community of Diablo Grande would exceed the design capacity of the treatment plant. Table 5-7 shows the estimated WQCF average dry-weather flow at buildout of Patterson and Diablo Grande plus the wastewater flows generated by the Specific Plan.

[2] The existing reliable capacity for the WQCF differs from the permitted capacity. The WQCF's waste discharge requirements identified in Central Valley Regional Water Quality Control Board Order R5-2007-0147 include effluent nitrogen limits that have been challenging for the older treatment facilities at the WQCF to meet. Therefore, the City of Patterson considers the reliable capacity of the WQCF to be less than the permitted capacity to ensure compliance with the waste discharge requirements.

Table 5-7
Estimated City of Patterson Water Quality Control Facility Average Dry-Weather Flow (mgd)

Year	City of Patterson	Diablo Grande	Total without the Specific Plan	Specific Plan	Total with the Specific Plan
2018	1.51	0.05	1.56	0.39	1.96
2029	2.15	0.11	2.25	0.62	2.87
2040	2.49	0.16	2.65	0.89	3.54
2050	2.80	0.22	3.02	0.89	3.91
Buildout	5.54	0.75	6.29	0.89	7.18

Note: mgd = million gallons per day

Source: Blackwater Consulting Engineers 2017

The City has prepared improvement plans and acquired land to expand the WQCF. This expansion, generally referred to as the Phase III Expansion, would increase the plant capacity by 1.25 mgd to bring the total plant capacity to 3.5 mgd with a reliable treatment capacity of 3.1 mgd (Central Valley Regional Water Quality Control Board 2007, Blackwater Consulting Engineers 2017). Future expansions to the WQCF will be required to treat wastewater flows at buildout of Patterson and Diablo Grande without the Specific Plan, and inclusion of wastewater flows generated by the Specific Plan would accelerate the need for WQCF expansion (Blackwater Consulting Engineers 2017). Phase IV and Phase V expansions would increase the WQCF reliable treatment capacity to 4.25 mgd and 6.5 mgd, respectively (Blackwater Consulting Engineers 2017). It is expected that future expansions would occur before the WQCF exceeds reliable capacity.

As indicated in the Specific Plan, on-site septic systems will be permitted during Phase 1 while infrastructure is being installed. A fair-share contribution will be paid to the City of Patterson to expand its WQCF to accommodate project-related wastewater flows. Stanislaus County's Guidelines for Septic System Design should be used for on-site septic systems that operate during Phase 1.

Phases 1, 2, and 3 of the project could generate an average dry-weather flow of 0.394 mgd, 0.223 mgd, and 0.274 mgd, respectively, for a total of 0.891 mgd average dry-weather flow at site buildout (Blackwater Consulting Engineers 2017). These estimates are conservative, and do not consider California Green Building Standards or the Specific Plan policies that reduce water use. The City of Patterson did not account for the project's wastewater flows in its planned design expansion to 3.5 mgd. It is possible that additional capacity may need to be added to the WQCF to serve one or more phases of the proposed project, should these other projects break ground before the proposed project. Subsequent projects and leasehold development would be required to pay fair-share fees to the City of Patterson for wastewater treatment. However, without capacity expansion the WQCF would not be able to accommodate the proposed project's long-term wastewater treatment demands of 0.891 mgd at buildout. Mitigation Measure 3.15-5 requires adequate wastewater treatment capacity be identified and documented before issuance of building permits for projects proposing to connect to the public sewer system. However, capacity improvements would be required to serve demand generated by the project and other past, present, and probable future projects.

Capacity expansion for the City's WQCF could have significant environmental effects. Placement of new buildings or structures could change the aesthetic environment in the vicinity of the WQCF and new construction

could involve additional lighting. If additional property is required to expand treatment capacity, this could convert farmland and conflict with Williamson Act contracts. It is possible that improvements could adversely affect Swainson's hawk foraging habitat, western pond turtle habitat, raptor nests, riparian woodland, or habitat for other rare plant and wildlife species. Construction and/or demolition activities could disturb previously unknown subsurface cultural resources and generate criteria air pollutant emissions, precursors, and greenhouse gas (GHG) emissions. Routine maintenance activities, ongoing operations, and employees commuting to the expanded facility would generate criteria air pollutant emissions, precursors, and GHG emissions, as well. It is possible that a capacity expansion could increase odor-generating potential. Existing regulations would likely prevent significant adverse effects to groundwater or surface water quality. It is possible that capacity expansion could interact with floodplains and require additional property. Although little is known at this time about a possible future capacity expansion, the County acknowledges that there could be **significant cumulative** impact associated with such an expansion. The project would have a **cumulatively considerable** contribution. Because the County would not have any role in the design, location, phasing, or operation, the County would not be able to identify methods to reduce or avoid environmental effects in the planning phase or impose mitigation. The cumulative impact is **significant and unavoidable**.

Solid Waste

Implementation of the project would generate approximately 69.8 tons per day of solid waste that would be disposed of at the Fink Road Landfill. This landfill has a maximum permitted throughput of 2,400 tpd. The estimated 69.8 tpd of solid waste generated by the proposed project would be approximately 3 percent of the maximum tpd that could be received at the landfill. The County recently revised its capacity projections for the life of the landfill to 2029 for Class III waste and 2043 for Class II (Stanislaus County 2014). In addition, the County has initiated plans for an expansion and reconfiguration of the existing facility to extend its useful life by another 10 to 15 years beyond the revised projections (Stanislaus County 2009:2-1). Therefore, the Fink Road Landfill has sufficient permitted capacity to accommodate solid-waste disposal needs for the proposed project. Therefore, **a cumulatively significant impact would not occur**, and the project **would not result in a cumulatively significant incremental contribution** to impacts related to solid waste.

Electricity, Natural Gas, and Telecommunications

Implementation of the proposed project would increase demand for electricity, natural gas, and telecommunications services, and the proposed project would include the development of new utility infrastructure to deliver services to the project site. Electrical and natural gas service in Stanislaus County is provided by Turlock Irrigation District and PG&E, respectively. Turlock Irrigation District and PG&E are responsible for upgrading existing electrical and natural gas infrastructure to meet the demands of individual projects, including the proposed project. Turlock Irrigation District currently serves the project area with a number of overhead facilities.

The proposed project site is currently served by TID using overhead electric transmission and distribution lines. Within the vicinity of the project site, PG&E has a 24-inch diameter transmission pipeline on the northern boundary of the project site and a 3-inch diameter gas distribution pipeline running from I-5 along the southern boundary of the project site serving the community of Crows Landing. Natural gas infrastructure is anticipated to include construction of natural gas distribution facilities in roadways throughout the project site. Turlock Irrigation District would have capacity to serve the proposed project, but would need to construct additional electrical distribution infrastructure (VVH Consulting Engineers 2015). For natural gas service, PG&E stated that

it would also have capacity to serve the project site with natural gas. Both AT&T and Global Valley Networks have indicated they could provide telecommunications service to the project site (VVH Consulting Engineers 2015:3). Either provider would install new 4-inch diameter underground fiber optic cable. The proposed project would construct a self-contained distribution system that connects to the existing off-site electrical and natural gas systems and existing telecommunications infrastructure described above.

The electrical, natural gas, and communications services and related infrastructure required to serve the project would be constructed as development within the Specific Plan proceeds. The construction of these facilities would not combine with related projects to create a cumulative impact. Therefore, **a cumulatively significant impact would not occur**, and the project **would not result in a cumulatively significant incremental contribution** to impacts related to the increased demand for electrical, natural gas, and communications services and related infrastructure.

5.2 GROWTH-INDUCING IMPACTS

CEQA (*CEQA Guidelines,* CCR Section 15126.2[d]) requires an examination of the direct and indirect impacts of the proposed project, including the potential of the project to induce growth leading to changes in land use patterns and population densities and related impacts on environmental resources. Specifically, the *CEQA Guidelines* suggest that an EIR should (*CEQA Guidelines,*15126.2[d]):

> [d]iscuss ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects that would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring the construction of new facilities that could cause significant environmental effects. Also discuss characteristics of some projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth-inducement would result if a project involved construction of new housing. Indirect growth-inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (*e.g.*, commercial, industrial, or governmental enterprises);
- project construction that creates substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; or,
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (*e.g.*, construction of a major sewer line with excess capacity through an undeveloped area) or adding development adjacent to undeveloped land.

Growth-inducement itself is not an environmental effect, but it may lead to foreseeable environmental effects. These environmental effects may include increased demand on other community and public services and infrastructure, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, or conversion of agricultural and open space land to urban uses.

5.2.1 GROWTH INDUCING IMPACTS OF THE PROJECT

The project would not directly induce substantial unplanned growth in Stanislaus County. Project construction activities would generate temporary and short-term employment, but these construction jobs are anticipated to be filled from the existing local and regional employment pool. In addition, if some nonlocal construction workers were employed for the project, the temporary and short-term nature of the work supports the conclusion that these workers would not typically change residences when assigned to a new construction site. Therefore, construction of the proposed project would not indirectly result in a population increase or induce growth by creating permanent new jobs.

Implementation of the proposed project could indirectly facilitate population growth through the development of approximately 14,000 to 15,000 jobs in Stanislaus County, which is likely to lead to additional housing demand in the County and region. The County's intent for the project is to provide local employment opportunities, including opportunities for residents of Stanislaus County, some of whom may be currently unemployed. Employees commuting to the project site at buildout could be dispersed across the region, or could be focused in certain communities with a concentration of members of the labor force with relevant skills and experience for the future jobs at Crows Landing. It is not possible to determine what proportion of jobs at the project site at buildout would be filled by formerly unemployed residents of Stanislaus County, or how many of these employees would move their households to new residential development in the vicinity of the project site. Further, the County cannot determine the relative influence of the success of the project in facilitating employment development on the project site, compared to other factors in spurring residential development in Stanislaus County or other areas where employees of the project site could reside. For many households, a job provided at the project site may represent just one or two or more jobs in that household, which is just one complexity of many in attempting to determine the relative indirect population growth impact associated with the project.

Specific Plan development would require off-site improvements for sewer service and transportation demand. The off-site infrastructure improvements are sized and located to serve the project's demands, and are not sized or located to serve other development in the unincorporated County or nearby cities. Measure E, which was enacted by voter initiative in 2008, requires voter approval for proposed redesignation or rezoning of land in unincorporated Stanislaus County from agricultural or open space use to residential use. This requirement would substantially reduce the likelihood of housing development in the vicinity of the project site resulting from provision of infrastructure. However, the project will require infrastructure improvements that would extend infrastructure to an area of the County that is mostly undeveloped and fair-share contributions to the expansion of Patterson's wastewater treatment facility. Although the infrastructure improvements are intended to serve the project, and although Measure E would make this unlikely, it may be possible that the new infrastructure could induce some additional development, including residential development, the demand for which could potentially encouraged by successful implementation of the project. If additional development were encouraged by extension of infrastructure or employment development, this development could alter visual resources in the area, convert open space and agricultural land to urban development, generate air pollutant and GHG emissions, adversely affect biological habitat, adversely affect cultural resources, cause erosion and affect water quality, adversely affect paleontological resources, generate traffic and traffic noise, and require services and additional infrastructure the provision of that could cause environmental effects.

The Specific Plan will provide space for on-site law enforcement and fire protection. If law enforcement and fire protection facilities are developed in the Plan Area, it is possible that this could serve additional development

outside the Specific Plan boundaries. However, the availability of law enforcement and fire protection facilities is not known to induce substantial growth.

5.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The CEQA Guidelines require a discussion of the significant irreversible environmental changes that would be caused by project implementation.

The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled, or those that are consumed or reduced to unrecoverable forms. Implementation of the proposed project would result in the irreversible and irretrievable commitment of energy and material resources during project construction and maintenance, including the following:

- construction materials, including such resources as soil and rocks;
- land area committed to new/expanded project facilities; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for construction equipment and transportation vehicles that would be needed for project construction, operation, and maintenance.

Energy used during project construction would be expended in the form of electricity, gasoline, and diesel fuel, which would be used primarily by construction equipment, trucks delivering equipment and supplies to the site, and construction workers driving to and from the site.

Other nonrenewable and slowly-renewable resources consumed as a result of project development would include, but not necessarily be limited to, lumber and other forest products, sand and gravel, asphalt, petrochemical construction materials, and water. The use of these nonrenewable resources is expected to account for only a small portion of the region's resources.

Implementation of the Specific Plan would permanently convert agricultural land, including Important Farmland, to nonagricultural uses. All agricultural uses on the project site would be converted to urban uses at buildout of the proposed project. This change in land use would represent a long-term commitment to new land uses, since the potential for developed land to be reverted back to undeveloped land uses is highly unlikely.

The project is not anticipated to result in irreversible damage from environmental accidents, such as an accidental spill or explosion of a hazardous material. During construction, equipment would be using various types of fuel and material classified as hazardous. In the State of California, the storage and use of hazardous substances are strictly regulated and enforced by various local, regional, and state agencies. The enforcement of these existing regulations would preclude credible significant impacts related to environmental accidents.

5.4 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

Section 15216.2(b) of the CEQA Guidelines requires an EIR to include a discussion of any significant environmental impacts that cannot be avoided if the project is implemented. Chapter 3 of this EIR provides a detailed analysis of all significant and potentially significant environmental impacts related to implementing the proposed project; identifies feasible mitigation measures, where available, that could avoid or reduce these

significant and potentially significant impacts; and presents a determination of whether these mitigation measures would reduce these impacts to less-than-significant levels. Chapter 5, Section 5.1 identifies the significant cumulative impacts resulting from the combined effects of the proposed project and related projects. If a specific impact in either of these sections cannot be fully reduced to a less-than-significant level, it is identified as a significant and unavoidable adverse impact.

Implementing the proposed project would result in significant and unavoidable adverse impacts and make a significant and unavoidable cumulatively considerable incremental contribution to significant cumulative impacts as identified below.

5.4.1 PROJECT IMPACTS

- Impact 3.1-3. Damage or degrade visual character of the project site or surroundings.
- Impact 3.1-4. Increase in nighttime lighting and daytime glare. (Lighting only).
- Impact 3.2-1. Generation of Short-Term Construction and Long-Term Operational Emissions.
- Impact 3.2-2. Consistency with Air Quality Planning Efforts.
- Impact 3.3-1. Loss of Important Farmland and Conversion of Agricultural Land to Nonagricultural Urban Uses.
- Impact 3.11-4. Induce Population Growth.
- Impact 3.12-4. Short-Term Exposure of Sensitive Receptors to Construction Noise. (Construction Equipment only).
- Impact 3.14-1. Existing plus project – intersection operations.
- Impact 3.15-5. Increased demand for City of Patterson Water Quality Control Facility (WQCF) capacity.

5.4.2 CUMULATIVE IMPACTS

- Impact 3.7-1. Increases in Greenhouse Gas Emissions.
- Cumulative Aesthetics Impact.
- Cumulative Agricultural Resources Impact.
- Cumulative Air Quality Impact.
- Cumulative Traffic and Transportation Impact.
- Cumulative Utilities and Service Systems Impact.

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6 REFERENCES

6.1 CHAPTER 1. INTRODUCTION

None.

6.2 CHAPTER 2. PROJECT DESCRIPTION

Duff, Charles. 2016. Letter from National Aeronautics and Space Administration to Keith Boggs, County of Stanislaus County dated May 4. 2015, regarding property transfer.

Stanislaus County Economic Development Action Committee. 2016. *Stanislaus County Comprehensive Economic Development Strategy 2016 – 2021.* Available: http://www.stancounty.com/ceo/econ-dev/pdf/ceds.pdf. Accessed January 25, 2016.

6.3 CHAPTER 3. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

None.

6.3.1 SECTION 3.1. AESTHETICS

California Department of Transportation. 2015. California Scenic Highway Mapping System. Stanislaus County. Available: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm. Accessed October 28, 2015.

Caltrans. *See* California Department of Transportation.

Federal Highway Administration. 2015 (January). Guidelines for the Visual Impact Assessment of Highway Projects. Available: https://www.environment.fhwa.dot.gov/guidebook/documents/VIA_Guidelines_for_Highway_Projects.asp. Accessed November 28, 2016.

FHWA. *See* Federal Highway Administration.

6.3.2 SECTION 3.2. AIR QUALITY

ARB. *See* California Air Resources Board.

California Air Pollution Control Officers Association. 2013. California Emissions Estimator Model. Available: http://www.caleemod.com/. Accessed January 2, 2014.

California Air Resources Board. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions From Diesel-Fueled Engines and Vehicles. Available: http://www.arb.ca.gov/diesel/documents/rrpFinal.pdf. Accessed January 13, 2016.

———. 2003 (May). Summary of Fugitive Dust and Ammonia Emission Inventory Changes for the SJVU APCD Particulate Matter SIP. Available: http://www.valleyair.org/Air_Quality_Plans/docs/2003%20PM10%20Plan/PDF%202003%20PM10%20Plan%20adpt%20app/App%20C-EI%20Changes.pdf. Accessed April 24, 2017.

———. 2005 (April). *Air Quality and Land Use Handbook: A Community Health Perspective*. Available: http://www.arb.ca.gov/ch/handbook.pdf. Last accessed: February 5, 2015.

———. 2008. State Implementation Plan. Available: http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm. Accessed September 2008.

———. 2009. The California Almanac of Emissions and Air Quality – 2009 Edition (Chapter 5: Toxic Air Contaminant Emissions, Air Quality, and Health Risk). Available: http://www.arb.ca.gov/aqd/almanac/almanac09/chap509.htm. Accessed January 4, 2016.

———. 2011 (July). 2007 State Strategy for California's State Implementation Plan (SIP) for Federal $PM_{2.5}$ and 8-Hour Ozone Standards. Available: http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm. Accessed March 8, 2012.

———. 2013a. Almanac Emission Projection Data: 2012 Estimate Annual Average Emissions (Stanislaus County). Available: <http://www.arb.ca.gov/app/emsinv/2013/emssumcat_query.php?F_DIV=-4&F_DD=Y&F_YR=2012&F_SEASON=A&SP=2013&F_AREA=CO&F_CO=50>. Accessed December 28, 2015.

———. 2013b. The California Almanac of Emissions and Air Quality. Available: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac2013all.pdf. Accessed February 5, 2015.

———. 2013c. Ambient Air Quality Standards. Available: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed February 5, 2015.

———. 2013d. San Joaquin Valley Air Quality Management Plans. Available: http://www.arb.ca.gov/planning/sip/planarea/sanjqnvllysip.htm. Accessed February 5, 2015.

———. 2014. California's 2000–2012 Greenhouse Gas Emissions Inventory: Technical Support Document. Available: < http://www.arb.ca.gov/cc/inventory/doc/methods_00-12/ghg_inventory_00-12_technical_support_document.pdf>. Accessed March 1, 2016.

———. 2015. Top 4 Summary. Available: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed January 4, 2016.

CAPCOA. *See* California Air Pollution Control Officers Association.

EPA. *See* U.S. Environmental Protection Agency.

FAA. *See* Federal Aviation Administration.

Federal Aviation Administration. 2015. Aviation Emissions and Air Quality Handbook Version 3, Update 1. Available: < https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Air_Quality_Handbook_Appendices.pdf>. Accessed March 4, 2016.

Godish, T. 2004. Air Quality, Lewis Publishers, New York, NY; p. 51–55.

Intergovernmental Panel on Climate Change. 2001. Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Available: < http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_5_Aircraft.pdf>. Accessed March 1, 2016.

IPCC. *See* Intergovernmental Panel on Climate Change.

Mead & Hunt, Inc. 2016. Crows Landing Airport Master Plan. Sacramento, CA.

San Joaquin Valley Air Pollution Control District. 2012. Ambient Air Quality Standards & Valley Attainment Status. Available: http://www.valleyair.org/aqinfo/attainment.htm. Accessed: January 30, 2015.

———. 2013. 2013 Plan for the Revoked 1-Hour Ozone Standard: Chapter 2. Available: <http://www.valleyair.org/air_quality_plans/OzoneOneHourPlan2013/02Chapter2ScienceTrendsModeling.pdf>. Accessed January 13, 2016.

———. 2014b. About the District. Available: < http://www.valleyair.org/General_info/aboutdist.htm>. Accessed January 4, 2016.

———. 2015. Guide For Assessing and Mitigating Air Quality Impacts. Available: <https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf>. Accessed January 4, 2016.

SJVAPCD. *See* San Joaquin Valley Air Pollution Control District.

TJKM Transportation Consultants. 2016 (October). Transportation Infrastructure Plan: Crows Landing Industrial Business Park.

U.S. Environmental Protection Agency. 2009. Six Common Air Pollutants. Available at: http://www.epa.gov/air/urbanair/. Accessed: January 4, 2016.

University of the Pacific. 2014 (March 28th). Eberhardt School of Business. An Analysis of Commuting Patterns in the North San Joaquin Valley.

Western Regional Climate Center. 2008. Climatological Summary. Available: <http://www.wrcc.dri.edu/summary/mod.ca.html>. Accessed January 13, 2016.

WRCC. *See* Western Region Climate Center.

6.3.3 SECTION 3.3. AGRICULTURAL RESOURCES

DOC. *See* California Department of Conservation.

California Department of Conservation. 2006a. Stanislaus County 2004–2006 Land Use Conversion. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 18, 2015.

———. 2006b. Stanislaus County 2006 Field Report. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed November 13, 2015.

———. 2008a. Stanislaus County 2006–2008 Land Use Conversion. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 18, 2015.

———. 2008b. Stanislaus County 2008 Field Report. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 22, 2015.

———. 2009. Statewide GIS Layer for Williamson Act Contract Lands. Available: ftp://ftp.consrv.ca.gov/pub/Dlrp/WA/Map%20and%20PDF/CALIFORNIA%20WILLIAMSON%20ACT/Total%20WA%20GIS%20to%202009/ Accessed January 28, 2016. Note: This section displays the 2009 geographic information systems data from DOC. This is the last year DOC released GIS data for Williamson Act contract lands. Subsequent updates have only been available as PDFs. AECOM confirmed that no changes had been made to the contract status in the vicinity of the project site on the 2011 PDF map from the DOC's website. 2011 is the latest year for the PDF maps.

———. 2012a. Stanislaus County 2010–2012 Land Use Conversion. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed November 13, 2015.

———. 2012b. Stanislaus County 2012 Field Report. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 22, 2015.

———. 2013 (October). The California Land Conservation Act 2012 Status Report. Available: http://www.conservation.ca.gov/dlrp/lca/stats_reports/Pages/Index.aspx. Accessed December 16, 2015.

———. 2014a. Stanislaus County 2012–2014 Land Use Conversion. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 18, 2015.

———. 2014b (April). California Farmland Conversion Report 2008–2010. Available: http://www.conservation.ca.gov/dlrp/fmmp/products/Pages/ReportsStatistics.aspx. Accessed December 22, 2015.

———. 2014c. Stanislaus County 2014 Field Report. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed November 13, 2015.

———. 2014d. Farmland Mapping and Monitoring Program (FMMP). Important Farmland GIS layer for Stanislaus County. Available ftp://ftp.consrv.ca.gov/pub/dlrp/fmmp/2014/. Accessed January 28, 2016.

LAFCO. *See* Stanislaus Local Agency Formation Commission.

Martin, Bill. Executive Director, Central Valley Farmland Trust. January 21, 2016. Email to Jenifer King of AECOM regarding the cost to purchase farmland conservation easements in Stanislaus County from the Central Valley Farmland Trust.

Stanislaus County Agricultural Commissioner. 2015. Stanislaus County Agricultural Crop Report, 2015 Available: http://www.stanag.org/crop-reports.shtm. Accessed November 1, 2016.

Stanislaus County Planning and Community Development Department. 2016. *Stanislaus County General Plan—Chapter 7, Agricultural Element.* Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed February 22, 2017.

Stanislaus Local Agency Formation Commission. 2015 (July 22). Policies and Procedures. Available: http://www.stanislauslafco.org/info/PDF/POLICY/PoliciesProcedures.08202015.pdf. Last accessed: January 19, 2016.

TJKM. 2014 (September). Administrative Draft Transportation Infrastructure Master Plan for Crows Landing Industrial Business Park. Pleasanton, CA.

6.3.4 SECTION 3.4. BIOLOGICAL RESOURCES

Biogeographic Information and Observation System. 2015. Commercial Edition (v5.25.22b). Web-based map viewer containing hundreds of biogeographic datasets contributed by California Department of Fish and Wildlife and its partner organizations. Biogeographic Data Branch, California Department of Fish and Game, Sacramento, CA. Accessed February 4, 2015.

BIOS. *See* Biogeographic Information and Observation System.

California Department of Fish and Wildlife. 2012 (May). Staff Report on Burrowing Owl Mitigation. State of California Natural Resources Agency. Sacramento, CA.

California Department of Fish and Wildlife. 2015 (October). Special Vascular Plants, Bryophytes, and Lichens List. Quarterly Publication. 126 pp.

California Native Plant Society. 2013. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, CA. Available: <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>. Accessed September 30, 2013.

California Natural Diversity Database. 2013. RareFind 5 (Commercial Version): An Internet Application for the Use of the California Department of Fish and Game's Natural Diversity Database. Biogeographic Data Branch, California Department of Fish and Game, Sacramento, CA.

California Natural Diversity Database. 2015 (September). RareFind 5 (Commercial Version): An Internet Application for the Use of the California Department of Fish and Game's Natural Diversity Database. Biogeographic Data Branch, California Department of Fish and Game, Sacramento, CA. Accessed September 26, 2013 and February 4, 2015.

CDFW. *See* California Department of Fish and Wildlife.

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society.

Estep, J. A. 1989. Biology, Movements, and Habitat Relationships of the Swainson's Hawk in the Central Valley of California, 1986–1987. Prepared for the California Department of Fish and Game, Nongame Bird and Mammal Section, Sacramento, CA.

Estep, J. A. 2009. The Distribution, Abundance, and Habitat Associations of the Swainson's Hawk (*Buteo swainsoni*) in the City of Elk Grove, California. Prepared for the City of Elk Grove. Elk Grove, CA.

Estep, J. A. Estep Environmental Consulting, Sacramento, CA. July 20, 2007 email to Leo Edson of AECOM regarding preferred foraging habitat of Swainson's hawk in the Central Valley.

MacWhirter, R. B., and Bildstein, K. L. 1996. Northern Harrier (*Circus cyaneus*), in The Birds of North America (A. Poole and F. Gill, eds.), no. 210. Acad. Nat. Sci., Philadelphia.

NASA. 2003. Draft Environmental Assessment for Transfer of NASA Crows Landing Flight Facility. NASA Ames Research Center, Moffett Field, CA.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Spencer, W. D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Stanislaus County. 2016. General Plan. Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Last accessed: January 19, 2016.

Swainson's Hawk Technical Advisory Committee. 2000. *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley.* Sacramento, CA.

U.S. Fish and Wildlife Service. 2010. Draft Habitat Assessment Guidelines and Survey Protocol for the Riparian Brush Rabbit and the Riparian Woodrat.

USFWS. *See* U.S. Fish and Wildlife Service.

Yee, David. 2015 (February 3). Personal correspondence to Lisa Harmon with the Subject Line: Crows Landing Documentation.

6.3.5 SECTION 3.5. CULTURAL RESOURCES

Arnold, Jeanne and Michael Walsh. 2010. *California's Ancient Past from the Pacific to the Range of Light.* SAA Press, Society for American Archaeology, Washington DC.

Bureau of Reclamation. 2009. *Delta-Mendota Canal/California Aqueduct Intertie, Central Valley Project FEIS, Volume 1.*

Chartkoff, Joseph and K. Chartkoff. 1984. *The Archaeology of California*. Stanford University Press, Stanford (1997 reprint).

Damiata, B. 2010. *Results of Geophysical and Historical Investigations to Locate a Pioneer Cemetery at the Former Naval Auxiliary Air Station, Crows Landing, California*. Prepared for PCCP West Park, LLC, Gold River, California.

EDAW/AECOM. 2009. *Final Environmental Impact Report California Health Care Facility (Stockton).* Prepared for California Prison Health Care Receivership Corporation, Sacramento, California.

Fredrickson, David A. 1974. Cultural Diversity in Early Central California: A View from the North Coast Ranges. *Journal of California Anthropology* 1:41-53.

Moratto, M. J. 1984. *California Archaeology*. Stanford University Press, Stanford, California. 2004 reprint.

NASA. *See* National Aeronautical and Space Administration.

National Aeronautical and Space Administration. 2003. *NASA Crows Landing Flight Facility Final Environmental Assessment*. Prepared for NASA Ames Research Center, Moffett Field, CA.

Naval Facilities Engineering Command. 2015. "Former Naval Auxiliary Landing Field Crows Landing." Available at http://www.bracpmo.navy.mil/brac_bases/california/nasa_crows_flight_facility.html, accessed November 2015.

NAVFAC. *See* Naval Facilities Engineering Command.

Patterson Irrigator. "Demolition continues at former airbase." April 18, 2013. Available at http://www.goldenstatenewspapers.com/patterson_irrigator/news/local_news/demolition-continues-at-former-airbase/article_a09d5be5-2ce2-5432-9f34-9c34bb3c78a3.html. Accessed February 2016.

SAIC. *See* Science Applications International Corporation.

Science Applications International Corporation. 1999. *Final Inventory and Evaluation of Cold War Era Historical Resources, Moffett Federal Airfield, Moffett Field, California NASA Crows Landing Flight Facility, Crows Landing, California*. Prepared by Alexandra C. Cole.

6.3.6 SECTION 3.6. ENERGY

California Climate Action Registry. 2008. General Reporting Protocol. Version 3.

CCAR. *See* California Climate Action Registry.

CCST. *See* California Council on Science and Technology.

California Council on Science and Technology. 2011. California's Energy Future – Transportation Energy Use in California.

California Energy Commission. 2009. California Energy Demand 2010-2020, Adopted Forecast. CEC-200-2009-012-CMF.

———. 2013a (July). California's 2013 Building Energy Efficiency Standards Impact Analysis. Available http://www.energy.ca.gov/2013publications/CEC-400-2013-008/CEC-400-2013-008.pdf. CEC-400-2013-008.

———.2015a. 2014 Electricity Consumption by Planning Area. Turlock Irrigation District. Available http://www.ecdms.energy.ca.gov/elecbyutil.aspx. Accessed: December 28, 2015.

———. 2015b. 2013 Natural Gas Consumption by Entity. PG&E. Available http://www.ecdms.energy.ca.gov/gasbyplan.aspx. Accessed: February 10, 2015.

———. 2015c. 2013 Natural Gas Consumption by County. Stanislaus County. Available http://www.ecdms.energy.ca.gov/gasbycounty.aspx. Accessed: February 10, 2015.

———. 2016b. Transportation Energy Demand Forecast, 2016-2026. Available: http://docketpublic.energy.ca.gov/PublicDocuments/15-IEPR-10/TN210539_20160226T101946_Transportation_Energy_Demand_Forecast_20162026.pdf. Accessed May 6, 2017.

California Public Utilities Commission. 2016 (January 1st). Biennial RPS Program Update. In Compliance with Public Utilities Code Section 913.6. Available: http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=8323. Accessed January 31st, 2016.

CEC. *See* California Energy Commission.

CPUC. *See* California Public Utilities Commission.

EPA. *See* United States Environmental Protection Agency.

Lawrence Berkeley National Laboratory. 2013 (April). California Energy Balance Update and Decomposition Analysis for the Industry and Building Sectors. Available: http://www.energy.ca.gov/.

StanCOG. *See* Stanislaus County Council of Governments.

Stanislaus County Council of Governments. 2014a. 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Available: <http://www.stancog.org/rtp.shtm>. Accessed January 5, 1016.

_____. 2014b. 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) PEIR. Available: http://www.stancog.org/pdf/rtp/final-2014-rtpscs-peir.pdf. Accessed February 1, 2016.

Stanislaus County. 2016. Stanislaus County General Plan. Chapter 3 Conservation/Open Space Element. Available: http://www.stancounty.com/planning/pl/gp/gp-chapter3.pdf. Accessed February 5, 2015.

TID. *See* Turlock Irrigation District.

Turlock Irrigation District. 2014. Quick Reference Guide. Available: http://www.tid.org/sites/default/files/documents/tidweb_content/Quick%20Reference%20Guide2014.pdf. Accessed December 28, 2015.

_____. 2015. TID Overview. Available http://www.tid.org/about-tid/tid-overview. Accessed: February 10, 2015.

United States Environmental Protection Agency. 2015. Cutting Carbon Pollution, Improving Fuel Efficiency, Saving Money, and Supporting Innovation for Trucks. Available: <http://www3.epa.gov/otaq/climate/documents/420f15900.pdf>. Accessed January 14, 2016.

_____. 2011. EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles. Available: <http://www3.epa.gov/otaq/climate/documents/420f11031.pdf>. Accessed January 14, 2016

_____. 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. Available: <http://www3.epa.gov/otaq/climate/documents/420f12051.pdf>. Accessed January 14, 2016.

VVH Consulting Engineers. 2015. Crows Landing Industrial Business Park Dry Utilities Infrastructure and Facilities Study. Modesto, CA.

6.3.7 SECTION 3.7. GREENHOUSE GAS EMISSIONS

Ahrens, D. C. 2003. Meteorology Today: An Introduction to Weather, Climate, and the Environment. Brooks Cole, Inc.: Pacific Grove, CA.

ARB. *See* California Air Resources Board.

Bay Area Air Quality Management District. 2011. CEQA Air Quality Guidelines. Available: < http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_May%202011_5_3_11.ashx>. Accessed January 4, 2016.California Energy Commission. 2006. Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004. Staff Final Report. Publication CEC-600-2006-013-SF. Sacramento, California. December 2006.

BAAQMD. *See* Bay Area Air Quality Management District.

California Air Resources Board. 2010 (October 29). Greenhouse Gas Inventory - 2020 Emissions Forecast. Available: http://www.arb.ca.gov/cc/inventory/data/forecast.htm.

———. 2013. Clean Car Standards – Pavley, Assembly Bill 1493. Available: http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed February 2, 2016.

———. 2014a. California GHG Inventory for 2012 – by Economic Sector. Available: http://www.arb.ca.gov/cc/inventory/data/graph/pie/pie_by_sector_2012.htm. Accessed February 9, 2015.

———. 2014b (May). 2014 Edition - California Greenhouse Gas Emission Inventory: 2000–2012. http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf. Accessed February 9, 2015.

———. 2014c (May). First Update to the Climate Change Scoping Plan. Available: http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf. Accessed February 9, 2015.

———. 2014d. Mid Case Forecast for Updated Scoping Plan – $MMTCO_2e$ (AR4). http://www.arb.ca.gov/cc/inventory/data/tables/2020_bau_forecast_by_scoping_category_2014-05-22.pdf. Accessed February 2, 2016.

_____. 2014e. California's 2000–2012 Greenhouse Gas Emissions Inventory: 2014 Edition. Available: <http://www.arb.ca.gov/cc/inventory/doc/methods_00-12/ghg_inventory_00-12_technical_support_document.pdf>. Accessed February 28, 2016.

_____. 2015a. ARB RMP Home Page. Available: <https://ssl.arb.ca.gov/rmp-r3/public_form_reports/reports_forms_download>. Accessed February 28, 2016.

_____. 2015b (May 6th). 2020 Business-as-Usual (BAU) Emissions Projection, 2014 Edition. Available: http://www.arb.ca.gov/cc/inventory/data/bau.htm. Accessed: February 2, 2016.

_____. 2015c. Acceptance of the Greenhouse Gas Quantification Determination for the Stanislaus Council of Governments' Regional Transportation Plan/Sustainability Communities Strategy. Available: < http://www.arb.ca.gov/cc/sb375/stancog_resolution15-11.pdf>. Accessed January 4, 2016.

———. 2017 (January 20th). The 2017 Climate Change Scoping Plan Update. Available: https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. Accessed March 8, 2017.

———. 2017b (June 6th). California Greenhouse Gas Emission Inventory – 2017 Edition. Available: https://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed November 27, 2017.

CEC. *See* California Energy Commission.

California Energy Commission. 2009. California Energy Demand 2010-2020, Adopted Forecast. CEC-200-2009-012-CMF.

California Natural Resources Agency. 2008 (March). Delta Vision Blue Ribbon Task Force Letter to Governor Schwarzenegger on Sea Level Rise. Available: http://deltavision.ca.gov/BlueRibbonTaskForce/April2008/Item2_Attachment1.pdf. Accessed February 9, 2015.

———. 2009. 2009 California Climate Adaption Strategy. Available: http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.

California Public Utilities Commission. 2016 (January 1st). Biennial RPS Program Update. In Compliance with Public Utilities Code Section 913.6. Available: http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=8323. Accessed January 31st, 2016.

CPUC. *See* California Public Utilities Commission.

EIA. *See* U.S. Energy Information Administration.

EPA. *See* United States Environmental Protection Agency.

IPCC. *See* Intergovernmental Panel on Climate Change.

———. 2013. Climate Change 2013: The Physical Science Basis Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Available: http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf. Accessed February 9, 2015.

_____. 2001. Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. Available: <http://www.ipcc-nggip.iges.or.jp/public/gp/bgp/2_5_Aircraft.pdf>. Accessed February 28, 2016.

Office of Environmental Health Hazard Assessment. 2013. 2013 Report: Indicators of Climate Change in California. Available: http://oehha.ca.gov/climate-change/document/indicators-climate-change-california. Accessed November 10, 2016.

Office of the Governor. 2015. Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America. Available: https://www.gov.ca.gov/news.php?id=18938. Accessed February 2, 2016.

Sacramento Metropolitan Air Quality Management. 2015. SMAQMD Thresholds of Significance Table. Available: < http://www.airquality.org/ceqa/cequguideupdate/Ch2TableThresholds.pdf>. Accessed January 4, 2016.

San Joaquin Valley Air Pollution Control District. 2015 (March 19th). Final Draft Guidance for Assessing and Mitigating Air Quality Impacts.

———. 2009a (December). Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA. Available: http://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf. Accessed February 9, 2015.

SJVAPCD. *See* San Joaquin Valley Air Pollution Control District.

SMAQMD. *See* Sacramento Metropolitan Air Quality Management.

StanCOG. *See* Stanislaus County Council of Governments.

Stanislaus County Council of Governments. 2014. 2014 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Available: <http://www.stancog.org/pdf/rtp/final-2014-rtpscs.pdf>. January 4, 2016.

U.S. Energy Information Administration. 2015. Energy-Related Carbon Dioxide Emissions at the State Level, 2000-2013: Table 5. Available: < http://www.eia.gov/environment/emissions/state/analysis/>. Accessed January 14, 2016.

United States Environmental Protection Agency. 2011. EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles. Available: <http://www3.epa.gov/otaq/climate/documents/420f11031.pdf>. Accessed January 14, 2016.

_____. 2012. EPA and NHTSA Set Standards to Reduce Greenhouse Gases and Improve Fuel Economy for Model Years 2017-2025 Cars and Light Trucks. Available: <http://www3.epa.gov/otaq/climate/documents/420f12051.pdf>. Accessed January 14, 2016.

_____. 2015. Cutting Carbon Pollution, Improving Fuel Efficiency, Saving Money, and Supporting Innovation for Trucks. Available: <http://www3.epa.gov/otaq/climate/documents/420f15900.pdf>. Accessed January 14, 2016.

6.3.8 SECTION 3.8. GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

Bartow, J. A. 1991. *The Cenozoic Evolution of the San Joaquin Valley, California.* U.S. Geological Survey Professional Paper 1501. Washington, D.C.

Bryant, W. A. and S. E. Cluett (compilers). 2000. Fault Number 52a, Ortigalita Fault Zone, Cottonwood Arm section. In *Quaternary Fault and Fold Database of the United States*. Available: http://geohazards.usgs.gov/cfusion/qfault/show_report_AB.cfm?fault_id=52&section_id=a. Last updated July 23, 2012. Accessed December 17, 2015.

California Geological Survey. 2015. Alquist-Priolo Earthquake Fault Zone Maps. Available: http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html?map=regulatorymaps. Accessed December 16, 2015.

California Department of Water Resources. 2016a. Groundwater Information Center Interactive Map Application. https://gis.water.ca.gov/app/gicima/. Last accessed September 23, 2016.

_____. 2016b. California Statewide Groundwater Elevation Monitoring (CASGEM) website. http://www.water.ca.gov/groundwater/casgem/. Accessed September 23, 2016.

CGS. *See* California Geological Survey.

DWR. *See* California Department of Water Resources.

Higgins, C. T. and Dupras, D. L. 1993. *Mineral Land Classification of Stanislaus County, California.* Special Report 173. California Division of Mines and Geology. Sacramento, CA.

Jacobson James & Associates, Inc. 2016 (August 1). *Draft Groundwater Resources Impact Assessment Report. Crows Landing Industrial Business Park,* Stanislaus *County, California*. Prepared for the Stanislaus County Division of Public Works.

Jennings, C. W. 1994. *Fault Activity Map of California and Adjacent Areas*. California Division of Mines and Geology, Geologic Data Map No. 6. Sacramento, CA.

Jennings, C. W. and W. A. Bryant. 2010. *2010 Fault Activity Map of California.* Available: http://maps.conservation.ca.gov/cgs/fam/. Accessed December 28, 2015.

JJ&A. *See* Jacobson James & Associates, Inc.

NRCS. *See* U.S. Natural Resource Service.

Society of Vertebrate Paleontology. 1995. Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources—Standard Guidelines. *Society of Vertebrate Paleontology News Bulletin* 163:22–27.

———. 1996. Conditions of Receivership for Paleontologic Salvage Collections [final draft]. *Society of Vertebrate Paleontology News Bulletin* 166:31–32.

Sowers, J. M., J. S. Noller, and W. R. Lettis. 1993. *Preliminary Maps Showing Quaternary Geology of the Patterson and Crows Landing 7.5-Minute Quadrangles, California*. Open-File Report 93-223. U.S. Geological Survey. Reston, VA.

Stanislaus County. 2016. *Stanislaus County General Plan*. Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed November 4, 2016.

U.S. Bureau of Reclamation. 2014. Technical Memorandum, Subsidence Monitoring San Joaquin River Restoration Program 2011 – 2013.

_____. 2016. Central Valley Subsidence, Annual Rates December 2011 – December 2015.

U.S. Natural Resources Conservation Service. 2015a (September). Web Soil Survey. Available: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed December 18, 2015.

———. 2015b (September). Soil Survey Geographic (SSURGO) data for Stanislaus County, Western Part Available: http://websoilsurvey.nrcs.usda.gov. Accessed December 10, 2015.

USBR. *See* U.S. Bureau of Reclamation.

Wagner, D. L., E. J. Bortugno, and R. D. McJunkin. 1991. *Geologic Map of the San Francisco-San Jose Quadrangle.* Regional Geologic Map Series, Map No. 5. California Division of Mines and Geology. Sacramento, CA.

Wallace Kuhl & Associates, Inc. 2007 (November). *Preliminary Geotechnical Engineering Report and Geologic Investigation Hazard Report, West Park Project, Stanislaus County, California.* WKA Job No. 7617.02.

WKA. *See* Wallace Kuhl & Associates, Inc.

Working Group on California Earthquake Probabilities. 2008. *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2)—Supplemental Workbook* and *Appendix A.* U.S. Geological Survey Open File Report 2007-1437 and California Geological Survey Special Report 203. Available: http://pubs.usgs.gov/of/2007/1437/. Accessed December 4, 2015.

6.3.9 SECTION 3.9. HAZARDS AND HAZARDOUS MATERIALS

AECOM. 2016 (February). County of Stanislaus Crows Landing Industrial Business Park SB 610 Water Assessment. Sacramento, CA.

ALUCP. *See* Stanislaus County Airport Land Use Commission.

CAL FIRE. *See* California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection. 2007a (November). *Fire Hazard Severity Zones in SRA, Stanislaus County.* Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_stanislaus. Accessed February 26, 2015.

———. 2007b (September). *Draft Fire Hazard Severity Zones in LRA, Stanislaus County*. Available: http://www.fire.ca.gov/fire_prevention/fhsz_maps_stanislaus. Accessed March 22, 2016.

California Department of Toxic Substances Control. 2016. EnviroStor. Available: http://www.envirostor.dtsc.ca.gov/public/. Accessed March 18, 2016.

CH2MHILL Kleinfelder, A Joint Venture. 2014 (November). *Final Remedial Design and Design Basis Report—NASA Crows Landing Flight Facility, Crows Landing, California*. Prepared for: Department of the Navy Base Realignment and Closure Program Management Office West. San Diego, CA.

DTSC. *See* California Department of Toxic Substances Control.

Duff, Charles. 2015. Letter from National Aeronautics and Space Administration to Keith Boggs, County of Stanislaus County dated May 4. 2015, regarding property transfer.

KCH. *See* CH2MHILL Kleinfelder, A Joint Venture.

National Aeronautics and Space Administration. 2003 (December). *Environmental Assessment for Transfer of NASA Crows Landing Flight Facility*. NASA Ames Research Center. Moffett Field, CA.

Stanislaus County Airport Land Use Commission. 2016. Stanislaus County Airport Land Use Compatibility Plan. Modesto, California.

Stanislaus County Office of Emergency Services. 2010. *Stanislaus County, California Multi-Jurisdictional Hazard Mitigation Plan Updated 2010*. Modesto, CA.

Stanislaus County Department of Environmental Health. 2016 (January). *Fourth Quarter and Annual 2015 Monitoring Report Fink Road Landfill.* Prepared by SCS Engineers. Sacramento, CA.

State Water Resources Control Board. 2016. GeoTracker. Available: http://geotracker.waterboards.ca.gov/. Accessed March 18, 2016.

Tetra Tech. 1994 (January). *Asbestos Survey at NAS Moffett Field and NALF Crows Landing—Final Report.* Volume I of VIII. Prepared for: Western Division Naval Facilities Engineering Command. San Bruno, CA.

U.S. Department of the Navy. 2012 (November). *Final Record of Decision Site 17 Administration Area Groundwater Plume.* NASA Crows Landing Flight Facility, Crows Landing, California. Department of the Navy Base Realignment and Closure Program Management Office West. San Diego, CA.

VVH Consulting Engineers and AECOM. 2016 (February). Water Supply (Potable & Non-Potable) Infrastructure and Facilities Study. Modesto, CA.

6.3.10 SECTION 3.10. HYDROLOGY AND WATER QUALITY

AECOM. 2016a (November). *Drainage Study for Crows Landing Industrial Business Park, Stanislaus County.*

———. 2016b (February). *County of Stanislaus Crows Landing Industrial Business Park SB 610 Water Assessment.* Sacramento, CA.

California Stormwater Quality Association. 2003 (January). *Stormwater Quality Handbook, New Development and Redevelopment*. Available: https://www.casqa.org/sites/default/files/BMPHandbooks/BMP_NewDevRedev_Complete.pdf. Accessed January 8, 2016.

California Department of Water Resources. 2006. *California's Groundwater Bulletin 118—San Joaquin Valley Groundwater Basin, Delta-Mendota Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-22.07.pdf. Accessed December 29, 2015.

California Department of Water Resources. 2014 (June). Groundwater Basin Prioritization. Available: http://www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm. Accessed March 21, 2016.

———. 2016a. Division of Safety of Dams, Jurisdictional Size Chart. Available http://www.water.ca.gov/damsafety/jurischart/index.cfm. Accessed January 6, 2016.

———. 2016b (January). List of Critically Overdrafted Basins. Available: http://www.water.ca.gov/groundwater/sgm/cod.cfm. Accessed February 26, 2016.

Central Valley Regional Water Quality Control Board. 2011. *Water Quality Control Plan (Basin Plan) for the Sacramento and San Joaquin River Basins.* Available: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/. Last updated July 2, 2015. Accessed December 30, 2015.

———. 2015 (July). *Waste Discharge Requirements General Order for Growers Within the Western San Joaquin River Watershed that are Members of a Third-Party Group*. Order No. R5-2014-0002-R2. Available: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2014-0002-r2.pdf. Accessed January 6, 2016.

CASQA. *See* California Stormwater Quality Association.

CH2MHILL/Kleinfelder, A Joint Venture. 2014 (November). *Final Remedial Design and Design Basis Report—NASA Crows Landing Flight Facility, Crows Landing, California*. Prepared for: Department of the Navy Base Realignment and Closure Program Management Office West. San Diego, CA.

Dubrovsky, N. M., C. R. Kratzner, L. R. Brown, J. M. Gronberg, and K. R. Burow. 1998. *Water Quality in the San Joaquin-Tulare Basins.* Available: http://pubs.usgs.gov/circ/circ1159/circ1159.pdf. Accessed December 29, 2015.

DWR. *See* California Department of Water Resources.

EPA. *See* U.S. Environmental Protection Agency.

Jacobson James & Associates, Inc. 2016. *Draft Groundwater Resources Impact Assessment Report. Crows Landing Industrial Business Park, Stanislaus County, California*. Prepared for the Stanislaus County Division of Public Works.

JJ&A. *See* Jacobson James & Associates, Inc.

Kenneth D. Schmidt and Associates. 2010 (September). *Existing Groundwater Conditions in the Vicinity of the Proposed Riddle Surface Mine, Stanislaus County, California.* Available: http://www.stancounty.com/planning/pl/act-proj/riddle%20surface%20mine/11%20-%20existing%20groundwater%20conditions%20assessment.pdf. Accessed December 30, 2015.

NRCS. See U.S. Natural Resources Conservation Service.

RMC. 2016 (June). *City of Patterson 2015 Urban Water Management Plan, Final*. June. Available: http://www.ci.patterson.ca.us/DocumentCenter/View/3222. Accessed August 18, 2016.

San Joaquin Valley Drainage Authority. 2008 (October). *Westside San Joaquin River Watershed Coalition: Management Plan – General Approach*. Available: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/management_plans_reviews/coalitions/westside/westside_mp_23oct08_final.pdf. Accessed January 7, 2016.

———. 2013 (December). *Westside San Joaquin River Watershed Coalition: Focused Watershed Management Plan IV Blewett Drain and Marshall Road Drain*. Available: http://www.waterboards.ca.gov/rwqcb5/water_issues/irrigated_lands/management_plans_reviews/coalitions/westside/westside_2013dec20_focused_mp4_rev.pdf. Accessed January 7, 2016.

San Luis and Delta-Mendota Water Authority. 2014 (July). *Westside-San Joaquin Integrated Water Resources Plan, Draft*. Available: http://www.sldmwa.org/Westside_San_Joaquin_2014_IWRP_Draft-July2014.pdf.

Accessed December 29, 2015.

SJVDA. *See* San Joaquin Valley Drainage Authority.

SLDMWA. *See* San Luis and Delta-Mendota Water Authority.

Stanislaus County. 2004 (May). *Storm Water Management Program for Stanislaus County*. Available: http://www.waterboards.ca.gov/water_issues/programs/stormwater/swmp/stanislaus_swmp.pdf. Accessed December 8, 2016.

———. 2014 (January). *Stanislaus County Standards and Specifications—Chapter 4: Storm Drainage*. Available: http://www.stancounty.com/publicworks/pdf/improvement-standards.pdf. Accessed December 30, 2015.

———. 2015 (June). *2015 Post Construction Standards Plan, A Guidance Document on Storm Water Post-Construction Design Measures for Developers and Plan Checkers.* Available: *http://www.stancounty.com/publicworks/pdf/2015:standards-plan.pdf*. Accessed December 30, 2015.

State Water Resources Control Board. 2003. *Waste Discharge Requirements (WDRs) for Storm Water Discharges From Small Municipal Separate Storm Sewer Systems (General Permit)*. Order No. 2003-0005-DWQ. Available: http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/final_ms4_permit.pdf. Accessed January 7, 2016.

———. 2015. *2012 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report).* Available: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml. Accessed December 30, 2015.

Summers Engineering, Inc. 2012. *Technical Proposal: Patterson Irrigation District, Marshall Road and Spanish Drain Return System. WaterSMART: Water and Energy Efficiency Grants for FY 2013.* Available: http://watersmartapp.usbr.gov/WaterSmart/ViewApplication?propId=8. Accessed December 30, 2015.

SWRCB. *See* State Water Resources Control Board.

U.S. Army Corps of Engineers. 1997. *Design Guidance on Levees.* ETL 110-2-555. Washington, D.C.

———. 2000. *Design and Construction of Levees.* EM 1110-2-1913. Washington, D.C.

———. 2005. *Design Guidance for Levee Underseepage.* ETL 1110-2-569. Washington, D.C.

U.S. Bureau of Reclamation and Patterson Irrigation District. 2014 (May). *Draft Environmental Assessment/ Initial Study and Negative Declaration, Patterson Irrigation District Two Drains Project.* Available: https://www.usbr.gov/mp/nepa/documentShow.cfm?Doc_ID=17741. Accessed December 30, 2015.

U.S. Department of the Navy. 2012 (November). *Final Record of Decision Site 17 Administration Area Groundwater Plume.* NASA Crows Landing Flight Facility, Crows Landing, California. Department of the Navy Base Realignment and Closure Program Management Office West. San Diego, CA.

U.S. Environmental Protection Agency. 2015. Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals. Available: http://www.epa.gov/dwstandardsregulations/secondary-drinking-water-regulations-guidance-nuisance-chemicals. Last updated November 23, 2015. Accessed December 29, 2015.

U.S. Geological Survey. 2015. National Water Information System, USGS 11274550 SAN JOAQUIN R NR CROWS LANDING CA. Available: http://nwis.waterdata.usgs.gov/ca/nwis/uv/?cb_00095=on&cb_00010=on&format=gif_default&site_no=11274550&period=&begin_date=2015-01-01&end_date=2015-12-29. Last updated December 29, 2015. Accessed December 29, 2015.

U.S. Natural Resources Conservation Service. 2015 (September). Web Soil Survey. Available: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed December 18, 2015.

VVH Consulting Engineers and AECOM. 2016 (February). *Water Supply (Potable & Non-Potable) Infrastructure and Facilities Study.* Modesto, CA.

Western Regional Climate Center. 2003. Average Wind Direction. Available: http://www.wrcc.dri.edu/climatedata/climtables/westwinddir/. Accessed January 5, 2016.

———. 2012. Average Monthly Wind Speed. Available: http://www.wrcc.dri.edu/climatedata/climtables/westcomp.ws.2001-2011/. Accessed January 5, 2016.

———. 2015. Newman, California (046168), Period of Record Monthly Climate Summary. Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6168. Accessed January 5, 2016.

6.3.11 SECTION 3.11. LAND USE

California Department of Finance. 2010. E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2000- 2010.

_____. 2015. (December). E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011- 2015. Available: http://www.dof.ca.gov/research/demographic/reports/estimates/e-5/2011-20/view.php. Last accessed January 15, 2016.

_____. 2016 (May). E-5 Population and Housing Estimates for Cities, Counties and the State — January 1, 2011- 2016. Available: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Accessed March 7, 2016.

DOF. *See* California Department of Finance.

EDD. *See* Employment Development Department.

Employment Development Department. 2016 (January 22nd). IMMEDIATE RELEASE. MODESTO METROPOLITAN STATISTICAL AREA (MSA). (Stanislaus County). Available: http://www.calmis.ca.gov/file/lfmonth/mode$pds.pdf. Accessed: February 6, 2015.

_____.2015. Unemployment Rates (Labor Force). Available: http://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/areaselection.asp?tablename=labforce. Accessed January 20, 2016.

Stanislaus County. 2015 (November). *Stanislaus County General Plan, 2015-2023 Housing Element Update.* Available: http://www.hcd.ca.gov/housing-policy-development/housing-resource-center/plan/he/housing-element-documents/stanislaus_county_5th_draft111315.pdf. Accessed December 20, 2015.

———. 2016a (April). Stanislaus County General Plan and Airport Land Use Compatibility Plan Update Draft Program EIR.

_____. 2016b. Stanislaus County General Plan. Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed March 7, 2017.

_____. 2016c. Stanislaus County General Plan and Airport Land Use Compatibility Plan Update. Available: http://www.stancounty.com/planning/pl/act-proj/GPUpdate/Ch1-Land_Use.pdf. Accessed February 5, 2016.

StanCOG. *See* Stanislaus Council of Governments.

Stanislaus Council of Governments. 2014 (June*). Stanislaus County 2014 Regional Transportation Plan/Sustainable Communities Strategy.* Available: http://www.stancog.org/rtp.shtm. Last accessed: January 15, 2016.

Stanislaus Council of Governments. 2014a (June). Stanislaus County 2014 Regional Transportation Plan/Sustainable Communities Strategy. Available: http://www.stancog.org/rtp.shtm. Accessed: March 30, 2016.

Stanislaus County Economic Development Action Committee. 2016. *Stanislaus County Comprehensive Economic Development Strategy 2016 – 2021.* Available: http://www.stancounty.com/ceo/econ-dev/pdf/ceds.pdf. Accessed January 25, 2016.

U.S. Census Bureau. 2014. 2009-2013 5-Year American Community Survey. Stanislaus County. Available: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_DP03&prodType=table. Accessed January 20, 2016

Yee, David. 2015 (February 3). Personal correspondence to Lisa Harmon with the Subject Line: Crows Landing Documentation.

6.3.12 SECTION 3.12. NOISE AND VIBRATION

AECOM. 2015. Existing and Future Conditions Traffic Volumes.

California Department of Transportation. 2004. *Transportation and Construction-Induced Vibration Guidance Manual*. Sacramento, CA.

_____. 2011. *Airport Land Use Compatibility Handbook.* Sacramento California. Available at:

http://www.dot.ca.gov/hq/planning/aeronaut/documents/alucp/AirportLandUsePlanningHandbook.pdf.

———.2013. Technical noise supplement, a technical supplement to the traffic noise analysis protocol. Sacramento, CA.

Caltrans. *See* California Department of Transportation.

EPA. *See* U.S. Environmental Protection Agency.

Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. Washington, DC.

Federal Highway Administration. 1978 (December). *Federal Highway Traffic Noise Prediction Model FHWA RD 77-108*. Washington DC.

Federal Highway Administration. 2006 (January). *FHWA Roadway Construction Noise Model User's Guide*. U.S. Department of Transportation. Washington, DC and Cambridge, MA. Available: http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf.

———. 2011. Noise Barrier Design Handbook. Available: http://www.fhwa.dot.gov/environment/noise/noise_barriers/design_construction/design/design02.cfm#noisebarrier. Accessed October 24, 2014.

FHWA. See Federal Highway Administration.

FTA. *See* Federal Transit Administration.

Governor's Office of Planning and Research. 2003. *State of California General Plan Guidelines*. Sacramento, CA.

Sacramento County. 1999 (November). Report on the Status of Rubberized Asphalt Traffic Noise Reduction in Sacramento County.

Stanislaus County. 2005 (November). *Stanislaus County General Plan*. Chapter 4, Noise Element. Available: http://www.stancounty.com/planning/pl/gp/gp-chapter4.pdf. Accessed December 2015.

_____. 2004. Airport Land Use Commission Plan (Adopted 1978, Amended 2004).Available at: http://www.stancounty.com/planning/agenda-aluc/alucplan.pdf

_____. 2015 (October). *Stanislaus County Code*. Available: http://qcode.us/codes/stanislauscounty/. Accessed December 2015.

_____. 2016. Stanislaus County Airport Land Use Compatibility Plan (draft). Modesto, California. Available at: http://www.stancounty.com/planning/pl/act-proj/GPUpdate/ALUCP.pdf

U.S. Environmental Protection Agency. 1974 (March). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Washington, DC.

6.3.13 SECTION 3.13. PUBLIC SERVICES

California Highway Patrol. 2015. Central Division. Available: https://www.chp.ca.gov/find-an-office/central-division. Accessed January 4, 2016.

CHP. *See* California Highway Patrol.

Stanislaus County. 2014 (June). Development Impact Fee Summary. Available: http://www.stancounty.com/planning/bp/pff.shtm. Accessed January 4, 2016.

Stanislaus County Planning and Community Development Department. 2016. *Stanislaus County General Plan—Chapter 1, Land Use Element and Chapter 5, Safety Element.* Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed November 4, 2016.

Stanislaus County Sheriff's Department. 2015. Operations Division. http://scsdonline.com/operations-division/. Accessed January 4, 2016.

West Stanislaus Fire Protection District. 2015. West Stanislaus Fire Protection District. Available: http://www.weststanfire.org/. Accessed January 7, 2016.

West Stanislaus Fire Protection District. 2017. Fire Station 6 – Crows Landing. Available: http://www.weststanfire.org/fire-station-6/. Accessed January 7, 2016.

6.3.14 SECTION 3.14. TRAFFIC AND TRANSPORTATION

California Department of Transportation. 2016a (December). I-5 Repaving and Restoration Project. Available: http://www.dot.ca.gov/dist10/environmental/projects/I5Repaving/ Accessed: March 7, 2017.

_____. 2016b (January). Transportation Concept Report, State Route (SR) 33, District 10.

_____. 2012 (September). Caltrans District 10, Interstate 5 Transportation Concept Report.

Caltrans. *See* California Department of Transportation.

Stanislaus Council of Governments. 2010 (January 20th). 2009 Congestion Management Process for the Stanislaus County Region.

StanCOG. *See* Stanislaus Council of Governments.

TJKM Transportation Consultants. 2017 (October). *Crows Landing Industrial Business Park – Transportation Infrastructure Plan.* Pleasanton, CA.

6.3.15 SECTION 3.15. UTILITIES AND SERVICE SYSTEMS

AECOM. 2016 (February). County of Stanislaus Crows Landing Industrial Business Park SB 610 Water Assessment. Sacramento, CA.

Blackwater Engineering Consultants. 2017 (August). Technical Memorandum. Potential Impacts to Patterson Wastewater Facilities from Crows Landing Industrial Business Park.

California Building Standards. 2016. 2016 California Green Building Standards Code (Effective January 1, 2017) Available: http://www.bsc.ca.gov/Home/CALGreen.aspx.

California Department of Resources Recycling and Recovery. 2011 (June). Waste Disposal Rates for Business Types. Available: http://www.calrecycle.ca.gov/wastechar/disprate.htm. Accessed February 2, 2016.

———. 2015. Jurisdictional Diversion/Disposal Rate Report. Stanislaus County Regional Solid Waste Planning Agency. Stanislaus County. http://www.calrecycle.ca.gov/LGCentral/Reports/DiversionProgram/JurisdictionDiversionDetail.aspx?JurisdictionID=616&Year=2014. Accessed: January 6, 2015.

———. 2016ba. Solid Waste Information System. Facility/Site Summary Details: Covanta Stanislaus, Inc. (50-AA-0009). Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/50-AA-0009/Detail/. Accessed: February 2, 2016.

———. 2016b. Solid Waste Information System. Facility/Site Summary Details: Fink Road Landfill. (50-AA-0001). Available: http://www.calrecycle.ca.gov/SWFacilities/Directory/50-AA-0001/Detail/. Accessed: February 2, 2016.

California Department of Water Resources. 2006. *California's Groundwater Bulletin 118—San Joaquin Valley Groundwater Basin, Delta-Mendota Subbasin*. Available: http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-22.07.pdf. Accessed December 29, 2015.

———. 2014 (June). Groundwater Basin Prioritization. Available: http://www.water.ca.gov/groundwater/casgem/basin_prioritization.cfm. Accessed March 21, 2016.

———. 2016. California Statewide Groundwater Elevation Monitoring (CASGEM) website. http://www.water.ca.gov/groundwater/casgem/. Accessed September 23, 2016.

CalRecycle. *See* California Department of Resources Recycling and Recovery.

Central Valley Regional Water Quality Control Board. 2007. Notice of Adoption of City of Patterson Water Quality Control Facility Stanislaus County. Waste Discharge Requirements (WDRs) Order No. R5-2007-0147. Published November 1, 2007. Available: http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/stanislaus/r5-2007-0147.pdf

City of Patterson. 2011 (June). Urban Water Management 2010.

DWR. *See* California Department of Water Resources.

ePUR. 2017a (October). Crows Landing Industrial Business Park Water Supply Alternatives for Consideration in the Environmental Impact Report. Technical Memorandum to Matthew Gerken of AECOM, Sacramento CA.

ePUR. 2017b (November). Crows Landing Community Services District Water Supply System Capacity, Usage, and Demand Forecast for Resiliency to Support CLIBP Draft Environmental Impact Report. Technical Memorandum to Matthew Gerken of AECOM, Sacramento CA.

Jacobson James & Associates. 2016 (October). *Groundwater Resources Impact Assessment, Crows Landing Industrial Business Park.* Stanislaus County, CA.

Jeffers, Edward. Electrical Engineering and Operations Department Manager. Turlock Irrigation District. Comments provided at stakeholder meeting No. 2. February 5, 2014.

JJ&A. *See* Jacobson James & Associates.

PG&E. *See* Pacific Gas and Electric Company.

RMC. 2016 (June). City of Patterson 2015 Urban Water Management Plan. Available: http://www.ci.patterson.ca.us/460/Urban-Water-Management-Plan. Accessed November 15, 2017.

Stanislaus County. 2009 (September). Initial Study/Mitigated Negative Declaration for the Fink Road Landfill In-Fill Project, Stanislaus County. Available: http://www.stancounty.com/er/pdf/ceqa-projects/initial-study-mitigated-negative-declaration.pdf. Accessed February 2, 2016.

———. 2014 (August). Draft Environmental Impact Report for the Avila & Sons Washington Road Warehouse. State Clearinghouse No. 2013082091. Available: http://www.stancounty.com/planning/pl/act-proj/Avila.shtm. Accessed February 2, 2016.

———. 2015. *Stanislaus County General Plan—Chapter 1, Land Use Element.* Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed December 21, 2015.

Stanislaus County. 2016. *Stanislaus County General Plan.* Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed February 22, 2017.

Stanislaus County Local Agency Formation Commission. 2016 (January). Municipal Service Review and Sphere Of Influence Update for the Western Hills Water District. Available: http://www.stanislauslafco.org/info/pdf/msr/districts/westernhillswd.pdf. Accessed February 1, 2016.

VVH Consulting Engineers. 2015 (February). Crows Landing Industrial Business Park Dry Utilities Infrastructure and Facilities Study. Modesto, CA.

VVH Consulting Engineers and AECOM. 2016a (September).Crows Landing Industrial Business Park Water Supply (Potable and Non-Potable) Infrastructure and Facilities Study. Modesto, CA.

VVH Consulting Engineers and AECOM. 2016b (March). Crows Landing Industrial Business Park Sanitary Sewer Infrastructure and Facilities Study. Modesto, CA.

Wheeler, Dave. 2015. Email to Keith Boggs, Stanislaus County, with the Subject Line: Groundwater Well Pumping Data - Crows Landing Air Facility, dated December 4, 2015.

Woolfe, Tom. 2016 (November). Personal communication. Email to Jami Aggers, regarding EIR solid waste disposal.

Yee, D. H. 2015 (February). Personal communication. Email to L. Harmon, Mead & Hunt, regarding 2013 structure demolished at the Crows Landing site.

6.4 CHAPTER 4. ALTERNATIVES

California Department of Conservation. 2014. Farmland Mapping and Monitoring Program (FMMP). Important Farmland GIS layer for Stanislaus County. Available ftp://ftp.consrv.ca.gov/pub/dlrp/fmmp/2014/. Accessed January 28, 2016.

DOC *See* California Department of Conservation.

StanCOG. *See* Stanislaus Council of Governments.

Stanislaus Council of Governments. 2014. 2014 Regional Transportation Plan/Sustainable Communities Strategy, Stanislaus County, FINAL Programmatic Environmental Impact Report.

Stanislaus County Economic Development Action Committee. 2016. *Stanislaus County Comprehensive Economic Development Strategy 2016 – 2021.* Available: http://www.stancounty.com/ceo/econ-dev/pdf/ceds.pdf. Accessed January 25, 2016.

6.5 CHAPTER 5. OTHER CEQA CONSIDERATIONS

AECOM. 2016 (February). *County of Stanislaus Crows Landing Industrial Business Park SB 610 Water Assessment. Sacramento, CA.*

ARB. *See* California Air Resources Board.

Blackwater Engineering Consultants. 2017 (August). Technical Memorandum. Potential Impacts to Patterson Wastewater Facilities from Crows Landing Industrial Business Park.

California Air Resources Board. 2005 (April). Air Quality and Land Use Handbook: A Community Health Perspective. Available: http://www.arb.ca.gov/ch/handbook.pdf. Accessed: March 30, 2016.

California Department of Conservation (DOC). 2006. Stanislaus County 2004-2006 Land Use Conversion. Available: http://www.conservation.ca.gov/dlrp/fmmp/Pages/Stanislaus.aspx. Accessed December 18, 2015.

———. 2014. Farmland Mapping and Monitoring Program (FMMP). Important Farmland GIS layer for Stanislaus County. Available ftp://ftp.consrv.ca.gov/pub/dlrp/fmmp/2014/. Accessed January 28, 2016.

California Department of Finance. 2014 (December). Report P-1 (Total Population): State and County Population Projections, 2010-2060.

California Department of Conservation. 2006. Division of Land Resource Protection. Farmland Mapping and Monitoring Program. 2004-2006 Land Use Conversion.

_____. 2014. Division of Land Resource Protection. Farmland Mapping and Monitoring Program. 2004-2006 Land Use Conversion.

Employment Development Department. 2016 (January 22nd). IMMEDIATE RELEASE. MODESTO METROPOLITAN STATISTICAL AREA (MSA). (Stanislaus County). Available: http://www.calmis.ca.gov/file/lfmonth/mode$pds.pdf. Accessed: February 6, 2015.

California Employment Development Department. 2017. Labor Market Information Division. Monthly Labor Force Data for Counties. January 2017 – Preliminary.

City of Patterson. 2011 (June). Urban Water Management 2010.

DOC. *See* California Department of Conservation.

DOF. *See* California Department of Finance.

EDD. *See* California Employment Development Department.

DOC *See* California Department of Conservation.

Jacobson James & Associates, Inc. 2016. *Draft Groundwater Resources Impact Assessment Report. Crows Landing Industrial Business Park, Stanislaus County, California*. Prepared for the Stanislaus County Division of Public Works.

JJ&A. *See* Jacobson James & Associates, Inc.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2015. Guide for Assessing and Mitigating Air Quality Impacts. Available: <https://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf>. Accessed January 4, 2016.

SJVAPCD. *See* San Joaquin Valley Air Pollution Control District.

StanCOG. *See* Stanislaus Council of Governments.

Stanislaus Council of Governments. 2014a (June). Stanislaus County 2014 Regional Transportation Plan/Sustainable Communities Strategy. Available: http://www.stancog.org/rtp.shtm. Accessed: March 30, 2016.

_____. 2014b. 2014 Regional Transportation Plan/Sustainable Communities Strategy, Stanislaus County, FINAL Programmatic Environmental Impact Report.

_____. 2016. Baseline and planning horizon year existing and future land use programming used to support the 2014 StanCOG RTP/SCS.

Stanislaus County. 2008. Stanislaus County Water Atlas. Available: http://www.stancounty.com/publicworks/pdf/water-atlas.pdf. Accessed: March 30, 2016.

———. 2009 (September). Initial Study/Mitigated Negative Declaration for the Fink Road Landfill In-Fill Project, Stanislaus County. Available: http://www.stancounty.com/er/pdf/ceqa-projects/initial-study-mitigated-negative-declaration.pdf. Accessed February 2, 2016.

———. 2014 (August). Draft Environmental Impact Report for the Avila & Sons Washington Road Warehouse. State Clearinghouse No. 2013082091. Available: http://www.stancounty.com/planning/pl/act-proj/Avila.shtm. Accessed February 2, 2016.

———. 2016. *Stanislaus County General Plan.* Available: http://www.stancounty.com/planning/pl/general-plan.shtm. Accessed February 22, 2017.

TJKM Transportation Consultants. 2017 (October). *Crows Landing Industrial Business Park – Transportation Infrastructure Plan.* Pleasanton, CA.

U.S. Census Bureau. 2014. 2009-2013 5-Year American Community Survey. Stanislaus County. Available: http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_DP03&prodType=table. Accessed January 20, 2016.

U.S. Environmental Protection Agency. 1974 (March). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Washington, DC.

VVH Consulting Engineers and AECOM. 2016 (March 29). *Crows Landing Industrial Business Park Water Supply (Potable & Non-Potable) Infrastructure and Facilities Study.*

VVH Consulting Engineers. 2015 (February). *Crows Landing Industrial Business Park Dry Utilities Infrastructure and Facilities Study. Modesto, CA.*

7 LIST OF PREPARERS

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APPENDIX A

NOP and NOP Responses

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: Crows Landing Industrial Business Park

Lead Agency: Stanislaus County | Contact Person: Rachel Wyse, Associate Planner
Mailing Address: 1010 10th Street, Suite 3400 | Phone: 209-525-6330
City: Modesto | Zip: 95354 | County: Stanislaus

Project Location: County: Stanislaus | City/Nearest Community: Crows Landing
Cross Streets: Marshall, Bell, Ike Crow, and Fink Roads (See attached exhibit) | Zip Code: 95313
Longitude/Latitude (degrees, minutes and seconds): 37 ° 24 ′ 31.5 ″ N / 121 ° 06 ′ 32.1 ″ W | Total Acres: 1,532
Assessor's Parcel No.: 027-003-074 to 080;027-001-057,058 | Section: 8/7/20;9 | Twp.: 6; 6 | Range: 8; 9 | Base: MDB&M
Within 2 Miles: State Hwy #: 33, I-5 | Waterways: Delta-Mendota Canal, California Aqueduct
Airports: | Railways: CA No. Railroad Co. | Schools: Bonita Elementary

Document Type:

CEQA: ☒ NOP ☐ Draft EIR ☐ Early Cons ☐ Supplement/Subsequent EIR ☐ Neg Dec (Prior SCH No.) ☐ Mit Neg Dec Other:
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other:

RECEIVED
OCT 13 2014
STATE CLEARING HOUSE

Local Action Type:

☐ General Plan Update ☒ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☒ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☒ ~~Rezone~~ ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: Adopt ALUCP

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☒ Industrial: Sq.ft. _____ Acres 1,532 Employees _____
☐ Educational:
☐ Recreational:
☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type _____ MW
☐ Waste Treatment: Type _____ MGD
☐ Hazardous Waste: Type
☒ Other: Airport

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☒ Drainage/Absorption ☒ Economic/Jobs
☒ Fiscal ☒ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities
☒ Recreation/Parks ☐ Schools/Universities ☒ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☒ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☐ Other:

Present Land Use/Zoning/General Plan Designation:

Crop land and runway/A-2-40/General Agriculture

Project Description: *(please use a separate page if necessary)*
See Attached.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

____	Air Resources Board	____	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	____	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
S	Caltrans District # 10	____	Public Utilities Commission
S	Caltrans Division of Aeronautics	S	Regional WQCB # 5S
____	Caltrans Planning	____	Resources Agency
____	Central Valley Flood Protection Board	____	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
____	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
____	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	____	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
S	Fish & Game Region # 4C	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	____	Toxic Substances Control, Department of
____	Forestry and Fire Protection, Department of	____	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	____	Other: _____
____	Housing & Community Development	____	Other: _____
____	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date October 13, 2014 Ending Date November 17, 2014

Lead Agency (Complete if applicable):

Consulting Firm: AECOM
Address: 2020 L Street, Suite 400
City/State/Zip: Sacramento, CA 95811
Contact: Francine Dunn
Phone: (916) 414-5800

Applicant: Stanislaus County
Address: 1010 10th Street, Ste 3400
City/State/Zip: Modesto, CA 95354
Phone: 209 -525-6330

Signature of Lead Agency Representative: R. Wyse **Date:** 10/10/14

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

NOTICE OF PREPARATION

Date: October 13, 2014

To: State Clearinghouse, Responsible Agencies, Trustee Agencies, and Interested Parties

From: Keith Boggs
Assistant Executive Officer
Stanislaus County
1010 10th Street, Sixth Floor
Modesto, CA 95354
(boggsk@stancounty.com)

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Proposed Crows Landing Industrial Business Park Project

Stanislaus County will serve as the lead agency under the California Environmental Quality Act (CEQA) for the preparation of an Environmental Impact Report (EIR) for the proposed Crows Landing Industrial Business Park (CLIBP). The proposed project includes the adoption of a Specific Plan and zoning change to support the reuse of the former Crows Landing Air Facility and development of the CLIBP in western Stanislaus County. CLIPB development would include on- and off-site infrastructure and roadway improvements, the development of a general aviation airport on a former military runway, and amendments to the Stanislaus County Airport Land Use Compatibility Plan (ALUCP). All of these proposed actions are collectively referred to as the "proposed project." Comments on the NOP must be received by **5 p.m. on November 13, 2014.**

A lead agency must prepare a Notice of Preparation (NOP) to inform all responsible, trustee agencies, and the Governor's Office of Planning and Research of the forthcoming EIR. The NOP must provide sufficient information about a proposed project and its potential environmental impacts to allow agencies and individuals to formulate a meaningful response to the scope and content of the forthcoming EIR and provide environmental information and input pertaining to each agency's statutory responsibilities in connection with the proposed project. Another purpose of the NOP is to solicit input on alternatives that should be considered during EIR preparation.

Two public scoping meetings will be held during the NOP public review period to allow agencies and the public to ask questions or provide comments on the content of the forthcoming EIR.

Scoping Meetings: Proposed Crows Landing Industrial Business Park Project	
Thursday, October 23, 2014 6 p.m. to 8 p.m. Crows Landing Fire Station 22012 G Street Crows Landing, CA 95313	Thursday, October 30, 2014 6 p.m. to 8 p.m. City of Patterson, Council Chambers 1 Plaza Patterson, CA 95363

Comments are invited from interested parties by 5 p.m. on November 13, 2014. Written comments or questions concerning the EIR must be directed to the County's Planning and Community Development Department at the following address:

Rachel Wyse, Associate Planner
Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354
(wyser@stancounty.com)

All comments must include the commenter's full name and address for staff to respond appropriately. Agencies that will use the EIR when considering permits or other discretionary approvals for the proposed project should provide the County with the name of a contact person.

The project location, description, and the potential environmental resources and issues that will be addressed in the EIR are presented in the following pages. Pursuant to California Code of Regulations (CCR) Section 15063(a) of the State CEQA Guidelines, the County did not prepare an Initial Study to determine whether the proposed project may have a significant effect on the physical environment, because it determined that an EIR will be required for the proposed project.

The proposed CLIBP is a new project that is being proposed by Stanislaus County. Two previous projects have been proposed on the project site: the "West Park Specific Plan" (2008) and the "West Park Logistics Center" (2011). Both projects were proposed by private entities, and neither is active. The CLIBP project is a new project proposed by Stanislaus County that remains entirely within the boundaries of the approximately 1,532-acre former Crows Landing Naval Auxiliary Air Station with only off-site infrastructure and roadway improvements proposed to support the proposed project.

PROJECT LOCATION

The proposed CLIBP or "project" would be constructed within the boundaries of the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility. The approximately 1,532-acre project site is located in an unincorporated area of western Stanislaus County that is within 2 miles of Interstate 5 (I-5) and south of the Patterson city limits and its Urban Services Boundary/Sphere of Influence. The project site is bounded by Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west (Exhibit 1).

The project site is generally surrounded by agricultural land uses, with some rural residential land uses and the community of Crows Landing to the southeast. The Delta-Mendota Canal runs through the project site in a northwest-southeast direction. The California Aqueduct flows in a north-south direction just west of the site and outside of the project boundary. Regional access to the project site would be provided by I-5 and SR 33, with local access provided by West Marshall Road at the site's northern boundary and Ike Crow Road at its eastern boundary. Regional access traveling to and from I-5 would use Fink Road.

PROJECT DESCRIPTION

BACKGROUND

The former Naval Auxiliary Air Station, Crows Landing was commissioned in 1943 and was used intermittently by various branches of the military for more than five decades. In 1994, NASA assumed operation of the facility as part of the U.S. Department of Defense's Base Closure and Realignment process. Public Law (PL) 106-82, enacted by the U.S. Congress in 1999, allowed NASA to convey the approximately 1,532-acre property to Stanislaus County following environmental remediation. The terms of the conveyance allow NASA to "retain the

right to use the property for aviation activities, without consideration and on other terms and conditions mutually acceptable to NASA and Stanislaus County" (PL 106-82).

Under a 1992 Memorandum of Understanding between NASA and the U.S. Navy, the U.S. Navy remains responsible for site cleanup activities, with input from the California Department of Toxic Substances Control and the Central Valley Regional Water Quality Control Board. To date, approximately 1,355 acres have been transferred to the County. Of the remaining approximately 176 acres, about 95 acres have undergone soil and groundwater remediation and were determined to be clean in accordance with industrial standards. Groundwater remediation on about 81 acres of the former military site is ongoing.

Unemployment rates throughout the Central Valley, and Stanislaus County in particular, have historically exceeded unemployment rates throughout the State of California and much of the nation. The County envisions the new CLIBP as a regional employment center that capitalizes on regional infrastructure assets, such as I-5, the nearby ports of Stockton and Oakland, synergistic opportunities associated with nearby logistics and industrial sites in the City of Patterson and other locations, and the reuse of former military infrastructure.

The County has considered the reuse of the former Crows Landing military facility for more than a decade, but the economic downturn of 2008 brought many development efforts to a halt. Based on the recent resurgence in the need for industrial sites—and especially the need for sites that can support development parcels greater than 1 million square feet of buildable area—Stanislaus County has determined that the time is ripe for reuse of the former Crows Landing military site. The combination of available land for large parcel development, nearby transportation infrastructure, regional connections to the I-5 corridor and San Francisco Bay area, and an available locally based workforce provide the County and the development community with a unique opportunity for creative and profitable investment.

PROPOSED SITE DEVELOPMENT

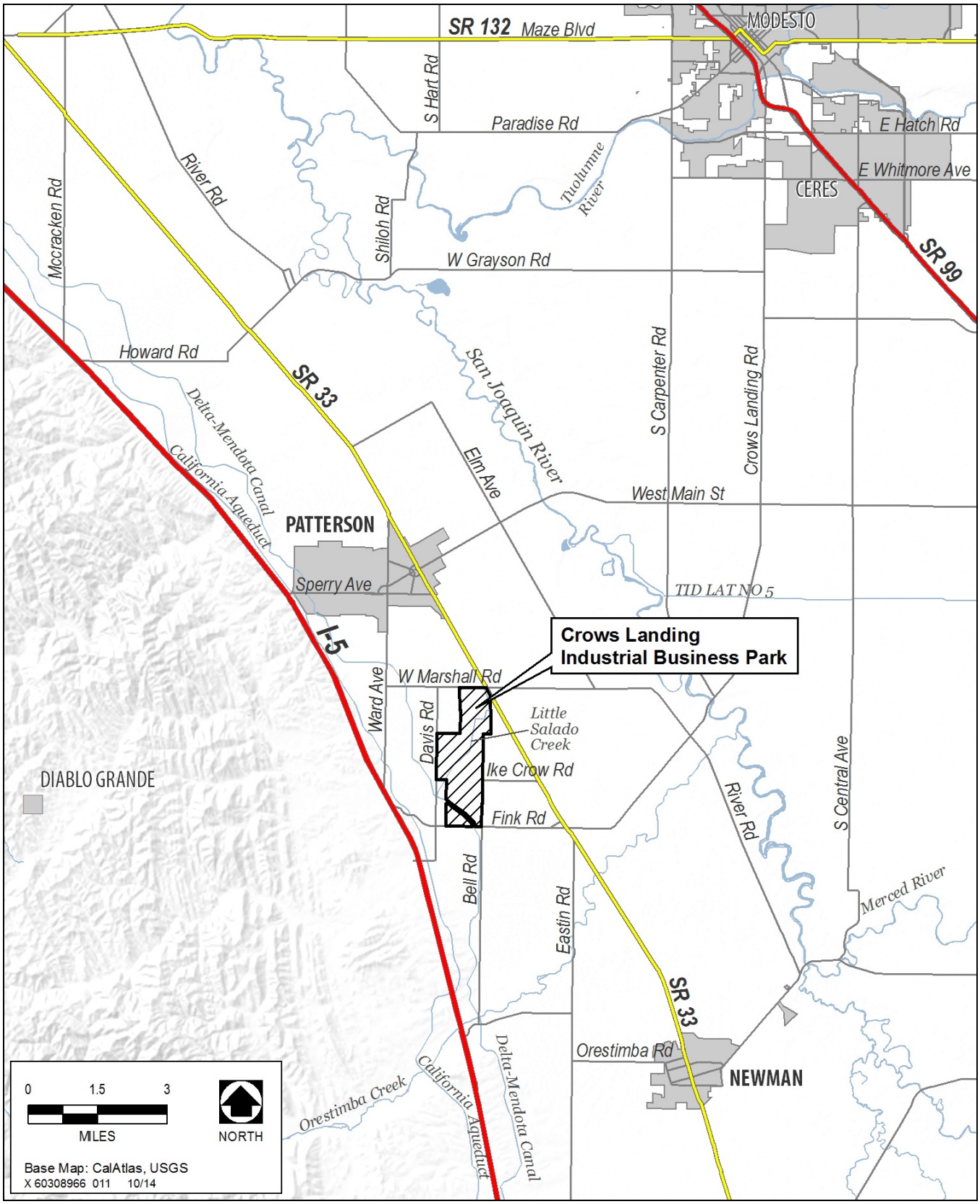
The County anticipates that development of the CLIBP at the former Crows Landing military site would require more than 30 years to reach full buildout, and the needs associated with parcel development will continue to evolve. Therefore, the proposed CLIBP does not offer specific parcels for development, but areas that can be sized based on the individual needs of site tenants and developers. The proposed CLIBP Specific Plan, which will be appended to the EIR, will provide objectives, goals, and policies for the approximately 1,532-acre site that will further the County's vision for the property. The Specific Plan would allow proposed tenants to develop parcels that are suitable for their diverse and unique needs.

PROJECT PHASING

The County assumes that the proposed project would be developed in three, 10-year phases or an overall 30-year timeframe, and it would provide backbone on- and off-site infrastructure and roadway improvements to meet the needs associated with each phase (see Exhibit 2). The three project phases are summarized below.

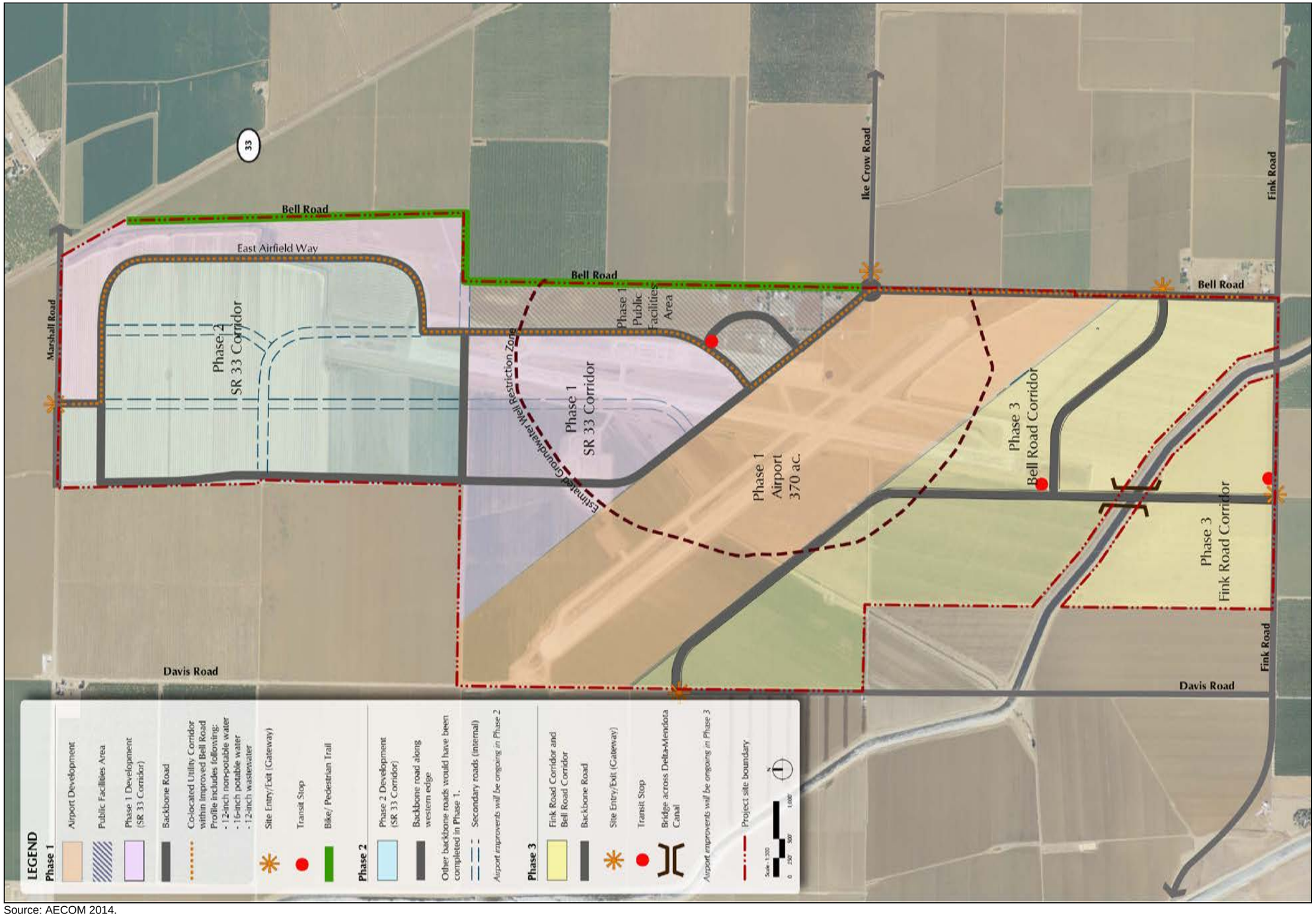
PHASE 1: INITIAL SITE DEVELOPMENT (2016 TO 2025)

As shown on Exhibit 2, the County anticipates that Phase 1 development (2016 to 2025) would be associated with revitalizing/converting former military Runway 11-29 to a general aviation (GA) airport and promoting the reuse of the SR 33 Corridor and Public Facilities areas northeast of the proposed airport. This phase would include on- and off-site infrastructure and roadway improvements, and public facilities (e.g., pedestrian and bicycle routes, park area, transit)



Source: AECOM 2014

Exhibit 1. Regional Location



Source: AECOM 2014.

Exhibit 2. Conceptual Land Use Plan

PHASE 2: ONGOING AIRPORT IMPROVEMENTS AND SR 33 CORRIDOR BUILD OUT (2026 TO 2035)

Additional facilities in the SR 33 Corridor would be developed north of the airport during Phase 2, along with improvements to the airport. Additional infrastructure and roadway improvements would be provided to support anticipated Phase 2 development.

PHASE 3: FINK ROAD AND BELL ROAD CORRIDOR DEVELOPMENT (2036 TO 2045)

The final phase of CLIBP development would occur south of the Crows Landing Airport, in two discrete areas identified as the Fink Road Corridor and the Bell Road Corridor, which are separated by the Delta-Mendota Canal and its associated setbacks. Regional access to these areas would be provided by I-5, with local access provided by the portion of Fink Road west of Bell Road.

While these are anticipated timeframes for each of the Phases, the Specific Plan will provide flexibility for development following the completion of necessary infrastructure and mitigation.

COUNTY DISCRETIONARY ACTIONS

Discretionary actions to be considered by Stanislaus County that are related to the proposed project include, but are not limited to:

- A General Plan amendment and rezone of the project site to adopt the CLIBP Specific Plan
- Adoption of the Crows Landing Airport Layout Plan (ALP)
- Amendment of the Countywide ALUCP to include the proposed Crows Landing Airport

The proposed project will be supported by the EIR analysis, which will address the proposed backbone infrastructure, airport development through 2045 as defined in the ALP, and revisions to the county-wide ALUCP. The EIR analysis will rely upon the data presented in the proposed infrastructure and transportation plans that are being prepared to support land use types, densities, and intensities identified in the Specific Plan. The Specific Plan will identify the types of future projects that would be implemented under a PD land use designation.

The EIR will identify the site-specific environmental opportunities, constraints, and mitigation measures and performance standards that would apply to subsequent site development and provide potential developers with site-specific data to consider or tier from when proposing subsequent projects on the project site.

Following certification of the EIR and adoption of the ALUCP, the County will submit a permit application to the Caltrans Division of Aeronautics to operate a public-use general aviation Airport on the former Crows Land Air Facility and submit the proposed ALUCP revisions to the County's Airport Land Use Commission.

PROBABLE ENVIRONMENTAL EFFECTS

Stanislaus County has reviewed the proposed project and determined an EIR will be prepared to address all environmental issue areas listed in Appendix G of the State CEQA Guidelines. Accordingly, the environmental issues described below will be evaluated in the EIR. In addition to anticipated environmental issues, information regarding the probable environmental effects of the proposed project is provided below as required by State CEQA Guidelines CCR Section 15082(a)(1)(C).

The EIR analysis will focus on examining the potential environmental impacts associated with the proposed project and identifying the measures that can be implemented to minimize or avoid such impacts. The EIR will also evaluate growth-inducing and cumulative effects, when considered in conjunction with other related past, present, and reasonably foreseeable future projects.

On the basis of preliminary evaluations, Stanislaus County has determined that the proposed project could have the following potentially significant environmentally significant effects:

Aesthetics. The EIR will describe the potential visibility of the proposed project from surrounding land uses and view sheds. It also will describe the changes in visual character and potential effect on scenic resources that would result from the conversion of the project site from a former military facility and agricultural land to industrial park development. An assessment of the proposed project's lighting and potential glare will be provided.

Agriculture Resources. The EIR will evaluate the project-related conversion of agricultural land to other uses and will identify any indirect impacts on surrounding agricultural lands, such as potential land use conflicts and the proposed project's potential to induce future conversion of surrounding agricultural land to other uses. The EIR will address the proposed project's contribution to cumulative loss of agricultural lands in the region.

Air Quality. The EIR will describe regional and local air quality in the project vicinity and evaluate the potential air quality effects of the proposed project during construction (temporary, short-term) and operation (long-term). The proposed project's estimate air emissions will be modeled and compared to emission thresholds of the San Joaquin Valley Air Pollution Control District. The potential effects of proposed aviation uses will be considered using appropriate models and criteria set forth by the Federal Aviation Administration (FAA). The EIR will evaluate whether the proposed project could cause a cumulatively considerable net change in emissions for any criterion air pollutant for which the project region is in non-attainment status. The EIR will also address exposure to toxic air emissions, and will evaluate exposure to potential sources of odor.

Biological Resources. The EIR will describe the existing biological resources at the project site, including Little Salado Creek, and will evaluate the proposed project's effects on those biological resources. The EIR will also address biological resource effects of proposed on- and off-site infrastructure and roadway improvements.

Cultural and Paleontological Resources. The EIR will include a cultural and paleontological resource impact assessment for the proposed project. The EIR will describe the existing cultural and paleontological resources on the project site and affected off-site areas and will evaluate the proposed project's impacts on these resources, including the potential to affect potential undiscovered resources. The EIR will also include a Native American Heritage Commission (NAHC) search of the Sacred Lands File and consultation with the list of suitable tribal representatives and individuals that may have an interest in the proposed project, as provided by NAHC.

Geology, Soils, and Mineral Resources. The EIR will evaluate seismic conditions in the local area, the presence of existing fault lines and effects on development, the potential for erosion of site soils, soil stability, and expansive characteristics of site soils, and the potential loss of availability of any economically valuable mineral deposits.

Greenhouse Gas Emissions. The EIR will evaluate the proposed project's contribution to global climate change by calculating the existing average and 1990 California emission levels of carbon dioxide equivalent ($CO2_{-e}$) as referenced in Assembly Bill 32 (the California Climate Solutions Act of 2006), and other indicators and will compare them against those associated with implementation of the proposed project. The focus of the chapter will be a calculation of the proposed project's generation of greenhouse gases and an assessment of whether the net change in such will constitute a substantial contribution to the significant adverse cumulative impact of global climate change.

Hazards and Hazardous Materials. The EIR will summarize the results of hazardous materials assessments performed for the former military facility and will evaluate the operational characteristics of the proposed project to determine potential impacts related to use of hazardous material and emergency response plans. The EIR will also address safety issues specifically related to the proposed general aviation airport and industrial operations. The EIR will address the potential that a significant hazard to the public may be created from proposed wastewater treatment solutions and through the transport, use, or disposal of hazardous materials, as well as reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the

environment. Seismic hazards will be addressed as part of the geology evaluation. Flooding hazards will be addressed as part of the hydrology evaluation.

Hydrology, Drainage, and Water Quality. The EIR will evaluate the proposed project's effect on hydrology, drainage, and water quality characteristics of the local aquifer, including water supply, groundwater recharge, alteration of drainage patterns, erosion, stormwater discharges, wastewater management, and flooding.

Land Use and Planning. The EIR will evaluate the proposed changes to on-site conditions in terms of consistency with all adopted applicable plans, such as the Stanislaus County General Plan, the Stanislaus County ALUCP, the Regional Transportation Plan, and other relevant adopted plans.

Noise. The EIR will describe the noise effects associated with the construction and operation of the proposed project (including traffic and airport operations) and will compare these effects to applicable noise thresholds. It will also address the noise/land use compatibility of the proposed project with existing and future expected noise levels, including noise generated by use of the proposed general aviation airport and traffic noise generated at nearby roadways and freeways. The EIR will also include a vibration analysis to determine the compatibility of proposed on-site land uses.

Population, Employment, and Housing. The EIR will present existing population, housing, and employment figures for Stanislaus County and the projected changes in these variables as a result of overall regional development. The analysis will include a review of adopted County goals and policies; potential changes in population, housing, and employment characteristics resulting from the proposed project; and the potential for secondary environmental impacts from those changes. The EIR will address the proposed project's effect on regional jobs/housing ratios and population demographics.

Public Services. The EIR will evaluate the potential for adverse physical effects on the physical environment related to construction of new governmental facilities required to provide public services such as fire and law enforcement protection, schools, and solid waste, and the proposed project's effect on the availability of public resources to communities in the project's vicinity.

Recreation. The EIR will analyze the proposed project's potential to increase the use of or substantially degrade existing local and regional parks. It will also evaluate the proposed project's consistency with applicable adopted plans and policies for parks and open space.

Traffic and Circulation. The EIR will evaluate the proposed project's impacts on local and regional transportation facilities, including appropriate freeway segments and ramps. The evaluation will be based on a transportation analysis that will evaluate local intersections, roadway segments, merge/diverge/weave, project-related vehicle trips, proposed site circulation and access, local transit operations, and the surrounding roadway network. The EIR will identify triggers for transportation improvements. The traffic and circulation section also will analyze effects on public transit, as well as public transit needs and alternative modes of transportation.

Utilities and Service Systems. The EIR will evaluate the potable water, recycled water, source water for groundwater recharge (if applicable), wastewater treatment/conveyance/discharge systems and stormwater conveyance/treatment/discharge systems proposed as part of the project. The EIR will analyze the potential impacts resulting from provision of new on-site utilities, including water treatment and conveyance, wastewater treatment/conveyance/discharge systems, stormwater conveyance/treatment/discharge systems, electricity and natural gas services, and communications.

ALTERNATIVES

Consistent with the requirements of CCR Section 15126.6, the EIR will examine a range of reasonable alternatives to the proposed project. The alternatives must be feasible to attain most of the objectives of the proposed project while avoiding or substantially lessening at least one of the significant environmental effects of

the proposed project. One of the purposes of the NOP is to solicit input from interested agencies and the public regarding potential alternatives to the proposed project. Therefore, the alternative examined in the EIR will include a project development alternative that considers input from the public scoping process, as well as a No Project Alternative as required by State CEQA Guidelines CCR Section 15126.6.

ENVIRONMENTAL REVIEW AND APPROVAL PROCESS

The County plans to prepare a Draft EIR, which will involve additional planning project analysis, and to release the Draft EIR for public and agency comment in the spring of 2015. Following the release of the Draft EIR, the County will hold public meeting(s) during the 45-day comment period. This will allow the public and interested agencies to learn more about the significant environmental effects of the proposed project. The County will receive comments on the Draft EIR from agencies and the public during the 45-day comment period. The County will then provide written responses to comments on environmental issues, and text changes to the Draft EIR as necessary, in the Final EIR. The Final EIR will be published, and the County Board of Supervisors will consider the Final EIR (including the Draft EIR and responses to comments) for certification prior to approving the proposed project. This matter will likely be presented to the Board in fall 2015.

Annette Smith
646 Wanzia Court
Patterson, CA 95363
209-681-4961

November 12, 2014

Keith Boggs
Stanislaus County
(209) 525-6330
1010 10th Street, Sixth Floor
Modesto, CA 95354

RE:Crows Landing Industrial Business Park - EIR
SCH# 2014102035

Dear Mr. Boggs,

As part of the County's EIR process, I would request that the County conduct a thorough search for the Pioneer Cemetery. The former Crows Landing master developer indicated to me that they had located three graves, two of which were empty and one that had remains. He also stated that his team of researchers knew where other remains were located. However, the study that was conducted by a geophysicist did not include the findings that the developer expressly discussed with me.

There are thought to be over some twenty-five burials at the site. I would request that the County research naval records to ascertain if they located and moved the remains to another part of the property. Additionally, I would ask the County to conduct another sonar search using a different geophysicist/firm that has no relationship to the former master developer.

Thank you,

Annette Smith

City of Patterson

1 Plaza
P.O. Box 667
Patterson, California 95363
Phone (209) 895-8000

November 13, 2014

Keith Boggs, Deputy Executive Officer – Economic Development
Stanislaus County
1010 10th Street, Sixth Floor
Modesto, CA 95354

SUBJECT: Notice of Preparation of a Draft Environmental Impact Report for the Proposed Crows Landing Industrial Business Park and Specific Plan

Thank you for the opportunity to comment on the Notice of Preparation ("NOP") of a Draft Environmental Impact Report ("DEIR") for the proposed Crows Landing Industrial Business Park and Specific Plan ("Project"), circulated by Stanislaus County as the lead agency ("County") on October 13, 2014. The Project will have obvious and significant impacts on the City of Patterson ("City"), especially as they relate to traffic, noise, water supply, air quality and public safety, among others. More importantly, since Patterson is the closest city where the full range of municipal services are provided, employees and visitors to the Project will significantly increase the demand for these services provided by the City. Since the Project provides no housing or other complimentary land uses to serve the day-to-day needs of its employees, they will seek these amenities in the City. Thus, the City will be following the CEQA compliance process with great interest.

Contents of the NOP

Aside from disclosing a general aviation airport, the NOP provides little explanation about the types and the extent of the proposed industrial and public facilities. Generally, even for land use activities that will be implemented over a long-term planning horizon, NOPs will identify representative examples of the contemplated end uses. A Modesto Bee article dated October 31 indicated that the County contemplates 10 million square feet of new development consisting of a mix of warehouse/distribution (40%), manufacturing (40%), and public services and offices (20%). The NOP should have provided information as to the end uses, and the DEIR Project Description should identify a detailed explanation of the activities to be proposed in the Specific Plan for the Project.

The same Modesto Bee article quotes a County official indicating that the proposed Specific Plan would create 17,000 new jobs at buildout on the 1,532 acre site. For comparison purposes, the West Patterson Business Park Expansion Project EIR (13.4 million square feet on 880 net acres) estimated job creation at just over 10,000 new jobs at buildout. It would be appreciated if the County's job estimate figures could be further explained, particularly since certain uses are known to be relatively low intensity from an employment generation perspective. In any event, the California Employment Development Department indicated as of September 2014 that the combined labor force for Patterson and Newman totals 9,300 persons. Thus, the addition of 17,000 new jobs to a relatively isolated, lightly populated area would be expected to have far reaching implications on a number of areas and on the City in particular.

Given the general nature of the NOP, the County should indicate whether the DEIR is intended to provide program-level or project-level analysis of the proposed Specific Plan area. In the event program-level analysis is contemplated, anticipated environmental review actions for future development and land use activities that occur pursuant to the Specific Plan should be identified.

Scope of the Draft EIR

The Draft EIR should address all of the topics required by State CEQA Guidelines (Title 14 of the California Code) and in particular Sections 15120 through 15132, inclusive. Mitigation measures recommended by the Draft EIR should be identified for each phase of the Project and fully documented as to their feasibility and supported by substantial evidence in the record.

Project Description

The DEIR should provide an inventory of existing land use activities, buildings, improvements, and other major features, such as waterways. Additionally, the Project Description and Environmental Setting should summarize ongoing soil and groundwater remediation efforts, including the agencies that are overseeing these efforts and estimated timelines for completion.

The DEIR should identify the land use activities contemplated by the Specific Plan that are considered allowable or conditional uses, and likewise, what land use activities would be prohibited. The City has particular interest in industrial and public facilities, which may have significant land use compatibility concerns. For example, the NOP indicates that Phase 1 of the Project will include development of a park and bicycle trail system. A bicycle trail system in an isolated location, surrounded by potentially incompatible aviation, rail and truck transportation and industrial land uses seems illogical. The DEIR Project Description should provide a detailed description of the proposed public facilities and land use compatibility measures.

Additionally, the DEIR should describe whether the Specific Plan intends to use existing County zoning districts and development standards or establish new districts for the Project site. Finally, the Specific Plan should provide a comprehensive phasing plan addressing development of uses, the infrastructure required for each phase, and the timing of each phase.

For the general aviation airport, the DEIR should disclose the types of activities contemplated (e.g., agricultural, commercial air cargo, flight instruction, private owner, etc.), the number of annual operations, hours of operation, types of aircraft, landing and takeoff patterns, and on-ground facilities (e.g., hangars, fueling facilities, maintenance facilities, etc.).

Aesthetics/Visual Resources

The DEIR should fully assess (using simulations and other tools as necessary) potentially significant project-specific and cumulative impacts associated with aesthetic and visual resources for each phase of development. In particular, the DEIR should address at least the following:

- Project impacts on views from Interstate 5, a designated scenic highway for its entire length through the County.
- The Project's potential to degrade the visual and aesthetic character of the Project site and surrounding area from one of rural agriculture to one of industrial and other urban uses.
- The Project's potential to produce significant new sources of light and glare that would adversely impact day and nighttime views in the area.

Agricultural Resources

The DEIR should assess the Project's individual and cumulative impacts on agricultural resources and the agricultural economy both locally and regionally, consistent with the California Agricultural Land Evaluation and Site Assessment Model prepared by the California Department of Conservation. In particular, the DEIR should assess the following:

- Impacts associated with the permanent conversion of important farmlands as mapped by the Farmland Mapping and Monitoring Program of the California Resources Agency.
- Potential conflicts with ongoing agricultural operations in the area, and the potential for land use compatibility impacts between the proposed urban development and surrounding agricultural operations.

- Potential impacts associated with the cancellation of existing Williamson Act contracts and consistency with the requirements of the State Department of Conservation regarding the cancellation of such contracts.
- The potential for this Project to induce or hasten the cancellation of Williamson Act contracts on lands in the Project vicinity.

The DEIR should also describe how the County's agricultural mitigation program will apply to the Project.

Air Quality

The DEIR should quantify and assess all potential Project-related and cumulative impacts to air quality consistent with the requirements of the San Joaquin Unified Air Pollution Control District, including construction and operational impacts. The assessment should address impacts from all forms of motorized vehicles associated with the Project, including on-road motor vehicles (cars and trucks), railroad operations, and air traffic.

The Project will result in many more truck trips originating and terminating in the San Joaquin Valley than would otherwise be the case. All of the assumptions used to quantify potential air quality impacts and the resulting conclusions should be fully documented by evidence in the record. The DEIR should also quantify and analyze the potentially significant increase in air pollution associated with home-to-work trips generated by employees of future tenants in the Specific Plan area.

In addition, the DEIR should address the following:

- Project consistency with the adopted Clean Air Plans for ozone, carbon monoxide and particulate matter.
- The potential for the Project to exceed one or more State or federal air quality standard.
- Potential Project impacts with respect to greenhouse gas emissions.
- Potential for the Project to expose sensitive receptors to substantial air pollution concentrations, especially along the proposed short-haul rail route and truck routes to and from the Project as they pass through the City and other urban areas.
- The potential for the Project and associated motor vehicle use (including cars, trucks, rail and air) to result in objectionable odors to future occupants of the Project and to residents of Crows Landing, the surrounding agricultural areas, and the City.

The proposed Project envisions a new general aviation airport and 10 million square feet of new urban uses that would generate a substantial amount of diesel truck trips. The City thus recommends that the County prepare a Health Risk Assessment that addresses the impacts of toxic air contaminants on nearby sensitive receptors.

Biological Resources

The DEIR should provide a complete and independent assessment of potential direct and indirect impacts to biological resources as they relate to the following:

- The direct or indirect modification of habitat for special status plant and animal species identified by the California Department of Fish and Game and the US Fish and Wildlife Service.
- Potential impacts on riparian habitat and other sensitive biological communities.
- Potential direct and indirect impacts to federally protected wetlands as defined by Section 404 of the Clean Water Act.
- Project impacts on the movement of any native resident or migratory wildlife species or with an established wildlife corridor or nursery areas.
- The potential for the Project to conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved conservation plan.

A Preliminary Environmental Site Assessment is part of the materials cited by the NOP in support of the Project. That study provides (among other things) a discussion of potential impacts to wetlands that exist on the Project site, as well as a cost for mitigation of habitat loss. The DEIR should either 1) independently verify the methodologies and conclusions of this biological assessment and recommended mitigation, or 2) prepare a completely separate and independent assessment of potential Project impacts to biological resources.

The Preliminary Environmental Site Assessment concludes that the Project site "*...lies within the San Joaquin Kit Fox historic range*" and recommends that a "*habitat assessment*" be completed "*...in advance of other permitting...*". Our experience working with both the federal and State endangered species acts suggests that compliance is a lengthy, complicated and expensive proposition that can take years to resolve, especially for a project of this size. The DEIR should document project compliance with the federal and State Endangered Species Acts.

Cultural Resources

The DEIR should fully assess potential direct and indirect impacts to archaeological, historic, and paleontological resources consistent with Guidelines Sections 15064.5. In addition, the Project will be subject to the notification and consultation requirements of Senate Bill 18 which should be documented in the DEIR.

Geology, Soils and Mineral Resources

The DEIR should provide a complete assessment of potential Project-related impacts associated with the following:

- The risk to people and property associated with ground shaking, ground failure, landslides or fault rupture.
- Soil erosion and liquefaction, and the potential effects of expansive soils on new development.
- An assessment of the suitability of the soils to accommodate on-site wastewater treatment facilities.

Greenhouse Gas Emissions

The DEIR should fully analyze and assess potentially significant Project-related and cumulative contributions to global greenhouse gas emissions. Specifically, the DEIR's assessment should include impacts the Project may have on the City's Air Resources Element in the City's 2010 General Plan.

Hazards and Hazardous Materials

The DEIR should provide a complete assessment of potential Project-related direct and indirect hazards to people and property, especially as it relates to the following:

- Hazards to the public, both within the vicinity of the Project site and the City, associated with truck, train and air transport, and the use or disposal of hazardous materials.
- Ongoing hazards related to soil and groundwater remediation efforts and if any restrictions would be placed within the Project site.
- The potential hazard to schools, and other sensitive land uses in the vicinity of the Project and the City, associated with the use, transportor disposal of hazardous materials.
- The impacts to emergency response associated with an accident/hazardous materials spill along the truck routes serving the Project.
- Potential hazards to area residents and workers associated with increased air traffic and aircraft operations. Project consistency with the adopted Airport Land Use Plan for the Crows Landing Airfield.
- Potential Hazards associated with increased air traffic over the City, particularly over future development areas in the City's 2010 General Plan.
- Potential hazards to workers and visitors of the Project site associated with the historic use of pesticides and fertilizers on the underlying properties.
- Potential risks associated with wildland fires.

Hydrology and Water Quality

The DEIR should fully assess potential impacts to surface and groundwater quality and groundwater resources that may result from the construction and ongoing operation of the Project. In particular, the DEIR should address the following:

- The potential for surface or groundwater quality standards to be violated.
- Potential project-specific and cumulative impacts to groundwater resources in the region, and in particular, potential impacts (in terms of quantity and quality) to groundwater supplies used by the City. More specifically, potential impacts to groundwater resources should be modeled to determine:
    - The safe yield of groundwater resources serving the Project and the impact that Project-related wells would have on existing wells in the vicinity, including those used by the City and neighboring land owners;
    - Water quality of groundwater resources serving the Project, with samples taken from varying depths;
    - An analysis of the characteristics of the underlying groundwater aquifer to determine its yield during different seasons and the potential for groundwater withdrawals to adversely affect surrounding wells;
    - Mitigation measures should be included to coordinate with and participate in a future groundwater sustainability plan for the region.
- Potential impacts associated with the use of recycled water as a substitute for potable water for irrigation.
- The potential impact of the Project on the existing pattern of surface drainage in the area, including the alteration of course of streams in a manner that would result in onsite or offsite erosion or siltation.
- The potential for the Project to create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems.
- Potential hazards from the placement of habitable structures and businesses within a 100-year flood hazard area, and the potential for such structures to impede the flow of runoff.
- Potential drainage impacts to Salado Creek and Little Salado Creek, especially as it relates to the limited downstream capacity of storm water conveyances constructed by the City to serve development within the City, only.

Land Use/Consistency with Adopted Plans and Policies

The DEIR should assess project consistency with all relevant adopted plans, laws and regulations of federal, state and local agencies, including (but not limited to) the following:

- Policies of the Stanislaus County General Plan
- Policies of the Local Agency Formation Commission
- Policies of the City of Patterson's 2010 General Plan
- The City of Patterson's 2010 Urban Water Management Plan
- The City of Patterson's 2003 Storm Water Management Program
- Mid San Joaquin-Regional Flood Management Plan
- The federal and State Endangered Species Acts
- The Clean Air Act and locally adopted Air Quality Management Plans
- The Regional Transportation Plan and Congestion Management Plan
- The StanCOG 2008 Regional Housing Needs Assessment

And lastly, the DEIR should fully assess the potential for this Project to directly and indirectly induce changes to land use in the vicinity and region, and the associated environmental impacts associated with those changes.

Noise

The DEIR should quantify potential noise impacts associated with all sources (including on-road motor vehicles, rail and air traffic) in relation to standards adopted by the County and by the City. In addition, the DEIR should address the following:

- Impacts associated with the exposure of persons to noise levels in excess of established standards, both for the County and for the City.
- Impacts associated with temporary and periodic increases in noise levels, especially those relating to air traffic.

Additionally, the general aviation airport would likely require aviation noise contours. It is recommended that the DEIR noise analysis provide graphical depiction of noise contours for significant noise sources.

Population and Housing

According to comments made by the Project Manager, the Project is estimated to attract as many as 17,000 jobs through buildout. The DEIR should assess the direct, indirect and cumulative physical changes to environment resulting from the increased demand for housing, schools, parks, recreation, shopping, health care, police and fire protection facilities, these 17,000 new jobs would generate in the vicinity of the Project and in the region, especially in regards to the City as the nearest provider of these types of services. As stated above under Land Use, the DEIR should assess project consistency with the StanCOG Regional Housing Needs Assessment and the City of Patterson Housing Element in regards to the increased demand for housing. Studies should also consider that the City is already pursuing an aggressive jobs/housing balance in its 2010 General Plan and it is envisioned that housing outlined in the General Plan will serve the future jobs created under the General Plan growth plans.

Public Services

The DEIR should fully assess direct and indirect impacts to public services provided by the County, the School District, Del Puerto Health Care District, and the City, among others. In particular, the DEIR should address the following:

- Potential impacts on the City's Fire Department resulting from the additional truck and motor vehicle traffic passing through the City to the Project. The potential for the interruption of emergency response to all parts of the City that may result from an accident due to airport operations should be quantified and mitigated. In addition, potential project impacts associated with the increased demand for fire fighting personnel, equipment and facilities should be addressed. Cumulative impacts on the demand for fire protection should be assessed.
- Project impacts on police protection within the City. In addition, potential project impacts associated with the increased demand for police personnel, equipment and facilities should be addressed. Cumulative and regional impacts on the demand for police protection should be assessed.
- The potential impacts to police and fire protection resulting from increased traffic in the City generated by the Project. In particular, the increase in traffic accidents.
- Potential project impacts to school facilities, and in particular the increased demand for school facilities generated by the new employees and their families attracted to the area.
- Potential impacts from the increased demand for public parks and recreation facilities and programs in the vicinity of the Project and in the City.

Parks, Recreation and Open Space

The DEIR should include a thorough assessment of the Project's direct and indirect impacts to the City's recreational resources. In particular the DEIR should address impacts on City Parks, Recreation, and Cultural Resources element and the proposed recreational uses to be analyzed should be determined in consultation with the City's Recreation and Community Services Department.

Transportation and Traffic

The DEIR should fully assess potential direct, indirect and cumulative impacts to local and regional transportation systems, including on-road motor vehicles, bicycle, transit, rail, air and pedestrian modes of travel. The list of roadway segments and intersections to be analyzed should be determined in consultation with the City's Department of Public Works and Community Development Department. In addition, the transportation section of the DEIR should address at least the following:

- Quantify the increase in traffic on area roadways and intersections in relation to existing traffic load and the capacity of the street system.
- Assess whether the increased traffic, together with traffic from cumulative development, will exceed a level of service standard adopted by the County Congestion Management Plan and the City for designated roadways and intersections in the area and within the City.
- Determine the impact and triggering of improvements of interchanges on I-5 at Fink Road, Oak Flat Road, Sperry Avenue, and Zacharias Road.
- Determine the need and potential trigger of the South County Corridor due to the proposed Project.
- Determine the impacts and fair share contributions for improvements and scheduled maintenance to area roadways including, but not limited to, the following roadways:
    - Sperry Avenue
    - Ward Avenue
    - Highway 33
    - I-5
    - Las Palmas Avenue
- Determine the impacts and fair share contributions for improvements and scheduled maintenance to area intersections including, but not limited to, the following intersections:
    - Sperry Ave/I-5 SB Ramps
    - Sperry Ave/I-5 NB Ramps
    - Sperry Ave/Rogers Road
    - Sperry Ave/Baldwin Rd
    - Sperry Ave/Walker Ranch Parkway
    - Sperry Ave/American Eagle Dr
    - Sperry Ave/Las Palmas Ave
    - Sperry Ave/Ward Ave
    - Sperry Ave/S Del Puerto Ave
    - Sperry Ave/SR-33
    - SR-33/Las Palmas Ave
    - Ward Ave/American Eagle Dr
    - Ward Ave/Las Palmas Ave
    - Ward Ave/SR-33
    - Zacharias Rd/SR-33
    - Baldwin Rd/SR-33
    - Rogers Rd/SR-33
    - Sr-33/Eucalyptus Ave
    - Olive Ave/SR-33
    - Walnut Ave/M Street/SR-33
    - Las Palmas Ave/Sycamore Ave
    - Poplar Ave/Las Palmas Ave
    - Carpenter Rd/W. Main Ave
    - Crows Landing Rd/W Main Ave
- Assess the impacts associated with the change in air traffic patterns resulting from increased/renewed aircraft operations, and the potential safety risks associated with those increased operations.
- Assess potential traffic hazards associated with:
    - Increased traffic in the City and on area roadways, and the potential for increased traffic accidents.

- Design features of the roadway system (sharp curves, sight distance, conflicts with farm equipment, etc.).

- Assess consistency with the City's Circulation Element in its 2010 General Plan, the Congestion Management Plan, and Regional Transportation Plan.
- Assess impacts to public transit providers.

Utilities and Service Systems

It appears that the Project would need to either establish a new municipal water and wastewater system or connect to an existing system. The DEIR should provide a comprehensive description of the proposed water and wastewater infrastructure for the Project. The DEIR should also assess all potential direct, indirect and cumulative impacts associated with the provision of wastewater collection, treatment and disposal, water supply, storm drainage, solid waste disposal. Impacts relating to construction and operation should be assessed. In particular, the DEIR should address the following:

- Assess potential impacts associated with wastewater treatment options Including long-term reliability and the potential for environmental impacts associated with failure of any on-site facilities should be assessed. Impacts relating to odors, sludge disposal and associated truck traffic should also be assessed.
- With regard to water supply, the Project will be subject to the water supply assessment requirements of Senate Bill 610 (Section 21151.9 of the Public Resources Code). To fully comply with the requirements of Section 21151.9 a stable, reliable water supply must be demonstrated for the Project. The DEIR should fully analyze the potential environmental impacts for each option under consideration, along with impacts to other water users in the area, including the City, the various water districts, agricultural interests, and other municipalities. Potential impacts associated with the extension of water lines and water production/treatment facilities should be assessed, along with the reliability of each option. The potential for the use of recycled water to reduce water demand should be explored, along with relevant water conservation measures.

Economic and Social Effects

CEQA Guidelines §15131(a) precludes a discussion of economic and social effects associated with a project. However, Guidelines §15131(b) states that economic or social effects of a project may be used to determine the significance of physical changes caused by the project. For purposes of assessing the physical impacts associated with the additional demand for housing, shopping, schools, parks, and other public facilities in the City, we would recommend the DEIR start with the potential cost to the City of providing these facilities and services.

Cumulative Impacts

The analysis of cumulative impacts will be especially important for this Project and should be undertaken for each of the topics outlined above as required by CEQA. All reasonably foreseeable cumulative projects should be included in the cumulative analysis, especially as it relates to regional impacts associated with traffic, water supply, air quality, habitat protection and the preservation of productive agricultural land. The list of cumulative projects should err on the side of being inclusive, rather than exclusive and should include build out of the City's 2010 General Plan.

Growth Inducing Impacts

Since the Project essentially results in large-scale urban development in an essentially rural portion of the County, the DEIR should quantify potential growth inducing impacts, and assess the physical impacts to the environment associated with this induced urban development.

Alternatives

The alternatives assessed in the DEIR should include those that reduce significant environmental effects while meeting most of the basic objectives of the Project.

Once again, we thank the County for the opportunity to comment on the NOP. If you have any questions or comments about this letter, please feel free to contact the City of Patterson Community Development Department at (209) 895-8020.

Sincerely,

Ken Irwin, City Manager

J.B. ANDERSON
LAND USE PLANNING

139 S. Stockton Avenue, Ripon, CA 95366 Phone: (209) 599-8377 Fax (209) 599-8399

November 12, 2014

Rachel Wyse
Associate Planner
Dept. of Planning & Community Development
Stanislaus County
1010 10th Street, Suite 3400
Modesto, California 95354
Email: wyser@stancounty.com

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Proposed Crows Landing Industrial Business Park Project

Dear Ms. Wyse:

As you may be aware, my Firm is currently retained by the Del Puerto Health Care District (hereinafter referred to as the "District") to assist in various Capital Planning, Strategic Entitlement Review and Environmental Review matters concerning the District. As such, the purpose of this letter is to provide Stanislaus County comments on the above-mentioned Notice of Preparation. On behalf of the District, we are grateful to have the opportunity to provide comment on the above mentioned NOP and we offer the following constructive comments.

The District, located in the western portion of Stanislaus County, was established in 1946 to provide health care services to residents and employees living in the City of Patterson and unincorporated areas within western Stanislaus County. District services are also available to residents/patients living or working in the greater service area, including the Cities of Gustine and Newman. In its current form, the District provides acute care and routine medical services, as well as the Patterson District Ambulance. The proposed Crows Landing Industrial Business Park Project is located within the District's Service Boundary.

The District's Mission Statement is as follows; "The District's primary mission is to provide the highest quality service through Patterson Ambulance and Del Puerto Health Center, while expanding the healthcare availability to the citizens of the Del Puerto Health Care District." Because the proposed Crows Landing Industrial Business Park Project is within the District's Service Boundary, it is our goal to work with the County (and any future Project Proponent) to ensure the above Mission Statement is executed and the highest quality service to the future employees and potential future residents generated as a direct result of the Crows Landing Industrial Business Park Project.

In general, based on our review of the NOP, it is our understanding the proposed Crows Landing Industrial Business Park Project is comprised of site development over three phases of construction and will include the following:

Phase 1 ***(2016-2025)***

- Revitalization of the former military runway (Runway 11-29) to a General Aviation (GA) Airport
- Promoting the reuse of the State Route (SR) 33 Corridor and Public Facility areas northeast of the proposed airport
- On and off-site infrastructure improvements, including roadway and public facility upgrades

Phase 2 ***(2026-2035)***

- Development of additional facilities in SR 33 Corridor, north of the proposed GA Airport
- Additional infrastructure and roadway improvements, in support of Phase 2 development

Phase 3 ***(2036-2045)***

- Development of two areas located south of the Crows Landing Airport, identified as the Fink Road Corridor and the Bell Road Corridor

It is our understanding that the County will be preparing an Environmental Impact Report (EIR), which is anticipated to consider the broad environmental effects of adoption and implementation of the Project's General Plan Amendment, Specific Plan, Airport Land Use Compatibility Plan Amendment, Rezoning, Development Agreement, and off-site project Related Improvements. As such, the purpose of this letter is to provide the County with our comments as it relates to the preparation of a Program EIR in accordance with CEQA Statutes and Guidelines. Below, under each respective topic are items which should be considered in the EIR:

Public Services:

The NOP states, *"The EIR will analyze the proposed project's potential to increase the use of or substantially degrade existing local and regional parks. It will also evaluate the proposed project's consistency with applicable adopted plans and policies for parks and open space."*

As noted previously, the proposed project is located within the boundary of the Del Puerto Health Care District. As such, the EIR should evaluate the proposed projects potential affects on the District, as well as the potential need for expansion of District services and facilities needed as either a direct or indirect result of the proposed project. The District anticipates that implementation of the proposed project will have a significant impact to the District and potentially require the need for additional medical staff, facilities and quite possible the expansion of other areas of medical service needed to allow the continued medical assistance to the residents in west Stanislaus County. The District requests that the County and the preparers of the EIR consult and coordinate with District Staff in determining such impacts and potential mitigation measures dealing with public services, and specifically, the impacts said project may have on the District's responsibility to provide medical care to residents within the District's boundary.

Traffic and Circulation:

The NOP states, *"The EIR will evaluate the proposed project's impacts on local and regional transportation facilities, including appropriate freeway segments and ramps. The evaluation will be based on a transportation analysis that will evaluate local intersections, roadway segments,*

merge/diverge/weave, project-related vehicle trips, proposed site circulation and access, local transit operations, and the surrounding roadway network. The EIR will identify triggers for transportation improvements. The traffic and circulation section also will analyze effects on public transit, as well as public transit needs and alternative modes of transportation."

As it relates to the County's Emergency Response Plan, the EIR should evaluate the potential environmental impacts to the District's ability to provide emergency response to all areas of the proposed industrial project via the regional and local circulation network. Locations of the Districts emergency medical facilities will need to be considered in exploring appropriate methods to adequately serve the proposed workforce. The PEIR should evaluate as a design possibility the opportunity to establish the expansion of the public services center on the project to include ambulance services. Evaluations of response times shall be evaluated considering the current District responsibilities and existing service level demands.

Hazards & Hazardous Materials:

The NOP states, *"The EIR will summarize the results of hazardous materials assessments performed for the former military facility and will evaluate the operational characteristics of the proposed project to determine potential impacts related to use of hazardous material and emergency response plans. The EIR will also address safety issues specifically related to the proposed general aviation airport and industrial operations. The EIR will address the potential that a significant hazard to the public may be created from proposed wastewater treatment solutions and through the transport, use, or disposal of hazardous materials, as well as reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. Seismic hazards will be addressed as part of the geology evaluation. Flooding hazards will be addressed as part of the hydrology evaluation."*

The EIR should evaluate the potential environmental impacts for hazardous material storage, disposal or transport within the proposed project and evaluate potential significant impacts created as a result of these hazardous materials on the surrounding environment. Special equipment, training and the like will need to be evaluated as a direct result of potential hazardous materials use within the project. Fire suppression systems, roadway circulation and land use patterns may influence the impacts in this regard based on the types of hazardous materials storage.

On behalf of the Del Puerto Health Care District, thank you again for the opportunity to provide Stanislaus County with comments on the proposed Crows Landing Industrial Business Park Project Notice of Preparation. Should you have any questions, please do not hesitate to contact me at the phone number listed above.

Sincerely,

for

John B. Anderson
Principal

cc: Project File

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

November 7, 2014

Rachel Wyse
Associate Planner
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, California 95354

Notice of Preparation of an Environmental Impact Report for the Proposed Crows Landing Industrial Business Park, Town of Crows Landing, Stanislaus County, Near Milepost 45.15, Delta Field Division, SCH2014102035

Dear Ms.Wyse:

Thank you for the opportunity to review and comment on the Notice of Preparation (NOP) for the proposed Crows Landing Industrial Business Park Project (Project) at the western side of Stanislaus County (County). The Project site includes the former Crows Landing military facility within an approximately 1,532-acre property bounded by Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west. The Project is part of the County's plan to reuse the former military facility as an industrial site and a regional employment center with a 30-year full buildout.

Page 2 of the NOP describes Fink Road as the regional access route of the Project to and from Interstate 5. The Fink Road Bridge over the California Aqueduct, approximately half-mile away from the Project site, is owned by California Department of Water Resources (DWR). Fink Road Bridge was originally designed for California Legal Load (80,000lbs). Any future use of this bridge beyond its intended design will need to be addressed in future development of this parcel.

DWR understands that the Project has a 30-year buildout plan and that needs associated with parcel development will continue to evolve. Please provide DWR with a copy of any subsequent environmental documentations related to the Project, particularly in the traffic and circulation analysis that includes potential impact to Fink Road Bridge. Subsequent environmental documentations shall be sent to:

Leroy Ellinghouse, Chief
SWP Encroachments Section
Division of Operations and Maintenance
Department of Water Resources
1416 Ninth Street, Room 641-2
Sacramento, California 95814

If you have any questions, please contact Leroy Ellinghouse, Chief of the SWP

Encroachments Section, at (916) 659-7168 or Jonathan Canuela at (916) 653-5095.

Sincerely,

David M. Samson, Chief
State Water Project Operations Support Office
Division of Operations and Maintenance

cc: State Clearinghouse
Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, California 95814

J.B. ANDERSON
LAND USE PLANNING

139 S. Stockton Avenue, Ripon, CA 95366 Phone: (209) 599-8377 Fax (209) 599-8399

November 12, 2014

Rachel Wyse
Associate Planner
Dept. of Planning & Community Development
Stanislaus County
1010 10th Street, Suite 3400
Modesto, California 95354
Email: wyser@stancounty.com

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Proposed Crows Landing Industrial Business Park Project

Dear Ms. Wyse:

As you may be aware, my Firm is currently retained by the Del Puerto Health Care District (hereinafter referred to as the "District") to assist in various Capital Planning, Strategic Entitlement Review and Environmental Review matters concerning the District. As such, the purpose of this letter is to provide Stanislaus County comments on the above-mentioned Notice of Preparation. On behalf of the District, we are grateful to have the opportunity to provide comment on the above mentioned NOP and we offer the following constructive comments.

The District, located in the western portion of Stanislaus County, was established in 1946 to provide health care services to residents and employees living in the City of Patterson and unincorporated areas within western Stanislaus County. District services are also available to residents/patients living or working in the greater service area, including the Cities of Gustine and Newman. In its current form, the District provides acute care and routine medical services, as well as the Patterson District Ambulance. The proposed Crows Landing Industrial Business Park Project is located within the District's Service Boundary.

The District's Mission Statement is as follows; "The District's primary mission is to provide the highest quality service through Patterson Ambulance and Del Puerto Health Center, while expanding the healthcare availability to the citizens of the Del Puerto Health Care District." Because the proposed Crows Landing Industrial Business Park Project is within the District's Service Boundary, it is our goal to work with the County (and any future Project Proponent) to ensure the above Mission Statement is executed and the highest quality service to the future employees and potential future residents generated as a direct result of the Crows Landing Industrial Business Park Project.

In general, based on our review of the NOP, it is our understanding the proposed Crows Landing Industrial Business Park Project is comprised of site development over three phases of construction and will include the following:

Phase 1 *(2016-2025)*

- Revitalization of the former military runway (Runway 11-29) to a General Aviation (GA) Airport
- Promoting the reuse of the State Route (SR) 33 Corridor and Public Facility areas northeast of the proposed airport
- On and off-site infrastructure improvements, including roadway and public facility upgrades

Phase 2 *(2026-2035)*

- Development of additional facilities in SR 33 Corridor, north of the proposed GA Airport
- Additional infrastructure and roadway improvements, in support of Phase 2 development

Phase 3 *(2036-2045)*

- Development of two areas located south of the Crows Landing Airport, identified as the Fink Road Corridor and the Bell Road Corridor

It is our understanding that the County will be preparing an Environmental Impact Report (EIR), which is anticipated to consider the broad environmental effects of adoption and implementation of the Project's General Plan Amendment, Specific Plan, Airport Land Use Compatibility Plan Amendment, Rezoning, Development Agreement, and off-site project Related Improvements. As such, the purpose of this letter is to provide the County with our comments as it relates to the preparation of a Program EIR in accordance with CEQA Statutes and Guidelines. Below, under each respective topic are items which should be considered in the EIR:

Public Services:

The NOP states, *"The EIR will analyze the proposed project's potential to increase the use of or substantially degrade existing local and regional parks. It will also evaluate the proposed project's consistency with applicable adopted plans and policies for parks and open space."*

As noted previously, the proposed project is located within the boundary of the Del Puerto Health Care District. As such, the EIR should evaluate the proposed projects potential affects on the District, as well as the potential need for expansion of District services and facilities needed as either a direct or indirect result of the proposed project. The District anticipates that implementation of the proposed project will have a significant impact to the District and potentially require the need for additional medical staff, facilities and quite possible the expansion of other areas of medical service needed to allow the continued medical assistance to the residents in west Stanislaus County. The District requests that the County and the preparers of the EIR consult and coordinate with District Staff in determining such impacts and potential mitigation measures dealing with public services, and specifically, the impacts said project may have on the District's responsibility to provide medical care to residents within the District's boundary.

Traffic and Circulation:

The NOP states, *"The EIR will evaluate the proposed project's impacts on local and regional transportation facilities, including appropriate freeway segments and ramps. The evaluation will be based on a transportation analysis that will evaluate local intersections, roadway segments,*

merge/diverge/weave, project-related vehicle trips, proposed site circulation and access, local transit operations, and the surrounding roadway network. The EIR will identify triggers for transportation improvements. The traffic and circulation section also will analyze effects on public transit, as well as public transit needs and alternative modes of transportation."

As it relates to the County's Emergency Response Plan, the EIR should evaluate the potential environmental impacts to the District's ability to provide emergency response to all areas of the proposed industrial project via the regional and local circulation network. Locations of the Districts emergency medical facilities will need to be considered in exploring appropriate methods to adequately serve the proposed workforce. The PEIR should evaluate as a design possibility the opportunity to establish the expansion of the public services center on the project to include ambulance services. Evaluations of response times shall be evaluated considering the current District responsibilities and existing service level demands.

Hazards & Hazardous Materials:

The NOP states, *"The EIR will summarize the results of hazardous materials assessments performed for the former military facility and will evaluate the operational characteristics of the proposed project to determine potential impacts related to use of hazardous material and emergency response plans. The EIR will also address safety issues specifically related to the proposed general aviation airport and industrial operations. The EIR will address the potential that a significant hazard to the public may be created from proposed wastewater treatment solutions and through the transport, use, or disposal of hazardous materials, as well as reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment. Seismic hazards will be addressed as part of the geology evaluation. Flooding hazards will be addressed as part of the hydrology evaluation."*

The EIR should evaluate the potential environmental impacts for hazardous material storage, disposal or transport within the proposed project and evaluate potential significant impacts created as a result of these hazardous materials on the surrounding environment. Special equipment, training and the like will need to be evaluated as a direct result of potential hazardous materials use within the project. Fire suppression systems, roadway circulation and land use patterns may influence the impacts in this regard based on the types of hazardous materials storage.

On behalf of the Del Puerto Health Care District, thank you again for the opportunity to provide Stanislaus County with comments on the proposed Crows Landing Industrial Business Park Project Notice of Preparation. Should you have any questions, please do not hesitate to contact me at the phone number listed above.

Sincerely,

for

John B. Anderson
Principal

cc: Project File

CHIEF EXECUTIVE OFFICE

Stan Risen
Chief Executive Officer

Patricia Hill Thomas
Chief Operations Officer/
Assistant Executive Officer

Keith D. Boggs
Assistant Executive Officer

Jody Hayes
Assistant Executive Officer

1010 10th Street, Suite 6800, Modesto, CA 95354
Post Office Box 3404, Modesto, CA 95353-3404

Phone: 209.525.6333 Fax 209.544.6226

STANISLAUS COUNTY ENVIRONMENTAL REVIEW COMMITTEE

November 12, 2014

Rachel Wyse, Associate Planner
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

SUBJECT: ENVIRONMENTAL REFERRAL – NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE PROPOSED CROWS LANDING INDUSTRIAL BUSINESS PARK PROJECT (CLIBP)

Ms. Wyse:

Thank you for the opportunity to review the Notice of Preparation for the above-referenced project.

The Stanislaus County Environmental Review Committee (ERC) has reviewed the subject project and has no comments at this time.

The ERC appreciates the opportunity to comment on this project.

Sincerely,

Delilah Vasquez, Management Consultant
Environmental Review Committee

DV:ss

cc: ERC Members

Stanislaus
LAFCO
LOCAL AGENCY FORMATION COMMISSION

1010 TENTH STREET, 3RD FLOOR
MODESTO, CA 95354

PHONE: (209) 525-7660
FAX: (209) 525-7643
www.stanislauslafco.org

November 12, 2014

Rachel Wyse, Associate Planner
Stanislaus County Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

SUBJECT: COMMENTS REGARDING NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT - CROWS LANDING INDUSTRIAL BUSINESS PARK (CLIBP)

Dear Ms. Wyse:

The Stanislaus Local Agency Formation Commission (LAFCO) appreciates the opportunity to provide comments on the County's Notice of Preparation of a Draft Environmental Impact Report for the Crows Landing Industrial Business Park (CLIBP) project.

Among the purposes of LAFCO are discouraging urban sprawl, preserving open-space and prime agricultural lands, efficiently providing governmental services, and encouraging the orderly formation and development of local agencies (Government Code Section 56301). Typical applications that fall under the purview of LAFCO include annexations to cities or special districts, formation of agencies to provide service, and extensions of services outside an existing agency's boundaries.

As the CLIBP proposal is a large-scale, urban-type development, located in an unincorporated area of the County that is outside the sphere of any city or district providing sewer or water service, this presents a unique challenge in determining the most logical service provider.

The Notice of Preparation indicates that there will be backbone on- and off-site infrastructure as well as the potential for utilities to be handled on-site. The conceptual land use plan delineates a large area as an "estimated groundwater well restriction zone." More information is needed regarding the provision of sewer and water service to the project. Should sewer and water service be provided by on-site infrastructure, LAFCO approval may not be required.

However, should the CLIBP project propose formation of a new special district or expansion of an existing special district to provide these services, LAFCO approval will be necessary. LAFCO would also be considered as a Responsible Agency for the purposes of the California Environmental Quality Act (CEQA) and such actions should be fully described in the project description. As a Responsible Agency, LAFCO would have particular interest in the following topics being fully discussed in the County's environmental documentation: growth-inducing impacts, the effect of the proposal on nearby communities and special districts, direct and

indirect effects to agricultural resources, availability of water supplies, and the ability to provide services.

LAFCO Staff is available to discuss the process for any of these potential actions. If you have any questions, please contact our office at (209) 525-7660.

Sincerely,

Sara Lytle-Pinhey

Sara Lytle-Pinhey
Assistant Executive Officer

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

November 7, 2014

Rachel Wyse
Associate Planner
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, California 95354

Notice of Preparation of an Environmental Impact Report for the Proposed Crows Landing Industrial Business Park, Town of Crows Landing, Stanislaus County, Near Milepost 45.15, Delta Field Division, SCH2014102035

Dear Ms.Wyse:

Thank you for the opportunity to review and comment on the Notice of Preparation (NOP) for the proposed Crows Landing Industrial Business Park Project (Project) at the western side of Stanislaus County (County). The Project site includes the former Crows Landing military facility within an approximately 1,532-acre property bounded by Marshall Road to the north, Fink Road to the south, Bell Road to the east, and Davis Road to the west. The Project is part of the County's plan to reuse the former military facility as an industrial site and a regional employment center with a 30-year full buildout.

Page 2 of the NOP describes Fink Road as the regional access route of the Project to and from Interstate 5. The Fink Road Bridge over the California Aqueduct, approximately half-mile away from the Project site, is owned by California Department of Water Resources (DWR). Fink Road Bridge was originally designed for California Legal Load (80,000lbs). Any future use of this bridge beyond its intended design will need to be addressed in future development of this parcel.

DWR understands that the Project has a 30-year buildout plan and that needs associated with parcel development will continue to evolve. Please provide DWR with a copy of any subsequent environmental documentations related to the Project, particularly in the traffic and circulation analysis that includes potential impact to Fink Road Bridge. Subsequent environmental documentations shall be sent to:

Leroy Ellinghouse, Chief
SWP Encroachments Section
Division of Operations and Maintenance
Department of Water Resources
1416 Ninth Street, Room 641-2
Sacramento, California 95814

If you have any questions, please contact Leroy Ellinghouse, Chief of the SWP

Encroachments Section, at (916) 659-7168 or Jonathan Canuela at (916) 653-5095.

Sincerely,

David M. Samson, Chief
State Water Project Operations Support Office
Division of Operations and Maintenance

cc: State Clearinghouse
Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, California 95814

6 November 2014

Keith Boggs
Stanislaus County
1010 10th Street, Sixth Floor
Modesto, CA 95354

CERTIFIED MAIL
7014 1200 0000 7154 3441

COMMENTS TO NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, CROWS LANDING INDUSTRIAL BUSINESS PARK PROJECT, SCH# 2014102035, STANISLAUS COUNTY

Pursuant to the State Clearinghouse's 13 October 2014 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Notice of Preparation for the Draft Environment Impact Report* for the Crows Landing Industrial Business Park Project, located in Stanislaus County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP).

For more information on the Construction General Permit, visit the State Water Resources Control Board website at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml.

Phase I and II Municipal Separate Storm Sewer System (MS4) Permits[1]

The Phase I and II MS4 permits require the Permittees reduce pollutants and runoff flows from new development and redevelopment using Best Management Practices (BMPs) to the maximum extent practicable (MEP). MS4 Permittees have their own development standards, also known as Low Impact Development (LID)/post-construction standards that include a hydromodification component. The MS4 permits also require specific design concepts for LID/post-construction BMPs in the early stages of a project during the entitlement and CEQA process and the development plan review process.

For more information on which Phase I MS4 Permit this project applies to, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/municipal_permits/.

For more information on the Phase II MS4 permit and who it applies to, visit the State Water Resources Control Board at:
http://www.waterboards.ca.gov/water_issues/programs/stormwater/phase_ii_municipal.shtml

Industrial Storm Water General Permit

Storm water discharges associated with industrial sites must comply with the regulations contained in the Industrial Storm Water General Permit Order No. 97-03-DWQ.

For more information on the Industrial Storm Water General Permit, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/index.shtml.

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACOE). If a Section 404 permit is required by the USACOE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements.

If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACOE at (916) 557-5250.

[1] Municipal Permits = The Phase I Municipal Separate Storm Water System (MS4) Permit covers medium sized Municipalities (serving between 100,000 and 250,000 people) and large sized municipalities (serving over 250,000 people). The Phase II MS4 provides coverage for small municipalities, including non-traditional Small MS4s, which include military bases, public campuses, prisons and hospitals.

Clean Water Act Section 401 Permit – Water Quality Certification
If an USACOE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications.

Waste Discharge Requirements
If USACOE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project will require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation.

For more information on the Water Quality Certification and WDR processes, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/help/business_help/permit2.shtml.

Regulatory Compliance for Commercially Irrigated Agriculture
If the property will be used for commercial irrigated agricultural, the discharger will be required to obtain regulatory coverage under the Irrigated Lands Regulatory Program.
There are two options to comply:

1. **Obtain Coverage Under a Coalition Group.** Join the local Coalition Group that supports land owners with the implementation of the Irrigated Lands Regulatory Program. The Coalition Group conducts water quality monitoring and reporting to the Central Valley Water Board on behalf of its growers. The Coalition Groups charge an annual membership fee, which varies by Coalition Group. To find the Coalition Group in your area, visit the Central Valley Water Board's website at: http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/app_approval/index.shtml; or contact water board staff at (916) 464-4611 or via email at IrrLands@waterboards.ca.gov.

2. **Obtain Coverage Under the General Waste Discharge Requirements for Individual Growers, General Order R5-2013-0100**. Dischargers not participating in a third-party group (Coalition) are regulated individually. Depending on the specific site conditions, growers may be required to monitor runoff from their property, install monitoring wells, and submit a notice of intent, farm plan, and other action plans regarding their actions to comply with their General Order. Yearly costs would include State administrative fees (for example, annual fees for farm sizes from 10-100 acres are currently $1,084 + $6.70/Acre); the cost to prepare annual monitoring reports; and water quality monitoring costs. To enroll as an Individual Discharger under the Irrigated Lands Regulatory

Program, call the Central Valley Water Board phone line at (916) 464-4611 or e-mail board staff at IrrLands@waterboards.ca.gov.

Low or Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Dewatering and Other Low Threat Discharges to Surface Waters* (Low Threat General Order) or the General Order for *Limited Threat Discharges of Treated/Untreated Groundwater from Cleanup Sites, Wastewater from Superchlorination Projects, and Other Limited Threat Wastewaters to Surface Water* (Limited Threat General Order). A complete application must be submitted to the Central Valley Water Board to obtain coverage under these General NPDES permits.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0074.pdf

For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2013-0073.pdf

If you have questions regarding these comments, please contact me at (916) 464-4684 or tcleak@waterboards.ca.gov.

Trevor Cleak
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

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October 27, 2014

Stanislaus County Planning & Community Development
Attn: Rachel Wyse
1010 10th Street, Suite 3400
Modesto, CA 95354

RE: Crows Landing Industrial Business Park- Notice of Preparation of DEIR

Dear Ms. Wyse:

The Turlock Irrigation District (District) acknowledges the opportunity to review and comment on the referenced project. District standards require development occurring within the District's boundary that impacts irrigation and electric facilities, to meet the District's requirements.

The District has no comments concerning irrigation facilities on the above referenced project as it is outside our irrigation service area boundary.

The footprint of the project is entirely within the electric service territory of the District. Thus, the District must be involved in the planning process so that we can provide electricity for the project.

The electrical demand of a development of this size greatly exceeds the capacity of the existing electrical infrastructure in the area. As the project develops, TID will expand its electrical system to deliver electrical power to the end use customers. All electrical system expansion must be in compliance with the TID Electric Service Rules, which define the customer financial and physical prerequisites for District electric service.

If you have any questions concerning irrigation system requirements, please contact me at (209) 883-8367. Questions regarding electric utility requirements should be directed to Manjot (Joe) Gill (209) 883 8241.

Sincerely,

Todd Troglin
Supervising Engineering Technician, Civil
CF: 2014042

Rachel Wyse - NOP for Crows Landing Business Park EIR

From: Ron West <ronwest.associates@gmail.com>
To: <boggsk@stancounty.com>
Date: 11/13/2014 10:09 AM
Subject: NOP for Crows Landing Business Park EIR

Keith;
In response to the Draft EIR for a proposed Crows Landing Air Base Business park, I am totally opposed to that use, and hope that any public money you spend on an EIR, also study the implications of a far more imaginative and financially logical use for the site.

The temptation to copy our industrial park success in Patterson is great, but the Air Base - several windy miles from the freeway - is appropriate for a much more imaginative, destination type use. A use like a multi-activity entertainment center, with a vehicle racing of every type, air shows, concerts, events, festivals, fireman musters, etc. etc. Those uses would provide public services, jobs, tax money, and small business opportunities huge warehouses don't provide. So, I am opposed to the use, and suggest NOT taking the "easiest" path to just do something with the site. Let the economy, and new westside growth, spark some better uses.

Meanwhile, don't waste all this EIR money on the industrial park idea, but look ahead at versions of the same impacts and mitigation measures if a future public use/destination development were proposed. Thank you.

Ron West & Associates
(209) 985-8895

Rachel Wyse - Re: NOP for Crows Landing Business Park EIR

From: Keith Boggs
To: West, Ron
Date: 11/13/2014 11:00 AM
Subject: Re: NOP for Crows Landing Business Park EIR

Thank you for the input Ron - I appreciate you.
As you know, the site is cleaned to an industrial standard and the airport component is part of the transfer agreement.
We have purposefully left complete flexibility for the economy to react NOT parcelizing the property and providing for a very nimble approach.
If entertainment uses present themselves - we have the flexibility to accomodate.
However, we cannot ignore the historical absorbtion trends in the area.
I think we are on the same page.
kdb

>>> Ron West <ronwest.associates@gmail.com> 11/13/2014 10:08 AM >>>
Keith;
In response to the Draft EIR for a proposed Crows Landing Air Base Business park, I am totally opposed to that use, and hope that any public money you spend on an EIR, also study the implications of a far more imaginative and financially logical use for the site.

The temptation to copy our industrial park success in Patterson is great, but the Air Base - several windy miles from the freeway - is appropriate for a much more imaginative, destination type use. A use like a multi-activity entertainment center, with a vehicle racing of every type, air shows, concerts, events, festivals, fireman musters, etc. etc. Those uses would provide public services, jobs, tax money, and small business opportunities huge warehouses don't provide. So, I am opposed to the use, and suggest NOT taking the "easiest" path to just do something with the site. Let the economy, and new westside growth, spark some better uses.

Meanwhile, don't waste all this EIR money on the industrial park idea, but look ahead at versions of the same impacts and mitigation measures if a future public use/destination development were proposed. Thank you.

Ron West & Associates
(209) 985-8895

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

HEALTHY AIR LIVING™

November 13, 2014

Rachel Wyse
County of Stanislaus
Planning & Community Development
1010 10th Street, Suite 3400
Modesto, CA 95354

Project: Crows Landing Industrial Business Park Project - SCH # 201402035

District CEQA Reference No: 20140822

Dear Ms. Wyse:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Crows Landing Industrial Business Park (CLIBP) Project EIR and the *Specific Plan*. The proposed CLIBP is a new project that is being proposed by Stanislaus County. Two previous projects have been proposed on the project site: the "West Park Specific Plan" (2008) and the "West Park Logistics Center" (2011). Both projects were proposed by private entities, and neither is active.

The proposed project includes the adoption of a *Specific Plan* and zoning change to support the reuse of the ~1,532 acre site of the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility and development of the CLIBP in western Stanislaus County. (APNs: 027-003-074 to -080; 027-001-057 and 027-001-058) CLIBP development would include infrastructure and roadway improvements, the development of a general aviation airport on the former military runway, and amendments to the Stanislaus County Airport Land Use Compatibility Plan (ALUCP). All of these proposed actions are collectively referred to as the "proposed project." The County anticipates that development of the CLIBP would require more than 30 years to reach full buildout. Therefore, the CLIBP does not offer specific parcels for development but areas that can be sized based on the individual needs of site tenants and developers.

The proposed *Specific Plan*, which will be appended to the EIR, will provide objectives, goals and policies for the site. The *Specific Plan* would allow proposed tenants to develop parcels that are suitable for their needs.

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: 661-392-5500 FAX: 661-392-5585

www.valleyair.org www.healthyairliving.com

The District offers the following comments for the proposed CLIBP EIR and the *Specific Plan*:

Emissions Analysis

1) The District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and nonattainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 air quality standards. The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:

   a) **Criteria Pollutants (EIR & *Specific Plan*):** Project related criteria pollutant emissions should be identified and quantified. The discussion should include existing and post-project emissions.

      i) Construction Emissions: Construction emissions are short-term emissions and should be evaluated separate from operational emissions. The District recommends preparation of an Environmental Impact Report (EIR) if annual construction emissions cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).

         - *Recommended Mitigation:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.

         - *Recommended Mitigation:* Project related impacts on air quality can be reduced through incorporation of design elements, for example, that increase energy efficiency, reduce vehicle miles traveled, and reduce construction exhaust related emissions. However, design elements and compliance with District rules and regulations may not be sufficient to reduce project related impacts on air quality to a less than significant level. Another example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). The VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to

meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District Staff at (559) 230-6000.

ii) Operational Emissions: Operational Emissions: Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. The District recommends preparation of an Environmental Impact Report (EIR) if the sum of annual permitted and the sum of the annual non-permitted emissions each cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).

- *Recommended Mitigation:* Project related impacts on air quality can be reduced through incorporation of design elements, for example, that increase energy efficiency, reduce vehicle miles traveled, and reduce construction exhaust related emissions. However, design elements and compliance with District rules and regulations may not be sufficient to reduce project related impacts on air quality to a less than significant level. Another example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). The VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District Staff at (559) 230-6000.

iii) Recommended Model: Project related criteria pollutant emissions should be identified and quantified. Emissions analysis should be performed using CalEEMod (**Cal**ifornia **E**mission **E**stimator **Mod**el), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: www.caleemod.com.

b) **Nuisance Odors (EIR & *Specific Plan*):** The project should be evaluated to determine the likelihood that the project would result in nuisance odors. Nuisance orders are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.

c) **Health Impacts (EIR):** Toxic air contaminants (TACs) are defined as air pollutants that may cause or contribute to an increase in exposure to the surrounding public. The most common source of TACs can be attributed to

diesel exhaust that is emitted from both stationary and mobile sources. A health impact assessment may require a screening or even a refined health risk assessment (HRA).

i) The location of development projects is a major factor in determining whether they will result in localized air quality impacts. The potential for adverse air quality impacts increase as the distance between the source of emissions and receptors decrease. From a health risk perspective, there are two types of land use projects that have the potential to cause long-term public health risk impacts: 1) those that locate new toxic sources in the vicinity of existing receptors and 2) those that locate new receptors in the vicinity of existing toxics sources.

   Accurate quantification of health risks and operational emissions requires detailed site specific information, e.g. type of emission source, proximity of the source to receptors, and trip generation information. The required level of detail is typically not available until project specific approvals are being granted. Therefore, the District recommends that potential health risks be further reviewed when approving future projects. This recommendation includes projects that would otherwise appear to be exempt from CEQA requirements, such as projects that could be categorically exempt or allowed land uses under current zoning.

ii) Various tools exist to perform a screening assessment for emissions from new stationary sources, such as prioritization charts, SCREEN3, and various spreadsheets available from the District's website. For projects being impacted by existing emission sources, one screening tool is contained in the ARB Handbook: *Air Quality and Land Use Handbook: A Community Health Perspective.* The document includes a table with recommended buffer distances associated with various types of common sources. The ARB handbook can found on the ARB's website at: http://www.arb.ca.gov/ch/landuse.htm.

   Prior to conducting and HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct a refined assessment. A prioritization is a screening assessment used to identify projects that may have a potential to significantly impact the public. If the project has a prioritization score of 10 or more, the project would exceed the District's significance threshold and a refined HRA should be performed.

   If a refined HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts would exceed the District's significance threshold which is currently, but may be subject to change, 10 in a million for cancer and 1.0 for Acute and Chronic Hazard Indices.

More information on TACs, prioritizations and HRAs can be obtained by:
- E-mailing inquiries to: hramodeler@valleyair.org; or
- Visiting the District's website at: http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm.

d) **Health Impacts (*Specific Plan*):** Project related health impacts should be evaluated to determine if emissions of toxic air contaminants (TACs) will pose a significant health risk to sensitive receptors. TACs are defined as air pollutants that may cause or contribute to an increase in risk exposure to the surrounding public. The most common source of TACs can be attributed to diesel exhaust that is emitted from both stationary and mobile sources. A health impact assessment may require a screening or even a refined health risk assessment (HRA).

Prior to conducting an HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct a refined assessment. A prioritization is a screening assessment used to identify projects that may have a potential to significantly impact the public. If the project has a prioritization score of 10 or more, the project would exceed the District's significance threshold and a refined HRA should be performed.

If a refined HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts would exceed the District's significance threshold which is currently, but may be subject to change, 10 in a million for cancer and 1.0 for Acute and Chronic Hazard Indices.

More information on TACs, prioritizations and HRAs can be obtained by:
- E-mailing inquiries to: hramodeler@valleyair.org; or
- Visiting the District's website at: http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm

2) In addition to the discussions on potential impacts identified above, the District recommends the EIR also include the following discussions:

a) **Methodologies and Assumptions (EIR & *Specific Plan*):** A discussion of the methodology, model assumptions, inputs and results used in characterizing the project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all the files used to develop the modeling outputs.

b) **Project Phasing (EIR & *Specific Plan):*** A discussion of the components and phases of the project and the associated emission projections, including ongoing emissions from each previous phase.

c) **Design Elements and Mitigation (EIR):** A discussion of project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the project.

i) The following policies/mitigation measures are recommended to reduce or mitigate impacts from criteria pollutant emissions:

- Use of off-road construction fleets that can achieve fleet average emissions equal to or less than the Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. The District recommends incorporating, as a condition of project approval, a requirement that off-road construction equipment used on site achieve fleet average emissions equal to or less than the Tier II emissions standard of 4.8 NOx g/hp-hr. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.

- For projects exceeding the applicability thresholds identified in Section 2.0 of District Rule 9510, a condition of project approval requiring demonstration of compliance with Rule 9510, prior to the issuance of grading and/or building permits.

- Air quality impacts from projects exceeding the District's thresholds of significance for criteria pollutants after the implementation of mitigation measures can be mitigated to less than significant through payment of funds into an emissions reduction program. The District recommends incorporating, as a condition of project approval, demonstration of participation in a Voluntary Emission Reduction Agreement (VERA) with the District prior to the issuance of grading and/or building permits. More information regarding participation in a VERA can be obtained by calling (559) 230-6000 and asking to speak to a District CEQA staff member.

- For projects subject to District permitting requirements, demonstration of compliance with District Rule 2201, such as a copy of the Authority to Construct (ATC), before issuance of the first building permit, be made a condition of project approval.

ii) The following policies/mitigation measures are recommended to mitigate potential health impacts of individual projects:

- Development projects resulting in toxic air contaminant emissions will be located an adequate distance from residential areas and other receptors in

accordance to ARB's *Air Quality and Land Use Handbook: A Community Health Perspective.*

- A health assessment will be performed to assess potential risk to receptors for the following projects:
  - Projects whose proposed locations are within the established buffer distances identified in ARB's handbook;
  - Projects whose land uses are not specifically identified in ARB's handbook (such as shopping centers), but there is sufficient information to reasonably conclude that receptors would be exposed to significant sources of toxic air contaminants; and
  - Projects that would otherwise appear to be exempt from CEQA requirements, but there is sufficient information to reasonably conclude that receptors would be exposed to significant sources of toxic air contaminants, such as industrial use projects allowed by right.

d) **Design Elements and Mitigation *(Specific Plan):*** A discussion of project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the project.

e) **Cumulative Impacts (EIR & *Specific Plan):*** A discussion of whether the project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at: http://valleyair.org/aqinfo/attainment.htm.

District Rules and Regulations

3) **Rule 9510 (Indirect Source Review) *(Specific Plan):*** Individual development projects would be subject to District Rule 9510 (Indirect Source Review) if upon full build-out the project would include or exceed any one of the following:

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

District Rule 9510 is intended to mitigate a project's impact on air quality through project design elements or by payments of applicable off-site mitigation fees. Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final

discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first grading / building permit, whichever comes first.

The District recommends that a mitigation measure be included that requires, for any project within the scope of this EIR subject to Rule 9510, demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first grading / building permit, whichever comes first, be made a condition of project approval.

District ISR staff is available to meet with the Lead Agency or project proponent(s) to further discuss the requirements of Rule 9510 for individual development projects. More information on District Rule 9510 can be obtained by:

- Calling the District's ISR staff at (559) 230-6000;
- E-mailing inquiries to: ISR@valleyair.org; or
- Visiting the District's website at: http://www.valleyair.org/ISR/ISRHome.htm.

4) **Rule 4692 (Commercial Charbroiling) *(Specific Plan):*** Particulate matter 2.5 microns or less in size (PM2.5) from under-fired charbroilers (UFCs) pose immediate health risk. Since the cooking of meat can release carcinogenic PM2.5 species like polycyclic aromatic hydrocarbons (PAH), controlling emissions from under-fired charbroilers will have a substantial positive impact on public health.

Charbroiling emissions occur in populated areas, near schools and residential neighborhoods, resulting in high exposure levels for sensitive Valley residents. The air quality impacts on neighborhoods near restaurants with UFCs can be significant on days when meteorological conditions are stable, when dispersion is limited and emissions are trapped near the surface within the surrounding neighborhoods. This potential for neighborhood-level concentration of emissions during evening or multi-day stagnation events raises environmental concerns.

In addition, the cooking emissions source category is one of the largest single contributors of directly emitted PM2.5 in the Valley. Photochemical modeling conducted for the 2012 PM2.5 Plan showed that reducing commercial charbroiling emissions is critical to achieving PM2.5 attainment in the Valley.

The District will amend Rule 4692 (Commercial Charbroiling) in 2016, with a 2017 compliance date, to add emission control requirements for UFCs, as committed to in the District's 2012 PM2.5 Plan. Installing charbroiler emissions control systems during construction of new facilities is likely to result in substantial economic benefit compared to costly retrofitting.

Therefore, the District strongly recommends that your agency require new restaurants that will operate UFCs to install emission control systems during the construction phase. To ease the financial burden for Valley businesses that wish to install control equipment before it is required, the District will offer incentive funding during the time leading up to the 2016 amendment. Restaurants with UFCs may be

eligible to apply for funding to add emission control systems. Please contact the District at (559) 230-5858 for more information.

5) Individual development projects may also be subject to District regulations including, but not limited to: Regulation VIII (Fugitive PM10 Prohibitions), District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 4002 (National Emission Standards for Hazardous Air Pollutants), Rule 4102 (Nuisance), Rule 4601 (Architectural Coatings), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). To avoid potential delays in project development, the District strongly encourages project proponents contact the District's Small Business Assistance (SBA) Office early in the planning phase to discuss whether an Authority to Construct (ATC) and Permit to Operate (PTO) are required, and to identify other District rules or regulations that apply to their project.

   The above list of rules is neither exhaustive or exclusive. For further information or assistance, the project proponent(s) may contact the District's Small Business Assistance (SBA) Office at (209) 557-6446. Current District rules can be found online at the District's website at: www.valleyair.org/rules/1ruleslist.htm.

The District recommends that a copy of the District's comments be provided to the project proponent. If you have any questions or require further information, please call Georgia Stewart at (559) 230-5937.

Sincerely,

Arnaud Marjollet
Director of Permit Services

Georgia Stewart

For: Chay Thao
Program Manager

AM: gs

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

October 20, 2014

Regulatory Division SPK-2014-00967

Rachel Wyse
Stanislaus County Planning and Community Development
1010 10th Street, Suite 3400
Modesto, California 95354-0868

Dear Ms. Wyse:

We are responding to your October 13, 2014 request for comments on the Crows Landing Industrial Business Park project. The project is located within the boundaries of the former National Aeronautics and Space Administration (NASA) Crows Landing Air Facility, in Section 17, Township 6 S, Range 8 E, Mount Diablo Meridian, Latitude 37.412109°, Longitude -121.107887°, Stanislaus County, California.

The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States, including Little Salado Creek. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

To ascertain the extent of waters on the project site, Stanislaus County should prepare a wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetlands Delineations" and "Final Map and Drawing Standards for the South Pacific Division Regulatory Program" under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents are also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.

Please refer to identification number SPK-2014-00967 in any correspondence concerning this project. If you have any questions, please contact Lee Ann Bowers by email at *Lee.A.Bowers@usace.army.mil*, or telephone at 916-557-5254. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx.*

Sincerely,

Kathleen A. Dadey, PhD
Chief, California South Branch
Regulatory Division

APPENDIX B

ALP and Narrative Report

DRAFT

Airport Layout Plan
Narrative Report

CROWS LANDING
AIRPORT

Stanislaus County

February 2017

Crows Landing Airport Layout Plan
Narrative Report

February 2017

Prepared for

Stanislaus County
Department of Planning and
Community Development
1010 10th Street, Suite 6800
Modesto, CA 95354

Prepared by

Mead & Hunt, Inc.

Table of Contents

CHAPTER 1
INTRODUCTION

1

INTRODUCTION

The County of Stanislaus proposes to reuse a portion of the former Crows Landing Naval Air Facility as a public-use, general aviation (GA) airport and an amenity to the Crows Landing Industrial Business Park (CLIBP). The purpose of this *Airport Layout Plan (ALP) Narrative Report* is to facilitate the development and opening of the new Crows Landing Airport. The ALP Narrative Report focuses on the immediate needs associated with opening a GA facility and documents the County's short-term and long-range development goals. Certain items, such as detailed land use plans, financial plans, management, and fixed-base operation arrangements are not specifically addressed in this report; these specific items will be studied as needs arise and budgets permit.

Crows Landing Airport is located in the northwestern portion of the San Joaquin Valley in Stanislaus County, California. The airport is less than 1 mile east of Interstate 5 and the Fink Road interchange, which provides regional highway connections to both Sacramento and the San Francisco Bay Area. The airport is situated 1.6 miles west of the community of Crows Landing, 4 miles south of the community of Patterson, and 80 miles southeast of the City of San Francisco (see the location map in **Figure 1A**).

Throughout this report, figures and tables are located at the end of their respective chapter.

BACKGROUND

The former Crows Landing Naval Auxiliary Landing Field was commissioned in 1943 to serve as a training field during World War II. The facility was reduced to caretaker status following World War II until the early 1950s, when it was used for fleet carrier landing practice during the Korean War. Throughout the 1970s and 1980s, the facility was used for practice operations by the Navy, Air Force, Army, and Coast Guard. The National Aeronautics and Space Administration (NASA) Ames Research Center, located at Moffett Field, took over operation of the facility in 1994 and ceased operations in 1997, when they proposed to declare the base as excess. Congress passed H.R. 356 in 1999, which states that, "as soon as practicable, the Administrator

of NASA shall convey to Stanislaus County, California, all right, title, and interest of the United States in and to the former Crows Landing Air Facility."

Since the decommissioning of the facility by NASA in the late 1990s, the Stanislaus County Board of Supervisors has pursued and studied reuse opportunities for the site. In April 2001, the Board adopted a reuse plan that would designate a portion of the property for use as a GA airport and develop other areas of the property to help offset the jobs-to-housing imbalance that has historically persisted in Stanislaus County. On October 12, 2004, the Stanislaus County Board of Supervisors accepted the conveyance of land pursuant to Public Law 106-82. The County envisioned optimizing the site's opportunities for economic development by creating a regional job center while maintaining an aviation use.

Conceptual Design

In 2006, the County developed and evaluated three land use scenarios, or concepts, to support the development of the Crows Landing Airport. The three concepts were designed to determine the extent to which the existing aviation facilities and infrastructure could be reused and integrated with new aviation-compatible uses on the remaining property:

- Concept 1: Maintain and build upon the existing intersecting runway configuration;
- Concept 2: Maintain and protect for ultimate build-out aviation facilities based upon the north/south runway (Runway 16-34); and
- Concept 3: Maintain and protect for ultimate build-out of aviation facilities based upon the northwest/southeast runway (Runway 11-29).

In September 2006, the County Board of Supervisors approved Concept 3 for the Crows Landing Airport and authorized staff to seek a long-term development partner to assist in the finance, design, build, and operation of aviation-compatible land uses in the form of an industrial business park on the site of the former Crows Landing Air Facility (Action Item No. 2006-776). **Figure 1B** depicts the former Crows Landing Air Facility property and the location of the Crows Landing Airport as envisioned by Concept 3.

Since 2007, the County has worked closely with area residents, members of the business community, and regulatory agencies to envision a GA airport that would meet the needs of the aviation community and complement the development of a regional employment center on the former military facility. A draft Airport Layout Plan (ALP) was developed and presented to the public during various community meetings from 2008 to 2014. Since then, the ALP has been modified to reflect suggestions offered by various stakeholders and to reflect changes in regional and national economic conditions. The proposed design, as described below, continues to reflect the reuse concept approved by the Board of Supervisors in 2006.

Airport Layout Plan

The purpose of this ALP report is to describe the requirements for the overall design of the Crows Landing Airport and present a recommended ALP drawing. The primary objective of this ALP is to document the extent, type, and approximate schedule of development needed to accommodate the opening of, and future aviation demand for, the Crows Landing Airport. The ALP will serve three major functions:

- The ALP will document existing aviation facilities at the former military facility and generally describe future development plans for the airport. This information will assist the County of Stanislaus, as the airport operator, in obtaining required approvals from various reviewing agencies, including the California Department of Transportation's Division of Aeronautics and the Stanislaus County Airport Land Use Commission. The ALP will also serve as the basis for subsequent Federal Aviation Administration (FAA) review, approval, and funding.
- The ALP will help the County make decisions on how best to operate and develop the airport to meet future demand.
- The ALP will serve as a basis for amending the Stanislaus County Airport Land Use Compatibility Plan (ALUCP) to include the Crows Landing Airport and its anticipated use as a GA facility.

This ALP report is organized into four chapters. Subsequent chapters provide the following information:

- **Chapter 2** presents aircraft activity forecasts for the proposed stages of airport development. The forecasts generally identify the fleet mix, number of based aircraft, and number of annual aircraft operations that would be accommodated under each stage of development. The forecasts are used to develop building area concepts and aircraft noise contours for the airport.
- **Chapter 3** describes three potential airfield and building area development plans for the airport: during its first 30 years of operation and beyond. The assumed facilities, services, and capabilities that would be associated with the airport at various milestones following its opening as a public-use GA facility are identified. Costs estimates for the various stages of development and for individual projects are also presented.
- **Chapter 4** presents the conceptual designs for the proposed Crows Landing Airport including the ALP drawing, an airspace plan drawing reflecting the ultimate runway configuration for the airport, and existing and ultimate aircraft noise contours. The ALP approval process is also described.

Appendices are included to present supporting materials, including a glossary of terms, a copy of the completed FAA ALP checklist, and a synopsis of the *Aircraft Owner Survey* completed in January 2006 for the proposed Crows Landing Airport. The report concludes with a complete set of ALP drawings.

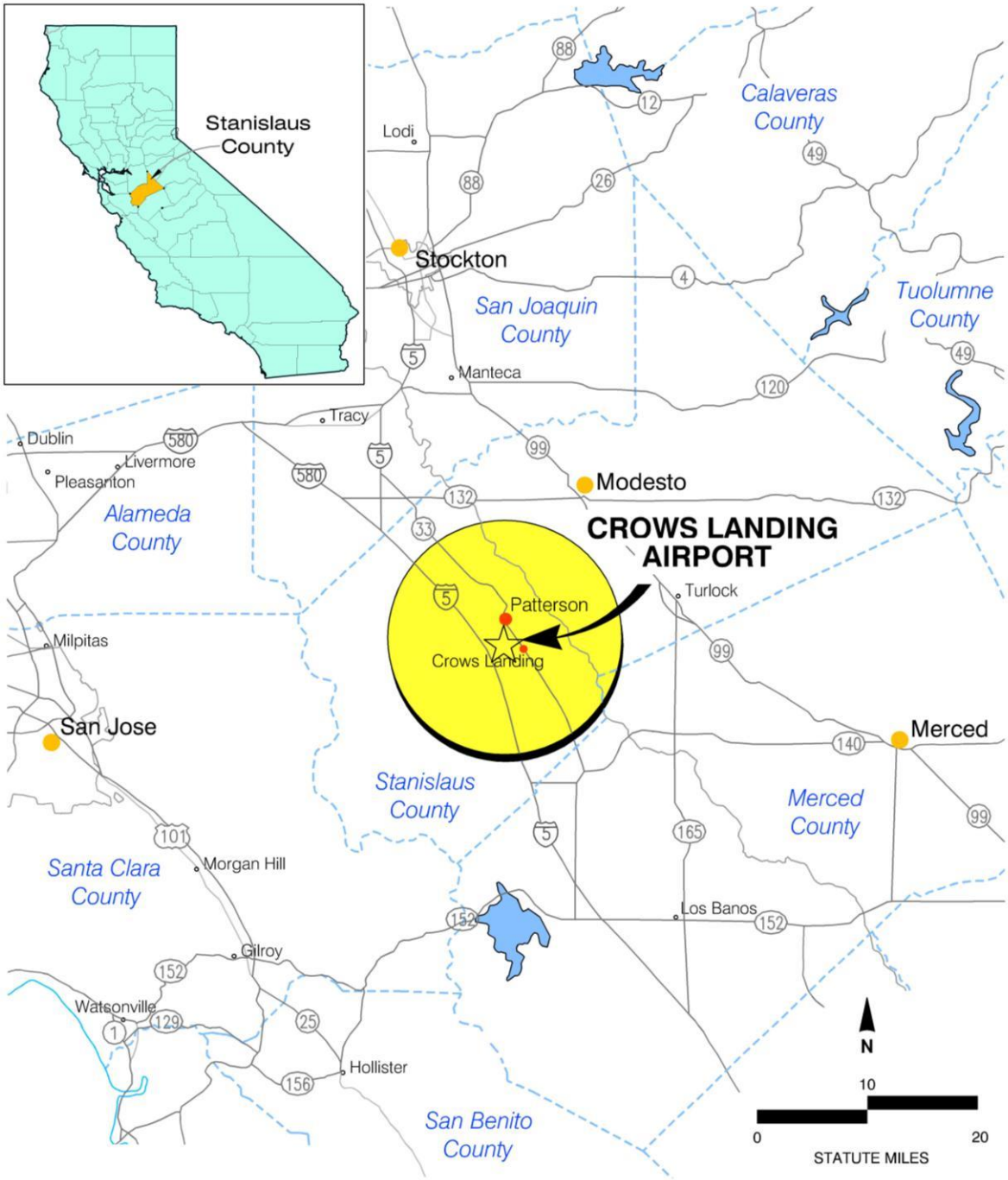


Figure 1A. Location Map

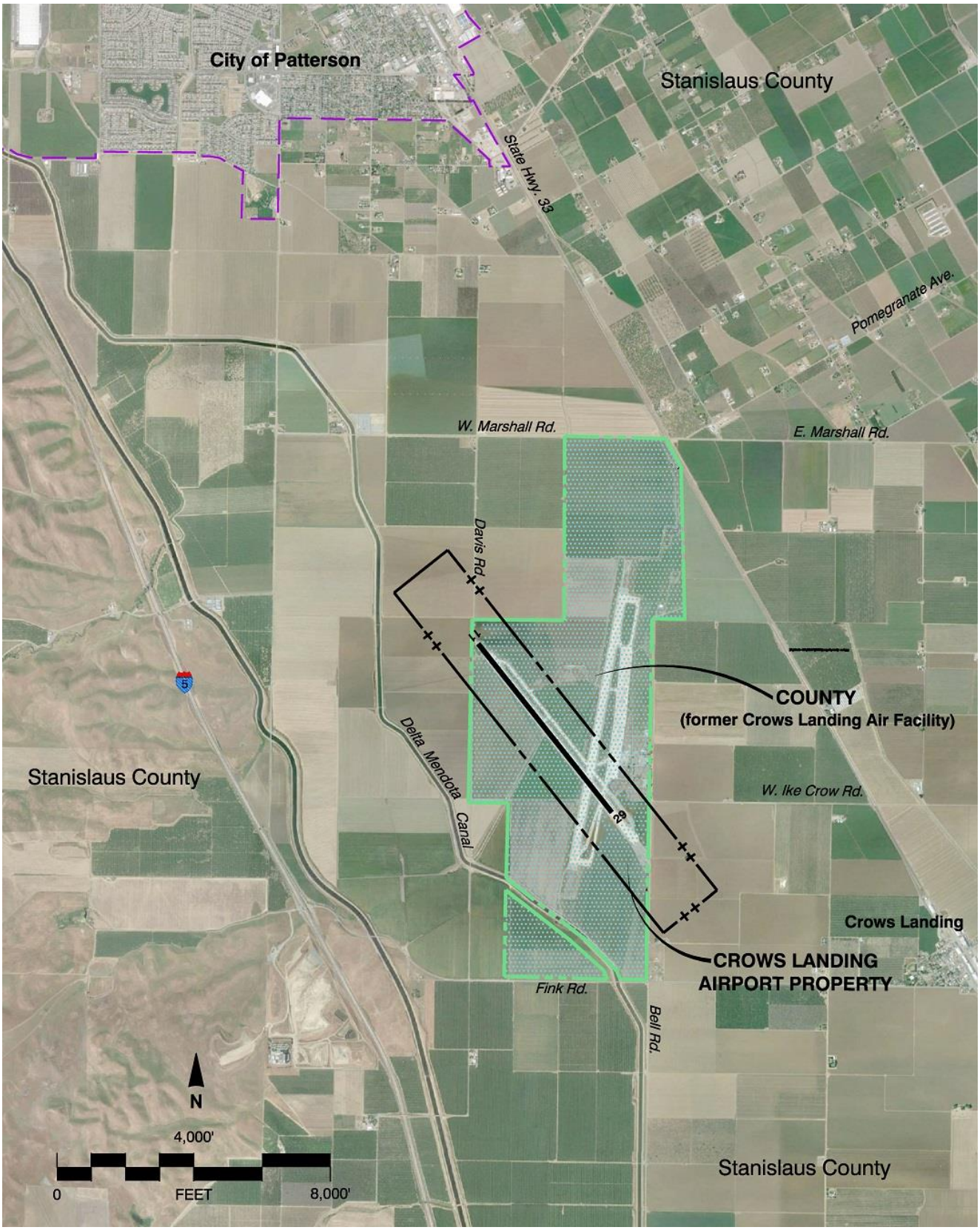


Figure 1B. Airport and Property Boundaries

CHAPTER 2

AIRPORT ROLE AND ACTIVITY FORECASTS

2 AIRPORT ROLE AND ACTIVITY FORECASTS

INTRODUCTION

Stanislaus County has designated the former Crows Landing Naval Air Facility as the Crows Landing Industrial Business Park (CLIBP). The County will develop a 370-acre portion of the 1,528-acre CLIBP as a general aviation (GA) airport. The primary market the County desires to serve is personal/recreational and business/corporate aircraft, while retaining the flexibility to accommodate commercial air cargo should demand warrant it in the future.

The aircraft activity forecasts developed for this ALP emphasize the airport's role as a public-use GA facility and its anticipated use by business aircraft associated with the adjacent industrial and business park. To provide operational flexibility, the proposed Crows Landing Airport would be sufficiently sized and equipped to readily accommodate small- to medium-sized air cargo/air freight feeder aircraft (e.g., Cessna Caravans, Beech 99s, Lear Jets, retrofitted twin-turboprop commuter aircraft, etc.). The airport's use by large air cargo aircraft is neither envisioned nor considered in this ALP report. **Figure 2A** presents the type of aircraft that would use the proposed Crows Landing Airport.

Forecasts of aeronautical activity at an airport are an essential component for both facility planning and environmental impact assessment. The two key forecast elements are based aircraft and annual airport operations (i.e., landings and takeoffs). The forecast of annual operations includes both local and itinerant operations. Local operations are those that remain in the immediate vicinity of the airport; such as flight training operations. Itinerant operations refer to departures that leave the airport vicinity or arrivals from outside the airport vicinity.

METHODOLOGY

The projection of historical trends is the most common method of forecasting activity at GA airports. Because the proposed Crows Landing Airport does not have an operating history as a public-use, general aviation airport, alternative methods have been employed to forecast aircraft operations. The FAA's *Aerospace Forecast* was used to define broad trends in regional and national general aviation activity. However, the FAA's forecast is of limited utility in a quantitative sense. Growth in aviation activity at the proposed Crows Landing Airport will be driven by the unique features of its location and the overall success of the CLIBP, which will includes logistics, light industrial, and business park uses.

The relocation of aircraft from other airports will be the primary source of based aircraft growth in the early years; the initial forecasts have been developed by drawing inferences from experience with recent hangar development projects and historical examples of airport development at other airports (e.g., Contra Costa County's Byron Airport). Longer-term forecasts were principally shaped by assumptions about the nature of the adjacent industrial development and long-term regional and national general aviation growth factors.

Each forecast that follows is defined by the mix of facilities and services that would be available at each stage of development. These features are presented in greater detail in Chapter 3. Although these forecasts are tied to each stage of development described throughout this report (e.g., At Opening, Short-term, and Long Range. , it is more appropriate to think of these forecasts as linked to the specific facilities and services listed for each phase of airport development. The text that follows describes the factors used to shape the forecasts. The subsequent section presents the development scenarios and their associated forecasts. The activity forecasts are summarized in Table 2-1.

Based Aircraft

Growth in based aircraft will be determined initially by the number of aircraft that relocate from nearby airports. Experience has shown that people are generally willing to drive up to 30 minutes from their home or office to the airport where their aircraft are based. Specific circumstances can result in a willingness to drive longer distances, including:

- The absence of a suitable airport within a 30-minute drive,
- The absence of critical facilities or services at nearer airports (e.g., runway lights, instrument approach procedure, hangars, or Jet A fuel),
- Superior weather conditions,
- Closure of nearby airports (e.g., Patterson Airport and Turlock Air Park), and
- Significantly lower costs for fuel, hangars, etc.

The community nearest to Crows Landing Airport is the City of Patterson. Patterson is located approximately 4 miles north of Crows Landing Airport. The City's GA Airport closed in recent years the property has been designated for other uses. Several larger communities are within 30 minutes driving time of the airfield including: Tracy, Modesto and Merced. Based upon the most recent Airport Master Records for airports in the area (i.e., Tracy, New Jerusalem, Modesto, Turlock, Merced, Castle, Gustine, and Los Banos), about 579 aircraft are based at airports in the region surrounding Crows Landing Airport. Aircraft owners in those communities will likely consider moving to Crows Landing Airport if the quality and price of facilities and services provided are significantly superior to those offered at their current location or similar services are not available at their current location. Table 2-2 presents the facilities currently available at these nearby airports. The superiority of the facilities and services at Crows Landing Airport must outweigh the cost and inconvenience of driving to the airport. Therefore, the forecasts include explicit assumptions on the facilities and services that will be available at each stage of development. The forecasts also assume that the County will offer competitive prices for facilities and services provided at the Crows Landing Airport.

The January 2006, the County invited aircraft owners in the region surrounding the former Crows Landing Air Facility to participate in a survey (Aircraft Owner Survey). A summary of the completed survey is provided in Appendix C. Of the 55 responses received, 37 indicated a moderate to high level of interest in relocating to Crows Landing Airport. As could be expected, the interest in relocating to Crows Landing Airport was linked to the availability of facilities:

- 78% indicated that availability of self-serve general aviation gas was very important
- 73% indicated that availability of T-hangars was very important
- 62% indicated that airfield lighting was very important
- 36% indicated that availability of an instrument approach procedure was very important

Based on recent experience with hangar projects at various airports, it would be expected that 25% to 50% of those expressing interest would be willing to relocate. Therefore, if appropriate facilities were available at a competitive price, it is anticipated that 10 to 20 of the aircraft owners contacted would actually relocate. Residents of the communities of Patterson, Crows Landing, or Diablo Grande might acquire aircraft if Crows Landing Airport were available.

Aviation businesses are another potential source of based aircraft. Aviation businesses that provide flight training or charter services (collectively known as fixed-base operators or FBOs) are aviation businesses that are likely to have based aircraft. As with other aircraft owners, the attractiveness of the airport to these aviation businesses will depend upon the characteristics (e.g., availability of utilities, ability to use existing aprons and auto parking areas, proximity to markets) and price of leaseholds. The number of based aircraft and existence of other FBOs will also be factors affecting the attractiveness of Crows Landing Airport. No substantial aviation businesses are likely to base operations at Crows Landing Airport until runway lights are installed. Given the occurrence of fog, charter and fractional ownership operators are unlikely to base at the airport until there is an instrument approach that would provide at least ¾ mile visibility minimums, which will require some form of an approach lighting system. Some aviation businesses are unlikely to own aircraft, such as those that provide aircraft maintenance, painting, upholstery, and avionics.

The ongoing development of the Crows Landing Industrial Business Park is expected to generate some based aircraft. However, current trends in charter and fractional aircraft ownership suggest that many of the businesses in the proposed business park that use aircraft will not have an aircraft based at the airport. Instead, these businesses will utilize aircraft based at other airports that service them on a transient basis.

Most aircraft based at Crows Landing Airport would likely be single-engine, piston-powered aircraft. The based aircraft would be used largely for personal/recreational purposes. Given the limited facilities available in early years, these aircraft will principally be attracted by low prices. The availability of low-cost hangars will be a critical factor.

Aircraft Operations

An aircraft operation is defined as either a landing or a takeoff. A common training maneuver called a touch-and-go consists of a landing immediately followed by a takeoff without stopping. A touch-and-go counts as two operations. Operations at Crows Landing Airport will be generated by both based and transient aircraft. Operations are expected to be generated by:

- Flight training
- Trips by based aircraft
- Aircraft receiving services from FBOs
- Aircraft from other airports transporting passengers to/from Crows Landing Airport
- Law enforcement, emergency response, and utility patrol aircraft

Aircraft used for business purposes commonly have much higher utilization rates than aircraft used for personal purposes (e.g., recreational and personal business). Aircraft used in flight training also commonly have high utilization rates. An airport's utilization rate is typically expressed in terms of the annual operations per based aircraft. Based upon characteristics observed at other airports, the following ranges can be expected:

- An airport that does not have an FBO offering flight training or a significant number of based business aircraft will typically have a utilization rate of 100 to 200 annual operations per based aircraft.
- An airport that does not have an FBO offering flight training but does have significant number of based business aircraft will typically have a utilization rate of 200 to 400 annual operations per based aircraft.
- If a flight school is present at an airport or if an airport is regularly used for flight training by aircraft based at nearby airports, annual operations in the range of 400 to 500 operations per based aircraft are common.

The higher ends of the ranges are more likely to occur in metropolitan areas. Figure 2A illustrates representative aircraft in Airport Reference Codes B-II and C-II.

The annual operations forecasts associated with the 30-year planning horizon are summarized below. Additional detail is presented in Chapter 3.

At Opening Through Year 10

Opening/Year 1

- Based Aircraft = 10 (5 on tie-downs and 5 in basic privately-developed Port-A-Ports / hangars)
  - This is an optimistic number; 5 based aircraft is more realistic
  - All aircraft are likely to be single-engine, propeller airplanes
  - A few agricultural airplanes or a helicopter
- Total Annual Operations = 4,000 total operations

- 1,000 operations by based aircraft
- 3,000 operations, mostly touch-and-goes, by aircraft based at other airports

Year 5

- Based Aircraft = 15 (5 on tie-downs and 10 in basic privately-developed Port-A-Ports / hangars)
  - Majority of aircraft are likely to be single-engine, propeller airplanes
  - Maybe a few multi-engine, propeller airplanes
  - Maybe a few agricultural airplanes
  - Some helicopters possible, but distances to major metropolitan areas makes this uncertain
- Total Annual Operations = 6,000 operations
  - 1,500 operations by based aircraft. At this point the airport would start to see aircraft use linked to business activities in the adjacent industrial park and the FBO
  - 4,500 operations, mostly touch-and-goes, by aircraft from other airports

6 to 10 Years

- Based Aircraft = 20 (5 on tie-downs and 15 in Port-A-Ports / hangars)
  - Majority of aircraft are likely to be single-engine, propeller airplanes
  - A few multi-engine, piston airplanes
  - One or two turbine-powered aircraft (turboprops and/or jets)
  - A few agricultural airplanes
  - Some helicopters possible, but distances to major metropolitan areas makes this uncertain
- Total Annual Operations = 8,000 operations
  - 3,000 operations by based aircraft and transient aircraft providing transportation for passengers associated with the industrial and business park
  - 5,000 operations, mostly touch-and-goes, by aircraft from other airports

Future Development

11 to 20 Years

- Based Aircraft = 40 (5 on tie-downs and 35 in Port-A-Ports / hangars)
  - Majority of aircraft are likely to be single-engine, propeller airplanes
  - A few multi-engine, piston airplanes
  - A few turbine-powered aircraft (turboprops and/or jets)
  - A few agricultural airplanes
  - Some helicopters possible, but distances to major metropolitan areas makes this uncertain
- Total Annual Operations = 16,000 operations
  - 11,000 operations by based aircraft and transient aircraft providing transportation for passengers associated with the industrial and business park
  - 5,000 operations, mostly touch-and-goes, by aircraft from other airports

21 to 30 Years

- Based Aircraft = 80 (15 on tie-downs and 65 in Port-A-Ports / hangars)
- Total Annual Operations = 34,000 operations
  - 15,000 annual touch-and-goes by aircraft based at the airport
  - 8,500 operations by jet and turboprop aircraft

Aviation Forecast Summary

Aviation is subject to economic conditions, and the overall growth of general aviation is expected to be slow in the years ahead. Business/corporate use of general aviation aircraft is anticipated to continue to be the strongest sector of the general aviation industry, but even this segment of aviation is subject to economic conditions. National trends indicate that business/corporate aviation is using more sophisticated, turbine-powered aircraft. Crows Landing Airport is well positioned to serve business/corporate aircraft that are high-performance, single-engine airplanes, light to medium twin-engine aircraft, and corporate jets. The airport is likely to benefit from some of the projected growth in business/corporate use of the general aviation aircraft fleet. Additionally, a new class of advanced, small-turbine-powered jet aircraft is emerging in the general aviation industry. This small personal/business jet aircraft would be capable of operating on shorter runways (approximately 3,000 feet in length). Introduction of this class of jets could further enhance projected general aviation jet activity at Crows Landing Airport. Personal/recreational general aviation uses are also anticipated to become a large component of the airport's future based aircraft.

The proposed Crows Landing Airport is well suited to accommodate future increases in based aircraft and aircraft operations volumes. The airport is not seriously constrained with respect to airfield or building area capacities. The proposed Crows Landing Industrial Business Park will be developed with aviation-compatible uses, such as light industry, logistics, and government offices, and the adjacent property uses are agricultural. The number of projected future aircraft operations at Crows Landing Airport is not a major factor in the planning or design of improvements. The proposed runway/taxiway system is more than adequate to meet projected activity levels for the airport. In terms of building area capacity, the proposed Crows Landing Airport has approximately 132 acres available at build-out for future aviation-related development.

Table 2-1. Activity Forecasts

Forecast	Opening	Year 5	Year 10	Year 20	Year 30
Based Aircraft					
Aircraft Type		**(Number of Aircraft by Type)**			
Single-Engine, Piston	10	13	15	25	50
Twin-Engine, Piston	0	2	2	5	10
Turboprop	0	0	2	7	14
Jets	0	0	1	3	6
Total Based Aircraft	**10**	**15**	**20**	**40**	**80**
Storage Demand		**(Number of Spaces or Aprons Required)**			
Hangar Spaces	5	10	15	35	65
Aprons	5	5	5	5	15
Total Aircraft	**10**	**15**	**20**	**40**	**80**
Annual Aircraft Operations					
Aircraft Mix		**(Number of Operations by Aircraft Type)**			
Single-Engine, Piston Fixed-Pitch Prop	4,000	5,500	6,500	10,500	22,000
Twin-Engine, Piston		350	600	1,500	3,500
Turboprop		100	600	2,500	5,000
Jets		50	300	1,500	3,500
Total	**4,000**	**6,000**	**8,000**	**16,000**	**34,000**
Annual Aircraft Operations		**(Number of Operations)**			
Local	3,000	4,000	5,000	7,000	15,000
Itinerant	1,000	2,000	3,000	9,000	19,000
Total	**4,000**	**6,000**	**8,000**	**16,000**	**34,000**

Table 2-2
Area Airports
(Crows Landing Airport Vicinity)

		Location					Facilities			Services						
Airport Name	**Owner**	**Community/County**	**Distance[1]/Direction**	**Based Aircraft**	**Number of Runways**	**Longest Runway (ft.)**	**Surface[2]**	**Lighted-Intensity[3]**	**Approach Visibility[4] / Category**	**Control Tower**	**Airline Service**	**AvGas**	**Jet Fuel**	**Maintenance**	**Automobile Rentals**	**Food**
AREA AIRPORTS																
Castle	Merced County	Merced/ Merced	32	76	1	11,802	ASPH/ CONC	H	ILS/LOC/ VOR/DME/ GPS	√	-	√	√	√	-	-
Gustine	City of Gustine	Gustine/ Merced	11	23	1	3,200	ASPH	M	VIS	-	-	√	-	√	-	-
Los Banos	City of Los Banos	Los Banos/ Merced	24	34	1	3,800	ASPH	M	VOR/DME/ GPS	-	-	√	√	√	-	√
Merced Municipal	City of Merced	Merced/ Merced	29	111	1	5,903	ASPH/ POR	H	GPS/ILS/ VOR/DME	-	√	√	√	√	√	√
Modesto City-County	City of Modesto	Modesto/ Stanislaus	17	182	2	5,911	ASPH	M	ILS/LOC/ VOR/DME/ GPS	√	√	√	√	√	-	-
New Jerusalem	City of Tracy	Tracy/ San Joaquin	20	77	1	3,530	ASPH	-	VIS	-	-	-	-	-	-	-
Turlock	City of Turlock	Turlock/ Merced	23	64	1	2,985	ASPH	-	VIS	-	-	√	-	-	-	-

[1] Distance in statute miles from Crows Landing Airport

[2] ASPH=asphalt; CONC=concrete; POR=Porous Friction Coat

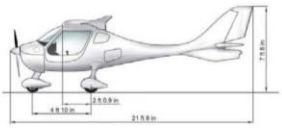
[3] L=low; M=medium; H=high

[4] Statute mile NP=Nonprecision; VIS=visual; ILS=Instrument Landing System; LOC=Localizer; VOR=Very High Frequency Omnidirectional Range; DME=Distance Measuring Equipment; GPS=Global Positioning System

Figure 2A. Representative Aircraft

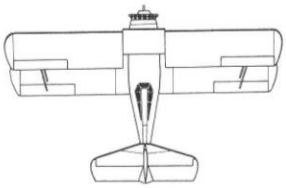
ARC B-II and Smaller

Flight Design CTSW
Light Sport Aircraft
Fastest selling light sport aircraft
Seats: 2
Wingspan: 28'
Max. Cruise Speed: 112 kts
Gross Weight: 1,320 lbs.



Cirrus SR22
Small, Single-Engine Aircraft
Equipped with aircraft parachute
Seats: 4
Wingspan: 38'4"
Max. Cruise Speed: 185 kts
Gross Weight: 3,400 lbs.

Grumman Ag Cat
Single-Engine Biplane
Agricultural aircraft
Seats: 1
Wingspan: 35'11"
Max. Cruise Speed: 128 kts
Gross Weight: 4,500 lbs.

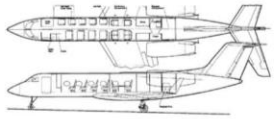


Citation II
Small Business Jet
Light corporate jet
Seats: 10 total
Wingspan: 52'3"
Max. Cruise Speed: 403 kts
Gross Weight: 15,100 lbs.

ARC C-II

Citation X
Fast, Medium-Sized Business Jet
Fastest business jet in history
Seats: 12 and 2 flightcrew
Wingspan: 63'11"
Max. Cruise Speed: 504 kts
Gross Weight: 35,700 lbs.

Gulfstream III
Long-Range, Mid-Sized Business Jet
2 Rolls Royce turbofans
Seats: Up to 19 & 2 flightcrew
Wingspan: 77'10"
Max. Cruise Speed: 460 kts
Gross Weight: 73,200 lbs.



CHAPTER 3
AIRPORT DEVELOPMENT CONCEPTS

3 AIRPORT DEVELOPMENT CONCEPTS

INTRODUCTION

Chapter 3 presents a staged development plan for the airfield and building area at the Crows Landing Airport. The staging plan reflects the project development priorities and schedules for three planning periods:

- **At Opening: 0 to 10 Years**
- **Future Development: 11 to 30 Years**
- **Ultimate Build-out Concept: >30 Years**

The focus of this ALP is on providing direction for the appropriate types of facilities necessary for the initial start-up and intermediate development of the Crows Landing Airport during its first 30 years of operation. Recommendations are limited to a basic development framework that emphasizes the airfield requirements and site suitability for various uses (e.g., hangars, internal access roads, navigational aids, etc.). **Table 3-1,** *Airport Development Concepts,* and **Table 3-2**, *Airport Design,* which are provided at the end of this chapter, describe the types of facilities envisioned for each of the three planning phases. Conceptual layouts of airport facilities are provided for illustration purposes in **Figures 3A** through **3C**.

A detailed layout of most future development (i.e., Short-Term and Long-Term) within the core building area is not included in this report as the siting of these facilities will be driven by demand and other factors (e.g., public road access to the airport, funding, etc.). Follow-up planning and engineering studies will be required to expand upon the basic framework presented in this ALP.

AIRPORT DEVELOPMENT OVERVIEW

The conceptual development plan for Crows Landing Airport is described below. The factors affecting the siting and development of future airport facilities and the specific design requirements applicable to Crows Landing Airport are discussed in subsequent sections of this chapter.

At Opening: 0 to 10 Years

Approximately 370 acres of the former Crows Landing Air Facility property will be used for a GA airport. The new Crows Landing Airport will open for public use as a very basic/visual approach, day-use-only general aviation facility that would support Airport Reference Code (ARC) B-II aircraft. A portion of the existing concrete pavement remaining from runways and taxiways at the former Crows Landing Air Facility will be rehabilitated and serve as a new runway/taxiway system and building area.

The former northwest/southeast runway (Runway 11-29) will be remarked as a 5,300-foot-long by 100-foot-wide runway. Initially, the runway will be unlighted and available for daytime use only. Visual approach aids will be provided, such as a segmented circle and three unlighted wind socks. The former parallel taxiway system for Runway 11-29 will also be retained, as the separation distance between the runway and parallel taxiway satisfies FAA design standards for an ARC B-II runway and taxiway. Inline (or lead-in) taxiways will provide access to and from the new runway thresholds. Standard right-angle runway entrance taxiways will be provided later as funding becomes available.

A portion of the former north/south runway (Runway 16-34) and apron area located northeast of Runway 11-29 will serve as the airport's core building area. Initial development is anticipated to use existing pavement to the greatest extent practicable. The building area will provide space for a small aircraft parking apron accommodating five aircraft tie-downs and ten hangars, and an airport operations office with restrooms and a telephone. Aircraft hangars are anticipated to be provided by the private sector on property leased from the County. To prevent inadvertent entry to the airport, a perimeter fence will be provided to separate the airport from the adjacent industrial business park development. A manual gate will provide controlled access to the Airport from West Ike Crow Road. To make the airport attractive to new users, aviation gas (100LL) will be provided using a self-service/skid- mounted/above-ground storage tank that would be located on existing pavement near the airport operations office. If required, Jet-A fuel would likely be dispensed by a refueler truck, but jet fuel facilities are likely to occur in subsequent development stages. A wash rack will also be provided. • The future fuel station and wash rack are planned to be located immediately adjacent to one another in an effort to share a common filtration system. The initial planning, design, and operational tasks that must be completed prior to opening the Airport are identified in Chapter 4, Table 4-2.

Future Development: 11 to 30 Years

In this phase of development, minimal structural modifications to the runway/taxiway system are envisioned. The principal change will be the addition of runway lighting and navigational aids, as well as upgraded runway markings to reflect non-precision instrument approach capabilities. It should be noted that a non-precision GPS-based instrument approach does not require on-the- ground support facilities. Lighting and navigational aids include medium-intensity runway edge lights (MIRL), precision approach path indicator (PAPI), runway end identifier lights (REIL), and a rotating beacon. The three wind cones installed during the first five years also will be lighted. A description of these facilities is provided later in this chapter in the discussion of Other Runway Features.

A 3-acre area will be reserved on the southeast side of the airport to provide a heliport facility. Initially, the heliport will include a helicopter takeoff and landing area which will utilize existing airfield pavement. Other support facilities, such as helicopter parking and/or a fixed-base operator (FBO) facility, may require additional pavement depending on the heliport layout and design.

This phase of development also includes the construction of a perimeter access road. Initially, only a segment of the perimeter road would be needed to provide access between the northeast building area and the heliport and perhaps direct access to the heliport from Bell Road. Eventually, as the southwest building area is developed, a complete perimeter road would be advantageous to provide airport tenants, fuel trucks, and airport personnel with uninterrupted passage between the northeast and southwest building areas.

Building area development is anticipated to include:

- **New apron to accommodate additional aircraft parking and/or an FBO:** Additional apron pavement will likely be needed to accommodate additional based aircraft (five additional hangars or tie-downs) and/or a FBO facility. The transient tie-down apron located near the operations office can be relocated if a FBO desires to site its facilities on the existing pavement near the airport entrance. If this occurs, the taxiway system would need to be reconfigured. **Figure 3B** reflects this design.
- **Lighting and navigational aids:** Airport lighting facilities are presented in the discussion of Visual Approach Aids that appears later in this chapter.

Ultimate Build-out: >30 Years

The principal change occurring in this phase of development is a proposed runway extension that would lengthen Runway 11-29 from 5,300 feet to 6,300 feet. The runway/taxiway system would be upgraded during this phase to accommodate ARC C-II aircraft, and to provide precision instrument approach capabilities. These upgrades will require:

- Acquiring 202 acres, of which approximately 200 acres are within the existing approach protection easement.
- Constructing a 1,000-foot extension of Runway 11 to the northwest and blast pad.
- Realigning a portion of Davis Road to keep all runway clear areas on airport property.
- Constructing a new parallel taxiway and apron area on the southwest side of the runway to satisfy FAA requirements.
- separation requirements.
- Upgrading the runway markings to reflect precision instrument approach capabilities and installing an approach lighting system(s).
- Relocating and providing additional fencing.
- Providing 90-degree taxiway entrance/exits to the runway ends.
- Relocating all structures that do not satisfy the setback requirements for an ARC C-II runway.

Expansion of the airport building and apron areas is anticipated to accommodate additional based and transient aircraft as well as FBO facilities. Development of the southwest building area and enhancement of the heliport facilities are also anticipated. Details associated with the facility layout will depend on demand and available funding.

AIRPORT DESIGN FACTORS

The FAA establishes extensive standards pertaining to all aspects of airport design. These standards vary depending upon the characteristics of the critical aircraft anticipated to use the facility regularly and the airport's specific operating conditions (e.g., elevation, average maximum temperature, prevailing wind direction, type of approach).

Airport Reference Code Criteria	
Approach Category	Approach Speed Range
A	<91 kts
B	≥91 kts <121 kts
C	≥121 kts <141kts
D	≥141 kts <161 kts
E	≥166 kts
Design Group	Wingspan Range
I	<49 feet
II	≥49 feet <79 feet
III	≥79 feet <118 feet
IV	≥118 feet <171 feet
V	≥171 feet <214 feet
VI	≥214 feet <262 feet

Airport Classification and Design Aircraft

FAA airport design standards are set in accordance with an Airport Reference Code (ARC) that may apply to the airport as a whole or Range to an individual runway or taxiway (FAA Advisory Circular 150/5300-13, Airport Design). The primary determinants of ARC classifications are the approach speed and wingspan of the most demanding types of aircraft expected to operate regularly at the airport, together with the type of instrument approach capability associated with the runway.

As described in Chapter 2, Airport Role and Activity Forecasts, the majority of airport operations would be generated by small single-engine, piston aircraft. However, within the short-term planning period, the most demanding class of aircraft expected to use the airport regularly, as defined by the FAA as more than 500 annual operations, is the medium-sized, twin-engine, turbo-prop aircraft, such as the Beechcraft Super King Air B200. Ultimately, the most demanding class of aircraft anticipated to operate at Crows Landing Airport is business/corporate jets.

For facility planning purposes, the following ARCs and design aircraft were used to identify facility needs for the Crows Landing Airport:

- **At Opening** : ARC B-II, Beechcraft Super King Air B200 (103 knots approach speed, 12,500 pounds maximum takeoff weight, 54.5-foot wingspan, 43.8 feet in length).
- **Ultimate Build-out (>30 years)**.: ARC C-II, Gulfstream III (136 knots approach speed, 68,700 pounds maximum takeoff weight, 77.8 foot wingspan, 83.1 feet in length.

ARC B-II Aircraft
Beechcraft Super King Air B-200

Twin-turboprop, seats 6-10, includes most business/corporate turboprop aircraft.

ARC C-II Aircraft
Gulfstream III

Business jet/medium cabin, seats 4-10, includes commercial regional jet aircraft.

Wind Coverage

Strong winds at an airport can pose airfield and building design concerns. Wind conditions affect all airplanes in varying degrees. Generally, the smaller the airplane, the more it is affected by wind, particularly crosswind components.

Ideally, a runway should be aligned with the prevailing wind to allow a pilot to land and takeoff into the wind. FAA guidelines establish that the orientation of an airport's runways should enable the airport to be usable, with crosswinds at an acceptable velocity, during at least 95% of the year. Airports with lower annual wind coverage can qualify for FAA funding to construct a crosswind runway. The criteria for an acceptable crosswind velocity are tied to the runway's ARC and to the type of aircraft using the runway. Small, light aircraft are more affected by strong crosswinds than larger, heavier planes. For small planes, the FAA considers a 10.5 knot crosswind to be the maximum acceptable, whereas heavy jets can tolerate crosswinds up to 20 knots.

*A **Wind Rose** is a meteorological diagram depicting the distribution of **wind** direction and speed at a specific location over a period of time.*

***Visual flight rules (VFR)** are a set of aviation regulations under which a pilot may operate an aircraft, if weather conditions are sufficient to allow the pilot to visually control the aircraft's* attitude*, navigate, and maintain separation with obstacles such as terrain and other aircraft.*

***Instrument flight rules (IFR)** are a set of regulations and procedures for flying aircraft without the assumption that pilots will be able to see and avoid obstacles, terrain, and other air traffic; it is an alternative to visual flight rules (VFR), where the pilot is primarily or exclusively responsible for see-and-avoid.*

In terms of design aircraft parking aprons, aircraft operators generally prefer to park their aircraft nose-forward into the wind. Aircraft pointed into the wind are far less likely to suffer control surface damage from wind gusts (i.e., gusts striking the aircraft from the sides or the rear are capable of overstressing/bending critical aircraft control surfaces). Other advantages include faster cooling down of aircraft engines and preventing engine fumes from entering the cabin.

RUNWAY DESIGN

The basic design factors and requirements associated with an airport runway system are described in the following paragraphs. The airfield design features for each development phase associated with the Crows Landing Airport are summarized in **Table 3-2**.

Runway Configuration

The former Crows Landing Air Facility had two intersecting runways: Runway 16-34, which was aligned in a north/south direction, and Runway 11-29, which was oriented in a northwest/southeast direction. In 2006, the County decided to retain Runway 11-29 for its new GA airport. The concrete runway associated with the former Crows Landing Air Facility is sufficient to accommodate the load-bearing weight of ARC B-II and C-II aircraft envisioned to use the new Crows Landing Airport. The runway is in usable condition, but weed removal, crack filling, and marking are necessary. The surfaces are reasonably smooth with some uniform unevenness over the entire surface, but no serious dips or humps are present. Concrete damage is restricted to cracking at the corners of relatively few slabs. Runway 11-29 is aligned with the prevailing wind direction from the northwest.

Runway Length

The length of the runway required to accommodate the most demanding airplanes anticipated to use the airport is a fundamental factor of airfield design. Runway length requirements for specific aircraft depend upon the airfield elevation and design temperature (the average high temperature for the hottest month). For several categories of small aircraft, the FAA has established formulas to identify the desirable runway length. For large aircraft, this data is available in performance charts provided by aircraft manufacturers.

The Crows Landing Airport is located in the northwestern part of the San Joaquin Valley at an elevation of 156 feet above mean sea level (MSL). The Airport is situated approximately 10 miles east of the Diablo Range and 80 miles east of the Sierra Nevada Foothills. The mean maximum temperature of the hottest month (July) is 96.6 degrees Fahrenheit.[1] Based on this data, the FAA's program indicates that a runway length of less than 5,000 feet would be sufficient to accommodate all small aircraft weighing less than 12,500 pounds. Larger, heavier aircraft (>12,500 pounds.) would require a longer runway. The specific runway length requirements for Crows Landing Airport are:

- **At Opening through Year 30:** runway length is 5,175 feet
  - Length is suitable to accommodate all small general aviation aircraft and some use by large aircraft; and
  - All runway critical areas (runway safety and objected free areas) remain on airport property.
- **Ultimate Build-out (>30 years):** runway length is 6,175 feet
  - Length is sufficient to accommodate most of the small-to-medium sized business jets within in ARC C-II.
  - The acquisition of 202 acres off the ends of the runway and the realignment of a portion of Davis Road and Bell Road will be necessary to allow the runway critical areas to remain on airport property and under County control.

Runway Width

FAA runway width design standards consider both the airport's ARC designation and the visibility conditions under which aircraft operate (visual, visibility minimums of <¾ statute mile). Generally, fast-moving aircraft operating during reduced visibility conditions require wide runways to ensure that sufficient hard surface is available for safe landing and takeoff. The runway width design standards for ARC B-II and C-II are presented in the Runway Width Criteria table.

Runway Width Criteria

Visibility*	ARC B-II	ARC C-II
Visual or ≥ 3/4 mile	75	100
< 3/4 mile	100	100

** Visibility minimums in statute miles*

For the Crows Landing Airport, the runway width is designed at 100 feet as existing runway pavement from the former Crows Landing Air Facility is available and in good condition. This runway width surpasses the minimum FAA requirements for ARC B-11 aircraft, which are anticipated to use the airport during its first ten years of operation.

[1] *Western Regional Climate Center* - for Newman Station 8 miles south

Runway Safety Areas

Runway Safety Areas (RSAs) are graded areas situated along the sides and ends of runways. RSAs must be clear of objects, except those that must be located near the runway because of their aeronautical function. Under dry conditions, the area must be capable of supporting emergency equipment and the occasional passage of an aircraft without causing structural damage to the aircraft. Consistent with FAA design standards, the RSA for Crows Landing Airport is:

- **At Opening and Future Development:** 150 feet wide and 300 feet beyond the runway ends
- **Ultimate Build-out:** 500 feet wide and 1,000 feet beyond the runway ends

Object Free Areas

Object Free Areas (OFAs) also surround runways and must be clear of nonessential objects including parked airplanes. The major difference between these two critical areas is that the grading criteria for RSAs do not apply to OFAs. For example, ditches can be located in an OFA. Also, aircraft may taxi or hold within an OFA, but not an RSA. The length of the OFA beyond the ends of the runway is identical to the requirements of an RSA or can be extended to the end of the runway protection zone. The OFA width, however, is based on the airport's ARC designation and approach visibility minimums. The OFA width dimensions applicable to Crows Landing Airport are presented in the adjacent table.

Object Free Area (OFA) Width

Visibility*	ARC B-II	ARC C-II
Visual or ≥ 3/4 mile	500'	800'
< 3/4 mile	800'	800'

** Visibility minimums in statute miles*

Obstacle Free Zones

A third critical area surrounding a runway is the Obstacle Free Zone (OFZ). OFZs are three-dimensional—consequently, short objects may be acceptable in places where taller objects may not be acceptable. Only frangible, mounted navigational aids are allowed to penetrate an OFZ. Other objects, including taxiing or parked airplanes, are not permitted. Consistent with FAA standards, the OFZ for Crows Landing Airport is 400 feet wide and extends 200 feet beyond the ends of the runway for all three development phases.

Runway Protection Zone

A runway protection zone (RPZ) is a trapezoidal area beginning 200 feet beyond the end of the runway. The purpose of the RPZ is to enhance the protection of people and property on the ground, and this is achieved when the airport owner maintains control over land within its RPZs. Such control includes clearing and maintaining RPZ areas to be free of incompatible objects and activities.

Control over the RPZ is best exercised through the acquisition of sufficient property interests in the RPZ. The RPZ dimension is a function of the type of aircraft and approach visibility minimum associated with that runway end. Consistent with FAA design standards, the RPZ dimensions for Crows Landing Airport are:

- **At Opening and Future Development:** 250 feet inner width, 450 feet outer width, and 1,000 feet in length
- **Ultimate Build-out:** 1,000 feet inner width, 1,750 feet outer width, and 2,500 feet in length

Building Restriction Line

The building restriction line (BRL) establishes the closest location in which buildings can be placed relative to a nearby runway or, in some cases, a primary taxiway. The FAA no longer defines a specific BRL setback distance standard, but it provides guidance on factors to be considered in determining the BRL location.

The location of the BRL is determined in large part by the necessary setback distances from the runway and taxiway system. An additional consideration is the need to provide sufficient vertical clearance over fixed or movable objects (e.g., buildings, parked or taxiing aircraft). Vertical clearance requirements are established in accordance to Federal Aviation Regulations (FAR) Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace*, which identifies the airspace necessary for navigation. The airspace requirements applicable to Crows Landing Airport are provided in Chapter 4, *Airport Plans*.

For the Crows Landing Airport, the BRLS were established to accommodate anticipated development during the three development phases (Opening, Short-term, and Long-Range). The primary building area, which will accommodate initial airport development, is located northeast of Runway 11L-29R.

- **At Opening and Future Development (0 to 30 years):**
  - BRL B-II: 15-foot vertical clearance is located 355 feet from the runway centerline
  - BRL B-II: 30-foot vertical clearance is located 460 from the runway centerline
- **Ultimate Build-out (>30 years):**
  - BRL C-II: 15-foot vertical clearance is located 605 feet from the runway centerline
  - BRL C-II: 30-foot vertical clearance is located 710 from the runway centerline

To minimize the future expense of relocating structures, permanent airport facilities (e.g., buildings, fueling facility) should be located in the areas farthest from the runway to meet ARC C-II setback requirements. Temporary objects or semi-permanent structures (e.g., portable hangars, tiedown aprons) are suitable for the areas defined by the BRLs for ARC B-II.

Other Runway Features

Blast Pads

Blast pads consist of light-duty pavement situated beyond the ends of runways. They serve to minimize erosion and the blowing of dirt and debris from unprotected ground that result when aircraft, particularly jets, apply full power to initiate takeoff. Although paved, blast pads are not usable by aircraft under normal circumstances and are not included in the runway length.

In the early phases of development, blast pads are not needed as minimal jet activity is anticipated. Once the runway is upgraded to an ARC C-II facility, the existing concrete pavement leading up to the Runway 29R threshold would be marked as a blast pad. New blast pads would be constructed at the other runway ends during the Long-Range development phase.

Marking

The pavement remaining from the Crows Landing Air Facility is more extensive than what is needed for the new general aviation facility. Therefore, together with the pavement resurfacing, the new runway threshold bars, chevrons, edge striping, and shoulder marking will serve to delineate the reduced length and width of the runway. The runway marking will be upgraded as instrument approaches capabilities are provided (e.g., non-precision and precision). Figures 3A through 3C reflect the following different runway marking standards:

- **At Opening (Year 0 to 10):** Basic runway markings reflecting a runway with no straight-in instrument approach procedures.
- **Future Development (Years 11 to 30):** Non-precision runway markings reflecting straight-in instrument approach procedures providing horizontal guidance only.
- **Ultimate Build-out (>30 Years):** Precision runway markings reflecting straight-in instrument approach procedures providing horizontal and vertical guidance.

Visual Approach Aids

The visual approach aids described below are envisioned for development at the Crows Landing Airport after the first ten years of operation as demand warrants.

- **Runway edge lights.** Runway edge lighting is designed to show the width and length of the usable landing area; there are two rows of lights—one row on each side of the runway—that extend along the length of the runway. These light systems are classified according to the intensity they are capable of producing. For the Crows Landing Airport, Medium Intensity Runway Lights (MIRL) or High Intensity Runway Lights (HIRL) are anticipated. These lights can be part of a Pilot-Controlled Lighting (PLC) system, which allows a pilot to turn on an airport's runway edge, approach, and taxiway lights via radio. PLC systems are most common at non-towered or infrequently used airfields where it is not economical to light the runways all night or to provide staff to turn the lights on and off.
- **Precision Approach Path Indicator (PAPI).** A lighting system positioned beside the runway that consists of two, three, or four boxes of lights to provide a visual indication of an aircraft's position on the glidepath for the associated runway. The PAPI is usually located on the left side of the runway

and can be seen from distances of up to 5 miles during the day and 20 miles at night.

- **Approach Lighting System (ALS).** A lighting system installed on the approach end of an airport runway that consists of a series of lightbars, strobe lights, or a combination of the two, and extends outward from the runway end. An ALS usually serves a runway that has an associated instrument approach procedure (IAP), upon arrival and it allows the pilot to visually identify the runway environment upon arrival at a prescribed point on an approach. A medium- intensity approach lighting system with runway alignment indicator lights (MALSR) is proposed for Crows Landing Airport. The light bars, spaced 200 feet apart, extend outward to a distance of 2,400 feet from the runway ends.
- **Runway end identifier lights (REIL).** Lights installed at many airports to provide rapid and positive identification of the approach end of a particular runway. The system consists of a pair of synchronized flashing lights located laterally on each side of the runway threshold.
- **Rotating Beacon.** A device used to assist pilots in finding an airport, particularly those flying in visual flight rules (VFR) at night. A standard green-and-white rotating beacon is proposed for construction near the airport's entrance during the short term.
- **Wind indicator.** A windsock or wind cone is a conical textile tube designated to indicate wind direction and relative wind speed. Per FAA standards (FAA Advisory Circular 150/5345-27D), a 15-knot (17-mph) wind will fully extend the windsock. A 3-knot (3.5-mph) breeze will cause the windsock to orient itself according to the wind. At many airports windsocks are lighted at night, either by flood lights on top surrounding it or with one pole-mounted light that shines inside the wind sock.

  Three unlighted wind cones will be provided initially at the Crows Landing Airport as the airport will be used only during the day. The primary wind cone is collocated with the segmented circle at midfield. Two others are found near the approach ends of Runways 11 and 29. Lighted wind cones will be provided when runway lighting becomes available.
- **Segmented circle.** A segmented circle is used to aid pilots determine takeoff and landing information at an airport. The optimum location for the segmented circle is midfield. This centralized location enables pilots to locate the segmented circle easily.

Electronic Navigational Aids

Global Positioning System. *A system of satellites that allows one's position to be calculated with great accuracy by the use of an electronic receiver.*

Electronic navigational aids (NAVAIDs), in particular instrument approach aids, are an important operational element of any public-use airport. NAVAIDs facilitate user access to and fromthe airport during inclement weather conditions. To be fully effective, the NAVAIDs must be complemented by airfield improvements such as an appropriate runway lighting system, runway markings, and signing. It is anticipated that the Crows Landing Airport will initially open for public-use with a basic GPS-based Non-Precision Instrument Approach (NPIA) serving each of the two runway ends. Such NPIAs would likely have approach minimums of 1 statute mile visibility and a 400-foot ceiling. As the Airport and its airfield components are expanded and improved, it is anticipated that the Airport's runway will be served by multiple GPS-based Precision Instrument Approaches (PIA) with approach minimums of ½ statute mile visibility and a 200-foot ceiling.

TAXIWAYS

Taxiways provide the links by which aircraft travel between runways and parking facilities in the airport building area. At the Crows Landing Airport, this system will consists of major taxiways parallel to the runway and with various secondary taxiways to provide access to parking aprons and hangar areas.

Taxiway Design

Taxiway Hold Line Distance

Visibility*	ARC B-II	ARC C-II
Visual or ≥ 3/4 mile	200'	250'
< 3/4 mile	250'	250'

** Visibility minimums in statute miles*

In the early phases of development (At Opening and Short-Term), the taxiway system will utilize the pavement remaining from the former Crows Landing Air Facility. The taxiways will be centered on the existing pavement and marked to reflect a 35-foot wide taxiway, consistent with FAA design standards for ARC B-II and C-II runways. Hold lines, as required by FAA standards, will be marked on each exit taxiway which intersects with the runway. The hold lines will be marked 200 feet from the runway centerline, consistent with the standards applicable to an ARC B-II runway. The hold line will be remarked 250 feet from the centerline once the runway is upgraded to an ARC C-II facility or precision instrument approach capabilities are provided (i.e., <3/4 statute mile visibility). The future taxiways can be equipped with medium-intensity taxiway lighting and/or reflectors at the same time the runway lighting is installed.

Taxiway Designations

Taxiways are generally labeled with letters of the alphabet in accordance with criteria outlined in FAA Advisory Circular 150/5340-18C, Standards for Airport Sign Systems. The parallel taxiway along the northeast side of Runway 11-29 and the exit taxiway serving the approach end of Runway 29 will be designated Taxiway A. The four 90-degree exit taxiways angling from the middle section of Runway 11-29 will be designated A1, A2, A3, and A4 as they progress southward.

Runway-to-Taxiway Separation

For runways classified as ARC B-II, the FAA standard for runway- to-parallel taxiway separation is 240 feet. Based on this alignment, the separation distance between the runway and taxiway is 288 feet. When either the Airport's instrument approach capabilities or ARC classification is upgraded, the separation distance will need to increase to meet the FAA's design standards noted in the adjacent table.

Runway-to-Taxiway Separation

Visibility*	ARC B-II	ARC C-II
Visual or ≥ 3/4 mile	240'	300'
< 3/4 mile	300'	400'

** Visibility minimums in statute miles*

Taxiway Object Free Area

Similar to the runway object free area (OFA), the taxiway OFA clearing standards prohibit service vehicle roads, parked airplanes, and aboveground objects, except those needed for air navigation or ground maneuvering. In combination with meeting FAR Part 77 requirements, the taxiway OFA is often used to establish the Aircraft Parking Limit (APL) line. APLs define the areas which are appropriate for parking of aircraft.

As designed, the distance from the centerline of Taxiway A to adjacent aircraft parking positions is approximately 67 feet. This amount of wingtip clearance is ample for the anticipated mix of aircraft using the airport. It meets FAA standards for ARC B-II and C-II aircraft (i.e., aircraft with wingspans up to 79 feet, such as a Gulfstream III).

Signage

FAA standards for airfield signage are set forth in Advisory Circular 150/5340-18C, *Standards for Airport Sign Systems*. These standards mandate the installation of certain instructional signs at all airports. Other types of signs provide guidance to pilots (e.g., signs that show the designation of or direction to runways and taxiways). All signs on lighted runways or taxiways should be lighted.

For the Crows Landing Airport, the only applicable signs considered mandated for airport safety are the Holding Position signs at taxiway intersections with runways. A sign plan should be prepared for the airport, and all signs required or recommended by the FAA should be installed once the airport is upgraded to an ARC C-II facility. An entrance sign should also be installed near the airport operations office or entrance gate.

Helicopter Takeoff and Landing Area

Initially, in lieu of a formal heliport, helicopters are expected to use the runway for landing and takeoff, then hover /taxi to a parking place, or, under good-visibility, daylight conditions, may fly directly to where they intend to park. As helicopter demand increases, a formal takeoff and landing area with appurtenant parking positions can be established. A suitable helicopter parking area would be on the southern-most end of the former Runway 34. Helicopter parking could also utilize existing concrete pavement. The precise location will depend upon the ultimate location of future development on the airport's south side. In general, approximately 3 acres of land will be necessary to accommodate a heliport (i.e., formal takeoff and landing area, helicopter parking spaces, required clear areas, FBO building, and associated automobile parking). An access road to the facility will also be required.

Typical Building Area Functions at General Aviation Airports

Commonly Found Facilities:

- *Based aircraft tiedowns and storage hangars*
- *Transient aircraft parking*
- *Administration building or airport office*
- *Pilots' lounge / flight preparation room*
- *Public rest rooms / public telephones*
- *Fixed-base operations facilities*
- *Fuel storage and dispensing equipment*
- *Aircraft washing area (wash rack)*
- *Security/perimeter fencing and access gates*
- *Access roads and automobile parking*

Other Facilities Common at Larger Airports:

- *Corporate aircraft storage hangars and offices*
- *Air traffic control tower*
- *Emergency response equipment and storage facility*
- *Coffee shop or restaurant*
- *Rental car facilities*
- *Air freight handling facilities*
- *Commercial/industrial buildings*

Building Area Design Factors

The building area of an airport encompasses all of the airport property not devoted to runways, major taxiways, required clear areas, and other airfield-related functions. Common uses of building area land at general aviation airports similar to that anticipated at Crows Landing Airport are listed in the box to the right.

Many types of airport facilities have similar functions and needs, and it is efficient to group similar uses together. For example, high-intensity uses such as corporate hangars and aviation-related businesses, which serve transient aircraft as well as the public, require good visibility from the roads, direct public access, and runway access. Conversely, low-intensity uses such as the smaller aircraft storage hangars (e.g., T-hangars and box hangars) require good runway access. These hangar areas are typically restricted areas with controlled gated-access.

Numerous facilities are essential to the accommodation of future demands for aviation-related use of the airport building area. This ALP identifies the suitable locations and general configurations for future building area development and aviation uses. The precise location and type of facilities will be based on demand and specific facility needs (e.g., convenient road access, large FBO hangar). More detailed designs will be required before construction can begin. The discussion that follows provides a general description of the types of facilities that could be sited at Crows Landing Airport.

Aircraft Hangars

As is the case at most general aviation airports, it is anticipated that the demand for aircraft parking space at Crows Landing Airport will be primarily for hangars. Aircraft storage hangars can be grouped into five general categories:

- **T-Hangars –** T-hangars are the most common form of aircraft storage at general aviation airports. The back-to- back arrangement of the individual T-shaped bays is efficient from a structure-size standpoint, but requires taxilane access on both sides of the building. For reasonable economy of construction, T-hangar buildings preferably should contain at least 10 aircraft bays.

T-Hangar

- **Rectangular –Executive Hangars –** Rectangular-shaped hangar units are well suited to locations where access is practical to only one side of the building. The hangar bays are larger than typical T-hangar units and usually are designed to accommodate twin-engine airplanes or small business jets. Alternatively, they may be used for storage of two or three smaller aircraft. The buildings may consist of either single or multiple bays. Some executive hangars may include small attached office areas.

Executive Hangar

- **Conventional Corporate Hangars –** Corporate hangars are large, free-standing structures intended to house large business jets or multiple smaller aircraft. A size of 100 square feet is common at many general aviation airports, although the size of the buildings can vary. Office and pilots' lounge areas typically are attached. Corporate hangars usually have an adjacent parking area that vehicles can access without passing through a security gate.

Corporate Hangar

- **Shade Hangars**—Shade hangars are similar to T-hangars, but they do not include doors or interior partitions. They help keep the sun and rain off the aircraft, but they do not provide the security afforded by an enclosed T-hangar. Shade hangars can be constructed advantageously on existing apron pavement in that water drainage through the building is not a concern. Compared to T-hangar construction for which existing pavement must be removed and the site regraded, shade hangars may cost only half as much. On raw ground, the price between the two types differs by only 20%. Shade hangars can be optimal in locations where the mass of an enclosed building would act as a visual barrier.

Shade Hangar

- **Individual Portable Hangars**—Portables are small, individual hangars designed to be constructed elsewhere and hauled to the airport. They typically are T-shaped, but can be rectangular. An advantage of portables is that they can be added economically in increments of just one unit at a time. However, the cost per unit is similar to, or even higher than, the cost of an individual unit in a multiple-unit T- hangar

Portable Hangar

building. Most often they are owned individually rather than by the airport or a hangar developer. Portables can be installed almost anywhere on the airport, including on existing apron pavement or on unpaved areas. A chief disadvantage is that their inconsistency of appearance. Poor maintenance can make them unattractive.

Tiedown Apron

Spaces for based and smaller transient aircraft are normally equipped with tiedown anchors and chains or ropes to prevent the aircraft from being battered by strong winds.

Aircraft Apron

Airports need paved apron areas for parking the portion of their based aircraft fleet that is not hangared, as well as for short- term usage by transient aircraft visiting the airport.

Initially, portions of the former Crows Landing Air Facility apron will be used for aircraft parking. There is sufficient space to accommodate approximately five tie-down positions, which would accommodate demand through the intermediate phase of development (see **Table 3-2**). Additional tie-down aprons will be required to accommodate future increased numbers of based and transient aircraft.

Airport Operations Office

An administration building should be centrally located with good access both to the transient aircraft apron and to automobile parking. Many GA airports have an administration building that houses not only the airport management offices, but also a pilots' lounge, rest rooms, and other facilities for pilots and the public. Sometimes a coffee shop or restaurant is included. In the future, a multi- function administration building may be necessary. To draw more transient activity, attractive facilities for pilots and other visitors and provision of a meeting area would be advantageous.

Initially, a small, modular building can be used for airport offices located near the entrance to Crows Landing Airport. This location affords good views of the runway, parking aprons, and self-fueling facility, as well as convenient public access. The modular building can be initially sited on the existing concrete pavement.

Fixed-Base Operations Facilities

Fixed-base operators (FBO) constitute the commercial side of general aviation business. They provide a wide variety of facilities and services for pilots and their aircraft (see adjacent box). Busy airports usually have multiple FBOs, while smaller ones may have one or none. The primary FBOs at an airport commonly offer many of these facilities and services; specialized FBOs may supply just one. Also, at many airports, the airport operator provides some or all of the hangar facilities and fueling services. FBOs often develop and own their facilities on land leased from the airport, but in many cases both the facilities and the land are leased. Primary FBOs should be situated where they are easily visible and accessible both from the airport's airside and from adjacent roads. Specialty FBO sites can be sited in more isolated locations, although vehicle access without the need to go through a security gate is desirable.

Examples of FBO Facilities and Services

- Aircraft rental and charter
- Flighting instruction
- Flight preparation room, pilots' lounge and rest rooms
- Pilots' supplies
- Aircraft and avionics maintenance and repair
- Aircraft fueling

Sufficient space in the northeast and southwest building areas is available to accommodate establishment of future FBO facilities. The primary constraint is providing sufficient public access and utilities to these areas. Initial FBO development is anticipated near the airport's entrance in the northeast building area.

Other Support Facilities

- **Aircraft Fueling Facilities**—Fuel can be stored in aboveground tanks and/or dispensed by truck. The ability for small aircraft to obtain fuel at self-service pumps with 24-hour, credit-card-type access is desirable. For larger aircraft, especially for turbine-powered aircraft, fuel delivered by truck is desirable. As airport activity increases, a site near the transient parking apron may be needed (see **Figure 3B**).
- **Aircraft Wash Rack**—Construction of a pollution control facility (e.g., wash rack) may be considered. Siting the wash rack and fueling facility in close proximity of each other would enable sharing of a filtration system. The pollution control facility should be designed to meet current state and local standards to control pollutants from aircraft washing.
- **Air Traffic Control Tower**—The projected activity during the 20-year planning horizon is below the volume at which establishment of an air traffic control tower at the airport is warranted.
- **Airport Fire Station**—Fire protection at the airport is anticipated to be provided by the West Stanislaus Fire Department located in the City of Patterson and on-site fire extinguishers. FAA would not require an on-site firefighting facility during the planning horizon.

Safety and Security

Fencing and Gates

The principal form of security at most GA airports is a perimeter fence and controlled-access gates. For safety and security purposes, fencing should keep unauthorized individuals and especially vehicles from accessing the aircraft operating areas and building area. Entry should be possible only with an access code, card, or remote control or by passing through a monitored area such as the airport administration building or a fixed-based operations facility. Determining appropriate locations for fencing and gates in an airport building area can be complex in that public access to certain facilities needs to be maintained.

In May of 2004, the Transportation Security Administration, in conjunction with a wide group of general aviation industry representatives, developed and disseminated a series of security recommendations for consideration by general aviation airport operators, tenants, and users entitled Security Guidelines for General Aviation Airports (IP A-001). These recommendations, while not regulatory, should be carefully considered for application at Crows Landing Airport.

A perimeter fence will be provided during the initial phase of development. Perimeter fencing at the Crows Landing Airport would initially be located along Davis and Bell roads, as well as around the airport's entrance to the core building area. As airport activity increases and growth occurs in the adjacent industrial business park, the remainder of the airport property will need to be enclosed. Additional fencing will be needed in the long term in conjunction with airfield expansion and the acquisition of additional property.

Utilities

The utility lines to the former Crows Landing Air Facility (e.g., water and sewer, electricity, gas and telephone hook-up) will be provided as part of the Crows Landing Business Park Development and extended onto the airport site. Capacity is not assumed to pose a problem for most of the potential aviation uses.

Drainage

The topography at the Crows Landing Airport is very flat. Once the property on the northeast side of the airfield is developed with impervious parking and building areas, additional drainage facilities will be necessary. Grading of the northeast building area will need to provide positive drainage flows to maintain and formalize the general drainage patterns currently existing on the airport. While drainage will need to be considered in the engineering designs of the north-side facilities, it is not a significant layout planning consideration. At some point in the future, it may prove advantageous to prepare a Storm Water Drainage Master Plan to address the long-term drainage development needs of the airport.

Road Access

Good road access and visibility from adjacent roads are important marketing factors for most businesses that serve local pilots and the general public.

- **Internal Service Road**—An internal service road is needed to enable vehicles to travel around the airport without entering the controlled aircraft movement area and allow them to get from one part of the airport to another without using public roads or passing through gates. The service road is not open to the general public, only to airport vehicles, hangar tenants, and others authorized to pass through a controlled-access gate. These features are a time-saving convenience. In addition, the ability to remain off the public roads is particularly important for fuel trucks in that these vehicles normally are not licensed and insured for driving on public roads. Providing continuous vehicular access between the northeast and southwest building areas will require going around the ends of the runway. An internal service road for the Crows Landing Airport is proposed to follow the airport property to ensure clearance of critical airfield safety areas (RSA, OFA). However, internal service roads may not be necessary in all areas depending on the layout of new development on the northeast side. The internal access road is anticipated to accommodate the fuel trucks, hangar tenants, and other authorized vehicles. Thus, the load bearing capacity of the future service road pavement will need to be capable of handling the weight of the fuel trucks.
- **External Road Access—** Convenient access from the adjacent major roads is essential to aviation-related businesses located at the airport. Corporate hangars also need to be accessible without the need for visitors to pass through a controlled-access gate. The difficulty of providing a good external road access to the interior area of the north-side property is a significant constraint to the options for development of the site. Therefore, the layout of airport facilities will depend largely upon on the external road network.

Table 3-1

Airport Development Concepts
Crows Landing Airport

Phase	Development Concepts
At Opening (O to 10 Years)	**Airport Reference Code B-II** ▪ One Portland cement concrete runway: Runway 11-29 (5,175' x 100') ▪ Full-length parallel taxiway on northeast side ▪ Unlighted runway –daytime use, visual flight rules (VFR) only ▪ Small airport operations office (e.g., modular unit) on existing concrete pavement ▪ Small aircraft parking apron with 5 tiedowns on existing concrete pavement fronting operations office ▪ Up to 10 privately financed hangars on County leases sited on existing concrete pavement ▪ All aeronautical support facilities to be sited on northeast side of Runway 11-29 (e.g., aprons, hangars) ▪ Perimeter fencing along Davis and Bell Roads and apron area ▪ Basic aviation fuel services: 100LL via self-service from a skid-mount tank and maybe Jet-A via a refueler truck ▪ Wash rack facility, perhaps combined with fueling facility to allow sharing of filtration system ▪ Moldular unit with telephones/wifi and restrooms
Future (11 to 30 Years)	**Airport Reference Code B-II** ▪ One Portland cement concrete runway: Runway 11-29 (5,175 x 100') ▪ Full-length parallel taxiway on northeast side ▪ Medium intensity runway lights, PAPI, rotating beacon ▪ Nonprecision instrument approach capability (GPS based) ▪ Basic Fixed Base Operator (FBO) services: on-site presence, basic aircraft maintenance, and maybe an FBO hangar, little or no flight training by FBO anticipated ▪ Small terminal building to replace modular unit (passenger waiting area, phone, restrooms, operations office), perhaps combined with FBO facilities ▪ Basic helicopter takeoff and landing area using existing hard-surface area southwest of Runway 11-29 may be acceptable ▪ Perimeter access road and perimeter fencing fully enclosing airport property ▪ Additional privately-developed aircraft storage hangars
: **Ultimate (>30 Years)**	**Airport Reference Code C-II** ▪ One Portland cement concrete runway: Runway 11-29 (6,175' x 100') ▪ New full-length parallel taxiway on northeast side of Runway 11-29 satisfying ARC C-II standards ▪ Precision (GPS-based) instrument approach capability ▪ Aviation fuel services/jet fuel ▪ Additional Fixed Base Operator services (e.g., specialty aeronautical services; some flight training) ▪ Enhanced heliport facility (e.g., takeoff and landing area, helicopter parking, FBO facility) ▪ Begin development of aeronautical support facilities (e.g., aprons, tied-owns, hangars) on southwest building area

Table 3-2

Airport Design Standards
Crows Landing Airport

Airfield Element	**At Opening (0 to 10 years)**	**Future (11 to 30 years)**	**Ultimate Build-out (>30 years)**
Airport Property (acres)	370	No Change	592
Airport Reference Code (ARC)	B-II	No Change	C-II
Runway Design	**At Opening**	**Future**	**Ultimate Build-out**
Runway Length	5,175’	No Change	6,175’
No. of Runways	1	No Change	No Change
Runway Safety Area (RSA) Length Beyond Runway End	300'	No Change	1,000'
Runway Safety Area Width	150'	No Change	500'
Object Free Zone (OFZ) Width	400'	No Change	No Change
Object Free Area (OFA) Width	500	No Change	800
Runway Protection Zone (RPZ) (inner width, outer width, length)	250' x 400' x 1,000'	No Change	1,000' x 1,750' x 2,500'
Runway markings	Basic	Non-precision	Precision
Approach and Landing Aids	**At Opening**	**Future**	**Ultimate Build-out**
Approach Type	Visual	Non-precision (GPS-based)	Precision (GPS-based)
Approach Slope[1]	20:1	34:1	50:1
Primary Surface Width[1]	250'	500'	1,000'
Runway Lighting	None	MIRL/REIL[2]	No Change
Approach Lights	None	None	MALSR[2]
NAVAIDS[2]	Segmented circle, unlit wind cones	Segmented circle, Lighted wind cones, Rotating Beacon,PAPI[2]	No Change

Table 3-2, continued

Airport Design Standards

Taxiway Design	**At Opening**	**Future**	**Ultimate Buildout**
No of parallel Taxiways (standard taxiway width)	1 (35')	No Change	1[3] (35')
Taxiway Separation Distance[4]	288'	No Change	400'
Taxiway Hold Line Distance[4]	200'	No Change	250'
Other Design Factors	**At Opening**	**Future**	**Ultimate Buildout**
Building Restriction Line[5]	B-II:15' and 30'	No Change	C-II: 15' and 30'
Airplane Parking Line[6]	66'	No Change	No Change
Hangar Units	15	35	65
Tie-down Spaces	5	No Change	No Change
Based Aircraft	20	40	80
Heliport	None	70' x 70'	No Change

Notes

[1] Consistent with criteria established in Federal Aviation Regulation (FAR) Part 77, *Safe and Efficient Use of Navigable Airspace.*

[2] Definitions: Medium Intensity Runway Lights (MIRL); Runway end identifier lights (REIL); Navigational Aids (NAVAIDs); Precision Approach Path Indicator (PAPI); Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)

[3] A new parallel taxiway to be constructed to meet FAA separation standards for ARC C-II runways

[4] Distance measured from runway centerline

[5] Building restriction line (BRL) separation from Runway Centerline:

ARC B-II:15' = 355'; ARC B-II:30' = 460'; ARC C-II:15' = 605'; ARC C-II:30' = 710'

[6] APL separation requirement from taxiway centerline

Note: proposed design consistent with FAA airport design standards (FAA Advisory Circular 150/5300-13, Change 1, *Airport Design)*.

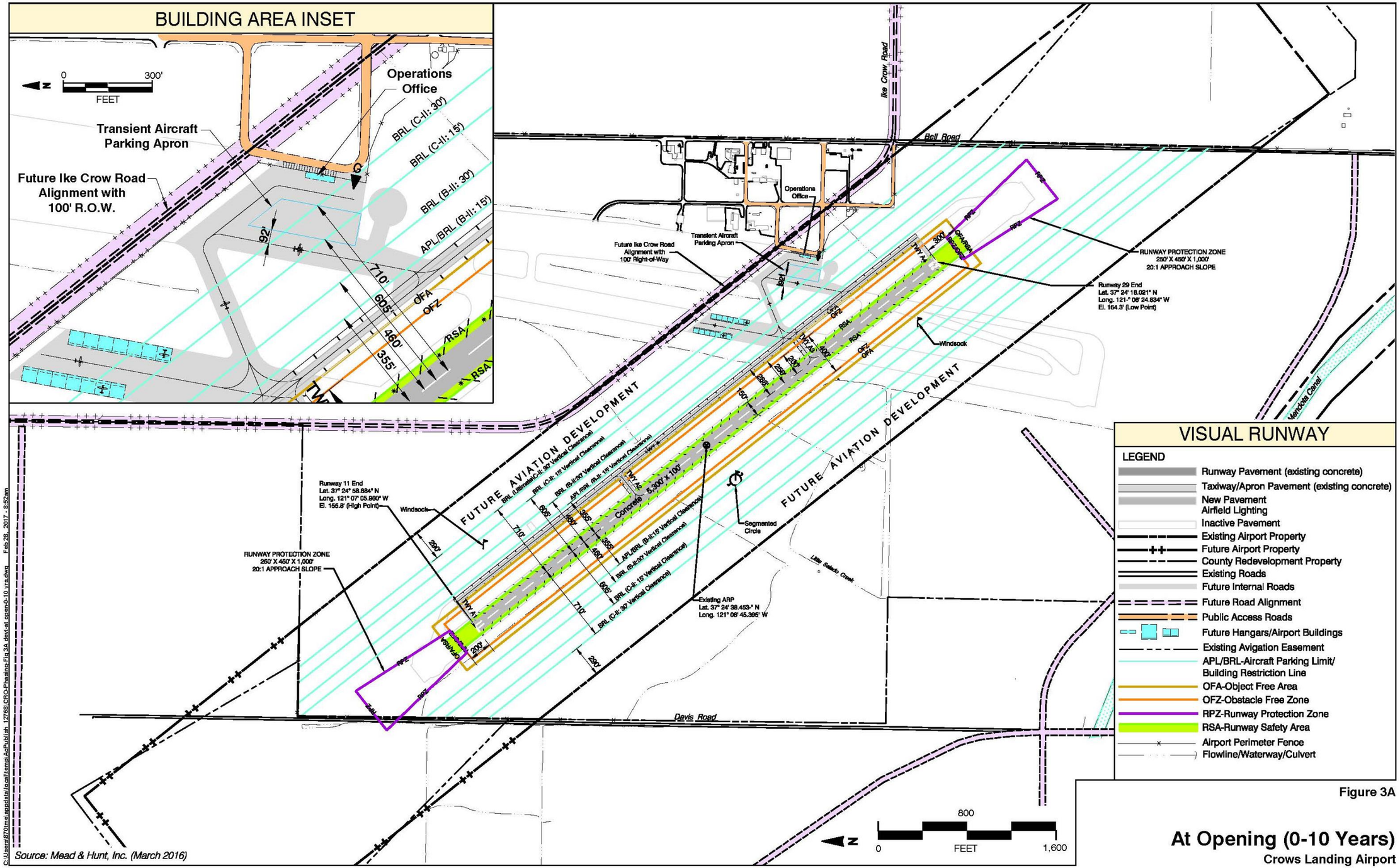


Figure 3A

At Opening (0-10 Years)

Crows Landing Airport

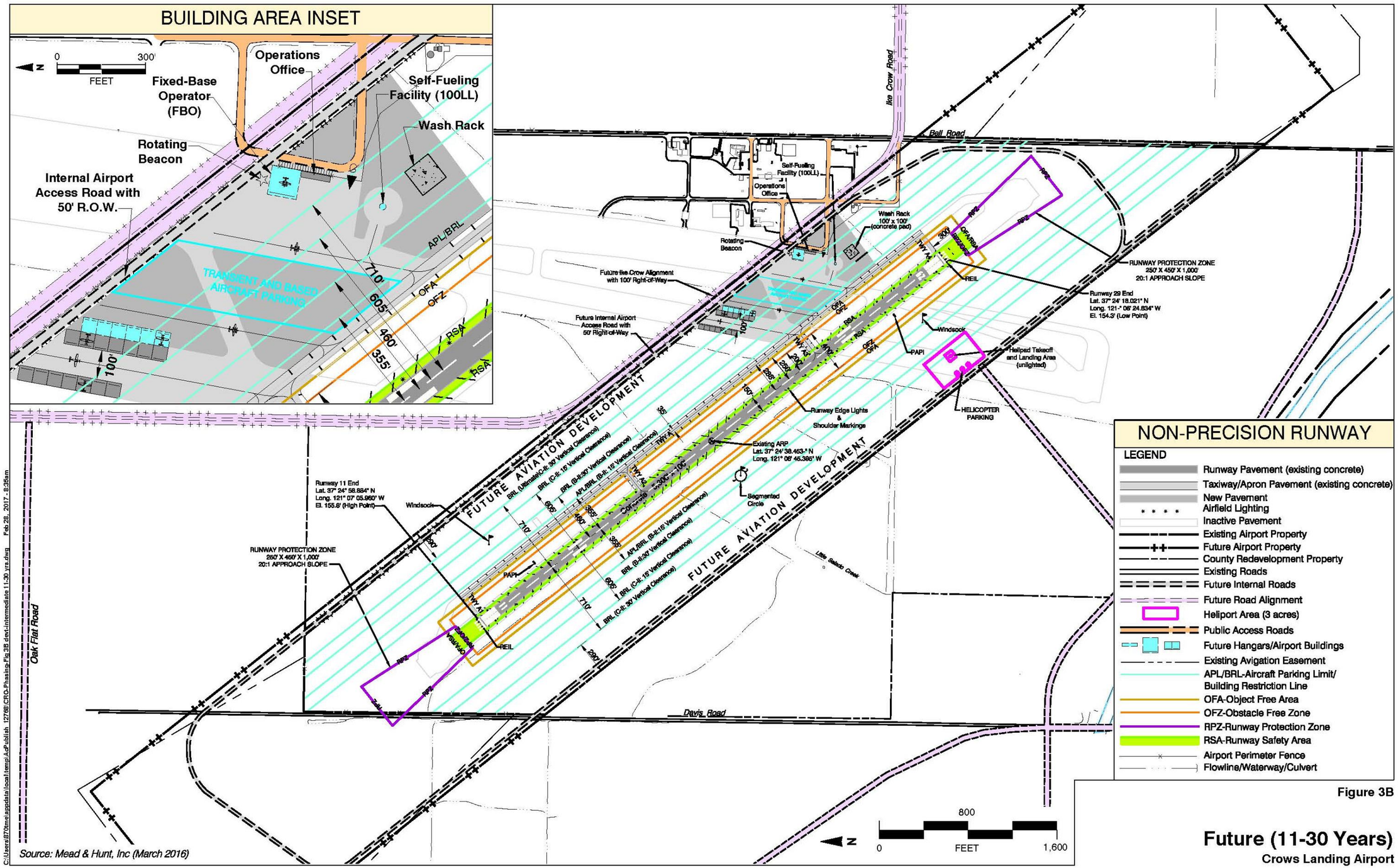


Figure 3B

Future (11-30 Years)

Crows Landing Airport

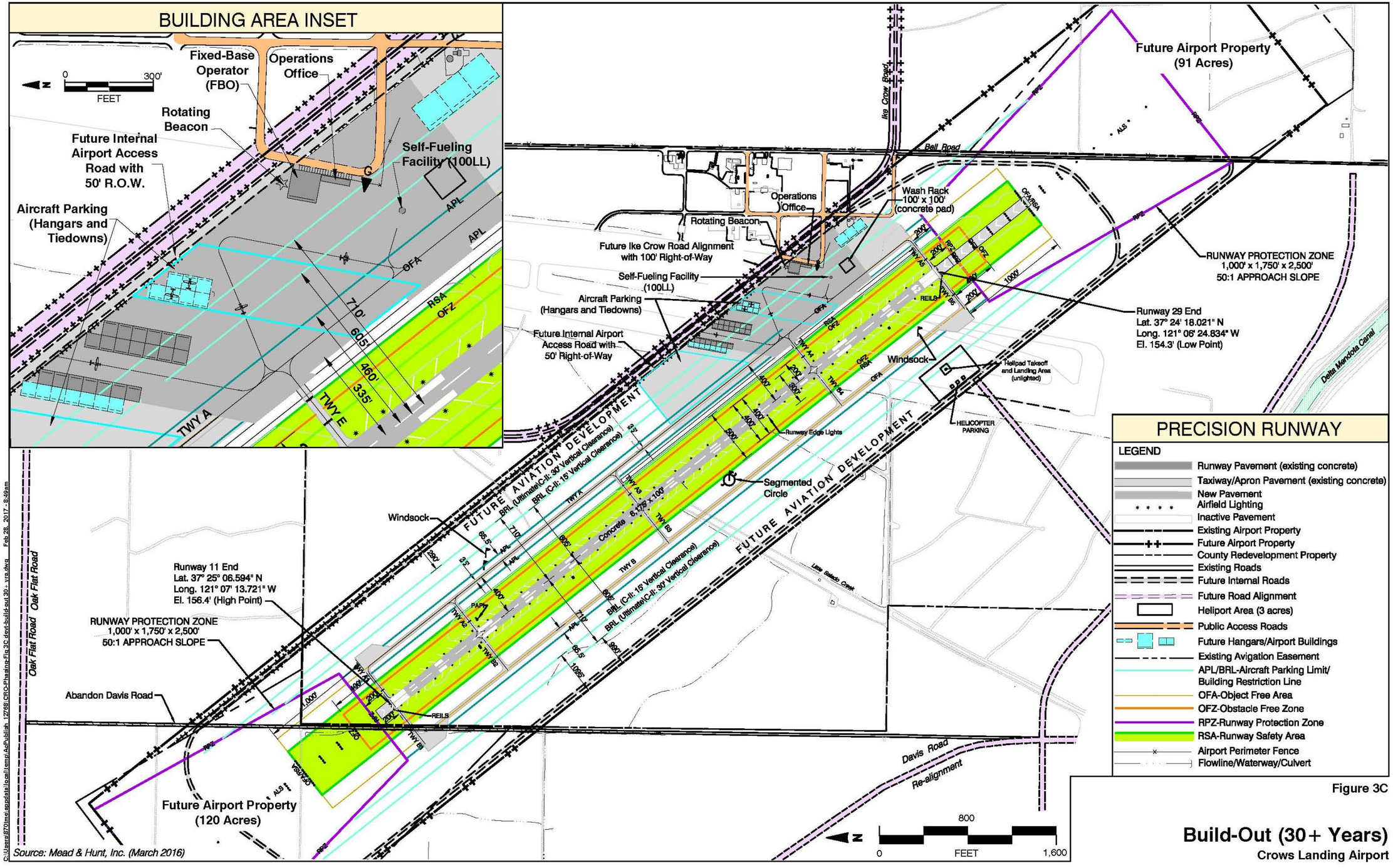


Figure 3C

Build-Out (30+ Years)

Crows Landing Airport

CHAPTER 4

AIRPORT PLANS

4 AIRPORT PLANS

This chapter describes the plan documents associated with the recommended airport development program as set forth in Chapter 3. Airfield and building area improvements are necessary to maintain safety and operational efficiency and to accommodate projected aviation demand.

An Airport Layout Plan (ALP) is a graphic representation of the airport owner's intentions regarding the future course of airport development. The ALP is a key document that that serves as a reference to aviation requirements, as well as to land use and financial planning. It is a prerequisite for state or federal funding of airport improvement projects. The California Division of Aeronautics requires approval of an ALP in order for the airport to qualify for issuance of an operating permit and possible California Aid to Airports Program funding. At the federal level, a current airport layout plan must be approved by the Federal Aviation Administration (FAA) before a project can become eligible for funding under the Airport Improvement Program (AIP). In addition, proposed capital projects must be consistent with the ALP, and the ALP must be updated periodically.

It is anticipated that the Crows Landing Airport will seek classification as a National Plan of Integrated Airport Systems (NPIAS) airport. The NPIAS identifies existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the AIP. The NPIAS also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. A majority of the NPIAS projects are considered to be of high-priority as they are intended to rehabilitate existing infrastructure and enhance airport safety. The timing of these improvements may be affected by economic conditions.

AIRPORT LAYOUT PLAN DRAWINGS

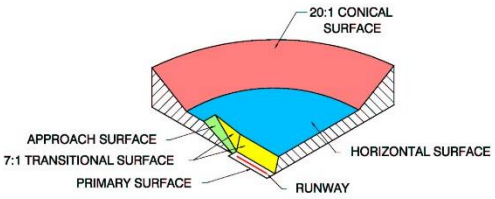
As presented at the end of this report, the Crows Landing Airport ALP set consists of: the following drawings: Index Sheet (Sheet 1), ALP (Sheet 2), Airport Data (Sheet 3), Airspace Plan (Sheets 4 to 5), and Property Map (Sheet 6). Although the Airport is These drawings are prepared guidelines set forth in Title 21, Section 3534 of the California Code of Regulations and FAA criteria established in FAA's Advisory Circular *150/5300-13, Change 1, Airport Design,* FAA Advisory Circular 150/5070-6A*, FAA Standard Operating Procedures 2.00 and 3.00*, and Title 14 of the Code of Federal Regulations (CFR) Part 77, *Safe, Efficient Use, and Preservation of Navigable Airspace.* The principal drawing illustrating the long-term development plan for the Airport is the Airport Layout Plan itself (Sheet 2). The Part 77 Airspace Plan defines the airspace required for air navigation.

Airport Layout Plan

The ALP drawing (Sheet 2) depicts the phased development of the Crows Landing Airport, including the recommended locations of the runway, apron area, and other supporting airport facilities (e.g., internal access road, heliport). Pertinent clearance and dimensional information are indicated as needed to show conformance with applicable airport standards. Other important data, (airport latitude, longitude, and elevation; runway gradient and orientation; pavement strength; expected number of based aircraft; etc.) are noted in tabular form.

Airspace Plan

The principal strategy of mitigating hazards within the vicinity of an airport centers on FAA regulations set forth in 14 CFR Part 77, Safe, *Efficient Use, and Preservation of Navigable Airspace* Part 77 establishes regulatory standards for determining obstructions to navigable airspace and the effects of such obstructions on the safe and efficient use of that airspace. The regulations require that the FAA be notified of proposed construction or alteration of objects—whether permanent, temporary, or of natural growth—if those objects would achieve a height which exceeds the FAR Part 77 criteria. The height limits are defined in terms of imaginary surfaces in the airspace and extend approximately 2 to 3 miles around airport runways and approximately 9.5 miles from the ends of runways having a precision instrument approach. The FAA conducts an aeronautical study of proposed construction and determines whether the use would be a hazard to air navigation. The evaluation considers only the height of the proposed structure(s). The FAA may recommend removal, marking, or lighting the obstruction(s). The Airspace Plan consists of Sheets 3 and 4.



TYPICAL FAR PART 77 SURFACES

The FAA also provides guidance on avoiding certain land uses on or near an airport which could endanger or interfere with the landing, taking off, or maneuvering of an aircraft at an airport. Specific land use characteristics to be avoided include:

- Tall structures
- Hazardous wildlife attractants
- Creation of glare, dust, steam, or smoke, which could impair visibility for pilots
- Lights that could be mistaken for airport lights or otherwise interfere with a pilot's vision
- Facilities that produce electronic interference with aircraft communications or navigation equipment

FINANCIAL FACTORS

One of the means available to help ensure financially sound airport development is to avoid facility construction too far in advance of the demand. As noted in Chapter 2, the growth in numbers of based and transient aircraft at Crows Landing Airport is expected to be moderate throughout the 30-year planning horizon. The growth rate for the principal measure of demand—the size of the airport's based aircraft fleet—is expected to average two percent per year. However, it is more

likely that increases in the fleet size will occur in erratic increments rather than in the consistent two to three percent annual rate of growth rate suggested.

Development Staging

The challenges to the appropriate staging of airport facility development over an extended period of time are twofold.

- One challenge is to minimize costly "Phase 1" construction that may not be fully utilized (and paid for) for many years.
- Another challenge is posed by the need to ensure that early development is not located in a manner that, while perhaps less expensive initially, hinders future development.

The overall goal of an ALP is to establish a plan that is flexible enough to adapt to changes in type and pace of facility demands, is cost-effective, and optimizes functionality during each stage of development.

Financial Issues

Because the opening of a new airport is a complex project, special attention needs to be given to certain financial issues. (Advance recognition of potential problems will help to avoid costly remedies later.) Not only is it important to take all the necessary actions, but it is also important to take these actions in the proper sequence. Among these issues are:

- **Funding Commitments** – Unless another source of funding is readily available, County expenditure of any significant sums of money for engineering design or other work should await notice of a tentative allocation of funds from the FAA following inclusion in the NPIAS.
- **Role of Project Engineer –** Regardless of whether County staff is utilized or a consultant is hired, the project engineer should be familiar with the entire airport development process.
- **Pre-application for Federal Grants** – The pre-application for Federal funds should state the estimated cost of the complete first stage of airport development including construction. The pre-application should be revised as engineering designs allow more refined estimates of development costs.

Management and Operational Issues

Other issues that should be addressed prior to opening of a new airport include, but are not limited to:

- **Management Alternatives** – The form of management desired for the new airport must be determined and necessary personnel hired to perform on-site duties. For the Crows Landing Airport, is recommended that the management be shared between County departments based on expertise.
- **Lease and Rental Agreements –** Consideration should be given to obtaining a fixed-base operator (FBO) for the airport. Also, rates and charges for T-hangars, tie-downs, and other facilities must be set.
- **Airport Rules and Regulations –** These should be adopted, even if only on an interim basis, before the new airport opens.

- **Airport Minimum Standards –** A set of standards that define the service, personnel, and facility requirements needed to conduct commercial operations on the airport should be established and in place prior to or shortly after place prior to the opening of the airport.
- **Land Use Controls** – Several actions, including the adoption of an Airport Land Use Compatibility Plan (ALUCP) by the County's Airport Land Use Commission and the adoption of General Plan and Zoning Code amendments, are essential to the long-term viability of the new airport.

The following pre-planning, design, and operational tasks will need to be completed prior to opening the Crows Landing Airport for public use.

Table 4-1. Pre-Opening Issues
Crows Landing Airport, Stanislaus County, California

Tasks	▪ Delineate an appropriate Airport access road system ▪ Construct appropriate security fencing and gates to preclude inadvertent access to the Airport ▪ Remove old military airfield surface markings and signs conflicting with new public-use general aviation airport requirements ▪ Remove all former military obstructions/surface deviations/equipment/etc. that interfere with public-airport use ▪ Mark former Runway 16-34 as permanently closed (i.e., with painted "X"s) ▪ Clean and fill all cracks on Runway 11-29 (@ 5,300' x 100'), parallel taxiway system (@ 35' wide), and apron use areas ▪ Restripe/remark/resign airfield surfaces (e.g., runway, taxiways, apron areas) as appropriate ▪ Install segmented circle and three unlighted wind cones (one at each approach end and one at segmented circle) ▪ Install tie-down anchors (cable-based or fixed point) as appropriate on aircraft parking aprons ▪ Establish an operational focal-point (e.g., operations office, telephone, restrooms, etc.) ▪ Endeavor to provide 24-hour user accessibility to telephone and restrooms ▪ Provide a basic level of emergency response capability (e.g., locate portable fire extinguishers near apron areas, establish notification procedures for emergency response by local fire department, provide public telephone capability) ▪ Determine the appropriate level of County staffing presence desired for Airport operational/maintenance/security/safety ▪ Arrange for appropriate airport insurance coverage to protect the County ▪ Apply for Airport Permit from California Division of Aeronautics ▪ Issue appropriate Notices-To-Airmen announcing Airport availability ▪ Facilitate development of privately-funded aircraft storage hangars as appropriate

Funding Sources

The primary source of funding for most of the substantial capital improvements recommended for Crows Landing Airport is the FAA following inclusion in the NPIAS. Limited funding is available through the Aeronautics Account of the California State Transportation Fund. Specific funding programs for airport improvement projects include the following:

Federal Airport Improvement Program (AIP) Grants

AIP provides both entitlement funds and discretionary funds. These entitlement funds can be used each year that they become available or they can be held up to two years for a larger project. The AIP program also allows for discretionary funding to be made available from the FAA to provide financial support for capacity and safety-related projects, as well as projects intended to keep the critical components of the airfield operational (e.g., runway/taxiway rehabilitation).

Projects that are eligible for FAA AIP funding are determined based on guidelines contained in FAA Order 5100.38, *Airport Improvement Handbook*. As a general rule, only airport projects that are related to non-revenue producing facilities, such as airfield construction, public areas of a terminal, and land acquisition, have been eligible for federal funding. For general aviation airports in California, the FAA share is 95%, with a 5% match required from the airport sponsor.

State of California Aviation Program

The State of California operates an airport grant program similar in concept to the Federal AIP program. The state grant program is administered by the California Department of Transportation's Division of Aeronautics. All grants are awarded on a competitive basis. Grants are judged using a numerical weighting scheme. As with the Federal program, priority is given to projects that enhance safety.

- **State Annual Grant**—General aviation airports are eligible to receive a $10,000 annual grant. These funds can be used for airfield maintenance and construction projects, as well as airfield and land use compatibility planning. Airports can accumulate these funds for up to five years. No local match is required for an annual grant.
- **AIP Matching Grants**—This state grant assists the airport sponsor in meeting the local match for AIP grants from the FAA. The state's AIP matching grant provides 5% of the federal share of eligible projects. Currently, with the federal share at 95%, the state will contribute 4.75%, leaving the airport sponsor's match at just 0.25% of the project amount.
- **Acquisition and Development Grants**—This state grant program is similar to the FAA's AIP in that an outright grant is offered for qualifying projects. The local match can vary from 10% to 50% of the project's cost. The local match rate has been 10% during the last 25 years.

The Division of Aeronautics also administers a revolving loan program called the State Loan Program. Loans are available to provide funds to match AIP grants to develop revenue –producing facilities (e.g., aircraft storage hangars and fuel facilities). The interest rate is favorable and the payback period is between 8 and 17 years.

Other Grant Programs

Airport projects can also sometimes qualify for grant funding from non-aviation sources. Although not commonly available, airports have received grants from a variety of federal and state programs including: economic development, community development, and rural infrastructure. Airports are encouraged to seek out and qualify for these non-aviation funding programs where applicable.

Local/Airport Funds

At general aviation airports similar to the proposed Crows Landing Airport, airport sponsor self-funding is principally provided by a combination of airport-generated income and owner (County) funds. Funding airport improvements that are not grant eligible and providing the local matching share for grants-in-aid are usually the simplest most economical methods because direct interest costs are eliminated.

Cost Estimates

The proposed 20+ year capital improvement program for Crows Landing Airport is presented in **Table 4-2**. Proposed improvements described in the preceding chapter are included on the list according to the proposed development phases discussed in Chapter 3.

- At Opening (0 to 10 years)
- Future (11 to 30 years)
- Ultimate Runway Buildout (>30 years)

The indicated costs are order-of-magnitude estimates in 2016 dollar values. Design engineering, construction inspection, and other related costs are included for each item and a contingency factor is added as well. The cost estimates are intended only for preliminary planning and programming purposes. Specific project analyses and detailed engineering design will be required at the time of project implementation to provide more refined and up-to-date estimates of the individual project costs.

The ALP drawing depicts the location of each of the proposed major improvements and the anticipated time frame of construction. The timing indicated is based upon the forecasts presented in Chapter 2. It is important to emphasize, though, that the general sequence of development indicated in the capital improvement program is more significant than the precise timing. The actual timing of major improvements will be driven by demand and funding availability, not by the calendar. If the growth rate of projected aviation activity is not realized, then each phase of development would extend over additional years. On the other hand, demand for construction of certain facilities could arise more quickly than the staging plan anticipates.

NOISE IMPACTS

CNEL Contour Calculations Inputs

- *The number of operations by aircraft type or group.*
- *The distribution of operations by time of day for each aircraft type.*
- *The average takeoff profile and standard approach slope used by each aircraft type.*
- *The amount of noise transmitted by each aircraft type, measured at various distances from the aircraft.*
- *The runway system configuration and runway lengths.*
- *Runway utilization distribution by aircraft type and time of day.*
- *The geometry of common aircraft flight tracks.*
- *The distribution of operations for each flight track.*

Approval for individual components of the airport capital improvement program recommended for Crows Landing Airport will occur within the environmental review framework of Stanislaus County. The environmental impacts associated with the Airport are being established as part of the General Plan Update for the Crows Landing Redevelopment Area and its immediate vicinity.

Noise is often described as unwanted or disruptive sound. A pure sound is measured in terms of: its magnitude, (often thought of as loudness) as indicated on the decibel (dB) scale; its frequency, (or tonal quality) measured in cycles per second (hertz); and its duration or length of time over which it occurs (See **Table 4-3** for examples of typical decibel levels). To measure the noise value of a sound other factors must also be considered. Airport noise is particularly complex to measure because of the widely varying characteristics of the individual sound events and the intermittent nature of these events' occurrence.

In an attempt to provide a single measure of airport noise impacts, various cumulative noise level

metric have been devised. The metric most commonly used in California is the Community Noise Equivalent Level (CNEL). The results of CNEL calculations are normally depicted by a series of contours representing points of equal noise exposure in 5 dB increments. Key factors involved in calculation CNEL contours are noted to the left.

Noise contours were prepared using the FAA's Integrated Noise Model (Version 7.0). The results are presented at the end of this chapter. **Figure 4B** presents the aircraft noise contours for the activity levels at opening. Future (11 – 30 years) aircraft noise contours are presented in **Figure 4C**. **Table 4-4** summarizes airport activity data.

Crows Landing Airport
Capital Improvement Plan Cost Estimates - DRAFT

Phased Projects		Cost Estimate
Short Term: At Opening to 10 Years		
A1	Remove old runway lighting and level runway RSA, OFZ and OFA	$ 712,000
A2	Perform Airport Pavement Management Plan and clean and fill runway/taxiway/apron pavement cracks / other pavement repairs	$ 589,600
A3	Prepare Airfield Marking Plan, remove old airfield marking and paint new taxiway and runway markings for visual runway	$ 214,000
A4	Repair airport access roads and utilities	$ 425,000
A5	Construct airport entrance and parking spaces	$ 468,000
A6	Install airport entrance sign	$ 60,000
A7	Install apron security lighting near airport entrance	$ 210,000
A8	Install 25,000 LF 8 foot fence with 3-strand barbed wire along airport boundary and manual gate at airport entrance	$ 890,000
A9	Install 4 taxiway hold signs	$ 30,000
A10	Install segmented circle and 3 wind cones (non-lit)	$ 72,500
A11	Install 10 tiedowns and site preparation for 5 hangars	$ 122,500
A12	Install 780 s.f. modular unit for operations office with restrooms and utility connections	$ 256,750
A13	Install 12,000 gallon skid-mounted general aviation fuel tank (100LL), jet-A refueler truck, truck pad and wash rack	$ 160,000
A14	Construct Connector Taxiways A2, A3, A4, A5.	$ 400,000
	Subtotal	**$ 4,610,350**
Intermediate Term: 11 to 30 Years		
B1	Construct additional apron area to accommodate aircraft tiedowns, hangars and FBO sites	$ 4,110,000
B2	Construct internal perimeter access road and install manual gate at Bell Road to access helipad	$ 505,000
B3	Paint helipad markings on southwest side of runway	$ 25,000
B4	Remark Runway 11-29 to reflect non-precision (GPS based) instrument approach	$ 60,000
B5	Install Medium Intensity Runway Edge Lights (MIRL)	$ 398,300
B6	Install Runway End Identifier Lights (REILS) at each runway end	$ 42,550
B7	Install Precision Approach Path Indicator (PAPI) at each runway end	$ 334,500
B8	Install rotating beacon	$ 40,000
B9	Light existing wind cones (3 wind cones)	$ 43,500
B10	Construct additional apron area northeast of airfield	$ 4,860,000
B11	Replace modular unit with permanent terminal building including pilot lounge, restrooms and airport office space(s)	$ 450,000
	Subtotal	**$ 10,868,850**
Runway Build Out Concept: 30+ Years		
D1	Acquire 202 acres for future airport expansion and remove obstructions	TBD
D2	Construct 1,000-foot extension of Runway 11 to north & blast pad, realign REILS, & remark runway for precision instrument approach	TBD
D3	Construct and mark new parallel taxiway and remark old taxiway pavement as closed	TBD
D4	Construct internal perimeter access road around Runway 11 extension, abandon segment of Davis Road and remove segment of perimeter fence	TBD
D5	Install 10,500 ft. of perimeter security fencing to enclose future airport property and additional security gate	TBD
D6	Install MALSR approach lighting at both ends of Runway 11-29	TBD
D7	Mark blast pad for Runway 29	TBD
D8	Construct additional apron area west of runway	TBD
	Subtotal	***TBD***
	TOTAL	**$ 15,479,200**

* Aircraft storage hangars anticipated to be provided by private sector
** Cost estimates in 2016 dollars

Table 4-2. Airport Improvement Cost Estimates

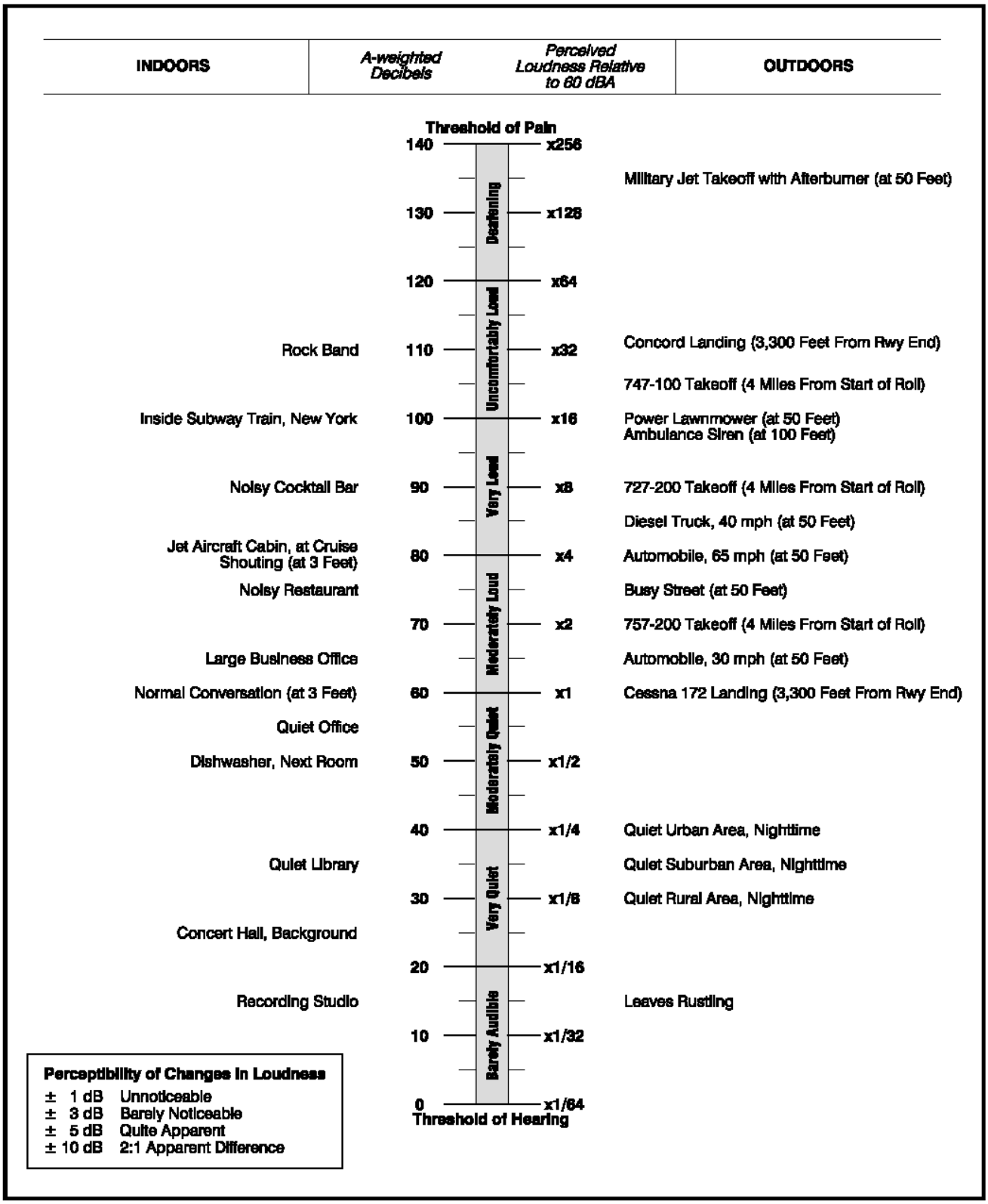

INDOORS
A-weighted Decibels
Perceived Loudness Relative to 60 dBA
OUTDOORS
Threshold of Pain
140
x256
Deafening
Military Jet Takeoff with Afterburner (at 50 Feet)
130
x128
120
x64
Uncomfortably Loud
Rock Band
110
x32
Concord Landing (3,300 Feet From Rwy End)
747-100 Takeoff (4 Miles From Start of Roll)
Inside Subway Train, New York
100
x16
Power Lawnmower (at 50 Feet)
Ambulance Siren (at 100 Feet)
Very Loud
Noisy Cocktail Bar
90
x8
727-200 Takeoff (4 Miles From Start of Roll)
Diesel Truck, 40 mph (at 50 Feet)
Jet Aircraft Cabin, at Cruise
Shouting (at 3 Feet)
80
x4
Automobile, 65 mph (at 50 Feet)
Noisy Restaurant
Moderately Loud
Busy Street (at 50 Feet)
70
x2
757-200 Takeoff (4 Miles From Start of Roll)
Large Business Office
Automobile, 30 mph (at 50 Feet)
Normal Conversation (at 3 Feet)
60
x1
Cessna 172 Landing (3,300 Feet From Rwy End)
Quiet Office
Moderately Quiet
Dishwasher, Next Room
50
x1/2
40
x1/4
Quiet Urban Area, Nighttime
Quiet Library
Quiet Suburban Area, Nighttime
Very Quiet
30
x1/8
Quiet Rural Area, Nighttime
Concert Hall, Background
20
x1/16
Recording Studio
Leaves Rustling
Barely Audible
10
x1/32
0
x1/64
Threshold of Hearing
Perceptibility of Changes in Loudness
± 1 dB Unnoticeable
± 3 dB Barely Noticeable
± 5 dB Quite Apparent
± 10 dB 2:1 Apparent Difference

Table 4-3

BASED AIRCRAFT

	At Opening [a] Year 0-10	Future [b] 11-30 Years
Aircraft Type		
Single-Engine, Piston	10	50
Twin-Engine, Piston	--	10
Turboprop	--	14
Business Jets	--	6
Total	*10*	*80*

Aircraft Operations

	At Opening [a] Year 0-10	Future [b] 11-30 Years
Total		
Annual	4,000	34,000
Average Day	11	93
Distribution by Aircraft Type		
Single-Engine, Piston	100%	65%
Twin-Engine Piston	--	10%
Turboprop	--	15%
Business Jet	--	10%
Distribution by Type of Operation		
Local (incl. touch-and-goes)	75%	44%
Itinerant	25%	56%

Time of Day Distribution [A]

	At Opening Year 0-10	Future [b] 11-30 Years
All Aircraft		
Day (7am to 7pm)	98%	85%
Evening (7pm to 10pm)	2%	10%
Night (10pm to 7am)	--	5%

RUNWAY USE DISTRIBUTION [A]

	At Opening Year 0-10	Future 11-30 Years
All Aircraft		
Runway 11	20%	20%
Runway 29	80%	80%
Distribution by Operation and Aircraft Type		
Takeoffs / Landings - Day/Evening/Night		
Single-Engine, Piston		
Runway 11	20%	20%
Runway 29	80%	80%
Twin-Engine, Piston		
Runway 11	20%	20%
Runway 29	80%	80%
Turboprop		
Runway 11	20%	20%
Runway 29	80%	80%
Business Jets		
Runway 11	20%	20%
Runway 29	80%	80%
Touch-and-go operations - Day/Evening/Night		
Single-Engine, Piston		
Runway 11	20%	20%
Runway 29	80%	80%

Flight Track Use [A]

- 100% straight-out departures
- 100% straight-in arrivals
- Tough-and-go: 100% left traffic

Notes

[a] Estimated by Mead & Hunt and ESA Airports for compatibility planning purposes.

[b] Estimate represents the theoretical capacity as established for the Draft Airport Layout Plan Narrative Report. This forecast scenario assumes full build-out of the adjacent Crows Landing Industrial Business Park. The timeframe is undefined but assumed to be beyond 2046.

Typical Decibel Level of Common Sounds

Table 4-4
Airport Activity Data Summary
Crows Landing Airport

Source: Mead & Hunt, Inc. (March 2016)

Figure 4A

Airport Improvement Staging Plan

Crows Landing Airport

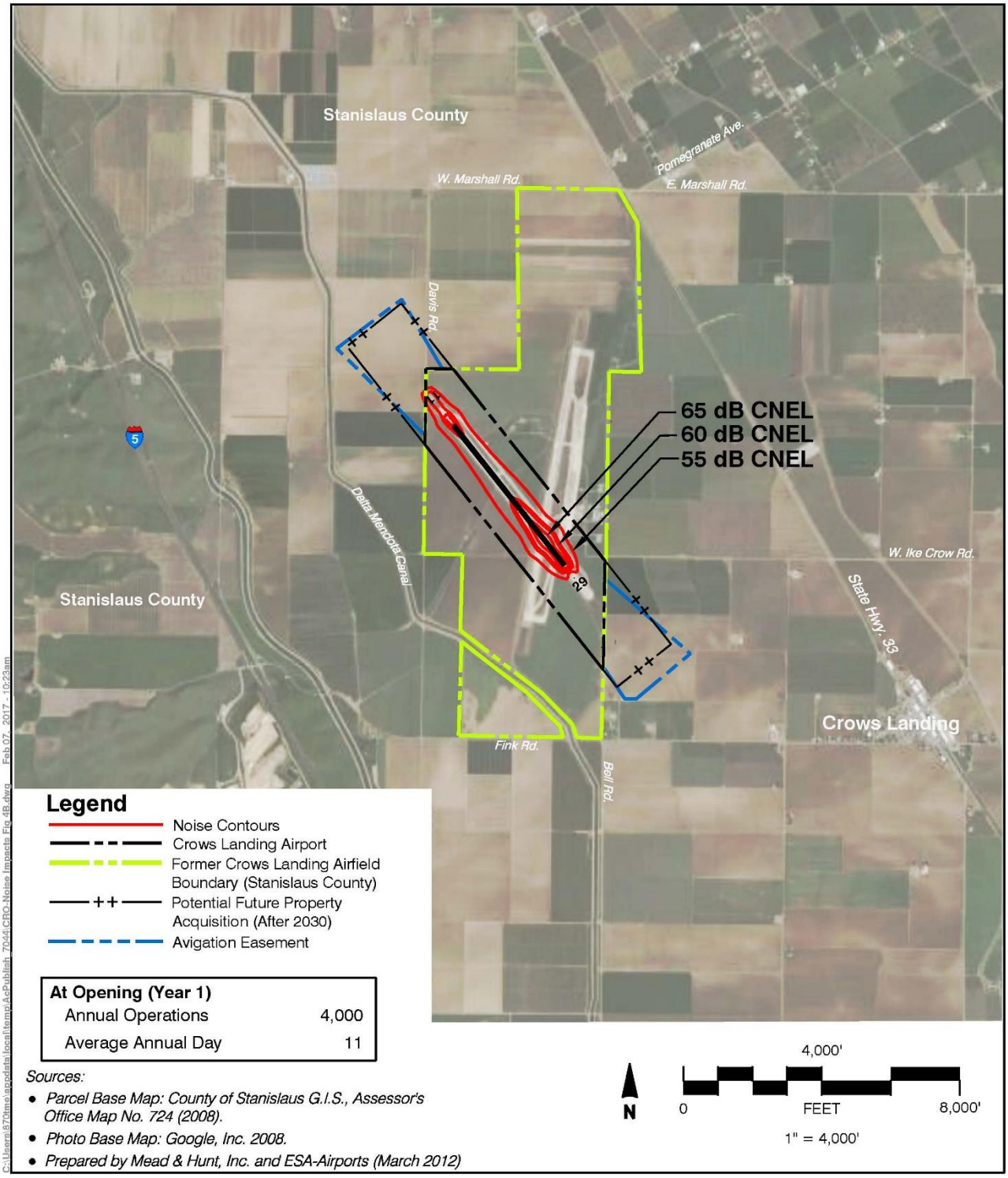


Figure 4B

Noise Impacts — At Opening (Year 1)

Crows Landing Airport

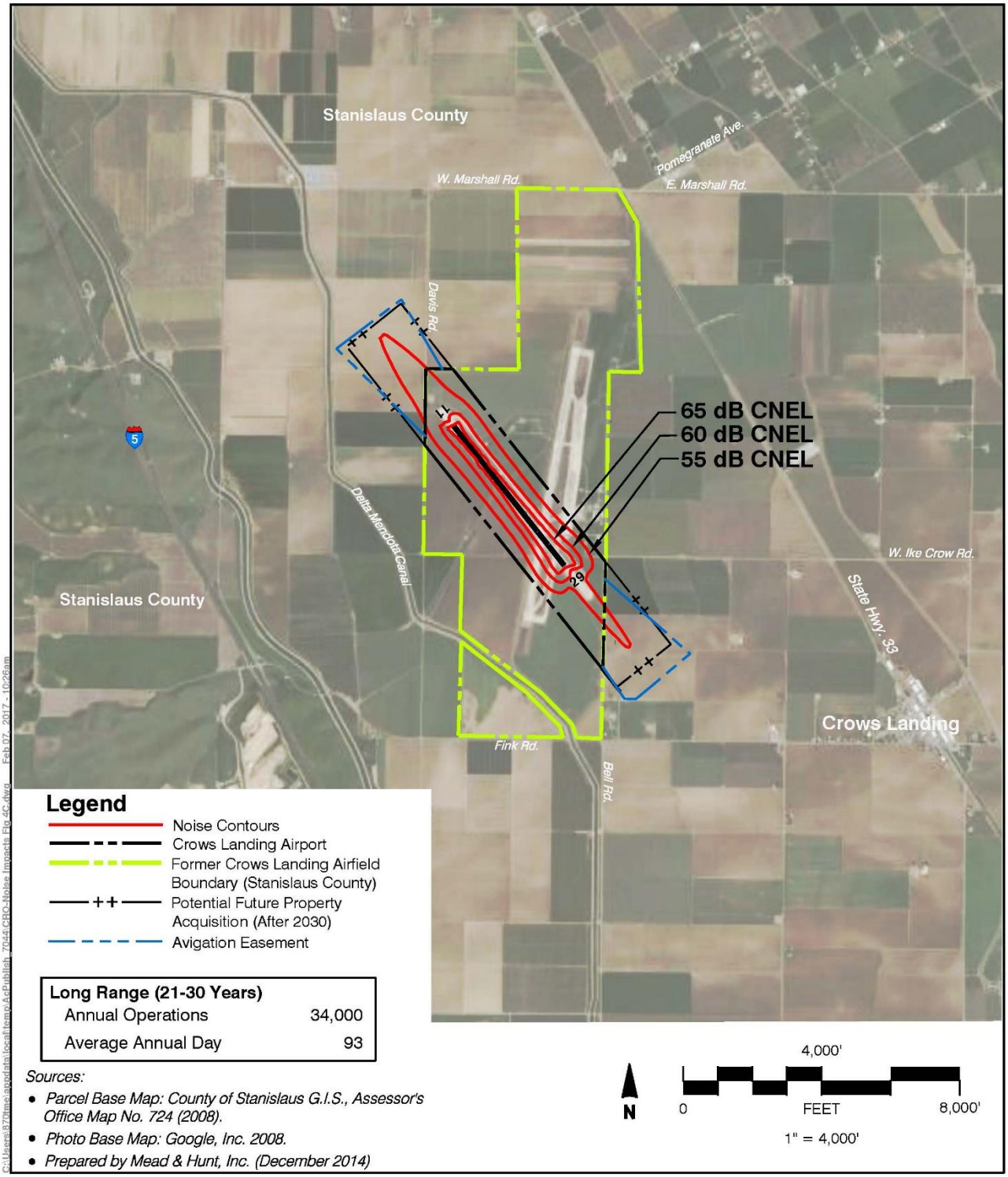


Figure 4C

Noise Impacts — Long Range (11-30 Years)

Crows Landing Airport

APPENDIX A

GLOSSARY OF TERMS

Glossary of Terms

ABOVE GROUND LEVEL (AGL): An elevation datum given in feet above ground level.

AIR CARRIER: A person who undertakes directly by lease, or other arrangement, to engage in air transportation. (FAR 1) (Also see Certificated Air Carrier)

AIR CARRIERS: The commercial system of air transportation, consisting of the certificated air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs. (FAA Census)

AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC): A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, principally during the en route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft. (AIM)

AIR TAXI: A classification of air carriers which directly engage in the air transportation of persons, property, mail, or in any combination of such transportation and which do not directly or indirectly utilize large aircraft (over 30 seats or a maximum payload capacity of more than 7,500 pounds) and do not hold a Certificate of Public Convenience and Necessity or economic authority issued by the Department of Transportation. (Also see commuter air carrier and demand air taxi.) (FAA Census)

AIR TRAFFIC CONTROL (ATC): A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic. (FAR 1)

AIRCRAFT ACCIDENT: An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. (NTSB)

AIRCRAFT APPROACH CATEGORY: A grouping of aircraft (Categories A–E) based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. (Airport Design)

AIRCRAFT OPERATION: The airborne movement of aircraft in controlled or non-controlled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations — local and itinerant. (FAA Stats)

AIRCRAFT PARKING LINE LIMIT (APL): A line established by the airport authorities beyond which no part of a parked aircraft should protrude. (Airport Design)

AIR/FIRE ATTACK BASE: An established on-airport base of operations for the purposes of aerial suppression of large-scale fires by specially-modified aircraft. Typically, such aircraft are operated by the California Department of Forestry and/or the U.S. Forest Service.

AIRPLANE DESIGN GROUP: A grouping of airplanes (Groups I–V) based on wingspan. (Airport Design)

AIRPORT: An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any. (FAR 1)

AIRPORT ELEVATION: The highest point of an airport's usable runways, measured in feet above mean sea level. (AIM)

AIRPORT HAZARD: Any structure or natural object located on or in the vicinity of a public airport, or any use of land near such airport, that obstructs the airspace required for the flight of aircraft in landing or taking off at the airport or is otherwise hazardous to aircraft landing, taking off, or taxiing at the airport. (Airport Design)

AIRPORT LAND USE COMMISSION (ALUC): A commission established in accordance with the California State Aeronautics Act in each county having an airport operated for the benefit of the general public. The purpose of each ALUC is -to assist local agencies in ensuring compatibility land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.ll An ALUC need not be created if an alternative process, as specified by the statutes, is established to accomplish the same purpose. (California Public Utilities Code, Section 21670 et seq.)

AIRPORT LAYOUT PLAN (ALP): A scale drawing of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to demonstrate conformance with applicable standards.

AIRPORT REFERENCE CODE (ARC): A coding system used to relate airport design criteria to the operational and physical characteristics of the airplanes intended to operate at the airport. (Airport Design)

AIRPORT REFERENCE POINT (ARP): A point established on an airport, having equal relationship to all existing and proposed landing and takeoff areas, and used to geographically locate the airport and for other planning purposes. (Airport Design)

AIRPORT TRAFFIC CONTROL TOWER (ATCT): A terminal facility that uses air/ground communications, visual signaling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area. (AIM)

AIRWAY/FEDERAL AIRWAY: A Class E airspace area established in the form of a corridor, the centerline of which is defined by radio navigational aids. (AIM)

ALERT AREA: A special use airspace which may contain a high volume of pilot training activities or an unusual type of aerial activity, neither of which is hazardous to aircraft. (AIM)

APPROACH LIGHT SYSTEM (ALS): An airport lighting system which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended runway centerline during a final approach to landing. Among the specific types of systems are:

- **LDIN—**Lead-in Light System.
- **MALSR—**Medium-intensity Approach Light System with Runway Alignment Indicator Lights.
- **ODALS—**Omnidirectional Approach Light System, a combination of LDIN and REILS.
- **SSALR—**Simplified Short Approach Light System with Runway Alignment Indicator Lights. (AIM)

APPROACH SPEED: The recommended speed contained in aircraft manuals used by pilots when making an approach to landing. This speed will vary for different segments of an approach as well as for aircraft weight and configuration. (AIM)

AUTOMATED WEATHER OBSERVING SYSTEM (AWOS): Airport electronic equipment which automatically measures meteorological parameters, reduces and analyzes the data via computer, and broadcasts weather information which can be received on aircraft radios in some applications, via telephone.

AUTOMATIC DIRECTION FINDER (ADF): An aircraft radio navigation system which senses and indicates the direction to a L/MF nondirectional radio beacon (NDB) ground transmitter. (AIM)

AUTOMATIC TERMINAL INFORMATION SERVICE (ATIS): The continuous broadcast of recorded non-control information in selected terminal areas. (AIM)

BACK COURSE APPROACH: A non-precision instrument approach utilizing the rearward projection of the ILS localizer beam.

BALANCED FIELD LENGTH: The runway length at which the distance required for a given aircraft to abort a takeoff and stop on the runway (accelerate-stop distance) equals the distance required to continue the takeoff and reach a height of 35 feet above the runway end (accelerate-go distance).

BASED AIRCRAFT: Aircraft stationed at an airport on a long-term basis.

BUILDING RESTRICTION LINE (BRL): A line which identifies suitable building area locations on airports.

CEILING: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena that is reported as "broken", "overcast", or "obscuration" and is not classified as "thin" or "partial". (AIM)

CERTIFICATED ROUTE AIR CARRIER: An air carrier holding a Certificate of Public Convenience and Necessity issued by the Department of Transportation authorizing the performance of scheduled service over specified routes, and a limited amount of nonscheduled service. (FAA Census)

CIRCLING APPROACH/CIRCLE-TO-LAND MANEUVER: A maneuver initiated by the pilot to align the aircraft with a runway for landing when a straight-in landing from an instrument approach is not possible or is not desirable. (AIM)

COMMERCIAL OPERATOR: A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1)

COMPASS LOCATOR: A low power, low or medium frequency (L/MF) radio beacon installed at the site of the outer or middle marker of an instrument landing system (ILS). (AIM)

COMPASS ROSE: A circle, graduated in degrees, printed on some charts or marked on the ground at an airport. It is used as a reference to either true or magnetic direction. (AIM)

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL): The noise rating adopted by the State of California for measurement of airport noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods.

COMMUTER AIR CARRIER: An air taxi operator which performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the week and places between which such flights are performed. (FAA Census)

CONTROLLED AIRSPACE: A generic term that covers the different classifications of airspace (Class A, Class B, Class C, Class D and Class E airspace) and defines dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification. Controlled airspace in the United States is designated as follows:

- **Class A—**Generally, that airspace from 18,000 feet MSL up to and including 60,000 feet MSL (Flight Level 600), including the airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous states and Alaska. Unless otherwise authorized, all persons must operate their aircraft under IFR.
- **Class B—**Generally, that airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of airport operations or passenger enplanements. The configuration of each Class B airspace area is individually tailored and consists of a surface area and two or more layers (some Class B airspaces areas resemble upside-down wedding cakes), and is designed to contain all published instrument procedures once an aircraft enters the airspace. An ATC

clearance is required for all aircraft to operate in the area, and all aircraft that are so cleared receive separation services within the airspace. The cloud clearance requirement for VFR operations is "clear of clouds".

- **Class C—**Generally, that airspace from the surface to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by radar approach control, and that have a certain number of IFR operations or passenger enplanements. Although the configuration of each Class C airspace area is individually tailored, the airspace usually consists of a surface area with a 5 nm radius, and an outer area with a 10 nm radius that extends from 1,200 feet to 4,000 feet above the airport elevation. Each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while within the airspace. VFR aircraft are only separated from IFR aircraft within the airspace.
- **Class D—**Generally, that airspace from the surface to 2,500 feet above the airport elevation (chartered in MSL) surrounding those airports that have an operational control tower. The configuration of each Class D airspace area is individually tailored and when instrument procedures are published, the airspace will normally be designed to contain the procedures. Arrival extensions for instrument approach procedures may be Class D or Class E airspace. Unless otherwise authorized, each person must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and thereafter maintain those communications while in the airspace. No separation services are provided to VFR aircraft.
- **Class E—**Generally, if the airspace is not Class A, Class B, Class C, or Class D, and it is controlled airspace, it is Class E airspace. Class E airspace extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. When designated as a surface area, the airspace will be configured to contain all instrument procedures. Also in this class are Federal airways, airspace beginning at either 700 or 1,200 feet AGL used to transition to/from the terminal or en route environment, en route domestic, and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 MSL over the United States, including that airspace overlying the waters within 12 nautical miles of the coast of the 48 contiguous States and Alaska. Class E airspace does not include the airspace 18,000 feet MSL or above.

DEMAND AIR TAXI: Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier. (FAA Census)

DISPLACED THRESHOLD: A threshold that is located at a point on the runway other than the designated beginning of the runway. (AIM)

DISTANCE MEASURING EQUIPMENT (DME): Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid. (AIM)

FAR PART 77: The part of the Federal Aviation Regulations that deals with objects affecting navigable airspace.

FAR PART 77 SURFACES: Imaginary surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical.

FEDERAL AVIATION ADMINISTRATION (FAA): The United States government agency that is responsible for insuring the safe and efficient use of the nation's airspace.

FIXED BASE OPERATOR (FBO): A business operating at an airport that provides aircraft services to the general public, including but not limited to sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tiedown or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol.

FLIGHT SERVICE STATION (FSS): FAA facilities which provide pilot briefings on weather, airports, altitudes, routes, and other flight planning information.

FRACTIONAL OWNERSHIP: A company or individual buys, or leases, a fractional interest in one aircraft just as they might acquire a partial interest in one condo unit. They can use their own aircraft or another similar or identical aircraft a certain number of hours or days per year. The economics of each situation differs depending on the number of people who will use the aircraft, the value of their time to the company, and the dollars saved in airline tickets, hotels, etc.

GENERAL AVIATION: That portion of civil aviation which encompasses all facets of aviation except air carriers. (FAA Stats)

GENERIC VISUAL GLIDE SLOPE INDICATOR (GVGI): A generic term for the group of airport visual landing aids which includes Visual Approach Slope Indicators (VASI), Precision Approach Path Indicators (PAPI), and Pulsed Light Approach Slope Indicators (PLASI). When FAA funding pays for this equipment, whichever type receives the lowest bid price will be installed unless the airport owner wishes to pay the difference for a more expensive unit.

GLIDE SLOPE: An electronic signal radiated by a component of an ILS to provide descent path guidance to approaching aircraft.

GLOBAL POSITIONING SYSTEM (GPS): A relatively new navigational system which utilizes a network of satellites to determine a positional fix almost anywhere on or above the earth. Developed and operated by the U.S. Department of Defense, GPS has been made available to the civilian sector for surface, marine, and aerial navigational use. For aviation purposes, the current form of GPS guidance provides en route aerial navigation and selected types of nonprecision instrument approaches. Eventual application of GPS as the principal system of navigational guidance throughout the world is anticipated.

HELIPAD: A small, designated area, usually with a prepared surface, on a heliport, airport, landing/takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM)

INSTRUMENT APPROACH PROCEDURE: A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority. (AIM)

INSTRUMENT FLIGHT RULES (IFR): Rules governing the procedures for conducting instrument flight. Also term used by pilots and controllers to indicate a type of flight plan. (AIM)

INSTRUMENT LANDING SYSTEM (ILS): A precision instrument approach system which normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM)

INSTRUMENT OPERATION: An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA)

INSTRUMENT RUNWAY: A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved. (AIM)

ITINERANT OPERATION: An arrival or departure performed by an aircraft from or to a point beyond the local airport area.

LARGE AIRCRAFT: An aircraft of more than 12,500 pounds maximum certificated takeoff weight. (FAR 1)

LIMITED REMOTE COMMUNICATIONS OUTLET (LRCO): An unmanned, remote air/ground communications facility which may be associated with a VOR. It is capable only of receiving communications and relies on a VOR or a remote transmitter for full capability.

LOCALIZER (LOC): The component of an ILS which provides course guidance to the runway. (AIM)

LOCAL OPERATION: An arrival or departure performed by an aircraft: (1) operating in the traffic pattern, (2) known to be departing or arriving from flight in local practice areas, or (3) executing practice instrument approaches at the airport. (FAA ATA)

LORAN: An electronic ground-based navigational system established primarily for marine use but used extensively for VFR and limited IFR air navigation.

MARKER BEACON (MB): The component of an ILS which informs pilots, both aurally and visually, that they are at a significant point on the approach course.

MEAN SEA LEVEL (MSL): An elevation datum given in feet from mean sea level.

MEDIUM-INTENSITY APPROACH LIGHTING SYSTEM (MALS): The MALS is a configuration of steady-burning lights arranged symmetrically about and along the extended runway centerline. MALS may also be installed with sequenced flashers — in this case, the system is referred to as MALSF.

MILITARY OPERATIONS AREA (MOA): A type of special use airspace of defined vertical and lateral dimensions established outside of Class A airspace to separate/segregate certain military activities from IFR traffic and to identify for VFR traffic where these activities are conducted. (AIM)

MINIMUM DESCENT ALTITUDE (MDA): The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1)

MISSED APPROACH: A maneuver conducted by a pilot when an instrument approach cannot be completed to a landing. (AIM)

NAVIGATIONAL AID/NAVAID: Any visual or electronic device airborne or on the surface which provides point-to-point guidance information or position data to aircraft in flight. (AIM)

NONDIRECTIONAL BEACON (NDB): A 4 MF or UHF radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the radio beacon and "home" on or track to or from the station. (AIM)

NONPRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1)

NONPRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing air navigation facilities, with only horizontal guidance, or area-type navigation equipment for which a straight-in nonprecision instrument approach procedure has been approved or planned, and no precision approach facility or procedure is planned. (Airport Design)

OBJECT FREE AREA (OFA): A surface surrounding runways, taxiways, and taxilanes which should be clear of parked airplanes and objects except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (Airport Design)

OBSTACLE: An existing object, object of natural growth, or terrain at a fixed geographical location, or which may be expected at a fixed location within a prescribed area, with reference to which vertical clearance is or must be provided during flight operation. (AIM)

OBSTACLE FREE ZONE (OFZ): A defined volume of airspace above and adjacent to a runway and its approach lighting system if one exists, free of all fixed objects except FAA-approved frangible aeronautical equipment and clear of vehicles and aircraft in the proximity of an airplane conducting an approach, missed approach, landing, takeoff, or departure.

OBSTRUCTION: An object/obstacle, including a mobile object, exceeding the obstruction standards specified in FAR Part 77, Subpart C. (AIM)

OUTER MARKER: A marker beacon at or near the glide slope intercept position of an ILS approach. (AIM)

PRECISION APPROACH PATH INDICATOR (PAPI): An airport visual landing aid similar to a VASI, but which has light units installed in a single row rather than two rows.

PRECISION APPROACH PROCEDURE: A standard instrument approach procedure in which an electronic glide slope is provided, such as an ILS or PAR. (FAR 1)

PRECISION INSTRUMENT RUNWAY: A runway with an instrument approach procedure utilizing an instrument landing system (ILS), microwave landing system (MLS), or precision approach radar (PAR). (Airport Design)

RELOCATED THRESHOLD: The portion of pavement behind a relocated threshold that is not available for takeoff and landing. It may be available for taxiing and aircraft. (Airport Design)

REMOTE COMMUNICATIONS AIR/GROUND FACILITY (RCAG): An unmanned VHF/UHF transmitter/receiver facility which is used to expand ARTCC air/ground communications coverage and to facilitate direct contact between pilots and controllers. (AIM)

REMOTE COMMUNICATIONS OUTLET (RCO) AND REMOTE TRANSMITTER/ RECEIVER (RTR): An unmanned communications facility remotely controlled by air traffic personnel. RCO's serve FSS's. RTR's serve terminal ATC facilities. (AIM)

RESTRICTED AREA: Designated airspace within which the flight of aircraft, while not wholly prohibited, is subject to restriction. (FAR 1)

RUNWAY CLEAR ZONE: A term previously used to describe the runway protection zone.

RUNWAY EDGE LIGHTS: Lights used to define the lateral limits of a runway. Specific types include:

- **HIRL—**High-Intensity Runway Lights.
- **MIRL—**Medium-Intensity Runway Lights.

RUNWAY END IDENTIFIER LIGHTS (REIL): Two synchronized flashing lights, one on each side of the runway threshold, which provide a pilot with a rapid and positive visual identification of the approach end of a particular runway. (AIM)

RUNWAY PROTECTION ZONE (RPZ): A trapezoidal shaped area at the end of a runway, the function of which is to enhance the protection of people and property on the ground through airport owner control of the land. The RPZ usually begins at the end of each primary surface and is centered upon the extended runway centerline. (Airport Design)

RUNWAY SAFETY AREA (RSA): A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the even of an undershoot, overshoot, or excursion from the runway. (Airport Design)

SMALL AIRCRAFT: An aircraft of 12,500 pounds or less maximum certificated takeoff weight. (FAR 1)

SPECIAL USE AIRSPACE: Airspace of defined horizontal and vertical dimensions identified by an area on the surface of the earth wherein activities must be confined because of their nature and/or wherein limitations may be imposed upon aircraft operations that are not a part of those activities. (AIM)

STANDARD INSTRUMENT DEPARTURE (SID): A preplanned instrument flight rules (IFR) air traffic control departure procedure printed for pilot use in graphic and/or textual form. SID's provide transition from the terminal to the appropriate en route structure. (AIM)

STANDARD TERMINAL ARRIVAL ROUTE (STAR): A preplanned instrument flight rule (IFR) air traffic control arrival route published for pilot use in graphic and/or textual form. STARs provide transition from the en route structure to an outer fix or an instrument approach fix/arrival waypoint in the terminal area. (AIM)

STOPWAY: An area beyond the takeoff runway, no less wide than the runway and centered upon the extended centerline of the runway, able to support the airplane during an aborted takeoff, without causing structural damage to the airplane, and designated by the airport authorities for use in decelerating the airplane during an aborted takeoff. (FAR 1)

STRAIGHT-IN INSTRUMENT APPROACH — IFR: An instrument approach wherein final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM)

TAXILANE: The portion of the aircraft parking area used for access between taxiways, aircraft parking positions, hangars, storage facilities, etc. (Airport Design)

TAXIWAY: A defined path, from one part of an airport to another, selected or prepared for the taxiing of aircraft. (Airport Design)

TERMINAL INSTRUMENT PROCEDURES (TERPS): Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures: precision approach, nonprecision approach, circling, and departure.

TERMINAL RADAR SERVICE AREA (TRSA): Airspace surrounding designated airports wherein ATC provides radar vectoring, sequencing, and separation on a full-time basis for all IFR and participating VFR aircraft. (AIM)

THRESHOLD: The beginning of that portion of the runway usable for landing. (AIM)

TOUCH-AND-GO: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. A touch-and-go is defined as two operations. (AIM)

TRAFFIC PATTERN: The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM)

TRANSIENT AIRCRAFT: Aircraft not based at the airport.

TRANSMISSOMETER: An apparatus used to determine visibility by measuring the transmission of light through the atmosphere. (AIM)

UNCONTROLLED AIRSPACE: Now known as Class G airspace. Class G airspace is that portion of the airspace that has not been designated as Class A, Class B, Class C, Class D, and Class E airspace.

UNICOM (Aeronautical Advisory Station): A nongovernment air/ground radio communication facility which may provide airport information at certain airports. (AIM)

VERY-HIGH-FREQUENCY OMNIDIRECTIONAL RANGE (VOR): The standard navigational aid used throughout the airway system to provide bearing information to aircraft. When combined with Distance Measuring Equipment (DME) or Tactical Air Navigation (TACAN) the facility, called VOR-DME or VORTAC, provides distance as well as bearing information.

VISUAL APPROACH SLOPE INDICATOR (VASI): An airport landing aid which provides a pilot with visual descent (approach slope) guidance while on approach to landing. Also see PAPI.

VISUAL FLIGHT RULES (VFR): Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used by pilots and controllers to indicate type of flight plan. (AIM)

VISUAL GLIDE SLOPE INDICATOR (VGSI): A generic term for the group of airport visual landing aids which includes Visual Approach Slope Indicators (VASI), Precision Approach Path Indicators (PAPI), and Pulsed Light Approach Slope Indicators (PLASI). When FAA funding pays for this equipment, whichever type receives the lowest bid price will be installed unless the airport owner wishes to pay the difference for a more expensive unit.

VISUAL RUNWAY: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan. (Airport Design)

WARNING AREA: A type of special use airspace which may contain hazards to nonparticipating aircraft in international airspace. (AIM)

SOURCES

FAR 1: Federal Aviation Regulations Part 1, Definitions and Abbreviations. (1993)

AIM: Airman's Information Manual, Pilot/Controller Glossary. (1993)

Airport Design: Federal Aviation Administration. *Airport Design*. Advisory Circular 150/5300-13, Change 7. (2002)

FAA ATA: Federal Aviation Administration. *Air Traffic Activity*. (1986)

FAA Census: Federal Aviation Administration. *Census of U.S. Civil Aircraft*. (1986)

FAA Stats: Federal Aviation Administration. *Statistical Handbook of Aviation*. (1984)

NTSB: National Transportation Safety Board. *U.S. NTSB 830-3.* (1989)

APPENDIX B

AIRCRAFT OWNER SURVEY

Aircraft Owner Survey Summary

OVERVIEW

In an effort to assess the potential user demand for Crows Landing Airport (Airport), Aviation Management Consulting Group (AMCG) and Mead & Hunt developed and implemented an Aircraft Owner Survey (Survey) of aircraft owners located within a 40 nautical mile radius of the Airport, and piston, turboprop, and turbojet aircraft owners within a 75 nautical mile radius of the Airport. A total of 922 postcards were mailed to aircraft owners (690 to piston aircraft owners and 232 to turboprop and turbojet aircraft owners) inviting them to participate in the Survey.

The Survey was made available for completion and submission on a dedicated website created and managed by AMCG. The postcards inviting aircraft owner participation were mailed on January 4, 2006. hardcopies of the Survey were also made available to aircraft owners upon request. The response deadline for the Survey was January 27, 2006. As an incentive to complete and submit the Survey, each respondent to the Survey was offered the opportunity to be entered into a drawing for the chance to win an aviation gift certificate valued at $250.

Of the 922 postcards mailed 76 postcards (8.2%), 64 addressed to piston aircraft owners and 12 addressed to turboprop and turbojet aircraft owners) were returned due to erroneous addresses. This erroneous address rate is not surprising considering the FAA's registration methodology and the frequent changes in some aircraft ownership arrangements. Therefore, the total number of Surveys "received" by aircraft owners equaled 846 (626 piston aircraft owners and 220 turboprop and turbojet aircraft owners).

The Survey, developed by AMCG and Mead & Hunt, was designed to assess the factors that influence aircraft owners within the Airport market on their selection of home (based) airports, and the potential for Survey respondents (aircraft owners) to relocate their aircraft to the Airport. Under the first section of the Survey (Questions 1-22), respondents were asked to rate influencing factors from 1 (unimportant) to 6 (very important). The second section of the Survey allowed respondents to select among various response options to answer questions about their interest level in relocating to the Airport, building a hangar on the Airport, or starting a business on the Airport. Finally, respondents were offered the opportunity to express any "additional comments" in written form.

A total of 55 Survey responses were received (54 from piston aircraft owners and only 1 from a turbojet aircraft owner). This equates to a total response rate of 6.5% (8.6% piston aircraft owners and 0.5% turboprop or turbojet aircraft owners) of the total Surveys "received".

A 10% to 20% response rate is generally considered typical for airport related surveys. These surveys typically survey airport users (aircraft owners) that are based at the subject airport and therefore have a vested interest in the outcome of the survey results. Statistically, a 10% to 20% response rate is sufficient to draw reasonable correlation to the other airport users (aircraft owners). However, since the aircraft owners surveyed in this Survey do not have a direct vested interest in the Airport, it is not surprising to see the lower response rate. In fact, in reviewing the FAA's aircraft owners list it appears

that there could be numerous financing and leasing companies that "own" turboprop and turbojet aircraft that most likely are not operating the aircraft that they own and therefore would have little to no interest in responding to the Survey.

However, since nearly all respondents were piston aircraft owners, an 8.6% response rate is nearing the lower acceptable response rate level to draw reasonable correlations. However, we would caution the County on extrapolating the results of this survey over the entire population of 626 piston aircraft owners.

Following are some highlights of the 55 survey responses received:

- Aircraft owners own a total of 69 aircraft (64 single engine piston aircraft, four multi-engine piston aircraft, and one turbojet powered aircraft).
- Forty-eight (48) aircraft owners (87%) operate their aircraft solely for non-commercial purposes.
- Zero (0) aircraft owners operate their aircraft solely for commercial purposes only.
- Five (5) aircraft owners (9%) operate their aircraft for both commercial and non-commercial purposes.
- Two (2) aircraft owners (4%) did not specify the use of their aircraft.
- Fifty-six (56) aircraft (81%) are based within 40 miles of Crows Landing Airport.

Conclusions

The following conclusions are based on a combined review and analysis of the Survey responses by AMCG and Mead & Hunt.

The first 21 questions of the Survey assessed the importance of factors which influence the decision of aircraft owners on where to base their aircraft. Within the responses to these questions, there were no surprises. The respondents to the Survey were primarily non-commercial (recreational/pleasure and business) owners of small, piston aircraft who have a rather predictable array of important factors, including fuel availability and price, aircraft storage availability and price, roadway access, vehicle parking availability, and basic airfield components such a lighting.

The last nine questions allowed the respondent to choose options regarding their interest level in relocating their aircraft to Crows Landing Airport, building a facility at the Airport, and establishing a business at the Airport. Of the responses received, there seemed to be a relatively high amount of interest in relocating to Crows Landing Airport and establishing a business at the Airport. Of the responses received, there seemed to be a relatively high amount of interest in relocating to Crows Landing Airport and establishing facilities or businesses there. According to the additional testimonial comments, this interest was in large part conditional on price of products/services/facilities offered at the Airport. This is to be expected when considering that the vast majority of the respondents were non-commercial (recreational/pleasure and business) aircraft owners and operators who are typically very price sensitive.

Based upon the findings of this survey, AMCG and Mead & Hunt believe it is reasonable to project that approximately 15 to 20 aircraft may relocate to Crows Landing Airport within the first year of the Airport's operation as a public use airport. Additional aircraft, primarily small, piston aircraft, may relocate to the Airport in subsequent years, as services and facilities at the Airport are further developed.

Additional Observations by Mead & Hunt

Overall, we found the Survey process and subsequent responses to be fully consistent with our initial expectations and experience. Our specific observations and reactions regarding the Survey (over and above our analysis as presented in the survey analysis report) are as follows:

- The relatively low Total Response Rate of 6.5% was about as we expected. We surveyed general aviation aircraft owners in the vicinity of Crows Landing Airport (both personal/recreational aircraft and business/corporate aircraft owners) – none of whom has a vested interest in the Airport. Therefore, their interest in responding to the survey would likely be minimal.
- The large majority of responses received were from personal/recreational aircraft owners who are typically very price sensitive. Such owners would likely consider relocating to another airport only if their operating costs (e.g., hangar, fuel, maintenance, etc.) at the new airport were significantly lower than the costs at their current base of operations.
- It is our expectation that Crows Landing Airport can be developed and operated as a publicly-owned/public-use general aviation airport that complies with federal (Federal Aviation Administration – FAA) and state (California Division of Aeronautics – CDOA) design standards and operational requirements.
- We believe it reasonable to project that approximately 15 to 20 aircraft may relocate to Crows Landing Airport within the first year of the Airport's operation as a basic (i.e., at least one hard-surface runway, night lighting, security, basic storage hangars, and fuel) public-use general aviation facility. If the Airport is to attract additional based and transient aircraft, it will have to be further improved with instrument approach capability (initially, GPS based nonprecision), aircraft maintenance services, and more storage hangars. In addition, planned commercial development in the area surrounding the Airport will likely lead to increased aviation activity at the Airport in the years ahead.
- To qualify for airport planning and development grants from the FAA, an airport must be included in the FAA's National Plan for Integrated Airport Systems (NPIAS). Crows Landing Airport, as a former military-use only facility, is not currently listed in the NPIAS. To be considered for inclusion within the NPIAS, an airport must usually have at least ten (10) locally-based aircraft. However, this activity criterion may be relaxed by the FAA for a remote location or other mitigating circumstances.
- Considering that some 67% (37 respondents) of the Survey respondents were moderately-to-very interested in relocating to (i.e., basing their aircraft at) Crows Landing Airport, we believe it reasonable to project that approximately 15 to 20 aircraft may relocate to Crows Landing Airport within the first year of the Airport's operation. We suggest that this level of anticipated based aircraft activity is sufficient to justify the inclusion of Crows Landing Airport as a General Aviation facility within the current NPIAS.

APPENDIX C

AIRPORT LAYOUT PLAN DRAWINGS

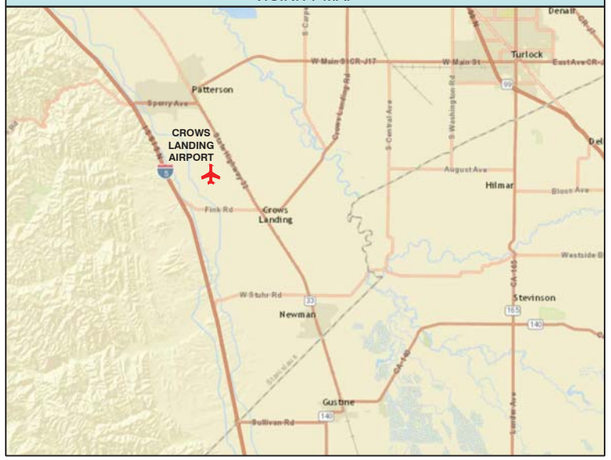
Crows Landing Airport
Airport Layout Plan

Stanislaus County, California
February 2017

LOCATION MAP

SHEET INDEX

VICINITY MAP



CALIFORNIA STATE MAP

SUBMITTED BY:
COUNTY OF STANISLAUS

By _____

Title _____ Date _____

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

INDEX

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Stanislaus County

DESIGN: BM/DH | DRAWN: TE/DH/BM | DATE: February 2017 | SHEET 1 OF 6

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BUILDING AND FACILITY LEGEND

FACILITY	ELEVATION
(1) Future Operations Office	162'
(2) Fixed Base Operator (FBO)	162'
(3) Fuel Facility	N/A
(4) Future Wash Rack	N/A
(5) Future Runway End Indicator Lights (REILS)	N/A
(6) Future Medium Intensity Approach Light System With Rail (MALSR)	N/A
(7) Future Rotating Beacon	197'

MONUMENTS (e)

	ID #	LATITUDE	LONGITUDE	ELEVATION	DESCRIPTION
1	HS5483	37° 24' 46.766" N	121° 06' 20.756" W	142.00'	Brass survey disk
2	HS5478	37° 24' 13.062" N	121° 06' 37.571" W	162.00'	Brass survey disk
3	HS5474	37° 23' 57.775" N	121° 06' 40.989" W	173.00'	Stainless steel rod
4	HS5477	37° 24' 48.034" N	121° 06' 29.765" W	144.00'	Brass survey disk

ALP NOTES

- ALP prepared using design criteria from FAA Advisory Circulars 150/5300-13A Change 1, "Airport Design", 150/5070-6A, FAA Standard Operating Procedures 2.00 and 3.00, and Part 77 of the Federal Aviation Regulations (FAR), "Safe, Efficient Use, and Preservation of the Navigable Airspace."
- Magnetic Declination source: National Geophysical Data Center.

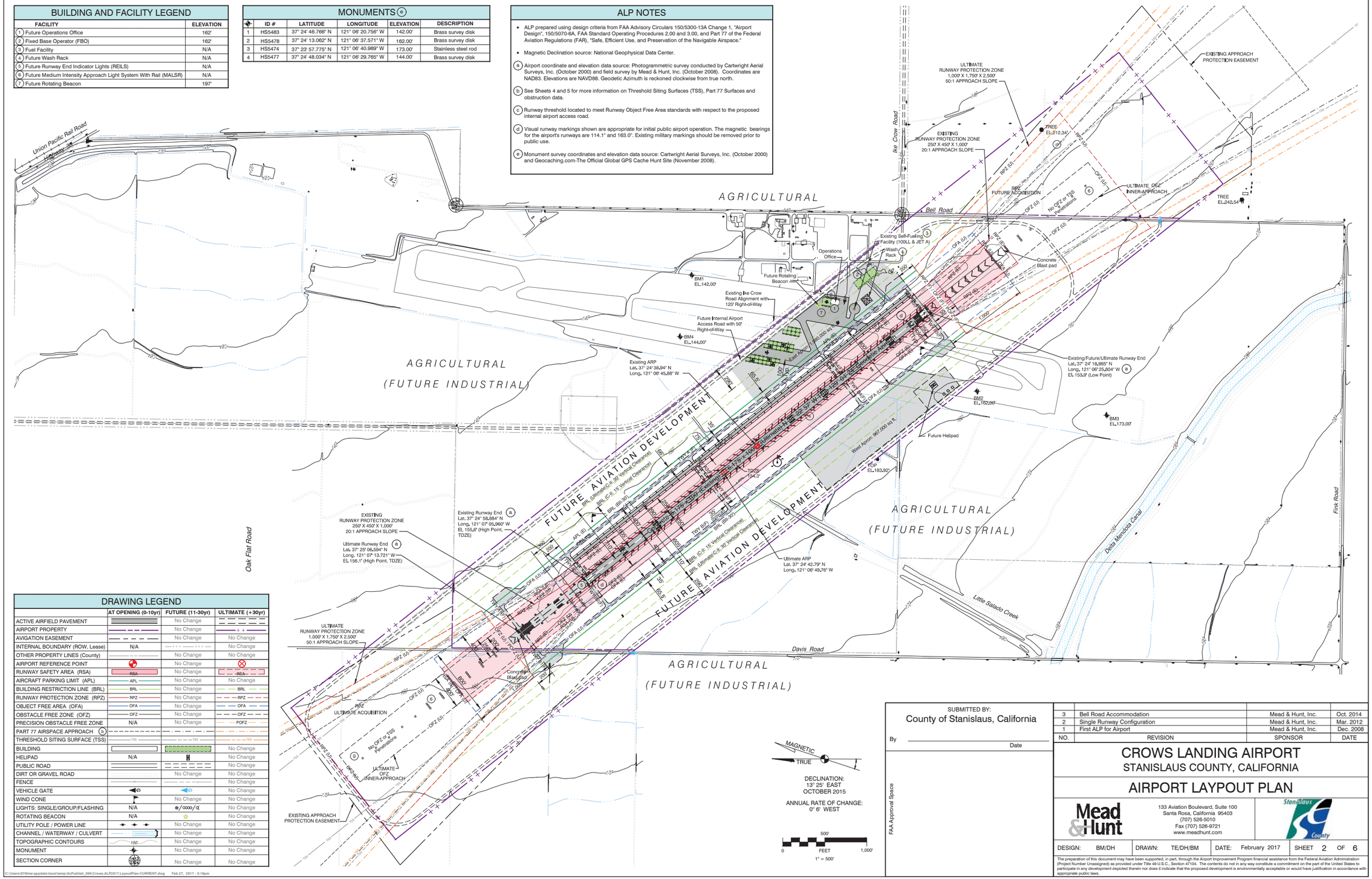
(a) Airport coordinate and elevation data source: Photogrammetric survey conducted by Cartwright Aerial Surveys, Inc. (October 2000) and field survey by Mead & Hunt, Inc. (October 2008). Coordinates are NAD83. Elevations are NAVD88. Geodetic Azimuth is reckoned clockwise from true north.

(b) See Sheets 4 and 5 for more information on Threshold Siting Surfaces (TSS), Part 77 Surfaces and obstruction data.

(c) Runway threshold located to meet Runway Object Free Area standards with respect to the proposed internal airport access road.

(d) Visual runway markings shown are appropriate for initial public airport operation. The magnetic bearings for the airport's runways are 114.1° and 163.0°. Existing military markings should be removed prior to public use.

(e) Monument survey coordinates and elevation data source: Cartwright Aerial Surveys, Inc. (October 2000) and Geocaching.com-The Official Global GPS Cache Hunt Site (November 2008).



DRAWING LEGEND

	AT OPENING (0-10yr)	FUTURE (11-30yr)	ULTIMATE (+30yr)
ACTIVE AIRFIELD PAVEMENT		No Change	
AIRPORT PROPERTY		No Change	
AVIGATION EASEMENT		No Change	No Change
INTERNAL BOUNDARY (ROW, Lease)	N/A		No Change
OTHER PROPERTY LINES (County)		No Change	No Change
AIRPORT REFERENCE POINT		No Change	
RUNWAY SAFETY AREA (RSA)	RSA	No Change	RSA
AIRCRAFT PARKING LIMIT (APL)	APL	No Change	No Change
BUILDING RESTRICTION LINE (BRL)	BRL	No Change	BRL
RUNWAY PROTECTION ZONE (RPZ)	RPZ	No Change	RPZ
OBJECT FREE AREA (OFA)	OFA	No Change	OFA
OBSTACLE FREE ZONE (OFZ)	OFZ	No Change	OFZ
PRECISION OBSTACLE FREE ZONE	N/A	No Change	POFZ
PART 77 AIRSPACE APPROACH (b)			
THRESHOLD SITING SURFACE (TSS)	TSS		TSS
BUILDING			No Change
HELIPAD	N/A		No Change
PUBLIC ROAD			No Change
DIRT OR GRAVEL ROAD		No Change	No Change
FENCE			No Change
VEHICLE GATE			No Change
WIND CONE		No Change	No Change
LIGHTS: SINGLE/GROUP/FLASHING	N/A		No Change
ROTATING BEACON	N/A		No Change
UTILITY POLE / POWER LINE		No Change	No Change
CHANNEL / WATERWAY / CULVERT		No Change	No Change
TOPOGRAPHIC CONTOURS	150	No Change	No Change
MONUMENT		No Change	No Change
SECTION CORNER		No Change	No Change

SUBMITTED BY:
County of Stanislaus, California

By _____ Date

FAA Approval Space

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

AIRPORT LAYOUT PLAN

Mead & Hunt
133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
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Fax (707) 526-9721
www.meadhunt.com

Stanislaus County

DESIGN:	BM/DH	DRAWN:	TE/DH/BM	DATE:	February 2017	SHEET	2	OF	6

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RUNWAY DATA

			RUNWAY 11-29		
			AT OPENING (0-10yr)	FUTURE (10-30yr)	ULTIMATE (+30yr)
UTILITY / GREATER THAN UTILITY			Greater Than Utility	No Change	No Change
RUNWAY DESIGN CODE			B-II-VIS	B-II-5000	C-II-2400
APPROACH REFERENCE CODE			B-II-VIS	B-II-5000	C-II-2400
CRITICAL AIRCRAFT	AIRCRAFT		King Air 200	No Change	Gulfstream III
	WINGSPAN		54.5'	No Change	77.8'
	APPROACH SPEED (kts)		103	No Change	136
	MAX. TAKEOFF WT. (lbs.)		12,500	No Change	69,700
	COCKPIT TO MAIN GEAR		<10'	No Change	N/A
	MAIN GEAR WIDTH		17.1'	No Change	N/A
	TAXIWAY DESIGN GROUP		2	No Change	No Change
PAVEMENT STRENGTH AND MATERIAL TYPE	SURFACE MATERIAL		Concrete	No Change	No Change
	DESIGN STRENGTH (1,000#) - S/D/DT		65/75/135	No Change	30/55/-
	STRENGTH BY PCN		N/A	No Change	No Change
	SURFACE TREATMENT		None	No Change	No Change
EFFECTIVE GRADIENT (%)			0.03%	No Change	No Change
VERTICAL LINE OF SIGHT PROVIDED			Yes	No Change	No Change
RUNWAY LENGTH			5,175'	No Change	6,175'
RUNWAY WIDTH			100'	No Change	No Change
DISPLACED THRESHOLD		11	None	No Change	No Change
		29	None	No Change	No Change
RUNWAY END ELEVATIONS (a)		11	155.6'	No Change	156.1' (est)
		29	153.9'	No Change	No Change
RUNWAY TOUCHDOWN ZONE ELEVATIONS (a)		11	155.6'	No Change	156.1' (est)
		29	154.3'	No Change	No Change
RUNWAY HIGH POINT (a)			155.6'	No Change	156.1' (est)
RUNWAY LOW POINT (a)			153.9'	No Change	No Change
RUNWAY SAFETY AREA (RSA) LENGTH BEYOND RUNWAY END	REQUIRED	11	300'	No Change	1,000'
		29	300'	No Change	1,000'
	ACTUAL	11	300'	No Change	1,000'
		29	300'	No Change	1,000'
RUNWAY SAFETY AREA WIDTH	REQUIRED		150'	No Change	500'
	ACTUAL		150'	No Change	500'
RUNWAY EDGE LIGHTING			None	Medium Intensity	No Change
RUNWAY PROTECTION ZONE (RPZ) (Inner Width x Outer Width x Length)		11	250' x 450' x 1,000'	No Change	1000'x1750'x2500'
		29	250' x 450' x 1,000'	No Change	1000'x1750'x2500'
RUNWAY MARKING		11	Visual / Basic	Non-Precision	Precision
		29	Visual / Basic	Non-Precision	Precision
PART 77 APPROACH CATEGORY (d)		11	Visual [B(V)]	Non-Prec [C]	Precision [PIR]
		29	Visual [B(V)]	Non-Prec [C]	Precision [PIR]
PART 77 APPROACH SLOPE (d)		11	20:1	34:1	50:1
		29	20:1	34:1	50:1
APPROACH VISIBILITY MINIMUMS		11	Visual	≥ 1 Mile	1/2 Mile
		29	Visual	≥ 1 Mile	1/2 Mile
AERONAUTICAL SURVEY REQUIRED (VERTICALLY GUIDED OR NOT)		11	Not V.G.	Vertically Guided	No Change
		29	Not V.G.	Vertically Guided	No Change
RUNWAY DEPARTURE SURFACE		11	None	40:1	No Change
		29	None	40:1	No Change
RUNWAY OBJECT FREE AREA (ROFA) (Length Beyond Runway End)		11	300'	No Change	1,000'
		29	300'	No Change	1,000'
RUNWAY OBJECT FREE AREA WIDTH			500'	No Change	800'
OBSTACLE FREE ZONE (OFZ) (Length Beyond Runway End)		11	200'	No Change	No Change
		29	200'	No Change	No Change
OBSTACLE FREE ZONE WIDTH			400'	No Change	No Change
INNER-APPROACH OFZ LENGTH (For Rwys w/ Approach Lighting System. Begins 200' from Rwy end @ 50:1)		11	N/A	No Change	2,400'
		29	N/A	No Change	2,400'
INNER-APPROACH OFZ WIDTH			N/A	No Change	400'
INNER-TRANSITIONAL OFZ WIDTH (For Runways w/ <3/4-mile Approach Visibility Minimums. Dimension is length from edge of Runway OFZ to outer edge of Transitional OFZ.)		11	N/A	No Change	581'
		29	N/A	No Change	581'
PRECISION OBSTACLE FREE ZONE (Length x Width) (For Rwys w/vert. guided approach and <250' ceiling/<3/4 mile visibility)		11	N/A	No Change	200' x 800'
		29	N/A	No Change	200' x 800'
THRESHOLD SITING SURFACE (Per AC 150/5300-13A, Table 3-2 - Change 1. See Airspace Plan for more information.) (d)		11	20:1 Approach end serve large airplanes, or instrument minimums ≥ 1 statute mile, day only.	20:1 Approach end to support instrument night ops. Approach Cat A&B aircraft only.	34:1 Approach end to accommodate inst. min <¾ statute mile, or precision approach.
		29	20:1 Approach end serve large airplanes, or instrument minimums ≥ 1 statute mile, day only.	20:1 Approach end to support instrument night ops. Approach Cat A&B aircraft only.	34:1 Approach end to accommodate inst. min <¾ statute mile, or precision approach.
NAVIGATION AIDS		11	None	GPS	ILS - GPS Based
		29	None	GPS	ILS - GPS Based
VISUAL AIDS		11	None	PAPI/REILs	No Change
		29	None	PAPI/REILs	No Change
RUNWAY C.L. TO:	PARALLEL RUNWAY C.L.		N/A	No Change	No Change
	HOLDING POSITION		200'	No Change	250'
	PARALLEL TAXIWAY C.L.		290'	No Change	400'
	AIRCRAFT PARKING AREA		465'	No Change	No Change
	HELICOPTER TOUCHDOWN PAD		N/A	No Change	No Change

AIRPORT DATA

		AT OPENING (0-10yr)	FUTURE (10-30yr)	ULTIMATE (+30yr)
AIRPORT IDENTIFIER		N/A	No Change	No Change
AIRPORT REFERENCE CODE		B-II-VIS	B-II-5000	C-II-2400
MEAN MAX. TEMP. (Hottest Month) (b)		97.3° F (July)	No Change	No Change
AIRPORT ELEVATION (Above Mean Sea Level) (a)		155.6'	No Change	156.1' (est)
AIRPORT NAVIGATIONAL AIDS		Seg.Circle	Beacon, Seg.Circle, GPS, PAPI, REILs	Same+ ILS (GPS based)
AIRPORT REFERENCE POINT (a)	LATITUDE	37° 24' 38.94" N	No Change	37° 24' 42.79" N
	LONGITUDE	121° 06' 45.88" W	No Change	121° 06' 49.76" W
MISCELLANEOUS FACILITIES		None	Jet and 100LL Fuel	No Change
CRITICAL AIRCRAFT		King Air 200	No Change	Gulfstream III
MAGNETIC DECLINATION (c)		13° 25' East October 2015	Moving 0° 6' West / Year	No Change
NPIAS SERVICE LEVEL		N/A	No Change	No Change
STATE SERVICE LEVEL		N/A	Community	No Change
AIRPORT ACREAGE (e)	Fee Simple	372 acres	No Change	578 acres
	Avigation Easement	232 acres	No Change	No Change

RUNWAY END COORDINATES (a)

		AT OPENING (0-10yr)	FUTURE (10-30yr)	ULTIMATE (+30yr)
11	LAT.	37° 24' 58.884" N	No Change	37° 25' 06.594" N
	LONG.	121° 07' 05.960" W	No Change	121° 07' 13.721" W
29	LAT.	37° 24' 18.985" N	No Change	No Change
	LONG.	121° 06' 25.804" W	No Change	No Change

TAXIWAY DATA

	A		B		CONNECTOR TWYS ^	
	OPENING	FUTURE	OPENING	FUTURE	OPENING	FUTURE
TAXIWAY DESIGN GROUP	2	No Change	N/A	2	2	No Change
AIRCRAFT DESIGN GROUP	II	No Change	N/A	II	II	No Change
WIDTH	75'	35'	N/A	35'	75'	35'
TAXIWAY SAFETY AREA WIDTH	79'	No Change	N/A	79'	79'	No Change
TAXIWAY OBJECT FREE AREA WIDTH	131'	No Change	N/A	131'	131'	No Change
DISTANCE from TWY. ℄ to FIXED/MOVABLE OBJECT	66.5'	No Change	N/A	66.5'	66.5'	No Change
TAXIWAY WINGTIP CLEARANCE	26'	No Change	N/A	26'	26'	No Change
DISTANCE from RUNWAY ℄ to TAXIWAY ℄	290'	400'	N/A	400'	N/A	No Change
DISTANCE FROM RUNWAY ℄ to HOLD BARS*	200'	250'	N/A	250'	250'	No Change
TAXIWAY SURFACE TYPE	Asphalt	No Change	N/A	Asphalt	Asphalt	No Change
TAXIWAY LIGHTING	None	No Change	N/A	None	None	No Change

NOTES:
* Ultimate hold lines to be implemented for ultimate precision approach. Hold lines to remain at 200 feet from Runway centerline in Future phase.
^ Connector taxiways include existing and future connector taxiways between the runway and parallel Taxiways A and B.

DATA NOTES

- ALP prepared using design criteria from FAA Advisory Circulars 150/5300-13A Change 1, "Airport Design", 150/5070-6A, FAA Standard Operating Procedures 2.00 and 3.00, and Part 77 of the Federal Aviation Regulations (FAR), "Safe, Efficient Use, and Preservation of the Navigable Airspace."

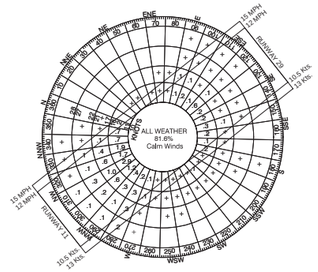
(a) Airport coordinate and elevation data source: Photogrammetric survey conducted by Cartwright Aerial Surveys, Inc. (October 2000) and field survey by Mead & Hunt, Inc. (October 2008). Coordinates are NAD83. Elevations are NAVD88. Geodetic Azimuth is reckoned clockwise from true north.

(b) Temperature data source: Western Regional Climate Center. Newman, CA Station #046168.

(c) Magnetic Declination source: National Geophysical Data Center.

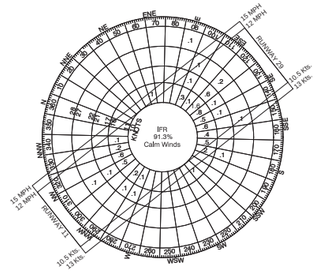
(d) See Sheets 4 and 5 for more information on Threshold Siting Surfaces (TSS), Part 77 Surfaces and obstruction data.

(e) Property and easement calculations based on property lines provided by Stanislaus County. To view all future property and easements, see Exhibit 'A' Property Map, Sheet 6.



ALL WEATHER WIND ROSE

IFR WIND COVERAGE		
Runway	12 M.P.H. (10.5 Knots)	15 M.P.H. (13 Knots)
11-29	98.3%	99.3%



IFR CONDITIONS WIND ROSE

IFR WIND COVERAGE		
Runway	12 M.P.H. (10.5 Knots)	15 M.P.H. (13 Knots)
11-29	99.3%	99.8%

WIND ROSE

Source: National Climatic Data Center, Asheville, NC
Crows Landing Station - Stanislaus County, California
Period: January 1978 to December 1987
Observation: 6,242
Visibility: All Weather and IFR Conditions

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

AIRPORT DATA

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Stanislaus County

DESIGN:	DRAWN:	DATE:	SHEET
BM/DH	TE/DH/BM	February 2017	3 OF 6

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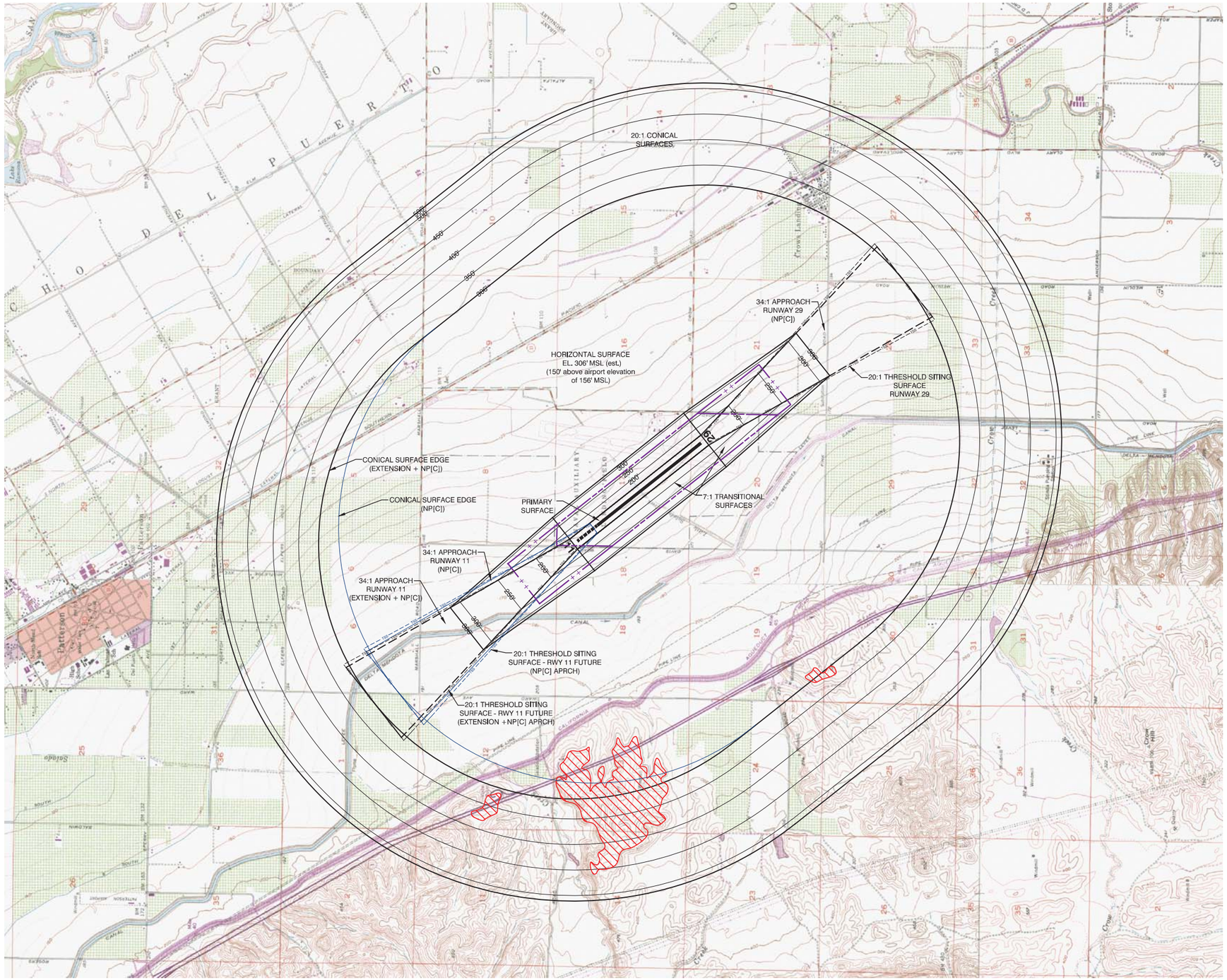
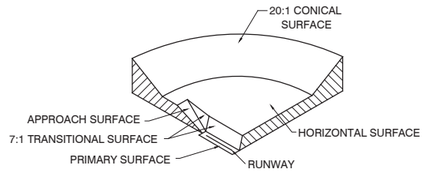




TYPICAL FAR PART 77 SURFACES

LEGEND

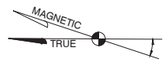
- Existing Runway
- Future Runway Extension
- FAR Part 77 Surfaces (Future with Non Precision Approach and Runway Extension)
- FAR Part 77 Surfaces (Future with Non Precision Approach)
- TSS Threshold Siting Surface (TSS) ((Future with Non Precision Approach)
- TSS Threshold Siting Surface (TSS) (Future with Non Precision Approach and Runway Extension)
- Airport Property Boundary (Existing)
- Airport Property Boundary (Future)
- Terrain Contours
- Part 77 Surface Penetration
- (e) Estimated

NOTES:

- Airspace surfaces shown for Future Phase (30 year plan) configuration of the Airport. This includes Non-Precision instrument approaches to a 'greater than utility' runway (NP[C]). For interests of land use protection, Airspace Plan also includes 1,000' extension to the approach end of Runway 11. See ALP sheets 2 and 3 for more information on phasing.
- All elevations in feet above mean sea level (MSL).

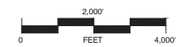
SOURCES:

USGS Topographic Maps.
Photogrammetric Survey by Cartwright Aerial Surveys, Inc. (Oct. 2000) and Field Survey by Mead & Hunt, Inc. (October 2008)



DECLINATION:
13° 25' EAST
OCTOBER 2015

ANNUAL RATE OF CHANGE:
0° 6' WEST



NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
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STANISLAUS COUNTY, CALIFORNIA

PART 77 AIRSPACE PLAN

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DESIGN:	DRAWN:	DATE:	SHEET	OF
BM/DH	TE/DH/BM	February 2017	4	6

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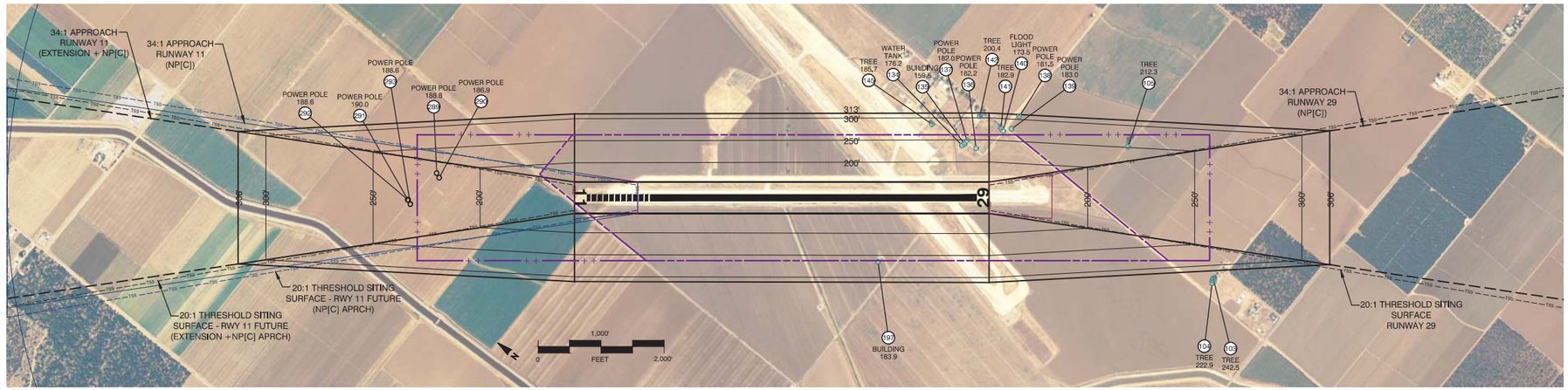

LEGEND

- Existing Runway
- Future Runway Extension
- FAR Part 77 Surfaces (Future with Non Precision Approach and Runway Extension)
- FAR Part 77 Surfaces (Future with Non Precision Approach)
- Threshold Siting Surface (TSS) ((Future with Non Precision Approach)
- Threshold Siting Surface (TSS) (Future with Non Precision Approach and Runway Extension)
- Airport Property Boundary (Existing)
- Airport Property Boundary (Future)
- ● Object penetrates indicated surface.
- ○ Object falls outside or below indicated surface.
- * Poles estimated to be 30 feet in height.
- ** 15 feet vertical clearance added to road elevations and 17 feet vertical clearance added to railroads.

NOTES:

- Airspace surfaces shown for Future Phase (30 year plan) configuration of the Airport. This includes Non-Precision instrument approaches to a 'greater than utility' runway (NP[C]). For interests of land use protection, Airspace Plan also includes 1,000' extension to the approach end of Runway 11. See ALP sheets 2 and 3 for more information on phasing.
- All elevations in feet above mean sea level (MSL).

SOURCES:

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Photogrammetric Survey by Cartwright Aerial Surveys, Inc. (Oct. 2000) and
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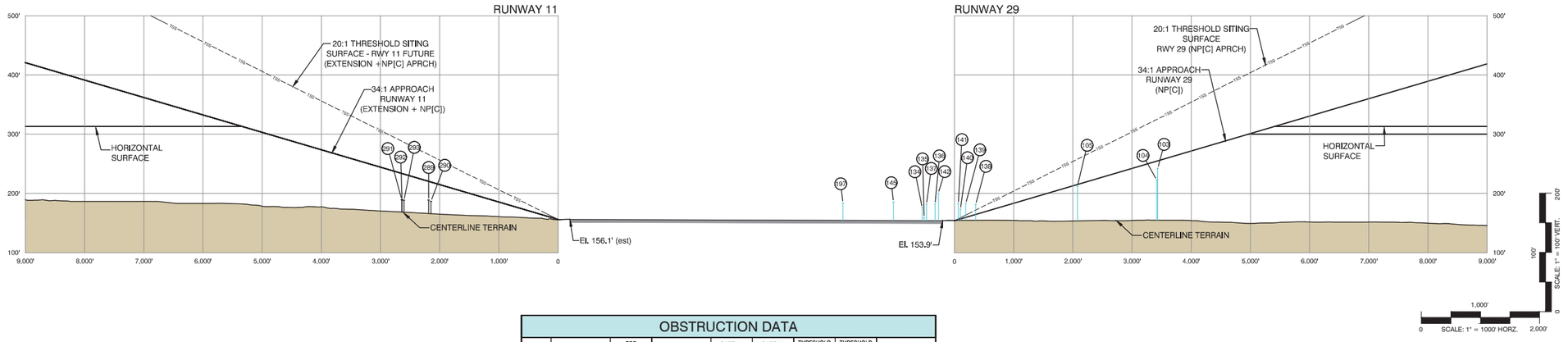

OBSTRUCTION DATA

POINT #	DESCRIPTION	TOP ELEVATION IN FEET (MSL)	AFFECTED PART 77 SURFACE	PART 77 SURFACE ELEVATION	PART 77 SURFACE PENETRATION	THRESHOLD SITING SURFACE ELEVATION	THRESHOLD SITING SURFACE PENETRATION	DISPOSITION
103	TREE	242.5	HORIZONTAL	313.0	-70.5	N/A	N/A	-
104	TREE	222.9	HORIZONTAL	313.0	-90.1	N/A	N/A	-
105	TREE	212.3	TRANSITIONAL	251.0	-38.7	N/A	N/A	-
134	WATER TANK	176.2	TRANSITIONAL	238.0	-61.8	N/A	N/A	-
135	BUILDING	159.5	TRANSITIONAL	240.0	-80.5	N/A	N/A	-
136	POWER POLE	182.2	TRANSITIONAL	231.0	-48.8	N/A	N/A	-
137	POWER POLE	182.0	TRANSITIONAL	249.0	-67.0	N/A	N/A	-
138	POWER POLE	181.5	TRANSITIONAL	307.0	-125.5	N/A	N/A	-
139	POWER POLE	183.0	TRANSITIONAL	278.0	-95.0	N/A	N/A	-
140	FLOOD LIGHT	173.5	TRANSITIONAL	272.0	-98.5	N/A	N/A	-
141	TREE	182.9	TRANSITIONAL	278.0	-95.1	N/A	N/A	-
142	TREE	200.4	TRANSITIONAL	303.0	-102.6	N/A	N/A	-
145	TREE	185.7	TRANSITIONAL	250.0	-64.3	N/A	N/A	-
197	BUILDING	183.9	TRANSITIONAL	229.0	-45.1	N/A	N/A	-
289	POWER POLE	188.8	11 APPROACH	220.0	-31.2	219.9	-31.1	-
290	POWER POLE	186.9	11 APPROACH	219.0	-32.1	218.7	-31.9	-
291	POWER POLE	190.0	11 APPROACH	233.0	-43.1	233.3	-43.3	-
292	POWER POLE	188.6	11 APPROACH	233.0	-44.4	233.1	-44.6	-
293	POWER POLE	188.6	11 APPROACH	232.0	-43.4	232.2	-43.6	-

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

INNER APPROACH PLAN & PROFILE

Mead & Hunt
133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
(707) 526-5010
Fax (707) 526-9721
www.meadhunt.com

Stanislaus County

DESIGN: BM/DH | DRAWN: TE/DH/BM | DATE: February 2017 | SHEET 5 OF 6

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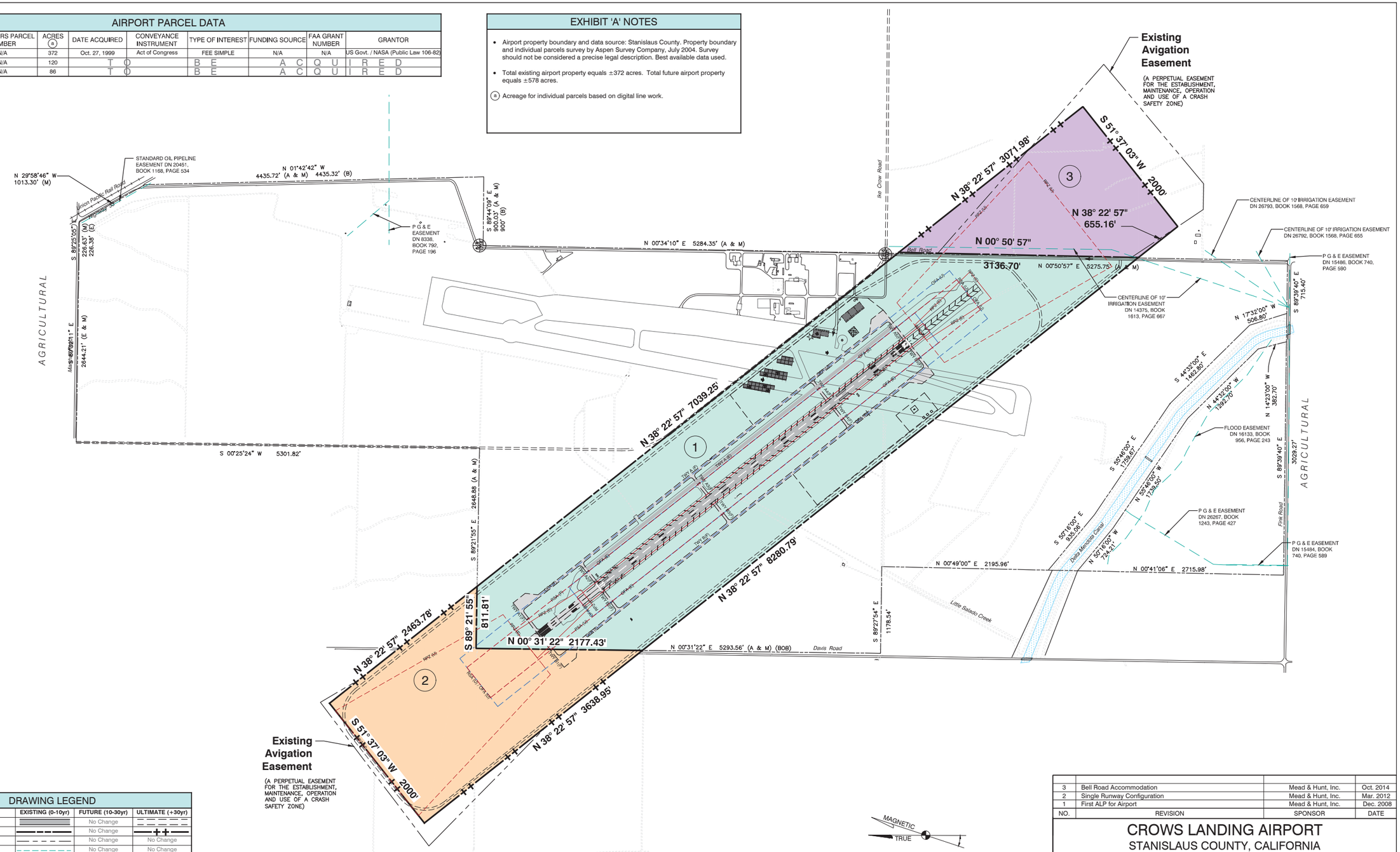
AIRPORT PARCEL DATA

PARCEL ID #	ASSESSORS PARCEL NUMBER	ACRES (a)	DATE ACQUIRED	CONVEYANCE INSTRUMENT	TYPE OF INTEREST	FUNDING SOURCE	FAA GRANT NUMBER	GRANTOR
1	N/A	372	Oct. 27, 1999	Act of Congress	FEE SIMPLE	N/A	N/A	US Govt. / NASA (Public Law 106-82)
2	N/A	120	T O		B E	A C Q U I R E D		
3	N/A	86	T O		B E	A C Q U I R E D		

EXHIBIT 'A' NOTES

- Airport property boundary and data source: Stanislaus County. Property boundary and individual parcels survey by Aspen Survey Company, July 2004. Survey should not be considered a precise legal description. Best available data used.
- Total existing airport property equals ±372 acres. Total future airport property equals ±578 acres.

(a) Acreage for individual parcels based on digital line work.



DRAWING LEGEND

	EXISTING (0-10yr)	FUTURE (10-30yr)	ULTIMATE (+30yr)
ACTIVE AIRFIELD PAVEMENT		No Change	
AIRPORT PROPERTY		No Change	
AVIGATION EASEMENT		No Change	No Change
OTHER EASEMENTS		No Change	No Change
OTHER PROPERTY LINES (County)		No Change	No Change
RUNWAY SAFETY AREA (RSA)	RSA	No Change	RSA
RUNWAY PROTECTION ZONE (RPZ)	RPZ	No Change	RPZ
OBJECT FREE AREA (OFA)	OFA	No Change	OFA
BUILDING			No Change
HELIPAD	N/A	H	No Change
PUBLIC ROAD			No Change
DIRT OR GRAVEL ROAD		No Change	No Change
CHANNEL / WATERWAY / CULVERT		No Change	No Change
SECTION CORNER		No Change	No Change

MAGNETIC
TRUE

DECLINATION:
13° 25' EAST
OCTOBER 2015

ANNUAL RATE OF CHANGE:
0° 6' WEST

600'
0 FEET 1,200'
1" = 600'

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

EXHIBIT 'A' PROPERTY MAP

Mead & Hunt
133 Aviation Boulevard, Suite 100
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(707) 526-5010
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Stanislaus County

DESIGN: BM/DH | DRAWN: TE/DH/BM | DATE: February 2017 | SHEET 6 OF 6

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration (Project Number Unassigned) as provided under Title 49 U.S.C., Section 47104. The contents do not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable or would have justification in accordance with appropriate public laws.

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APPENDIX C

Proposed Compatibility Policies and Policy Maps to Amend the ALUCP

Stanislaus County Airport Land Use Compatibility Plan:

Addendum to Address the Proposed Crows Landing Airport

The following addendum would amend the *Stanislaus County Airport Land Use Compatibility Plan* dated October 2016 to include specific policies associated with the proposed Crows Landing Airport. After adoption of the addendum by the Stanislaus County Airport Land Use Commission, all revisions will be incorporated into the *Stanislaus County Airport Land Use Compatibility Plan* and a final document will be prepared.

Additions are shown as underlined; deletions are shown in strikeout. Only substantive changes are identified below; if necessary, minor typographical corrections also may be made prior to publication of the final document, and the date in the footer and title pages will be revised.

Chapter 1, Individual Airport Policies and Compatibility Maps

Page 1-1: Revise the first sentence to include the Crows Landing Airport:

The Stanislaus County Airport Land Use Compatibility Plan (ALUCP) contains the individual Compatibility Plan for three airports in Stanislaus County: the Modesto City-County Airport, the Oakdale Municipal Airport, and the ~~former~~ Crows Landing ~~Air Facility~~ Airport.

Page 1-4: Under "Airports in Stanislaus County, revise the fifth paragraph, first sentence:

The current ALUCP update provides policies for three airports: the Modesto City-County Airport, the Oakdale Municipal Airport, and the Crows Landing Airport ~~(forthcoming)~~ (see Map 1-1).

Page 1-6: Revise the third paragraph in the discussion of the Crows Landing Airport

The County of Stanislaus has worked closely with the California Department of Transportation's (Caltrans) Division of Aeronautics since property conveyance, and it has developed an Airport Layout Plan (ALP) that includes the reuse of the prevailing wind runway. ~~Following appropriate review of the proposed airport layout plan and accompanying ALUCP pursuant to the California Environmental Quality Act (CEQA),~~ The County will submit an application to the Caltrans Division of Aeronautics to operate a public-use general aviation (GA) airport at the former Crows Landing Air Facility. The development of airport-specific policies is a prerequisite for obtaining an airport operating permit from Caltrans. The Stanislaus County ALUCP ~~will be amended to~~ includes airport-specific policies for the proposed Crows Landing General Aviation Airport. ~~following the certification of the associated CEQA document and approval by the County Board of Supervisors. Until that time, the airport-specific ALUCP policies associated with the Crows Landing Air Facility set forth in the County's 2004 ALUCP shall remain in place.~~

Pages 1-6 to 1-7: Revise the discussion of Plan Adoption.

Although contained within this single volume, the Stanislaus County Airport Land Use Compatibility Plan consists of three separate ALUCPs, one for each airport addressed. Since the County's ALUCP and General Plan update were undertaken simultaneously, an Environmental Impact Report (EIR) ~~will be~~ was prepared in accordance with the California Environmental Quality Act (CEQA) that addresses both projects. The purpose of the EIR is to identify the potential environmental impacts associated with the implementation of the revised General Plan ALUCP following adoption; the issues addressed will include those identified in the 2007 California Supreme County decision in Muzzy Ranch Company v. Solano County Airport Land Use Commission, such as an assessment of the potential displacement of future residential and non-residential land use development. The potential environmental impacts associated with the ALUC amendment to include the Crows Landing Airport were evaluated simultaneously with the EIR prepared in support of the Crows Landing Industrial Business Park, which includes the Crows Landing Airport.

Page 1-9: Revise the second paragraph describing ALUCP contents:

Chapters 2 presents airport compatibility and review policies that are applicable to each of the three airports addressed. Chapter 3 presents the compatibility policy maps associated with each airport as well as the individual policies for that airport. Chapters 4 through 6 present the airport land use background information regarding each of the airports in sequence: Modesto City-County Airport, the ~~and~~ Oakdale Municipal Airport, and the Crows Landing Airport. ~~The individual policies associated with the Crows Landing Airport, which will comprise Chapter 6, will not be presented at this time; specific policies for the Crows Landing Airport included following a separate CEQA process for the proposed Airport Layout Plan and its airport-specific ALUCP policies.~~

Chapter 2, Policies

Page 2-1: Revise Policy 1.1.2 to remove references to forthcoming material.

1.1.2 Airport Land Use Compatibility Plans for Individual Airports in Stanislaus County. With limited exceptions, California law requires an Airport Land Use Compatibility Plan for each public use and military airport in the state. This document, the *Stanislaus County Airport Land Use Compatibility Plan (ALUCP)* contains the individual ALUCP for each of the three public-use airports in Stanislaus County: There are no military airports in the County.

a.) The three airports covered by this ALUCP are:

(1) Modesto City-County Airport, a publicly owned, commercial-service airport.

(2) Oakdale Municipal Airport, a publicly owned, general aviation airport.

(3) Crows Landing Airport, a publicly owned, public-use airport pending approval by the California Department of Transportation, Division of Aeronautics. ~~This ALUCP will be amended to include site-specific data pertaining to the Crows Landing Airport upon permit receipt.~~

b.) The policies in this document are divided into three chapters.

(1) Chapters 1 and 2, together with the respective airport-specific policies in Chapters 4 through 6, comprise the ALUCP for each of the three airports.

(2) Chapter 3 includes the Individual Airport Policies and Compatibility Maps for Modesto City-County, ~~and~~ Oakdale Municipal, and Crows Landing airports ~~(Crows Landing Airport policies and maps will be added at a later date)~~. The chapter includes a set of maps for each airport plus any compatibility criteria that are unique to that airport.

(3) Chapters 4 through 6 provide specific data pertaining to each airport and summaries of the background data used to prepare the compatibility plans.

Page 2-2. Revise definition 1.1.5, Use by Affected Local Agencies.

1.1.5. Use by Affected Local Agencies:

(a) This ALUCP and its policies shall apply to all of the following affected Local Agencies (see Policy 1.2.23), each of which has or may in the future have jurisdiction over lands within parts of the Airport Influence Areas defined by this plan; specifically:

(1) County of Stanislaus

(2) City of Ceres

(3) City of Modesto

(4) City of Oakdale

(5) City of Patterson

(~~5~~6) Any future city within Stanislaus County that may be incorporated within all or part of the airport influence area associated with the Modesto City-County Airport. Oakdale Municipal Airport, or the Crows Landing Airport.

(~~6~~7) Special districts, school districts and community college districts within Stanislaus County to the extent that the district boundaries extend into an Airport Influence Area.

Page 2-4: Revise definition *1.2.7, Airspace Protection Area.*

1.2.7. Airspace Protection Area: The area beneath the Airspace Protection Surfaces for each airport as depicted on Maps **MOD-4. ~~and~~ OAK-4**, and **CRO-4**.

Page 2-6: Revise definition 1*.2.25, Noise Impact Area.*

1.2.25. Noise Impact Area: The area within which the noise impacts, measured in terms of CNEL, generated by aircraft operating at an airport may represent a land use compatibility concern. The Noise Impact Area associated with each airport is depicted on Maps **MOD-2**, ~~and~~ **OAK-2,** and **CRO-2**, Compatibility Policy Map: Noise.

Page 2-7: Revise definition *1.3.2, Referral Areas*.

1.3.2. Referral Areas: Each Airport Influence Area is divided into two areas, Referral Area 1 and Referral Area 2. Requirements for referral of Land Use Actions to the ALUC for review differ between these two areas (see Section 1.4). The airport influence area maps presented as **MOD-1**, ~~and~~ **OAK-1**, and **CRO-1** illustrate these areas.

Page 2-11: Revise definition *1.5.5, Mandatory Referral of Airport Planning and Development Actions*.

1.5.5. *Mandatory Referral of Airport Planning and Development Actions***:** Prior to approving either of the following types of airport planning and development actions, the airport operator, including the County of Stanislaus for the ~~proposed~~ Crows Landing Airport, must refer the action to the ALUC for determination of consistency with the Stanislaus County Airport Land Use Compatibility Plan**.**

Chapter 3, Individual Airport Policies and Compatibility Maps

Page 3-1: Revise the first paragraph to indicate that data for the Crows Landing airport is included:

CHAPTER OVERVIEW

This chapter presents policies and maps that are specific to each of the three airports addressed in this document: Modesto City-County Airport, Oakdale Municipal Airport, and Crows Landing Airport ~~(forthcoming)~~. The respective section for each airport, combined with the general policies that comprise Chapter 2, represents the Compatibility Plan for that particular airport.

Page 3-4: Revised the first paragraph to remove the reference to the 2004 ALUCP and to identify a new airport-specific policy for the Crows Landing Airport:

CRO. CROWS LANDING AIRPORT

CRO.1 Additional Compatibility Policies

~~*CRO 1.1 Policies for the former Crows Landing Airfield, as presented in the 2004 ALUCP, will remain in force until the County receives an airport operating permit from the Caltrans Division of Aeronautics to re-open the airfield for general aviation use.*~~

CRO 1.1 Crows Landing Industrial Business Park Specific Plan. The Crows Landing Airport is located on 370-acres within the 1,528-acre Crows Landing Industrial Business Park (CLIBP) Specific Plan Area.

a) CLIBP Specific Plan policies incorporate the *Stanislaus County Airport Land Use Compatibility Plan* by reference.

b) In the event that ALUCP policies and *Specific Plan* policies are found to be inconsistent with one another, the more stringent policy shall apply.

Insert proposed Crows Landing Policy Maps following page 3-4 as follows:

- CRO-1, Airport Influence Area Policy Map
- CRO-2, Airport Noise Zones Policy Map
- CRO-3, Safety Zones Policy Map
- CRO-4, Airspace Protection Zones Policy Map
- CRO-5, Overflight Zones Policy Map

A copy of the revised Chapter 3 pages and maps is attached to this addendum.

Chapter 6, Background Data: Crows Landing Airport and Environs

A new chapter will be added to the ALUCP to provide background information about the Crows Landing Airport.

The new chapter is attached to this addendum. To facilitate document readability, only the Chapter title is underlined.

3

Individual Airport Policies and Compatibility Maps

CHAPTER OVERVIEW

This chapter presents policies and maps that are specific to each of the three airports addressed in this document: Modesto City-County Airport, Oakdale Municipal Airport, and Crows Landing Airport ~~(forthcoming)~~. The respective section for each airport, combined with the general policies that comprise Chapter 2, represents the *Compatibility Plan* for that particular airport.

To the extent that any of the policies in Chapter 2 are not intended to apply to a particular airport, those modifications are indicated here. Any additional policies that apply only to a specific airport are listed as well. These special policies are not to be generalized or considered as precedent applicable to other locations near the same airport or to the environs of other airports addressed by this *Compatibility Plan*. Where no special policies are listed, the policies in Chapter 2 prevail.

For each airport, a set of five policy maps is provided:

- *Airport Influence Area Policy Maps* indicate the overall boundary of the area, as well as the two subareas—Referral Areas 1 and 2—within which certain land use actions are subject to ALUC review.
- *Airport Noise Zones Policy Maps* depict the locations within which criteria addressing noise impacts are applicable.
- *Safety Zones Policy Maps* show locations where certain types of proposed development may be restricted on the basis of safety compatibility with the airport.
- *Airspace Protection Zones Policy Maps* define where limits on the heights of structures and other objects are necessary.
- *Overflight Areas Policy Maps* show where policies providing certain buyer awareness measures are applicable.

These maps provide the geographic context for the compatibility policies set forth in Chapter 2. Information and other factors considered in developing the maps for each airport are described and illustrated in the background data chapters for the respective airports (Chapters 4 through 6).

CRO. CROWS LANDING AIRPORT

CRO.1 Additional Compatibility Policies

~~*CRO 1.1 Policies for the former Crows Landing Airfield, as presented in the 2004 ALUCP, will remain in force until the County receives an airport operating permit from the Caltrans Division of Aeronautics to re-open the airfield for general aviation use.*~~

CRO 1.1 *Crows Landing Industrial Business Park Specific Plan.* The Crows Landing Airport is located on 370-acres within the Crows Landing Industrial Business Park (CLIBP) Specific Plan Area.

a) CLIBP Specific Plan policies incorporate the *Stanislaus County Airport Land Use Compatibility Plan* by reference.

b) In the event that ALUCP policies and *Specific Plan* policies are found to be inconsistent with one another, the ALUCP shall apply.

Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')
- FAR PART 77 High Terrain Penetrations

Airport Influence Area

- Review Area 1
- Review Area 2

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Map CRO-1

Airport Influence Area Policy Map

Crows Landing Airport

Source: Mead & Hunt, Inc. (April 2016)

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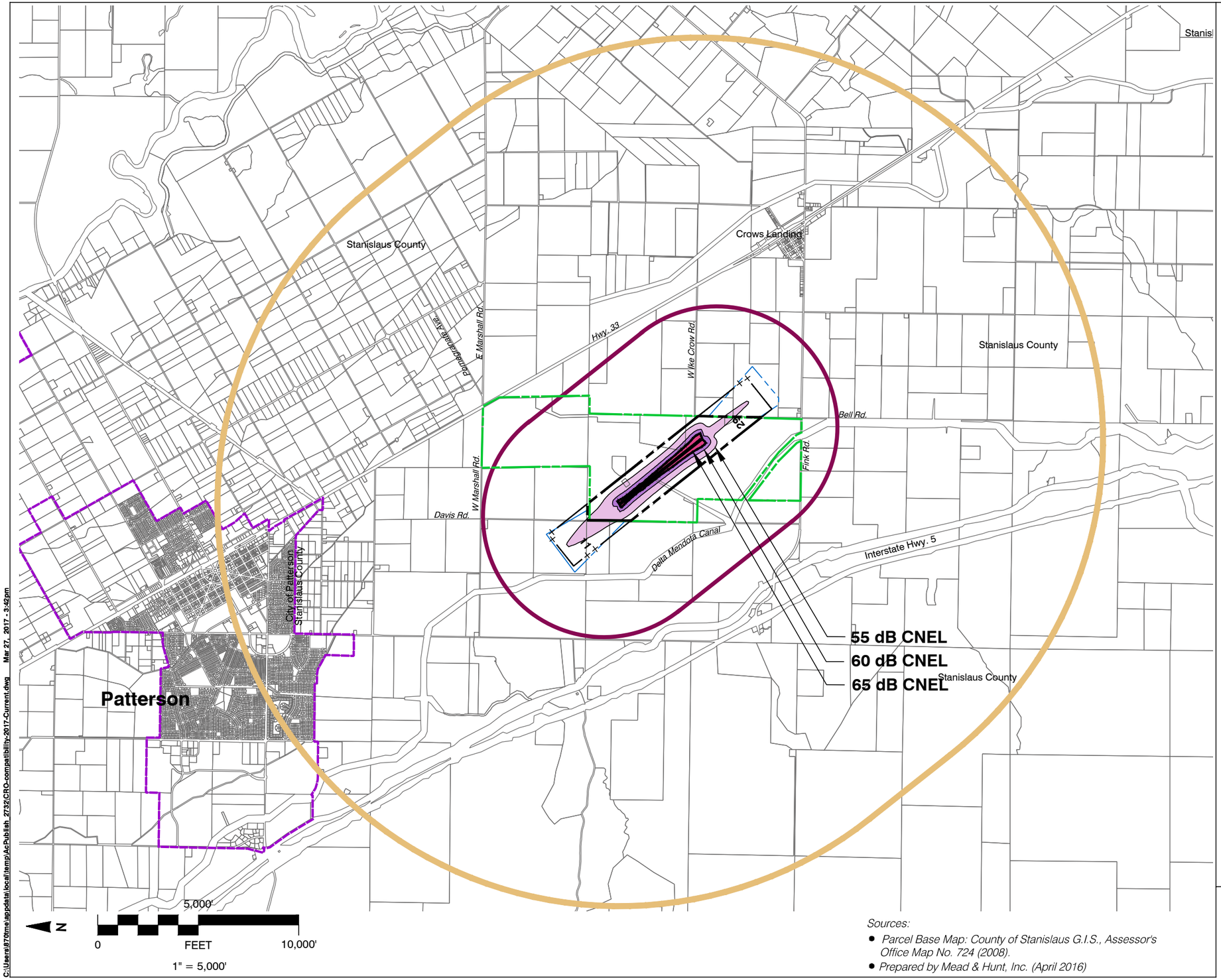

Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')

Airport Influence Area

- Review Area 1
- Review Area 2

Noise Impact Zones [1]

- 55 - 60 dB CNEL
- 60 - 65 dB CNEL
- 65 - 70 dB CNEL

Notes

1. Noise contours reflect future scenario (through phase 3) with 34,000 annual operations.

Sources:

- *Parcel Base Map: County of Stanislaus G.I.S., Assessor's Office Map No. 724 (2008).*
- *Prepared by Mead & Hunt, Inc. (April 2016)*

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Map CRO-2

Airport Noise Zones Policy Map

Crows Landing Airport

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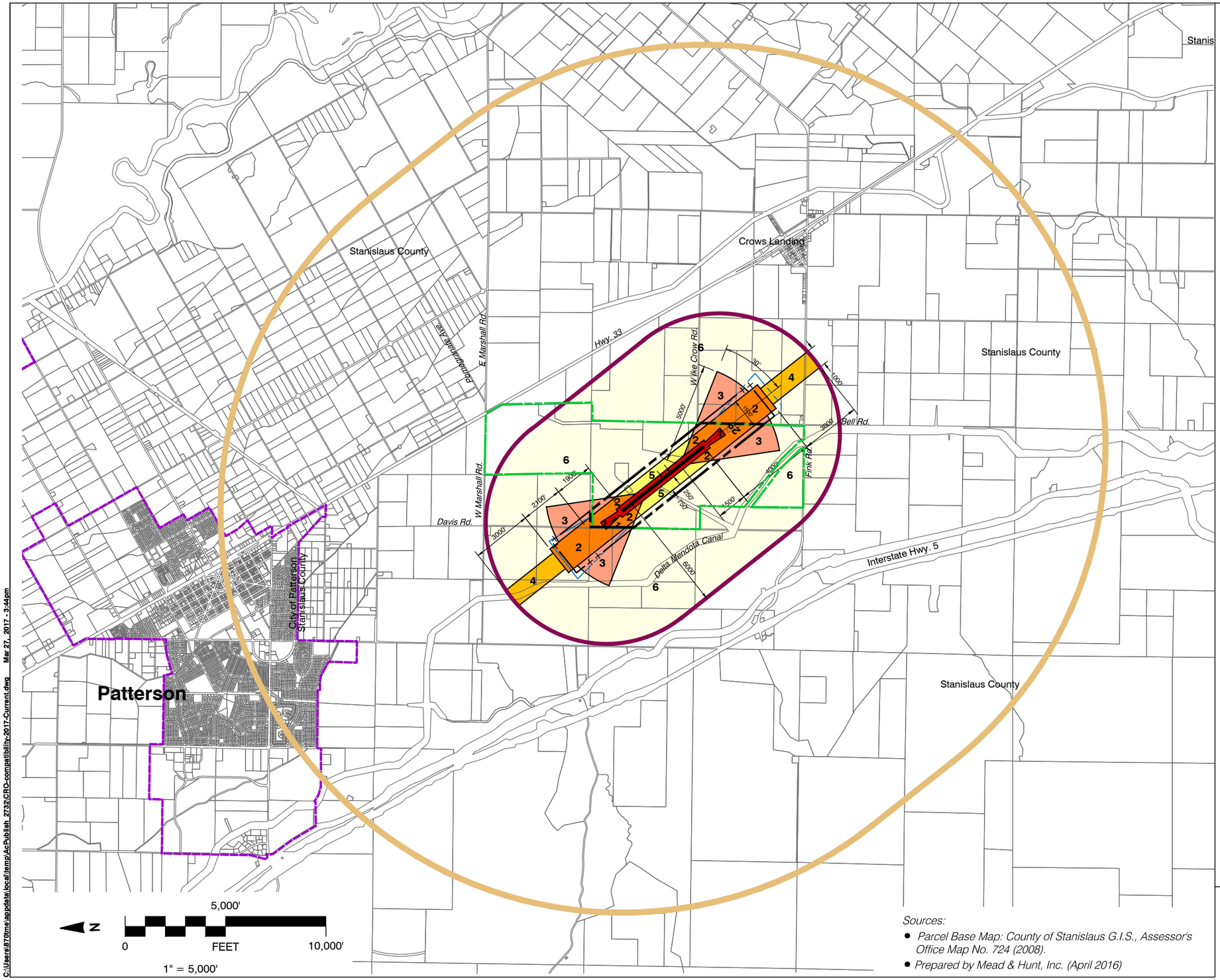

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Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel
- Runway (Existing Length of 5,175')

Airport Influence Area

- Review Area 1
- Review Area 2

Safety Zones

- Zone 1 - Runway Protection Zone
- Zone 2 - Inner Approach/Departure Zone
- Zone 3 - Inner Turning Zone
- Zone 4 - Outer Approach/Departure Zone
- Zone 5 - Sideline Zone
- Zone 6 - Traffic Pattern Zone

Notes

1. Source: Long General Aviation Safety Zones - California Airport Land Use Planning Handbook (2012).
2. Avigation easement dedication required for areas outside existing property and within Zones 1-5.
3. See Table 2 for criteria applicable within each zone.

Sources:

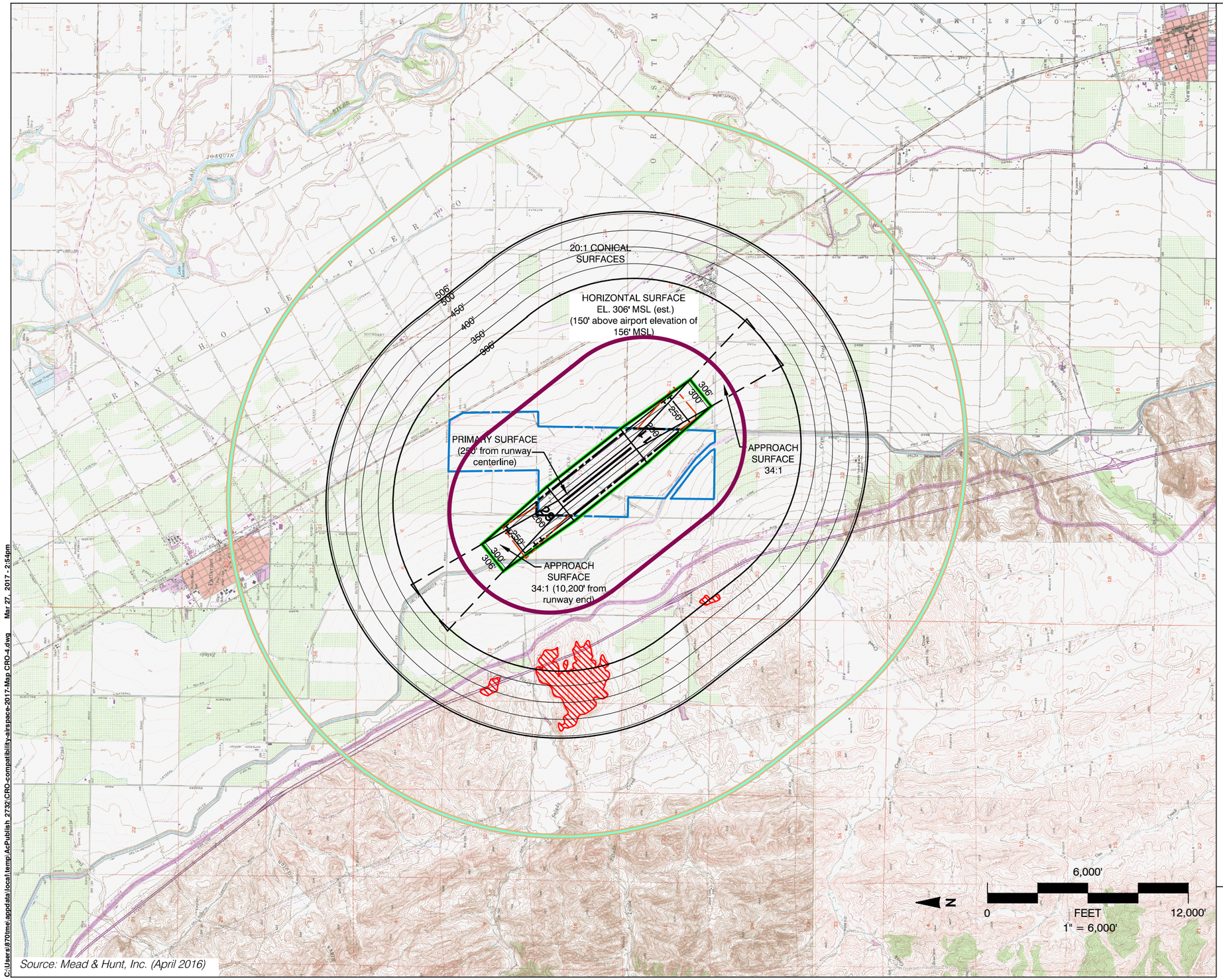
- *Parcel Base Map: County of Stanislaus G.I.S., Assessor's Office Map No. 724 (2008).*
- *Prepared by Mead & Hunt, Inc. (April 2016)*

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Map CRO-3

Airport Safety Zones Policy Map

Crows Landing Airport



Source: Mead & Hunt, Inc. (April 2016)

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Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- Runway (Existing Length of 5,175')

Airspace Protection Surfaces

- FAA Height Notification [1]
- FAR Part 77 Obstruction Surfaces [2]
- Avigation Easement Dedication [3]
- Terrain Contours
- Part 77 High Terrain Penetrations [3]

Airport Influence Area

- Review Area 1
- Review Area 2

Notes

1. Based on FAR Part 77, Subpart B, which requires that the FAA be notified of any proposed construction or alteration having a height greater than an imaginary surface extending 100 feet outward and 1 foot upward (slope of 100 to 1) for a distance of 20,000 feet from the nearest point of any runway. Beyond FAA Height Notification Area boundary, any object taller than 200 feet requires FAA notification.
2. FAR Part 77 Obstruction Surfaces: Based on FAR Part 77, Subpart C, which establishes standards for determining obstructions to air navigation.
3. Avigation easements beneath the approach and transitional surfaces up to the horizontal surface and the high terrain penetrations.

4 Heliport airspace surfaces not shown: surfaces remain on airport property or subsumed in Runway 29 airspace surfaces.

5. All elevations in feet above mean sea level (MSL).

Vertical datum in NAVD88.

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Map CRO-4

Airspace Protection Zones Policy Map

Crows Landing Airport

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Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')
- FAR PART 77 High Terrain Penetrations

Airport Influence Area

- Review Area 1
- Review Area 2

Overflight Zones

- Avigation Easement Dedication
- Overflight Notification
- Disclosure in Real Estate Transaction (throughout AIA)

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Map CRO-5

Overflight Zones Policy Map

Crows Landing Airport

6

Background Data: Crows Landing Airport and Environs

INTRODUCTION

The Crows Landing Airport is a proposed 370-acre general aviation (GA) facility that will be owned and operated by Stanislaus County. The airport will be developed using one of two runways that were developed by the U.S. Navy in 1943 as part of the Crows Landing Naval Auxiliary Air Station to Moffett Field. The 1,528-acre former Crows Landing airfield was operated for more than five decades by various branches of service. The facility was identified for closure by the Base Closure and Realignment Commission (BRAC) in the 1990s. The United States Congress directed the National Aeronautics and Space Administration (NASA) to convey the property to Stanislaus County in 2004 through Public Law 106-82.

The proposed airport is located in an unincorporated area of the County's West Side (see **Exhibit CRO-1)**. The decommissioned military facility was conveyed to the County for the purposes of economic development, and the County has designated the entire 1,528-acre property as the Crows Landing Industrial Business Park (CLIBP). The 370-acre planned airport is included in the 1,528-acre CLIBP Specific Plan Area and focuses on the reuse of a former military runway (former Runway 12-30). The proposed compatibility policies for the Crows Landing Airport and the proposed *Crows Landing Industrial Park Specific Plan* were developed concurrently to promote consistency between the envisioned airport and adjacent CLIBP land uses.

The CLIBP is located approximately 1 mile east of Interstate 5, 1 mile south of the City of Patterson, and 1.4 miles west of the Crows Landing community. Access to the airport is available from Highway 33 and Marshall Road to the north, Highway 33 and Ike Crow Road or Fink Road from the East, and from I-5 and Fink Road from the West. The airport lies at an elevation of 155.6 feet above Mean Sea Level (MSL).

STATUS OF AIRPORT PLANS

The *Airport Layout Plan and Narrative Report for the Crows Landing Airfield* is the initial planning document for the proposed Crows Landing Airport. Following property conveyance in 2004, the Board of Supervisors (Board) directed County staff to investigate the development of a new GA airport that focused on the reuse of former military Runway 12-30, the shorter of the two former runways, and to pursue the development of adjacent areas of the former airfield for the purposes of job creation. The Board of Supervisors will consider adoption of the Draft Airport Layout Plan and Narrative Report

following environmental review pursuant to the California Environmental Quality Act, which is anticipated in 2017.

The proposed Airport Layout Plan (ALP) includes a long-term development plan for the airport covering three phases:

- Existing/Opening, which identifies facilities through the first 10 years of airport operation;
- Future, which identifies facilities that would be necessary from approximately 11 to 30 years after opening.
- Ultimate, which addresses facility needs more than 30 years after airport opening. The facilities and operations associated with this period are likely to change and were provided only for long-range planning purposes.

The Airport Layout Plan set includes an index page, the ALP drawing, Airport Data Sheet, Airspace Plan Inner Approach and Plan Profile, and Exhibit A, Airport Property Map. The ALP Narrative report describes existing and planned airport facilities and documents existing and forecast aircraft activity. In accordance with Section 21675(a) of the California Public Utilities Code, the proposed ALP was presented to the Caltrans Division of Aeronautics with a request that it serve as the basis of the Crows landing Airport Land Use Compatibility Plan. All proposed policies were based on proposed airport development for the Existing and Future phases of airport operation (through 30 years of operation). The summary of proposed airport features is presented as Exhibit CRO-2, and the proposed ALP is presented as **Exhibit CRO-3**.

AIRFIELD CONFIGURATION

The Crows Landing Airport will include a single concrete runway (Runway 11-29), which will be 5,175 feet long and 100 feet wide. The runway will be aligned with the prevailing wind direction in a nearly northwest/southeast alignment. The primary airport building area is located northeast of the airfield. A modular building will serve as a terminal building/pilot lounge area, and a wash rack, hangars, tiedowns, auto parking area, and fuel service are envisioned.

During the first 30 years of aircraft operations, the Crows Landing Airport will be able to accommodate an Airport Reference Code (ARC) classification of B-II, which means that the airport is designed to accommodate approach speeds from 91 to 121 knots and aircraft with wing spans from 49 to 79 feet. The most demanding class of aircraft expected to use the airport regularly, as defined by the FAA as more than 500 annual operations, is the medium-sized, twin-engine, turbo-prop aircraft, such as the Beechcraft Super King Air B200. During the first ten years of operation, the airport will support visual approaches. From years 11 to 30, visibility minimums will be as low as one statute mile.

The Runway Protection Zones (RPZs) for each runway reflect FAA criteria for an ARC B-II runway. Each RPZ has an inner width of 250 feet, an outer width of 400 feet and a length of 1,000 feet. Although portions of each RPZ extend off of airport property onto adjacent agricultural lands, the County owns an avigation easement for all of the off-site areas. All runway critical areas (runway safety and objected free areas) remain on airport property for the first 30 years of airport operation.

As described in the 2016 ALP and Narrative Report, the development plans for the airport during its first 30 years of operation include:

- Small airport operations office (e.g., modular unit) and area for wi-fi, restroom, etc.
- Aircraft parking apron (five tiedowns during first ten years)

- Ten or more privately financed hangars on County leases sited on existing concrete pavement
- Perimeter fencing along Davis and Bell Roads and apron area
- Basic aviation fuel services: 100LL via self-service from a skid-mount tank and maybe Jet-A using a refueler truck
- Wash rack facility, perhaps combined with fueling facility to allow sharing of filtration system
- Non-precision instrument approach capability (GPS based)
- Basic Fixed Base Operator (FBO) services: on-site presence, basic aircraft maintenance
- Basic helicopter takeoff and landing area using existing hard-surface area southwest of Runway 11-29
- Perimeter access road and perimeter fencing fully enclosing airport property

AIRSPACE PLAN

The proposed 2016 ALP includes an Airspace Plan which depicts the future Federal Aviation Regulations (FAR) Part 77 imaginary airspace surfaces (see **Exhibit CRO-7**). The 2016 Airspace Plan reflects the existing airfield configuration and design of the runway (i.e., ARC B-II) and visual approaches to both runway ends.

ACTIVITY FORECASTS

Activity Forecast

The FAA's Aerospace Forecast was used to define broad trends in regional and national general aviation activity. However, the FAA's forecast is of limited utility in a quantitative sense. Growth in aviation activity at the proposed Crows Landing Airport will be driven by the unique features of its location and the overall success of the CLIBP, which will includes logistics, light industrial, public facilities, and business park uses.

Opening through Year 10

As provided in the 2016 ALP Narrative report, a forecast of up to 8,000 annual operations is assumed during the first ten years of airport operations. Approximately 10 based aircraft are anticipated. The majority of aircraft are likely to be single-engine, propeller airplanes, with a few multi-engine, piston airplanes, a few turbine-powered aircraft (turboprops and/or jets), and some agricultural aircraft. Some helicopter operations are possible.

Years 11 to 30

As provided in the 2016 ALP Narrative report, a forecast of up to 34,000 annual operations is assumed during the second of airport operations. Approximately 80 based aircraft are anticipated at 30 years of operation, including tie-downs. The majority of aircraft are likely to be single-engine, propeller airplanes, with a few multi-engine, piston airplanes and turbine-powered aircraft (turboprops and/or jets). Approximately one-third of the operations would be associated with based aircraft and transient aircraft providing transportation for passengers associated with the industrial and business park, and approximately one-half would be associated with touch-and-goes by aircraft based at the airport. A summary of Airport Activity is presented as Exhibit CRO-4.

Noise Contours

Future noise contours were generated reflecting the activity forecasts of 34,000 annual operations. The future noise contours for Crows Landing Airport are shown in **Exhibit CRO-5**.

Overflight Patterns

The typical aircraft traffic patterns for the Crows Landing Airport are illustrated on **Exhibit CRO-5**. The airport has standard left-hand traffic patterns to Runway 11 and Runway 29. Runway 29 is the primary runway for landings and takeoffs. Due to prevailing winds, an estimated 80% of operations take place on Runway 29 and operate into the wind.

Safety Zones

The generic safety zones provided by the Caltrans *Handbook* were applied to the existing runway configuration.[1] The only modification to the handbook was associated with Zone 1, which was adjusted to reflect the actual size of the Runway Protection Zone as prescribed by the FAA in 150.5200-13A, "Airport Design," Change 1. The safety zones for Crows Landing Airport are shown in **Exhibit CRO-6**.

Airport Environs

Exhibit CRO-8 provides a detailed summary of the existing and planned airport environs, including airport compatibility policies adopted by the local agencies. The City of Patterson and Stanislaus County are within the airport's influence area.

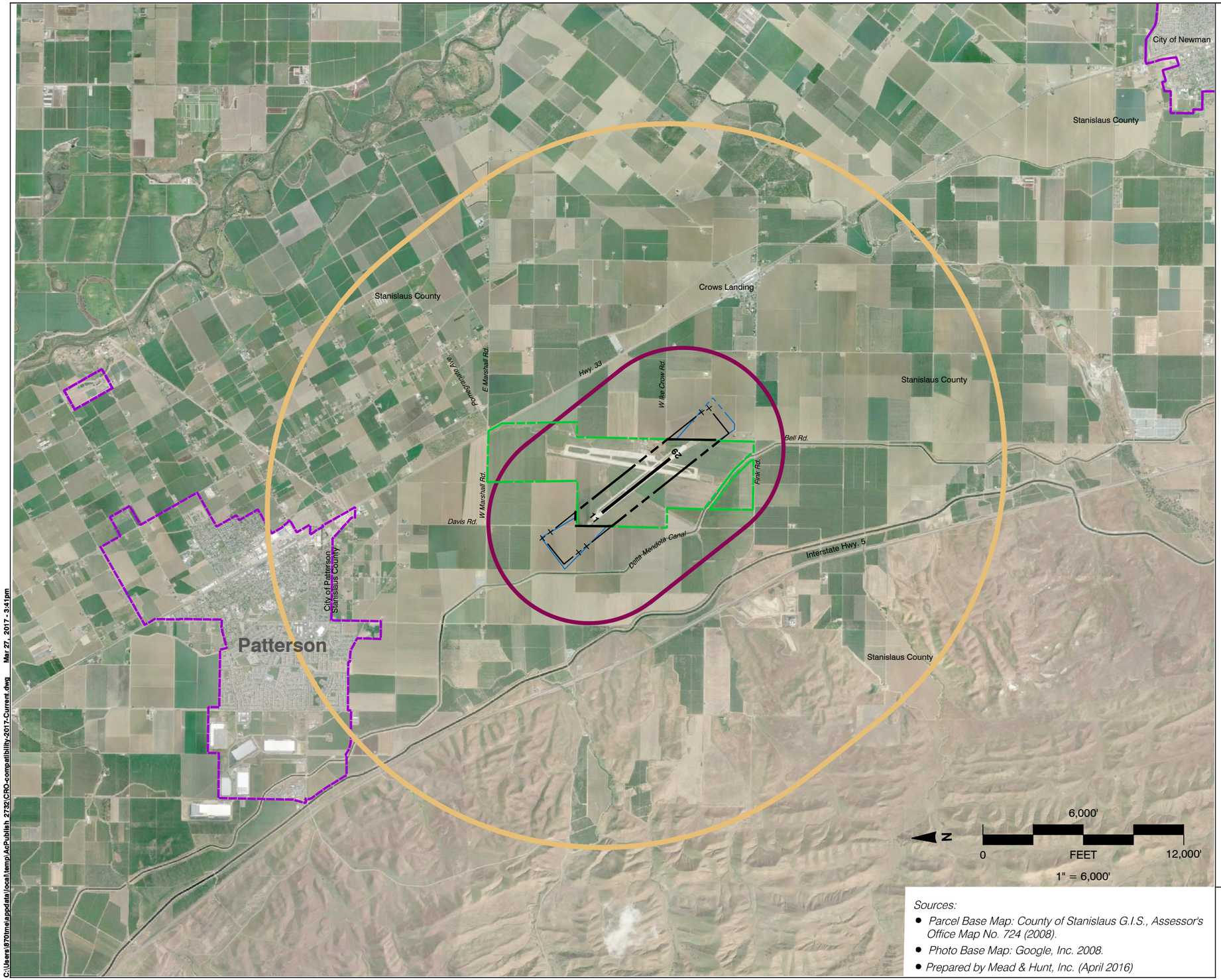
BACKGROUND INFORMATION

The following exhibits present the data upon which *Compatibility Plan* policy maps are based:

- **Exhibit CRO-1**—Airport Location: Presents the location of the airport in the context of existing environment (aerial photograph).
- **Exhibit CRO-2**—Airport Environs Information: Presents data pertaining to local existing and planned land uses.
- **Exhibit CRO-3**—Airport Layout Plan: Presents existing and proposed airport facilities as provided in the 2016 Airport Layout Plan and Narrative Report.
- **Exhibit CRO-4**—Airport Activity Data: Presents aviation forecasts for the 30-year planning period of this ALUCP based on forecast data provided in the 2016 ALP Narrative Report.
- **Exhibit CRO-5**—Noise and Overflight Factors: Presents the geographic area over which aircraft operating at the airport routinely fly, as well as the noise contours based on the planning period forecasts.

[1] Source: *California Airport Land Use Planning Handbook* (October 2011).

- **Exhibit CRO-6**—Safety Factors: Presents the locations of safety zones using the guidance and templates presented by the California Division of Aeronautics in its manual, *California Airport Land Use Planning Handbook*.
- **Exhibit CRO-7**—Part 77 Airspace: Depicts the Federal Aviation Regulations Part 77 airspace surfaces which should be kept free of obstructions.
- **Exhibit CRO-8**—Airport Environs: Presents site data, existing and planned land uses, affected jurisdictions, and compatible land use measures.



Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')

Airport Influence Area

- Review Area 1
- Review Area 2

Sources:

- *Parcel Base Map: County of Stanislaus G.I.S., Assessor's Office Map No. 724 (2008).*
- *Photo Base Map: Google, Inc. 2008.*
- *Prepared by Mead & Hunt, Inc. (April 2016)*

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Exhibit CRO-1

Airport Location

Crows Landing Airport

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GENERAL INFORMATION

- *Airport Ownership:* County of Stanislaus
- *Year Opened:* tentative 2017
- *Property Size:* 370 acres
- *Airport Classification:* General Aviation
- *Airport Elevation:*155.6 Mean Sea Level

AIRPORT PLANNING DOCUMENTS

- *Airport Master Plan: None*
- *Airport Layout Plan: Drawing and Narrative Report (Draft December 2016); adoption pending*
- *Airport Land Use Plan:*
  - Stanislaus County Airport Land Use Commission Plan (adopted 2016,Crows Landing amendment pending)

RUNWAY/TAXIWAY DESIGN

At Opening

Runway 11-29

- *Airport Reference Code: B-II*
- *Critical Aircraft: King Air 200*
- *Dimensions: 5,175' long, 100' wide*
- *Pavement Strength (main landing gear configuration)*
  - 65,500 lbs. (single wheel)
  - 75,500 lbs. (dual wheel)
  - 135,500 lbs. (dual tandem wheel)
- *Average Gradient : 0.032% (rising to the northwest)*
- *Runway Lighting: none*
- *Primary Taxiways: Full-length parallel to the northeast*

Future (11 to 30 years)

Runway 11 – 29

- *Airport Reference Code: B-II*
- *Critical Aircraft: Gulfstream III*
- *Dimensions: 6,175' long, 100' wide*
- *Pavement Strength (main landing gear configuration)*
  - 65,500 lbs. (single wheel)
  - 75,500 lbs. (dual wheel)
  - 135,500 lbs. (dual tandem wheel)
- *Average Gradient :* 0.028% (rising to the northwest)
- *Runway Lighting:* MIRL, REILs
- *Primary Taxiways*: Full-length parallel to the northeast

TRAFFIC PATTERNS AND APPROACH PROCEDURES

- *Airplane Traffic Patterns (At Opening)*
  - Runway 11: Left Traffic
  - Runway 29: Left Traffic
- *Airplane Traffic Patterns (Years 11 to 30)*
  - Runway 11: Left Traffic
  - Runway 29: Right Traffic
- *Approach Procedures (At Opening): Visual*
- *Approach Procedures (11-30): Non-precision >1 mile*
- *Approach Aids (At Opening): None*
- *Approach Aids (21-30 years): GPS based*
- *Operational Restrictions (At Opening and 11 -30): Daytime use only*

APPROACH PROTECTION

- *Existing Runway Protection Zones (RPZ)*
  - Runway 11: 7% off property
  - Runway 29: 0% off property
- *Ultimate Runway Protection Zones (RPZ):*
  - Runway 11: 0% off property – Easement; Future Fee Simple Acquisition
  - Runway 29: 0% off property–Easement; Future Fee Simple Acquisition
- *Approach Obstacles: Trees penetrate "ultimate" precision approach surface to Runways 29L and 29R (objects to be removed)*

BUILDING AREA

At Opening

- *Aircraft Parking Location: Northeast side of Runway 11-29*
- *Aircraft Parking Capacity*
  - Hangar spaces: 5
  - Tie Downs: 15
- *Other Facilities and Services*:
  - Fuel: None
  - FBO: None

Future (11 to 30 years)

- *Aircraft Parking Capacity*
  - Hangar spaces: 35
  - Tie Downs: 15
- *Other Facilities and Services*:
  - Fuel: 10LL, Jet-A
  - FBO: Yes

Exhibit CRO-2

Airport Features Summary

Crows Landing Airport

BUILDING AND FACILITY LEGEND

FACILITY	ELEVATION
(1) Future Operations Office	162'
(2) Fixed Base Operator (FBO)	162'
(3) Fuel Facility	N/A
(4) Future Wash Rack	N/A
(5) Future Runway End Indicator Lights (REILS)	N/A
(6) Future Medium Intensity Approach Light System With Rail (MALSR)	N/A
(7) Future Rotating Beacon	197'

MONUMENTS (e)

	ID #	LATITUDE	LONGITUDE	ELEVATION	DESCRIPTION
1	HS5483	37° 24' 46.766" N	121° 06' 20.756" W	142.00'	Brass survey disk
2	HS5478	37° 24' 13.062" N	121° 06' 37.571" W	162.00'	Brass survey disk
3	HS5474	37° 23' 57.775" N	121° 06' 40.989" W	173.00'	Stainless steel rod
4	HS5477	37° 24' 48.034" N	121° 06' 29.765" W	144.00'	Brass survey disk

ALP NOTES

- ALP prepared using design criteria from FAA Advisory Circulars 150/5300-13A Change 1, "Airport Design", 150/5070-6A, FAA Standard Operating Procedures 2.00 and 3.00, and Part 77 of the Federal Aviation Regulations (FAR), "Safe, Efficient Use, and Preservation of the Navigable Airspace."
- Magnetic Declination source: National Geophysical Data Center.

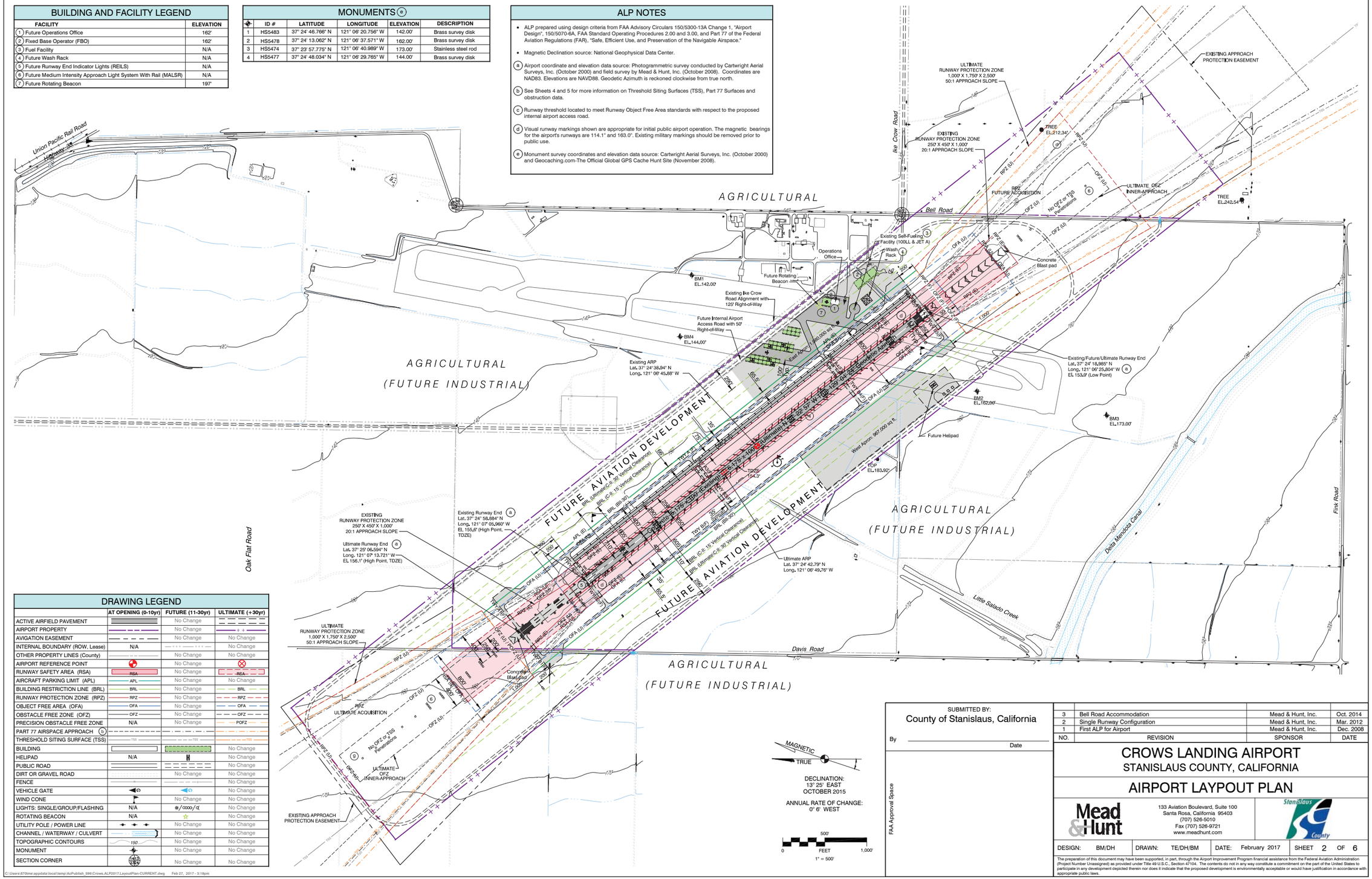
(a) Airport coordinate and elevation data source: Photogrammetric survey conducted by Cartwright Aerial Surveys, Inc. (October 2000) and field survey by Mead & Hunt, Inc. (October 2008). Coordinates are NAD83. Elevations are NAVD88. Geodetic Azimuth is reckoned clockwise from true north.

(b) See Sheets 4 and 5 for more information on Threshold Siting Surfaces (TSS), Part 77 Surfaces and obstruction data.

(c) Runway threshold located to meet Runway Object Free Area standards with respect to the proposed internal airport access road.

(d) Visual runway markings shown are appropriate for initial public airport operation. The magnetic bearings for the airport's runways are 114.1° and 163.0°. Existing military markings should be removed prior to public use.

(e) Monument survey coordinates and elevation data source: Cartwright Aerial Surveys, Inc. (October 2000) and Geocaching.com-The Official Global GPS Cache Hunt Site (November 2008).



DRAWING LEGEND

	AT OPENING (0-10yr)	FUTURE (11-30yr)	ULTIMATE (+30yr)
ACTIVE AIRFIELD PAVEMENT		No Change	
AIRPORT PROPERTY		No Change	
AVIGATION EASEMENT		No Change	No Change
INTERNAL BOUNDARY (ROW, Lease)	N/A		No Change
OTHER PROPERTY LINES (County)		No Change	No Change
AIRPORT REFERENCE POINT		No Change	
RUNWAY SAFETY AREA (RSA)	RSA	No Change	RSA
AIRCRAFT PARKING LIMIT (APL)	APL	No Change	No Change
BUILDING RESTRICTION LINE (BRL)	BRL	No Change	BRL
RUNWAY PROTECTION ZONE (RPZ)	RPZ	No Change	RPZ
OBJECT FREE AREA (OFA)	OFA	No Change	OFA
OBSTACLE FREE ZONE (OFZ)	OFZ	No Change	OFZ
PRECISION OBSTACLE FREE ZONE	N/A	No Change	POFZ
PART 77 AIRSPACE APPROACH (b)			
THRESHOLD SITING SURFACE (TSS)	TSS		TSS
BUILDING			No Change
HELIPAD	N/A		No Change
PUBLIC ROAD			No Change
DIRT OR GRAVEL ROAD		No Change	No Change
FENCE			No Change
VEHICLE GATE			No Change
WIND CONE		No Change	No Change
LIGHTS: SINGLE/GROUP/FLASHING	N/A		No Change
ROTATING BEACON	N/A		No Change
UTILITY POLE / POWER LINE		No Change	No Change
CHANNEL / WATERWAY / CULVERT		No Change	No Change
TOPOGRAPHIC CONTOURS	150	No Change	No Change
MONUMENT		No Change	No Change
SECTION CORNER		No Change	No Change

MAGNETIC
TRUE

DECLINATION:
13° 25' EAST
OCTOBER 2015

ANNUAL RATE OF CHANGE:
0° 6' WEST

0 500' 1,000' FEET
1" = 500'

SUBMITTED BY:
County of Stanislaus, California

By _____ Date

FAA Approval Space

NO.	REVISION	SPONSOR	DATE
3	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
2	Single Runway Configuration	Mead & Hunt, Inc.	Mar. 2012
1	First ALP for Airport	Mead & Hunt, Inc.	Dec. 2008

CROWS LANDING AIRPORT
STANISLAUS COUNTY, CALIFORNIA

AIRPORT LAYOUT PLAN

Mead & Hunt
133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
(707) 526-5010
Fax (707) 526-9721
www.meadhunt.com

Stanislaus County

DESIGN:	BM/DH	DRAWN:	TE/DH/BM	DATE:	February 2017	SHEET	2	OF	6

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration (Project Number Unassigned) as provided under Title 49 U.S.C., Section 47104. The contents do not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable or would have justification in accordance with appropriate public laws.

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Exhibit CRO-3

BASED AIRCRAFT

	At Opening [a] (to 10 years)	Future [b] (11 to 30 years)
Aircraft Type		
Single-Engine	10	50
Twin-Engine	--	10
Business Jets	--	14
Helicopters	--	6
Total	*10*	*80*

AIRCRAFT OPERATIONS

	At Opening [a] *(to 10 years)*	***Future*** [b] *(11to 30 years)*
Total		
Annual	4,000	34,000
Average Day	11	93
Distribution by Aircraft Type		
Single-Engine, Piston	100%	65%
Twin-Engine Piston	--	10%
Turboprop	--	15%
Business Jet	--	10%
Distribution by Type of Operation		
Local (incl. touch-and-goes)	75%	45%
Itinerant	25%	55%

TIME OF DAY DISTRIBUTION [a]

	At Opening *(to 10 years)*	***Future*** *(11 to 30 years)*
All Aircraft		
Day (7am to 7pm)	98%	85%
Evening (7pm to 10pm)	2%	10%
Night (10pm to 7am)	--	5%

RUNWAY USE DISTRIBUTION [a]

	At Opening *2009*	***Ultimate*** *20+ Years*
All Aircraft Types		
Runway 11	20%	20%
Runway 29	80%	80%

FLIGHT TRACK USAGE [a]

- Runway 29:
  - 50% straight-out departures,
  - 25 90-degree turn departures,
  - 25% 180-degree turn departures
- Runway 11 and 11: 100% straight-in arrivals

Notes

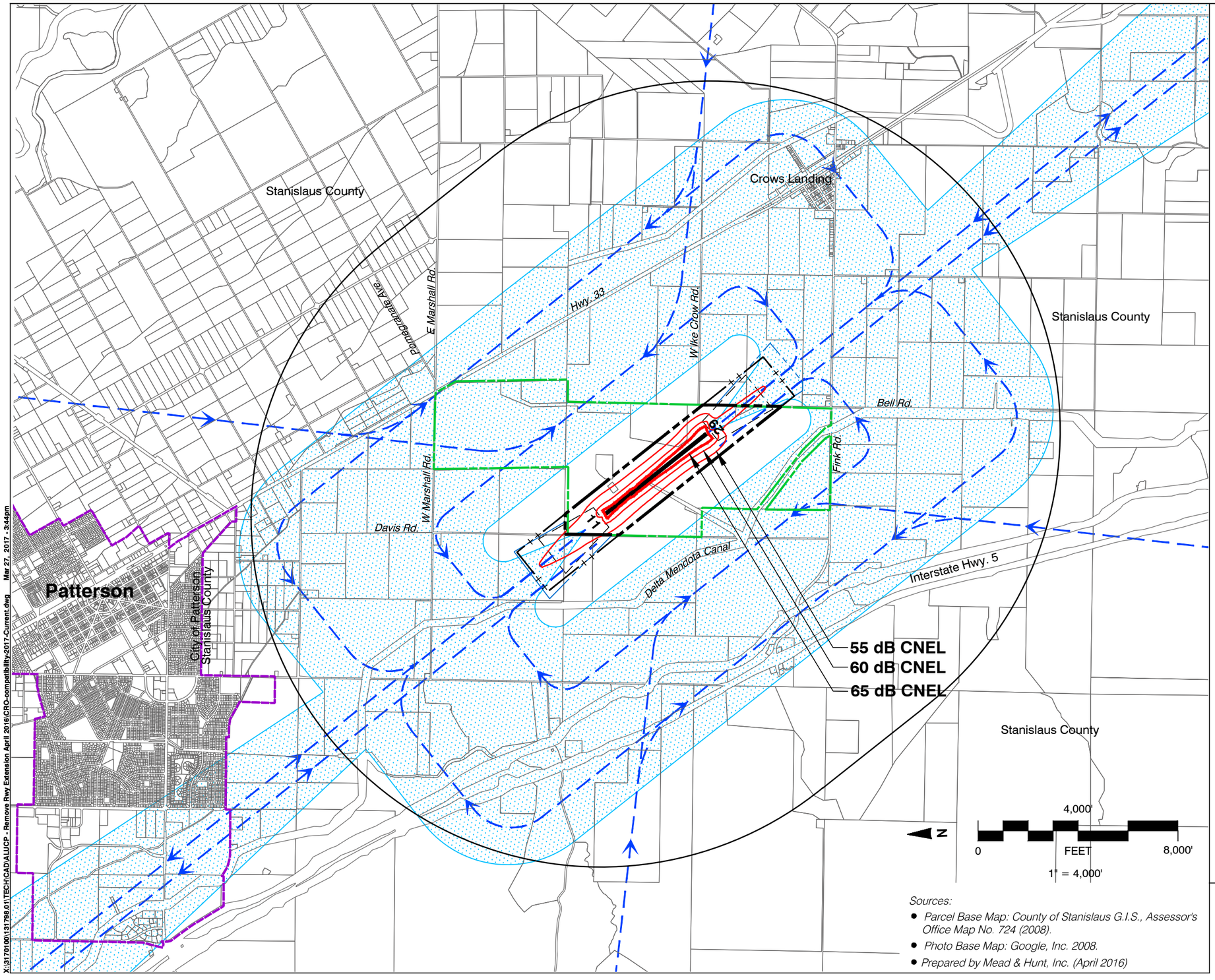
[a] Estimated by Mead & Hunt for compatibility planning purposes.

[b] Estimate represents the theoretical capacity as established in the Draft Airport Layout Plan Narrative Report. This forecast scenario assumes total build-out of the adjacent industrial park. Time frame is undefined but assumed to be beyond 2028.

Exhibit CRO-4

Airport Activity Data Summary

Crows Landing Airport



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Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')

Noise and Overflight Compatibility Factors

- Flight Tracks
- General Traffic Pattern Envelope (80% of aircraft overflights at approximately 1,500 feet or less above runway elevation estimated to occur within these limits).
- FAR Part 77 Conical Surface and Outer Approach

Calculated Noise Contours

- 55 dB CNEL
- 60 dB CNEL
- 65 dB CNEL

(34,000 Annual Operations)

Notes

1. Aircraft on a straight-in 3.0° approach slope will descend below 1,500 feet above the airport at distance of approximately 30,000 feet from the runway end.

Sources:

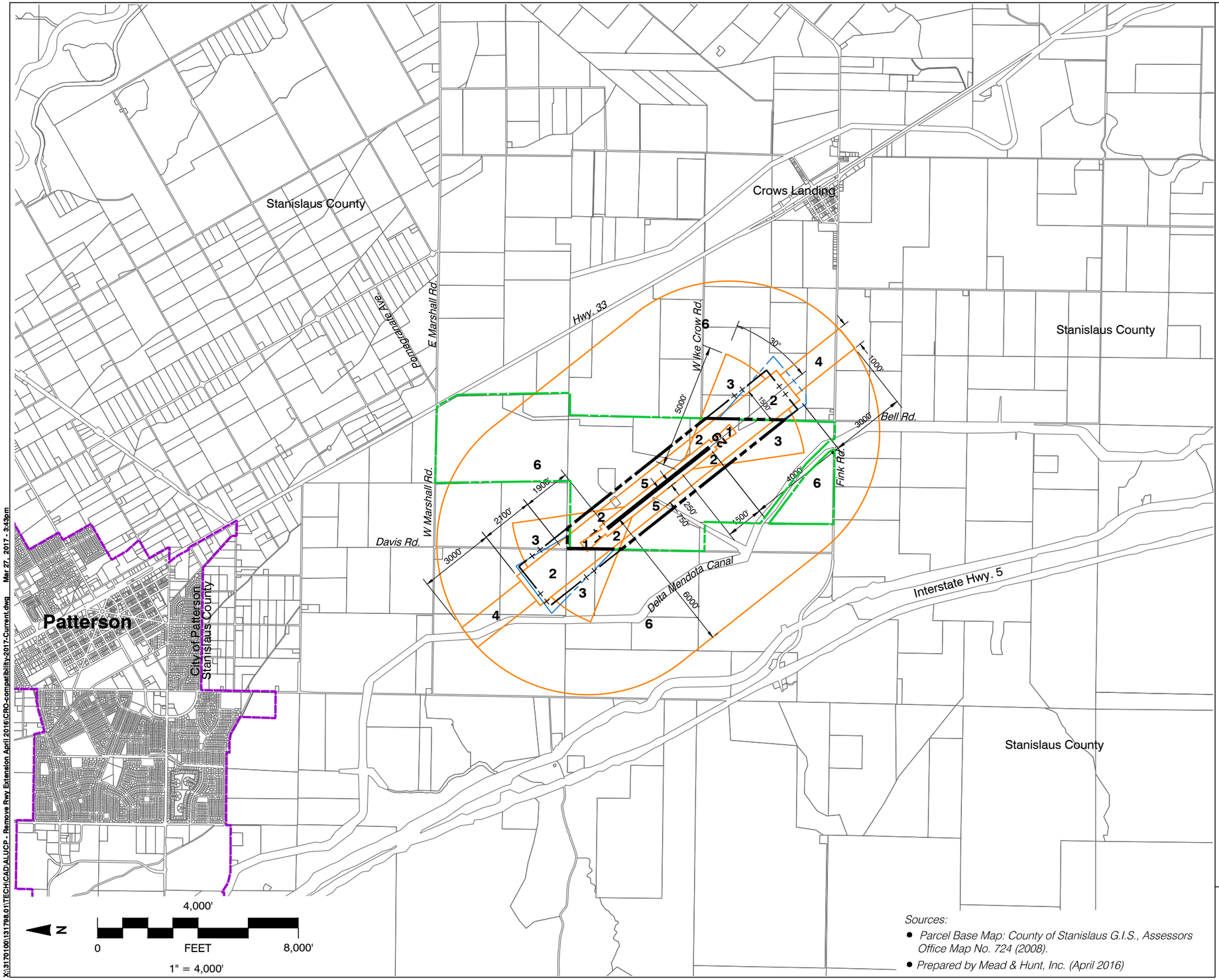
- *Parcel Base Map: County of Stanislaus G.I.S., Assessor's Office Map No. 724 (2008).*
- *Photo Base Map: Google, Inc. 2008.*
- *Prepared by Mead & Hunt, Inc. (April 2016)*

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Exhibit CRO-5

Noise and Overflight Factors

Crows Landing Airport



Legend

Boundary Lines

- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Crows Landing Industrial Business Park
- City/County Limits
- Parcel Line
- Runway (Existing Length of 5,175')

Safety Compatibility Factors[1]

- Safety Zones - 4,000' - 5,999' General Aviation Runway (Zone 1 adjusted to match Runway Protection Zone on Airport Layout Plan; 250' x 450' x 1,000' for each runway end)

Notes

1. Safety Zone Source: California Airport Land Use Planning Handbook (October 2011).

Sources:

- *Parcel Base Map: County of Stanislaus G.I.S., Assessors Office Map No. 724 (2008).*
- *Prepared by Mead & Hunt, Inc. (April 2016)*

Crows Landing Airport
Land Use Compatibility Plan
(April 2016 Draft)

Exhibit CRO-6

Safety Factors

Crows Landing Airport

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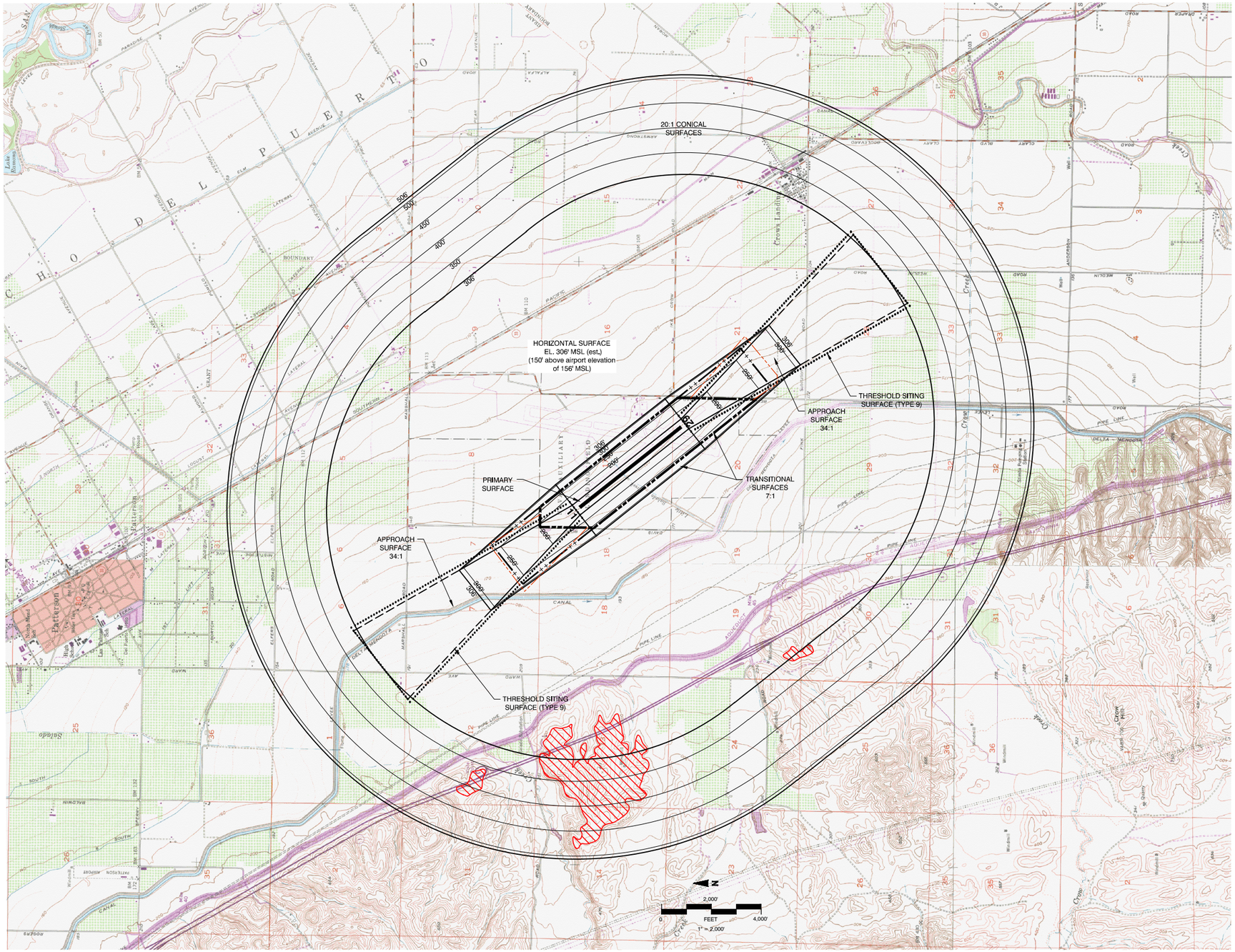

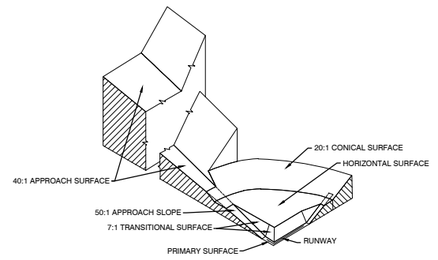

TYPICAL FAR PART 77 SURFACES

LEGEND

- FAR Part 77 Surfaces
- Threshold Siting Surface (TSS)
- Runway Protection Zone (RPZ)
- Airport Property (Existing)
- Airport Property (Future)
- Avigation Easement (Existing)
- Terrain Contours
- (e) Part 77 Surface Penetration Estimated

NOTES:

(a) All elevations in feet above mean sea level (MSL). Vertical datum in NAVD88.

SOURCES:

USGS Topographic Maps. Vertical datum is NGVD29 (add 2.480 feet for NAVD88). Photogrammetric Survey by Cartwright Aerial Surveys, Inc. (Oct. 2000) and Field Survey by Mead & Hunt, Inc. (October 2008)

AIRPORT DATA
Runway 11-29

Runway Length	5,175'
FAR Part 77 Catagory	Nonprecision
Primary Surface Width	500'
Radius of Horizontal Surface	10,000'
Approach Surface Width (outer)	3,500'
Approach Surface Length	10,000'
Approach Slope	34:1

NO.	REVISION	SPONSOR	DATE
3	Revised to Show 11-30 year Runway Configuration	Mead & Hunt, Inc.	April 2016
2	Bell Road Accommodation	Mead & Hunt, Inc.	Oct. 2014
1	Single Runway Configuration	Mead & Hunt, Inc.	Nov. 2011

CROWS LANDING AIRPORT
CROWS LANDING, CALIFORNIA

PART 77 AIRSPACE

Mead & Hunt
133 Aviation Boulevard, Suite 100
Santa Rosa, California 95403
(707) 526-5010
Fax (707) 526-9721
www.meadhunt.com

DESIGN: DH/MT | DRAWN: TE | DATE: April 2016 | SHEET 2 OF 4

The preparation of these documents was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of these documents by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

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AIRPORT SITE

- *Location*
  - Northwestern section of the County of Stanislaus
  - Within boundaries of Crows Landing Industrial Business Park
  - 1 mile east of Interstate 5
  - 30 miles southeast of San Francisco
- *Nearby Terrain*
  - Generally level terrain, hills to the west

EXISTING AIRPORT AREA LAND USES

- *General Character*
  - Generally undeveloped agricultural lands in the immediate vicinity
- *Runway Approaches*
  - From Southeast (Runway 29): Agriculture
  - From Northwest (Runway 11): Agriculture

AIRPORT ENVIRONS LAND USE JURISDICTIONS

- *County of Stanislaus*
  - Airport in unincorporated area of County
  - Community of Crows Landing located 1.4 miles southeast of Airport
- *City of Patterson*
  - Located 1 mile northwest of Airport

STATUS OF COMMUNITY PLANS

- *County of Stanislaus*
  - General Plan, adopted 2016
  - Crows Landing Industrial Business Park Specific Plan
  - City of Patterson
- *General Plan adopted2010; General Plan Map, 2014*

PLANNED AIRPORT AREA LAND USES

- *County of Stanislaus General Plan (Adopted)*
  - Agricultural in immediate vicinity
  - Community of Crows Landing includes: rural residential, commercial, industrial, planned development
- *City of Patterson General Plan (Adopted)*
  - Estate residential, light industrial, commercial, warehouse/distribution adjacent to I-5
- *Crows Landing Industrial Business Park Specific Plan (Draft)*
  - Light industrial, warehouse/logistics ,public facilities, Business Park, aviation-related uses, open space

AIRPORT COMPATIBILITY MEASURES

County of Stanislaus General Plan (Adopted)

- *Land Use Element*
  - Urban development shall be discouraged in areas with growth-limiting factors such as airport hazard areas unless measures to mitigate the problems are included as part of the application.
  - The County will continue to enforce the height limiting ordinance near airports.
  - Residential development shall not be approved at the maximum density if growth-limiting factors such as airport hazard areas exist and it does not comply with airport height limiting ordinance restrictions.
- *Safety Element*
  - The Airport Land Use Compatibility Plan (ALUCP) and County Airport Regulations (Chapter 17 of the County Code) shall be updated as necessary, maintained, and enforced.
  - Development within areas protected by the ALUCP shall only be approved if they meet the requirements of the Plan.
  - All amendments to a land use designation, zoning district, or zoning regulation affecting land within the ALUCP boundary shall be referred to the Airport Land Use Commission (ALUC).
  - The height and exterior materials of new structures in the Airport Zone as defined in the Stanislaus County Airport Regulation shall be reviewed to determine whether they conform to those regulations.
- *Noise Element*
  - New development of noise-sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels to the following levels: for transportation noise sources such as traffic on airports, 60 CNEL or less in outdoor activity areas of single-family residences, 65 CNEL or less in community outdoor space for multi-family residences, and 45 CNEL or less within noise sensitive interior spaces.

>*Agricultural Element*

- Proposed amendments to the General Plan Diagram (map) that would allow the conversion of agricultural land to non-agricultural uses shall be approved only if they considers proximity to existing airports and airstrips.

City of Patterson General Plan (Adopted)

- The City shall work with Stanislaus County and participate in studies concerning the possible conversion of the use of Crows Landing Naval Auxiliary Air Field. Any changes in use should be analyzed for their possible effects on Patterson.
- Transportation noise sources are defined as traffic on public roadways, railroad line operations and aircraft in flight. Control of noise from these sources is preempted by Federal and State regulations. Other noise sources are presumed to be subject to local regulations, such as a noise control ordinance."
- County of Stanislaus Industrial Park Specific Plan (Draft)
- Information to be provided by County

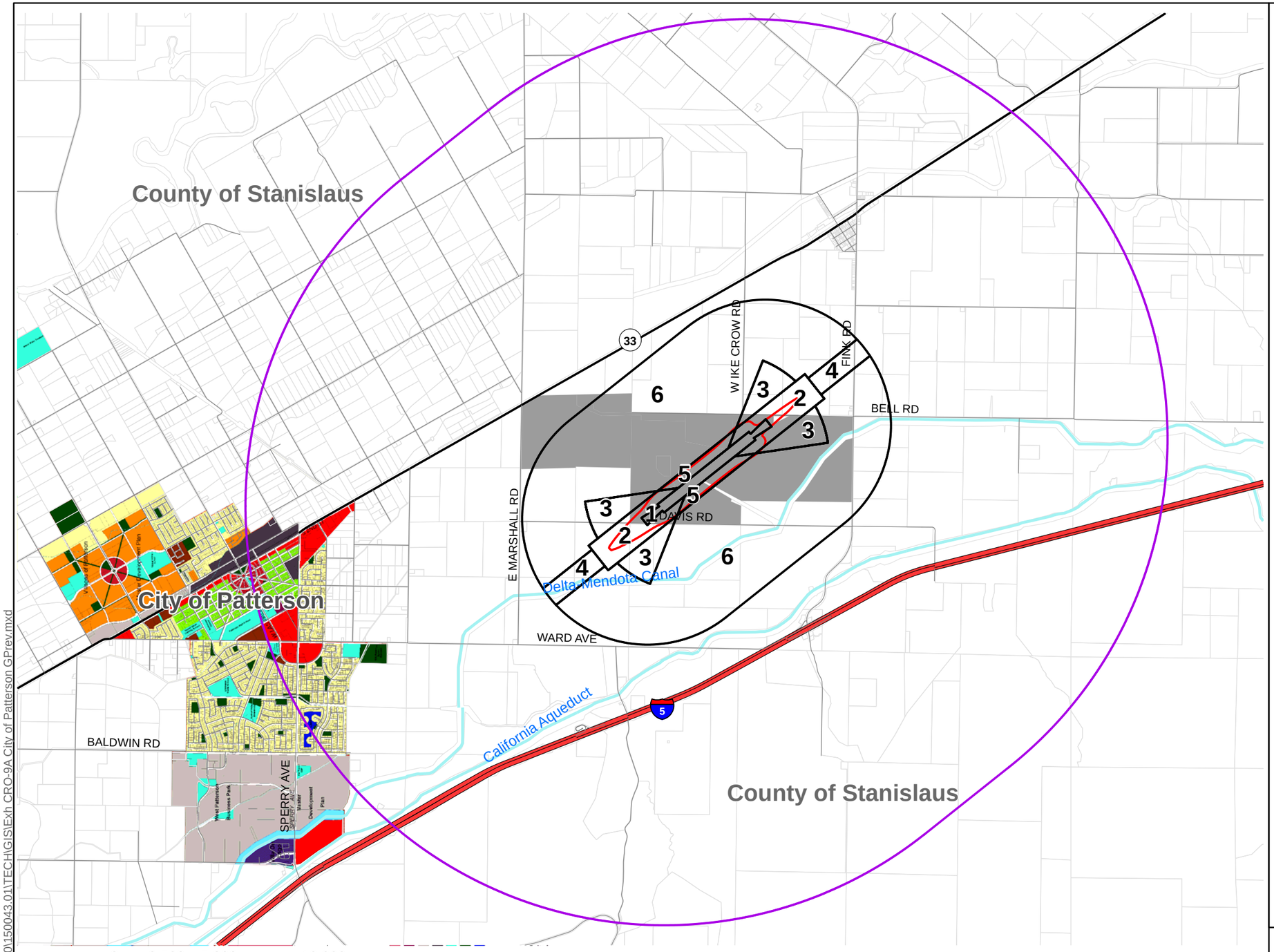
Crows Landing Industrial Park Specific Plan (Draft)

- Incorporates ALUCP by reference.

Exhibit CRO-8

Airport Environs

Crows Landing Airport



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Legend

- 55dB CNEL Noise Contour
- Safety Zones
- Airport Influence Area
- Interstate
- State Highway
- Road
- Canal
- CLIBP Plan Area
- Stanislaus County Parcels

City of Patterson General Plan

- Estate Residential
- Low Density Residential
- Medium Density Residential
- High DensityResidential
- DowntownResidential
- Highway Service Commercial
- Downtown Core
- General Commercial
- Mixed Use
- Medical Professional
- Light Industrial
- Heavy industrial
- Public/Quasi-Public
- Parks/Open Space
- Lake

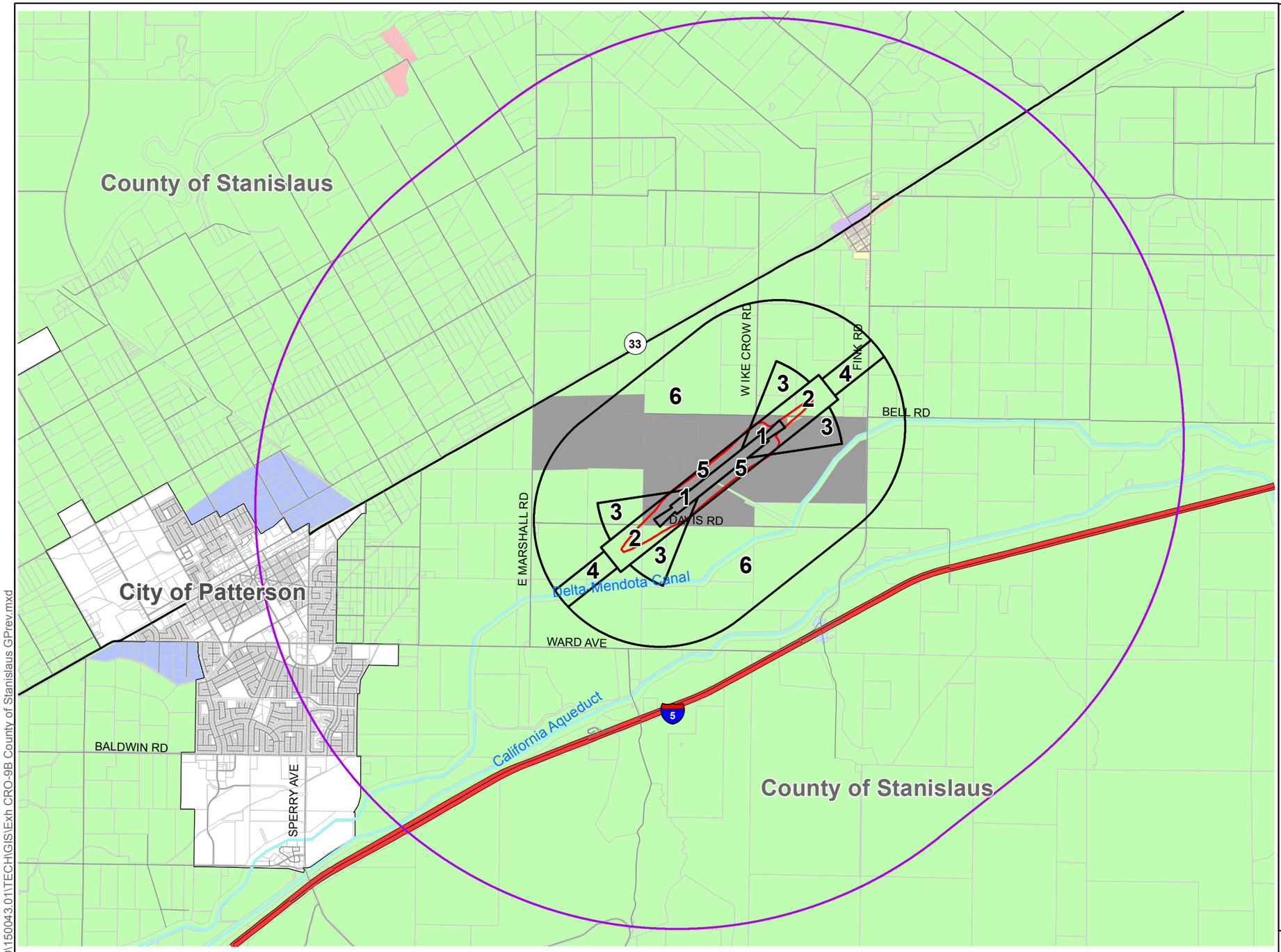
Crows Landing Airport
Land Use Compatibility Plan

(March 2017 Draft)

Exhibit CRO-9A

City of Patterson 2014 General Plan

Crows Landing Airport



Legend

- 55dB CNEL Noise Contour
- Safety Zones
- Airport Influence Area
- Interstate
- State Highway
- Road
- Canal
- CLIBP Plan Area
- Stanislaus County Parcels

Stanislaus County General Plan

- City
- Agriculture
- Residential - Low Density
- Commercial
- Planned Development
- Highway Commercial / Planned Development
- Urban Transition
- Industrial
- Planned Industrial

Crows Landing Airport
Land Use Compatibility Plan

(March 2017 Draft)

Exhibit CRO-9B

Stanislaus County 2016 General Plan

Crows Landing Airport

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APPENDIX D

Air Quality and Greenhouse Gas Emissions Analysis

Crows Landing_Phase 1

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	578.00	1000sqft	38.00	578,000.00	0
General Light Industry	6,447.00	1000sqft	370.00	6,447,000.00	0
General Light Industry	2,311.00	1000sqft	152.00	2,311,000.00	0
Refrigerated Warehouse-No Rail	2,889.00	1000sqft	190.00	2,889,000.00	0
Unrefrigerated Warehouse-No Rail	802.00	1000sqft	46.00	802,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2025
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - PD

Construction Phase - Assumed infrastructure is all front-loaded

Grading - Grading for drainage; site preparation for entire site

Construction Off-road Equipment Mitigation - Potential Tier 4 mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	990.00	139.00
tblConstructionPhase	NumDays	13,950.00	1,956.00
tblConstructionPhase	NumDays	1,395.00	196.00
tblConstructionPhase	NumDays	990.00	139.00
tblConstructionPhase	NumDays	540.00	76.00
tblConstructionPhase	PhaseEndDate	5/3/2019	10/22/2018
tblConstructionPhase	PhaseEndDate	4/21/2026	1/22/2026
tblConstructionPhase	PhaseEndDate	2/5/2019	10/22/2018
tblConstructionPhase	PhaseStartDate	10/23/2018	4/11/2018
tblConstructionPhase	PhaseStartDate	10/23/2018	7/26/2018
tblConstructionPhase	PhaseStartDate	7/26/2018	4/11/2018
tblGrading	AcresOfGrading	490.00	40.00
tblGrading	AcresOfGrading	190.00	835.00
tblLandUse	LotAcreage	13.27	38.00
tblLandUse	LotAcreage	53.05	152.00
tblLandUse	LotAcreage	148.00	370.00
tblLandUse	LotAcreage	66.32	190.00
tblLandUse	LotAcreage	18.41	46.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2025
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.7611	8.4859	5.9465	7.5400e-003	0.6316	0.4134	1.0450	0.3321	0.3803	0.7124	0.0000	694.9410	694.9410	0.2085	0.0000	699.3184
2018	97.6302	19.2509	34.8858	0.0777	5.1600	0.6139	5.7739	1.5133	0.5682	2.0815	0.0000	6,086.3233	6,086.3233	0.3734	0.0000	6,094.1649
2019	4.7847	25.7998	58.1140	0.1446	7.7837	0.5717	8.3554	2.1081	0.5296	2.6376	0.0000	11,035.2068	11,035.2068	0.3432	0.0000	11,042.4133
2020	4.4451	22.2046	55.2335	0.1450	7.8137	0.5067	8.3205	2.1163	0.4695	2.5857	0.0000	10,749.1590	10,749.1590	0.3288	0.0000	10,756.0627
2021	4.1562	18.4186	52.5142	0.1445	7.7843	0.4467	8.2310	2.1083	0.4138	2.5222	0.0000	10,637.0719	10,637.0719	0.3176	0.0000	10,643.7418
2022	3.9665	16.3389	50.2898	0.1439	7.7548	0.4200	8.1748	2.1004	0.3889	2.4893	0.0000	10,526.7660	10,526.7660	0.3082	0.0000	10,533.2390
2023	3.6625	14.3370	47.2316	0.1437	7.7551	0.3871	8.1422	2.1005	0.3584	2.4589	0.0000	10,458.1247	10,458.1247	0.2971	0.0000	10,464.3639
2024	3.5482	14.2005	45.9503	0.1448	7.8152	0.3803	8.1954	2.1168	0.3519	2.4687	0.0000	10,490.4610	10,490.4610	0.2935	0.0000	10,496.6241
2025	3.4393	13.9201	44.6701	0.1443	7.7857	0.3690	8.1546	2.1089	0.3412	2.4501	0.0000	10,407.7496	10,407.7496	0.2869	0.0000	10,413.7746
2026	0.2046	0.8440	2.6581	8.8500e-003	0.4773	0.0225	0.4998	0.1293	0.0208	0.1501	0.0000	636.0577	636.0577	0.0172	0.0000	636.4198
Total	**126.5984**	**153.8002**	**397.4938**	**1.1048**	**60.7614**	**4.1311**	**64.8925**	**16.7340**	**3.8226**	**20.5565**	**0.0000**	**81,721.8609**	**81,721.8609**	**2.7744**	**0.0000**	**81,780.1224**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.0979	0.3970	4.1869	7.5400e-003	0.2954	0.0121	0.3075	0.1524	0.0121	0.1645	0.0000	694.9402	694.9402	0.2085	0.0000	699.3176
2018	96.9593	11.7950	33.9206	0.0777	4.5389	0.2076	4.7464	1.2795	0.1921	1.4716	0.0000	6,086.3224	6,086.3224	0.3734	0.0000	6,094.1639
2019	4.5204	23.3547	58.1519	0.1446	7.7837	0.4093	8.1930	2.1081	0.3772	2.4853	0.0000	11,035.2064	11,035.2064	0.3432	0.0000	11,042.4130
2020	4.2113	19.9966	55.3124	0.1450	7.8137	0.3663	8.1800	2.1163	0.3377	2.4539	0.0000	10,749.1586	10,749.1586	0.3288	0.0000	10,756.0623
2021	3.9518	16.4466	52.6282	0.1445	7.7843	0.3274	8.1117	2.1083	0.3020	2.4103	0.0000	10,637.0716	10,637.0716	0.3176	0.0000	10,643.7414
2022	3.7881	14.6089	50.4306	0.1439	7.7548	0.3205	8.0753	2.1004	0.2956	2.3960	0.0000	10,526.7657	10,526.7657	0.3082	0.0000	10,533.2387
2023	3.5013	12.7662	47.3878	0.1437	7.7551	0.3018	8.0569	2.1005	0.2784	2.3789	0.0000	10,458.1244	10,458.1244	0.2971	0.0000	10,464.3635
2024	3.3990	12.7400	46.1177	0.1448	7.8152	0.3056	8.1208	2.1168	0.2820	2.3988	0.0000	10,490.4606	10,490.4606	0.2935	0.0000	10,496.6237
2025	3.3043	12.5915	44.8475	0.1443	7.7857	0.3057	8.0914	2.1089	0.2821	2.3910	0.0000	10,407.7493	10,407.7493	0.2869	0.0000	10,413.7742
2026	0.1963	0.7625	2.6689	8.8500e-003	0.4773	0.0187	0.4960	0.1293	0.0172	0.1465	0.0000	636.0577	636.0577	0.0172	0.0000	636.4197
Total	**123.9296**	**125.4590**	**395.6525**	**1.1048**	**59.8041**	**2.5748**	**62.3789**	**16.3205**	**2.3763**	**18.6967**	**0.0000**	**81,721.8567**	**81,721.8567**	**2.7744**	**0.0000**	**81,780.1181**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**2.11**	**18.43**	**0.46**	**0.00**	**1.58**	**37.67**	**3.87**	**2.47**	**37.84**	**9.05**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	60.3387	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455
Energy	1.1867	10.7883	9.0622	0.0647		0.8199	0.8199		0.8199	0.8199	0.0000	11,744.4030	11,744.4030	0.2251	0.2153	11,815.8775
Mobile	31.7830	81.0827	338.8731	1.1063	66.1018	1.7612	67.8630	17.7344	1.6237	19.3581	0.0000	76,556.8769	76,556.8769	2.0994	0.0000	76,600.9632
Waste						0.0000	0.0000		0.0000	0.0000	3,018.0940	0.0000	3,018.0940	178.3643	0.0000	6,763.7432
Water						0.0000	0.0000		0.0000	0.0000	945.9119	0.0000	945.9119	97.1542	2.2940	3,697.2972
Total	**93.3084**	**91.8721**	**348.0547**	**1.1710**	**66.1018**	**2.5816**	**68.6833**	**17.7344**	**2.4440**	**20.1784**	**3,964.0059**	**88,301.5126**	**92,265.5185**	**277.8435**	**2.5093**	**98,878.1265**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	60.3387	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455
Energy	1.1867	10.7883	9.0622	0.0647		0.8199	0.8199		0.8199	0.8199	0.0000	11,744.4030	11,744.4030	0.2251	0.2153	11,815.8775
Mobile	31.7830	81.0827	338.8731	1.1063	66.1018	1.7612	67.8630	17.7344	1.6237	19.3581	0.0000	76,556.8769	76,556.8769	2.0994	0.0000	76,600.9632
Waste						0.0000	0.0000		0.0000	0.0000	3,018.0940	0.0000	3,018.0940	178.3643	0.0000	6,763.7432
Water						0.0000	0.0000		0.0000	0.0000	945.9119	0.0000	945.9119	97.1542	2.2940	3,697.2972
Total	**93.3084**	**91.8721**	**348.0547**	**1.1710**	**66.1018**	**2.5816**	**68.6833**	**17.7344**	**2.4440**	**20.1784**	**3,964.0059**	**88,301.5126**	**92,265.5185**	**277.8435**	**2.5093**	**98,878.1265**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2017	10/2/2017	5	196	
2	Trenching	Trenching	10/3/2017	4/10/2018	5	136	
3	Site Preparation	Site Preparation	4/11/2018	7/25/2018	5	76	
4	Paving	Paving	4/11/2018	10/22/2018	5	139	
5	Architectural Coating	Architectural Coating	4/11/2018	10/22/2018	5	139	
6	Building Construction	Building Construction	7/26/2018	1/22/2026	5	1956	

Acres of Grading (Site Preparation Phase): 835

Acres of Grading (Grading Phase): 40

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 20,389,920; Non-Residential Outdoor: 6,796,640 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Rubber Tired Dozers	3	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Excavators	3	8.00	162	0.38
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Scrapers	2	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	14	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	14	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1,130.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	5,651.00	2,228.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6114	0.0000	0.6114	0.3267	0.0000	0.3267	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5977	6.8200	4.5869	6.0500e-003		0.3251	0.3251		0.2991	0.2991	0.0000	561.2844	561.2844	0.1720	0.0000	564.8959
Total	**0.5977**	**6.8200**	**4.5869**	**6.0500e-003**	**0.6114**	**0.3251**	**0.9365**	**0.3267**	**0.2991**	**0.6258**	**0.0000**	**561.2844**	**561.2844**	**0.1720**	**0.0000**	**564.8959**

3.2 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5800e-003	7.5500e-003	0.0764	1.9000e-004	0.0157	1.2000e-004	0.0158	4.1600e-003	1.1000e-004	4.2700e-003	0.0000	13.4846	13.4846	6.7000e-004	0.0000	13.4986
Total	**6.5800e-003**	**7.5500e-003**	**0.0764**	**1.9000e-004**	**0.0157**	**1.2000e-004**	**0.0158**	**4.1600e-003**	**1.1000e-004**	**4.2700e-003**	**0.0000**	**13.4846**	**13.4846**	**6.7000e-004**	**0.0000**	**13.4986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2751	0.0000	0.2751	0.1470	0.0000	0.1470	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0741	0.3212	3.4083	6.0500e-003		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	561.2838	561.2838	0.1720	0.0000	564.8953
Total	**0.0741**	**0.3212**	**3.4083**	**6.0500e-003**	**0.2751**	**9.8800e-003**	**0.2850**	**0.1470**	**9.8800e-003**	**0.1569**	**0.0000**	**561.2838**	**561.2838**	**0.1720**	**0.0000**	**564.8953**

3.2 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5800e-003	7.5500e-003	0.0764	1.9000e-004	0.0157	1.2000e-004	0.0158	4.1600e-003	1.1000e-004	4.2700e-003	0.0000	13.4846	13.4846	6.7000e-004	0.0000	13.4986
Total	**6.5800e-003**	**7.5500e-003**	**0.0764**	**1.9000e-004**	**0.0157**	**1.2000e-004**	**0.0158**	**4.1600e-003**	**1.1000e-004**	**4.2700e-003**	**0.0000**	**13.4846**	**13.4846**	**6.7000e-004**	**0.0000**	**13.4986**

3.3 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1548	1.6561	1.2607	1.2500e-003		0.0881	0.0881		0.0811	0.0811	0.0000	116.2092	116.2092	0.0356	0.0000	116.9570
Total	**0.1548**	**1.6561**	**1.2607**	**1.2500e-003**		**0.0881**	**0.0881**		**0.0811**	**0.0811**	**0.0000**	**116.2092**	**116.2092**	**0.0356**	**0.0000**	**116.9570**

3.3 Trenching - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9300e-003	2.2200e-003	0.0225	6.0000e-005	4.6000e-003	4.0000e-005	4.6400e-003	1.2200e-003	3.0000e-005	1.2600e-003	0.0000	3.9628	3.9628	2.0000e-004	0.0000	3.9669
Total	**1.9300e-003**	**2.2200e-003**	**0.0225**	**6.0000e-005**	**4.6000e-003**	**4.0000e-005**	**4.6400e-003**	**1.2200e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**3.9628**	**3.9628**	**2.0000e-004**	**0.0000**	**3.9669**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0152	0.0660	0.6797	1.2500e-003		2.0300e-003	2.0300e-003		2.0300e-003	2.0300e-003	0.0000	116.2091	116.2091	0.0356	0.0000	116.9568
Total	**0.0152**	**0.0660**	**0.6797**	**1.2500e-003**		**2.0300e-003**	**2.0300e-003**		**2.0300e-003**	**2.0300e-003**	**0.0000**	**116.2091**	**116.2091**	**0.0356**	**0.0000**	**116.9568**

3.3 Trenching - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9300e-003	2.2200e-003	0.0225	6.0000e-005	4.6000e-003	4.0000e-005	4.6400e-003	1.2200e-003	3.0000e-005	1.2600e-003	0.0000	3.9628	3.9628	2.0000e-004	0.0000	3.9669
Total	**1.9300e-003**	**2.2200e-003**	**0.0225**	**6.0000e-005**	**4.6000e-003**	**4.0000e-005**	**4.6400e-003**	**1.2200e-003**	**3.0000e-005**	**1.2600e-003**	**0.0000**	**3.9628**	**3.9628**	**2.0000e-004**	**0.0000**	**3.9669**

3.3 Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1545	1.6419	1.3044	1.4100e-003		0.0852	0.0852		0.0783	0.0783	0.0000	128.6677	128.6677	0.0401	0.0000	129.5089
Total	**0.1545**	**1.6419**	**1.3044**	**1.4100e-003**		**0.0852**	**0.0852**		**0.0783**	**0.0783**	**0.0000**	**128.6677**	**128.6677**	**0.0401**	**0.0000**	**129.5089**

3.3 Trenching - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9500e-003	2.2500e-003	0.0227	6.0000e-005	5.1800e-003	4.0000e-005	5.2200e-003	1.3800e-003	4.0000e-005	1.4100e-003	0.0000	4.3464	4.3464	2.1000e-004	0.0000	4.3508
Total	**1.9500e-003**	**2.2500e-003**	**0.0227**	**6.0000e-005**	**5.1800e-003**	**4.0000e-005**	**5.2200e-003**	**1.3800e-003**	**4.0000e-005**	**1.4100e-003**	**0.0000**	**4.3464**	**4.3464**	**2.1000e-004**	**0.0000**	**4.3508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0171	0.0742	0.7647	1.4100e-003		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	128.6675	128.6675	0.0401	0.0000	129.5087
Total	**0.0171**	**0.0742**	**0.7647**	**1.4100e-003**		**2.2800e-003**	**2.2800e-003**		**2.2800e-003**	**2.2800e-003**	**0.0000**	**128.6675**	**128.6675**	**0.0401**	**0.0000**	**129.5087**

3.3 Trenching - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9500e-003	2.2500e-003	0.0227	6.0000e-005	5.1800e-003	4.0000e-005	5.2200e-003	1.3800e-003	4.0000e-005	1.4100e-003	0.0000	4.3464	4.3464	2.1000e-004	0.0000	4.3508
Total	**1.9500e-003**	**2.2500e-003**	**0.0227**	**6.0000e-005**	**5.1800e-003**	**4.0000e-005**	**5.2200e-003**	**1.3800e-003**	**4.0000e-005**	**1.4100e-003**	**0.0000**	**4.3464**	**4.3464**	**2.1000e-004**	**0.0000**	**4.3508**

3.4 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1293	0.0000	1.1293	0.4252	0.0000	0.4252	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3363	3.6619	2.8132	3.8600e-003		0.1747	0.1747		0.1615	0.1615	0.0000	351.4915	351.4915	0.1047	0.0000	353.6890
Total	**0.3363**	**3.6619**	**2.8132**	**3.8600e-003**	**1.1293**	**0.1747**	**1.3040**	**0.4252**	**0.1615**	**0.5867**	**0.0000**	**351.4915**	**351.4915**	**0.1047**	**0.0000**	**353.6890**

3.4 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9900e-003	4.6100e-003	0.0465	1.3000e-004	0.0198	8.0000e-005	0.0199	5.0800e-003	8.0000e-005	5.1600e-003	0.0000	8.9208	8.9208	4.3000e-004	0.0000	8.9298
Total	**3.9900e-003**	**4.6100e-003**	**0.0465**	**1.3000e-004**	**0.0198**	**8.0000e-005**	**0.0199**	**5.0800e-003**	**8.0000e-005**	**5.1600e-003**	**0.0000**	**8.9208**	**8.9208**	**4.3000e-004**	**0.0000**	**8.9298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5082	0.0000	0.5082	0.1913	0.0000	0.1913	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0468	0.2026	2.2270	3.8600e-003		6.2300e-003	6.2300e-003		6.2300e-003	6.2300e-003	0.0000	351.4911	351.4911	0.1047	0.0000	353.6886
Total	**0.0468**	**0.2026**	**2.2270**	**3.8600e-003**	**0.5082**	**6.2300e-003**	**0.5144**	**0.1913**	**6.2300e-003**	**0.1976**	**0.0000**	**351.4911**	**351.4911**	**0.1047**	**0.0000**	**353.6886**

3.4 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9900e-003	4.6100e-003	0.0465	1.3000e-004	0.0198	8.0000e-005	0.0199	5.0800e-003	8.0000e-005	5.1600e-003	0.0000	8.9208	8.9208	4.3000e-004	0.0000	8.9298
Total	**3.9900e-003**	**4.6100e-003**	**0.0465**	**1.3000e-004**	**0.0198**	**8.0000e-005**	**0.0199**	**5.0800e-003**	**8.0000e-005**	**5.1600e-003**	**0.0000**	**8.9208**	**8.9208**	**4.3000e-004**	**0.0000**	**8.9298**

3.5 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1120	1.1928	1.0074	1.5500e-003		0.0652	0.0652		0.0600	0.0600	0.0000	141.5628	141.5628	0.0441	0.0000	142.4882
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1120**	**1.1928**	**1.0074**	**1.5500e-003**		**0.0652**	**0.0652**		**0.0600**	**0.0600**	**0.0000**	**141.5628**	**141.5628**	**0.0441**	**0.0000**	**142.4882**

3.5 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1300e-003	3.6100e-003	0.0365	1.0000e-004	8.3300e-003	6.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	6.9925	6.9925	3.3000e-004	0.0000	6.9995
Total	**3.1300e-003**	**3.6100e-003**	**0.0365**	**1.0000e-004**	**8.3300e-003**	**6.0000e-005**	**8.3900e-003**	**2.2100e-003**	**6.0000e-005**	**2.2700e-003**	**0.0000**	**6.9925**	**6.9925**	**3.3000e-004**	**0.0000**	**6.9995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0191	0.0827	1.1765	1.5500e-003		2.5400e-003	2.5400e-003		2.5400e-003	2.5400e-003	0.0000	141.5626	141.5626	0.0441	0.0000	142.4881
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0191**	**0.0827**	**1.1765**	**1.5500e-003**		**2.5400e-003**	**2.5400e-003**		**2.5400e-003**	**2.5400e-003**	**0.0000**	**141.5626**	**141.5626**	**0.0441**	**0.0000**	**142.4881**

3.5 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1300e-003	3.6100e-003	0.0365	1.0000e-004	8.3300e-003	6.0000e-005	8.3900e-003	2.2100e-003	6.0000e-005	2.2700e-003	0.0000	6.9925	6.9925	3.3000e-004	0.0000	6.9995
Total	**3.1300e-003**	**3.6100e-003**	**0.0365**	**1.0000e-004**	**8.3300e-003**	**6.0000e-005**	**8.3900e-003**	**2.2100e-003**	**6.0000e-005**	**2.2700e-003**	**0.0000**	**6.9925**	**6.9925**	**3.3000e-004**	**0.0000**	**6.9995**

3.6 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	94.5073					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0208	0.1394	0.1289	2.1000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	17.7451	17.7451	1.6900e-003	0.0000	17.7806
Total	**94.5280**	**0.1394**	**0.1289**	**2.1000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**17.7451**	**17.7451**	**1.6900e-003**	**0.0000**	**17.7806**

3.6 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2357	0.2722	2.7472	7.7100e-003	0.6275	4.8400e-003	0.6323	0.1668	4.4800e-003	0.1713	0.0000	526.7658	526.7658	0.0252	0.0000	527.2955
Total	**0.2357**	**0.2722**	**2.7472**	**7.7100e-003**	**0.6275**	**4.8400e-003**	**0.6323**	**0.1668**	**4.4800e-003**	**0.1713**	**0.0000**	**526.7658**	**526.7658**	**0.0252**	**0.0000**	**527.2955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	94.5073					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0700e-003	8.9500e-003	0.1274	2.1000e-004		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	17.7451	17.7451	1.6900e-003	0.0000	17.7805
Total	**94.5094**	**8.9500e-003**	**0.1274**	**2.1000e-004**		**2.8000e-004**	**2.8000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**17.7451**	**17.7451**	**1.6900e-003**	**0.0000**	**17.7805**

3.6 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2357	0.2722	2.7472	7.7100e-003	0.6275	4.8400e-003	0.6323	0.1668	4.4800e-003	0.1713	0.0000	526.7658	526.7658	0.0252	0.0000	527.2955
Total	**0.2357**	**0.2722**	**2.7472**	**7.7100e-003**	**0.6275**	**4.8400e-003**	**0.6323**	**0.1668**	**4.4800e-003**	**0.1713**	**0.0000**	**526.7658**	**526.7658**	**0.0252**	**0.0000**	**527.2955**

3.7 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1508	1.3142	0.9906	1.5100e-003		0.0844	0.0844		0.0794	0.0794	0.0000	133.7749	133.7749	0.0327	0.0000	134.4624
Total	**0.1508**	**1.3142**	**0.9906**	**1.5100e-003**		**0.0844**	**0.0844**		**0.0794**	**0.0794**	**0.0000**	**133.7749**	**133.7749**	**0.0327**	**0.0000**	**134.4624**

3.7 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1453	9.9113	14.6198	0.0298	0.8189	0.1692	0.9881	0.2346	0.1556	0.3902	0.0000	2,624.5068	2,624.5068	0.0215	0.0000	2,624.9574
Worker	0.9584	1.1067	11.1687	0.0313	2.5510	0.0197	2.5707	0.6781	0.0182	0.6963	0.0000	2,141.5491	2,141.5491	0.1026	0.0000	2,143.7028
Total	**2.1037**	**11.0180**	**25.7885**	**0.0611**	**3.3699**	**0.1889**	**3.5588**	**0.9127**	**0.1738**	**1.0865**	**0.0000**	**4,766.0559**	**4,766.0559**	**0.1240**	**0.0000**	**4,768.6603**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0185	0.1259	0.9837	1.5100e-003		2.2900e-003	2.2900e-003		2.2900e-003	2.2900e-003	0.0000	133.7747	133.7747	0.0327	0.0000	134.4622
Total	**0.0185**	**0.1259**	**0.9837**	**1.5100e-003**		**2.2900e-003**	**2.2900e-003**		**2.2900e-003**	**2.2900e-003**	**0.0000**	**133.7747**	**133.7747**	**0.0327**	**0.0000**	**134.4622**

3.7 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1453	9.9113	14.6198	0.0298	0.8189	0.1692	0.9881	0.2346	0.1556	0.3902	0.0000	2,624.5068	2,624.5068	0.0215	0.0000	2,624.9574
Worker	0.9584	1.1067	11.1687	0.0313	2.5510	0.0197	2.5707	0.6781	0.0182	0.6963	0.0000	2,141.5491	2,141.5491	0.1026	0.0000	2,143.7028
Total	**2.1037**	**11.0180**	**25.7885**	**0.0611**	**3.3699**	**0.1889**	**3.5588**	**0.9127**	**0.1738**	**1.0865**	**0.0000**	**4,766.0559**	**4,766.0559**	**0.1240**	**0.0000**	**4,768.6603**

3.7 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3069	2.7359	2.2342	3.5000e-003		0.1677	0.1677		0.1577	0.1577	0.0000	305.5302	305.5302	0.0743	0.0000	307.0913
Total	**0.3069**	**2.7359**	**2.2342**	**3.5000e-003**		**0.1677**	**0.1677**		**0.1577**	**0.1577**	**0.0000**	**305.5302**	**305.5302**	**0.0743**	**0.0000**	**307.0913**

3.7 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4589	20.7367	32.4046	0.0687	1.8916	0.3590	2.2506	0.5419	0.3302	0.8722	0.0000	5,958.2676	5,958.2676	0.0479	0.0000	5,959.2724
Worker	2.0190	2.3271	23.4752	0.0724	5.8921	0.0449	5.9371	1.5662	0.0416	1.6078	0.0000	4,771.4090	4,771.4090	0.2210	0.0000	4,776.0496
Total	**4.4778**	**23.0638**	**55.8798**	**0.1411**	**7.7837**	**0.4040**	**8.1877**	**2.1081**	**0.3719**	**2.4800**	**0.0000**	**10,729.6766**	**10,729.6766**	**0.2688**	**0.0000**	**10,735.3221**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	3.5000e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	305.5299	305.5299	0.0743	0.0000	307.0909
Total	**0.0426**	**0.2909**	**2.2721**	**3.5000e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**305.5299**	**305.5299**	**0.0743**	**0.0000**	**307.0909**

3.7 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4589	20.7367	32.4046	0.0687	1.8916	0.3590	2.2506	0.5419	0.3302	0.8722	0.0000	5,958.2676	5,958.2676	0.0479	0.0000	5,959.2724
Worker	2.0190	2.3271	23.4752	0.0724	5.8921	0.0449	5.9371	1.5662	0.0416	1.6078	0.0000	4,771.4090	4,771.4090	0.2210	0.0000	4,776.0496
Total	**4.4778**	**23.0638**	**55.8798**	**0.1411**	**7.7837**	**0.4040**	**8.1877**	**2.1081**	**0.3719**	**2.4800**	**0.0000**	**10,729.6766**	**10,729.6766**	**0.2688**	**0.0000**	**10,735.3221**

3.7 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2766	2.5000	2.2019	3.5100e-003		0.1458	0.1458		0.1371	0.1371	0.0000	302.1514	302.1514	0.0736	0.0000	303.6973
Total	**0.2766**	**2.5000**	**2.2019**	**3.5100e-003**		**0.1458**	**0.1458**		**0.1371**	**0.1371**	**0.0000**	**302.1514**	**302.1514**	**0.0736**	**0.0000**	**303.6973**

3.7 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2860	17.5507	31.2575	0.0689	1.8990	0.3160	2.2151	0.5441	0.2907	0.8348	0.0000	5,844.6038	5,844.6038	0.0457	0.0000	5,845.5635
Worker	1.8825	2.1539	21.7741	0.0727	5.9147	0.0449	5.9596	1.5722	0.0416	1.6138	0.0000	4,602.4038	4,602.4038	0.2094	0.0000	4,606.8019
Total	**4.1685**	**19.7046**	**53.0316**	**0.1415**	**7.8137**	**0.3609**	**8.1747**	**2.1162**	**0.3324**	**2.4486**	**0.0000**	**10,447.0076**	**10,447.0076**	**0.2551**	**0.0000**	**10,452.3654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2920	2.2808	3.5100e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	302.1510	302.1510	0.0736	0.0000	303.6969
Total	**0.0428**	**0.2920**	**2.2808**	**3.5100e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**302.1510**	**302.1510**	**0.0736**	**0.0000**	**303.6969**

3.7 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2860	17.5507	31.2575	0.0689	1.8990	0.3160	2.2151	0.5441	0.2907	0.8348	0.0000	5,844.6038	5,844.6038	0.0457	0.0000	5,845.5635
Worker	1.8825	2.1539	21.7741	0.0727	5.9147	0.0449	5.9596	1.5722	0.0416	1.6138	0.0000	4,602.4038	4,602.4038	0.2094	0.0000	4,606.8019
Total	**4.1685**	**19.7046**	**53.0316**	**0.1415**	**7.8137**	**0.3609**	**8.1747**	**2.1162**	**0.3324**	**2.4486**	**0.0000**	**10,447.0076**	**10,447.0076**	**0.2551**	**0.0000**	**10,452.3654**

3.7 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2471	2.2629	2.1582	3.5000e-003		0.1246	0.1246		0.1172	0.1172	0.0000	301.0339	301.0339	0.0725	0.0000	302.5568
Total	**0.2471**	**2.2629**	**2.1582**	**3.5000e-003**		**0.1246**	**0.1246**		**0.1172**	**0.1172**	**0.0000**	**301.0339**	**301.0339**	**0.0725**	**0.0000**	**302.5568**

3.7 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1424	14.1529	29.9731	0.0685	1.8921	0.2771	2.1692	0.5422	0.2549	0.7971	0.0000	5,813.7478	5,813.7478	0.0448	0.0000	5,814.6891
Worker	1.7668	2.0028	20.3829	0.0725	5.8921	0.0450	5.9372	1.5662	0.0418	1.6079	0.0000	4,522.2903	4,522.2903	0.2003	0.0000	4,526.4958
Total	**3.9091**	**16.1557**	**50.3560**	**0.1410**	**7.7843**	**0.3221**	**8.1064**	**2.1083**	**0.2967**	**2.4050**	**0.0000**	**10,336.0381**	**10,336.0381**	**0.2451**	**0.0000**	**10,341.1850**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	3.5000e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	301.0335	301.0335	0.0725	0.0000	302.5565
Total	**0.0426**	**0.2909**	**2.2721**	**3.5000e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**301.0335**	**301.0335**	**0.0725**	**0.0000**	**302.5565**

3.7 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1424	14.1529	29.9731	0.0685	1.8921	0.2771	2.1692	0.5422	0.2549	0.7971	0.0000	5,813.7478	5,813.7478	0.0448	0.0000	5,814.6891
Worker	1.7668	2.0028	20.3829	0.0725	5.8921	0.0450	5.9372	1.5662	0.0418	1.6079	0.0000	4,522.2903	4,522.2903	0.2003	0.0000	4,526.4958
Total	**3.9091**	**16.1557**	**50.3560**	**0.1410**	**7.7843**	**0.3221**	**8.1064**	**2.1083**	**0.2967**	**2.4050**	**0.0000**	**10,336.0381**	**10,336.0381**	**0.2451**	**0.0000**	**10,341.1850**

3.7 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2209	2.0197	2.1226	3.4900e-003		0.1047	0.1047		0.0986	0.0986	0.0000	299.9946	299.9946	0.0718	0.0000	301.5017
Total	**0.2209**	**2.0197**	**2.1226**	**3.4900e-003**		**0.1047**	**0.1047**		**0.0986**	**0.0986**	**0.0000**	**299.9946**	**299.9946**	**0.0718**	**0.0000**	**301.5017**

3.7 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0831	12.4476	29.0773	0.0681	1.8853	0.2703	2.1555	0.5402	0.2487	0.7889	0.0000	5,786.7841	5,786.7841	0.0453	0.0000	5,787.7352
Worker	1.6626	1.8716	19.0899	0.0722	5.8696	0.0449	5.9145	1.5602	0.0417	1.6018	0.0000	4,439.9873	4,439.9873	0.1912	0.0000	4,444.0022
Total	**3.7456**	**14.3192**	**48.1672**	**0.1404**	**7.7548**	**0.3152**	**8.0700**	**2.1004**	**0.2903**	**2.3907**	**0.0000**	**10,226.7714**	**10,226.7714**	**0.2365**	**0.0000**	**10,231.7373**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	3.4900e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	299.9943	299.9943	0.0718	0.0000	301.5013
Total	**0.0424**	**0.2898**	**2.2634**	**3.4900e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**299.9943**	**299.9943**	**0.0718**	**0.0000**	**301.5013**

3.7 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0831	12.4476	29.0773	0.0681	1.8853	0.2703	2.1555	0.5402	0.2487	0.7889	0.0000	5,786.7841	5,786.7841	0.0453	0.0000	5,787.7352
Worker	1.6626	1.8716	19.0899	0.0722	5.8696	0.0449	5.9145	1.5602	0.0417	1.6018	0.0000	4,439.9873	4,439.9873	0.1912	0.0000	4,444.0022
Total	**3.7456**	**14.3192**	**48.1672**	**0.1404**	**7.7548**	**0.3152**	**8.0700**	**2.1004**	**0.2903**	**2.3907**	**0.0000**	**10,226.7714**	**10,226.7714**	**0.2365**	**0.0000**	**10,231.7373**

3.7 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2036	1.8606	2.1072	3.4900e-003		0.0906	0.0906		0.0852	0.0852	0.0000	300.0980	300.0980	0.0713	0.0000	301.5949
Total	**0.2036**	**1.8606**	**2.1072**	**3.4900e-003**		**0.0906**	**0.0906**		**0.0852**	**0.0852**	**0.0000**	**300.0980**	**300.0980**	**0.0713**	**0.0000**	**301.5949**

3.7 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8852	10.7131	27.1336	0.0680	1.8856	0.2515	2.1370	0.5404	0.2314	0.7717	0.0000	5,776.0731	5,776.0731	0.0419	0.0000	5,776.9531
Worker	1.5737	1.7633	17.9908	0.0722	5.8696	0.0450	5.9146	1.5602	0.0418	1.6019	0.0000	4,381.9536	4,381.9536	0.1839	0.0000	4,385.8159
Total	**3.4589**	**12.4764**	**45.1244**	**0.1402**	**7.7551**	**0.2965**	**8.0516**	**2.1005**	**0.2731**	**2.3737**	**0.0000**	**10,158.0267**	**10,158.0267**	**0.2258**	**0.0000**	**10,162.7690**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	3.4900e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	300.0976	300.0976	0.0713	0.0000	301.5946
Total	**0.0424**	**0.2898**	**2.2634**	**3.4900e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**300.0976**	**300.0976**	**0.0713**	**0.0000**	**301.5946**

3.7 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8852	10.7131	27.1336	0.0680	1.8856	0.2515	2.1370	0.5404	0.2314	0.7717	0.0000	5,776.0731	5,776.0731	0.0419	0.0000	5,776.9531
Worker	1.5737	1.7633	17.9908	0.0722	5.8696	0.0450	5.9146	1.5602	0.0418	1.6019	0.0000	4,381.9536	4,381.9536	0.1839	0.0000	4,385.8159
Total	**3.4589**	**12.4764**	**45.1244**	**0.1402**	**7.7551**	**0.2965**	**8.0516**	**2.1005**	**0.2731**	**2.3737**	**0.0000**	**10,158.0267**	**10,158.0267**	**0.2258**	**0.0000**	**10,162.7690**

3.7 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1920	1.7524	2.1135	3.5200e-003		0.0800	0.0800		0.0752	0.0752	0.0000	302.4646	302.4646	0.0714	0.0000	303.9643
Total	**0.1920**	**1.7524**	**2.1135**	**3.5200e-003**		**0.0800**	**0.0800**		**0.0752**	**0.0752**	**0.0000**	**302.4646**	**302.4646**	**0.0714**	**0.0000**	**303.9643**

3.7 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8488	10.7637	26.5665	0.0685	1.9004	0.2546	2.1551	0.5447	0.2343	0.7790	0.0000	5,821.9890	5,821.9890	0.0424	0.0000	5,822.8785
Worker	1.5075	1.6843	17.2704	0.0728	5.9147	0.0457	5.9604	1.5722	0.0424	1.6145	0.0000	4,366.0074	4,366.0074	0.1797	0.0000	4,369.7813
Total	**3.3563**	**12.4480**	**43.8369**	**0.1413**	**7.8152**	**0.3003**	**8.1155**	**2.1168**	**0.2766**	**2.3935**	**0.0000**	**10,187.9964**	**10,187.9964**	**0.2221**	**0.0000**	**10,192.6598**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2920	2.2808	3.5200e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	302.4642	302.4642	0.0714	0.0000	303.9639
Total	**0.0428**	**0.2920**	**2.2808**	**3.5200e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**302.4642**	**302.4642**	**0.0714**	**0.0000**	**303.9639**

3.7 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8488	10.7637	26.5665	0.0685	1.9004	0.2546	2.1551	0.5447	0.2343	0.7790	0.0000	5,821.9890	5,821.9890	0.0424	0.0000	5,822.8785
Worker	1.5075	1.6843	17.2704	0.0728	5.9147	0.0457	5.9604	1.5722	0.0424	1.6145	0.0000	4,366.0074	4,366.0074	0.1797	0.0000	4,369.7813
Total	**3.3563**	**12.4480**	**43.8369**	**0.1413**	**7.8152**	**0.3003**	**8.1155**	**2.1168**	**0.2766**	**2.3935**	**0.0000**	**10,187.9964**	**10,187.9964**	**0.2221**	**0.0000**	**10,192.6598**

3.7 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6195	2.0948	3.5000e-003		0.0685	0.0685		0.0645	0.0645	0.0000	301.4019	301.4019	0.0707	0.0000	302.8874
Total	**0.1777**	**1.6195**	**2.0948**	**3.5000e-003**		**0.0685**	**0.0685**		**0.0645**	**0.0645**	**0.0000**	**301.4019**	**301.4019**	**0.0707**	**0.0000**	**302.8874**

3.7 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8252	10.6997	26.1125	0.0683	1.8935	0.2547	2.1482	0.5428	0.2343	0.7771	0.0000	5,801.1605	5,801.1605	0.0423	0.0000	5,802.0490
Worker	1.4364	1.6009	16.4629	0.0725	5.8921	0.0457	5.9379	1.5662	0.0424	1.6086	0.0000	4,305.1873	4,305.1873	0.1739	0.0000	4,308.8382
Total	**3.2616**	**12.3006**	**42.5753**	**0.1408**	**7.7857**	**0.3004**	**8.0861**	**2.1089**	**0.2768**	**2.3857**	**0.0000**	**10,106.3477**	**10,106.3477**	**0.2162**	**0.0000**	**10,110.8872**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	3.5000e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	301.4015	301.4015	0.0707	0.0000	302.8871
Total	**0.0426**	**0.2909**	**2.2721**	**3.5000e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**301.4015**	**301.4015**	**0.0707**	**0.0000**	**302.8871**

3.7 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8252	10.6997	26.1125	0.0683	1.8935	0.2547	2.1482	0.5428	0.2343	0.7771	0.0000	5,801.1605	5,801.1605	0.0423	0.0000	5,802.0490
Worker	1.4364	1.6009	16.4629	0.0725	5.8921	0.0457	5.9379	1.5662	0.0424	1.6086	0.0000	4,305.1873	4,305.1873	0.1739	0.0000	4,308.8382
Total	**3.2616**	**12.3006**	**42.5753**	**0.1408**	**7.7857**	**0.3004**	**8.0861**	**2.1089**	**0.2768**	**2.3857**	**0.0000**	**10,106.3477**	**10,106.3477**	**0.2162**	**0.0000**	**10,110.8872**

3.7 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0109	0.0993	0.1284	2.1000e-004		4.2000e-003	4.2000e-003		3.9500e-003	3.9500e-003	0.0000	18.4767	18.4767	4.3400e-003	0.0000	18.5678
Total	**0.0109**	**0.0993**	**0.1284**	**2.1000e-004**		**4.2000e-003**	**4.2000e-003**		**3.9500e-003**	**3.9500e-003**	**0.0000**	**18.4767**	**18.4767**	**4.3400e-003**	**0.0000**	**18.5678**

3.7 Building Construction - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1094	0.6506	1.5659	4.1800e-003	0.1161	0.0155	0.1316	0.0333	0.0143	0.0476	0.0000	355.7006	355.7006	2.5800e-003	0.0000	355.7548
Worker	0.0843	0.0941	0.9637	4.4500e-003	0.3612	2.8100e-003	0.3640	0.0960	2.6100e-003	0.0986	0.0000	261.8804	261.8804	0.0103	0.0000	262.0972
Total	**0.1937**	**0.7447**	**2.5296**	**8.6300e-003**	**0.4773**	**0.0183**	**0.4956**	**0.1293**	**0.0169**	**0.1462**	**0.0000**	**617.5809**	**617.5809**	**0.0129**	**0.0000**	**617.8519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6100e-003	0.0178	0.1393	2.1000e-004		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	18.4767	18.4767	4.3400e-003	0.0000	18.5678
Total	**2.6100e-003**	**0.0178**	**0.1393**	**2.1000e-004**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**	**0.0000**	**18.4767**	**18.4767**	**4.3400e-003**	**0.0000**	**18.5678**

3.7 Building Construction - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1094	0.6506	1.5659	4.1800e-003	0.1161	0.0155	0.1316	0.0333	0.0143	0.0476	0.0000	355.7006	355.7006	2.5800e-003	0.0000	355.7548
Worker	0.0843	0.0941	0.9637	4.4500e-003	0.3612	2.8100e-003	0.3640	0.0960	2.6100e-003	0.0986	0.0000	261.8804	261.8804	0.0103	0.0000	262.0972
Total	**0.1937**	**0.7447**	**2.5296**	**8.6300e-003**	**0.4773**	**0.0183**	**0.4956**	**0.1293**	**0.0169**	**0.1462**	**0.0000**	**617.5809**	**617.5809**	**0.0129**	**0.0000**	**617.8519**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	31.7830	81.0827	338.8731	1.1063	66.1018	1.7612	67.8630	17.7344	1.6237	19.3581	0.0000	76,556.8769	76,556.8769	2.0994	0.0000	76,600.9632
Unmitigated	31.7830	81.0827	338.8731	1.1063	66.1018	1.7612	67.8630	17.7344	1.6237	19.3581	0.0000	76,556.8769	76,556.8769	2.0994	0.0000	76,600.9632

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
General Light Industry	44,935.59	8,510.04	4383.96	99,084,851	99,084,851
General Light Industry	16,107.67	3,050.52	1571.48	35,518,084	35,518,084
Office Park	6,600.76	947.92	439.28	12,313,193	12,313,193
Refrigerated Warehouse-No Rail	7,482.51	7,482.51	7482.51	21,845,271	21,845,271
Unrefrigerated Warehouse-No Rail	2,077.18	2,077.18	2077.18	6,064,350	6,064,350
Total	77,203.71	22,068.17	15,954.41	174,825,750	174,825,750

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Office Park	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Refrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3
Unrefrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.429368	0.064565	0.157653	0.182946	0.055150	0.008351	0.020733	0.068003	0.001820	0.001195	0.006708	0.000633	0.002875

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	1.1867	10.7883	9.0622	0.0647		0.8199	0.8199		0.8199	0.8199	0.0000	11,744.4030	11,744.4030	0.2251	0.2153	11,815.8775
NaturalGas Unmitigated	1.1867	10.7883	9.0622	0.0647		0.8199	0.8199		0.8199	0.8199	0.0000	11,744.4030	11,744.4030	0.2251	0.2153	11,815.8775

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	5.02874e+007	0.2712	2.4651	2.0707	0.0148		0.1874	0.1874		0.1874	0.1874	0.0000	2,683.5250	2,683.5250	0.0514	0.0492	2,699.8565
Office Park	1.38315e+007	0.0746	0.6780	0.5695	4.0700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	738.1037	738.1037	0.0142	0.0135	742.5956
Refrigerated Warehouse-No Rail	462240	2.4900e-003	0.0227	0.0190	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6669	24.6669	4.7000e-004	4.5000e-004	24.8170
Unrefrigerated Warehouse-No Rail	1.52139e+007	0.0820	0.7458	0.6265	4.4700e-003		0.0567	0.0567		0.0567	0.0567	0.0000	811.8738	811.8738	0.0156	0.0149	816.8147
General Light Industry	1.40287e+008	0.7565	6.8768	5.7765	0.0413		0.5226	0.5226		0.5226	0.5226	0.0000	7,486.2336	7,486.2336	0.1435	0.1373	7,531.7936
Total		**1.1867**	**10.7883**	**9.0622**	**0.0647**		**0.8199**	**0.8199**		**0.8199**	**0.8199**	**0.0000**	**11,744.4030**	**11,744.4030**	**0.2251**	**0.2153**	**11,815.8775**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	1.38315e+007	0.0746	0.6780	0.5695	4.0700e-003		0.0515	0.0515		0.0515	0.0515	0.0000	738.1037	738.1037	0.0142	0.0135	742.5956
Refrigerated Warehouse-No Rail	462240	2.4900e-003	0.0227	0.0190	1.4000e-004		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	24.6669	24.6669	4.7000e-004	4.5000e-004	24.8170
Unrefrigerated Warehouse-No Rail	1.52139e+007	0.0820	0.7458	0.6265	4.4700e-003		0.0567	0.0567		0.0567	0.0567	0.0000	811.8738	811.8738	0.0156	0.0149	816.8147
General Light Industry	1.40287e+008	0.7565	6.8768	5.7765	0.0413		0.5226	0.5226		0.5226	0.5226	0.0000	7,486.2336	7,486.2336	0.1435	0.1373	7,531.7936
General Light Industry	5.02874e+007	0.2712	2.4651	2.0707	0.0148		0.1874	0.1874		0.1874	0.1874	0.0000	2,683.5250	2,683.5250	0.0514	0.0492	2,699.8565
Total		**1.1867**	**10.7883**	**9.0622**	**0.0647**		**0.8199**	**0.8199**		**0.8199**	**0.8199**	**0.0000**	**11,744.4030**	**11,744.4030**	**0.2251**	**0.2153**	**11,815.8775**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.23243e+007	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.2278e+007	0.0000	0.0000	0.0000	0.0000
Office Park	7.4851e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	7.33517e+007	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.07614e+006	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.23243e+007	0.0000	0.0000	0.0000	0.0000
General Light Industry	6.2278e+007	0.0000	0.0000	0.0000	0.0000
Office Park	7.4851e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	7.33517e+007	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	8.07614e+006	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	60.3387	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455
Unmitigated	60.3387	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.4507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	50.8770					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0110	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455
Total	**60.3387**	**1.0800e-003**	**0.1194**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**0.2328**	**0.2328**	**6.1000e-004**	**0.0000**	**0.2455**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	9.4507					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	50.8770					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0110	1.0800e-003	0.1194	1.0000e-005		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	0.2328	0.2328	6.1000e-004	0.0000	0.2455
Total	**60.3387**	**1.0800e-003**	**0.1194**	**1.0000e-005**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**0.2328**	**0.2328**	**6.1000e-004**	**0.0000**	**0.2455**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	945.9119	97.1542	2.2940	3,697.2972
Unmitigated	945.9119	97.1542	2.2940	3,697.2972

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 15.4893	0.0000	0.0000	0.0000	0.0000
General Light Industry	2025.29 / 0	642.5303	65.9940	1.5583	2,511.4659
Office Park	102.73 / 62.9636	32.5915	3.3475	0.0790	127.3909
Refrigerated Warehouse-No Rail	668.081 / 0	211.9514	21.7694	0.5140	828.4569
Unrefrigerated Warehouse-No Rail	185.463 / 0	58.8387	6.0433	0.1427	229.9835
Total		**945.9119**	**97.1542**	**2.2940**	**3,697.2972**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 15.4893	0.0000	0.0000	0.0000	0.0000
General Light Industry	2025.29 / 0	642.5303	65.9940	1.5583	2,511.4659
Office Park	102.73 / 62.9636	32.5915	3.3475	0.0790	127.3909
Refrigerated Warehouse-No Rail	668.081 / 0	211.9514	21.7694	0.5140	828.4569
Unrefrigerated Warehouse-No Rail	185.463 / 0	58.8387	6.0433	0.1427	229.9835
Total		**945.9119**	**97.1542**	**2.2940**	**3,697.2972**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3,018.0940	178.3643	0.0000	6,763.7432
Unmitigated	3,018.0940	178.3643	0.0000	6,763.7432

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.12	0.2274	0.0134	0.0000	0.5095
General Light Industry	10859.9	2,204.4656	130.2802	0.0000	4,940.3495
Office Park	537.54	109.1158	6.4486	0.0000	244.5355
Refrigerated Warehouse-No Rail	2715.66	551.2544	32.5782	0.0000	1,235.3967
Unrefrigerated Warehouse-No Rail	753.88	153.0308	9.0439	0.0000	342.9520
Total		**3,018.0940**	**178.3643**	**0.0000**	**6,763.7432**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.12	0.2274	0.0134	0.0000	0.5095
General Light Industry	10859.9	2,204.4656	130.2802	0.0000	4,940.3495
Office Park	537.54	109.1158	6.4486	0.0000	244.5355
Refrigerated Warehouse-No Rail	2715.66	551.2544	32.5782	0.0000	1,235.3967
Unrefrigerated Warehouse-No Rail	753.88	153.0308	9.0439	0.0000	342.9520
Total		**3,018.0940**	**178.3643**	**0.0000**	**6,763.7432**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Crows Landing_Phase 2

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	381.00	1000sqft	35.00	381,000.00	0
Office Park	247.00	1000sqft	14.00	247,000.00	0
General Light Industry	1,237.00	1000sqft	71.00	1,237,000.00	0
Refrigerated Warehouse-No Rail	990.00	1000sqft	57.00	990,000.00	0
City Park	13.00	Acre	13.00	566,280.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - PD

Construction Phase - Assumed all infrastructure is front-loaded

Grading - Total Phase 2 acreage

Construction Off-road Equipment Mitigation - Potential Tier4 mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	220.00	139.00
tblConstructionPhase	NumDays	3,100.00	1,956.00
tblConstructionPhase	NumDays	310.00	196.00
tblConstructionPhase	NumDays	220.00	139.00
tblConstructionPhase	NumDays	120.00	76.00
tblConstructionPhase	PhaseEndDate	8/23/2029	2/9/2029
tblConstructionPhase	PhaseEndDate	8/11/2036	2/9/2029
tblConstructionPhase	PhaseEndDate	4/10/2028	4/14/2028
tblConstructionPhase	PhaseStartDate	2/10/2029	8/1/2028
tblConstructionPhase	PhaseStartDate	1/30/2036	8/1/2028
tblConstructionPhase	PhaseStartDate	4/15/2028	4/17/2028
tblConstructionPhase	PhaseStartDate	10/2/2027	10/8/2027
tblGrading	AcresOfGrading	490.00	190.00
tblLandUse	LotAcreage	8.75	35.00
tblLandUse	LotAcreage	5.67	14.00
tblLandUse	LotAcreage	28.40	71.00
tblLandUse	LotAcreage	22.73	57.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2035
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.3757	3.3966	3.9071	7.6300e-003	0.7221	0.1479	0.8700	0.3436	0.1361	0.4797	0.0000	659.0354	659.0354	0.2068	0.0000	663.3785
2028	16.2821	4.8942	9.2328	0.0253	1.9098	0.1959	2.1057	0.6894	0.1814	0.8708	0.0000	1,856.6611	1,856.6611	0.2396	0.0000	1,861.6922
2029	5.1099	4.2551	11.8250	0.0400	2.2468	0.1378	2.3846	0.6047	0.1283	0.7330	0.0000	2,773.4781	2,773.4781	0.1380	0.0000	2,776.3761
2030	0.7835	3.4980	11.3553	0.0396	2.2018	0.0813	2.2831	0.5927	0.0764	0.6691	0.0000	2,742.5076	2,742.5076	0.0691	0.0000	2,743.9593
2031	0.7651	3.4770	11.1714	0.0396	2.2018	0.0813	2.2832	0.5927	0.0765	0.6692	0.0000	2,737.4778	2,737.4778	0.0683	0.0000	2,738.9121
2032	0.7578	3.4788	11.1239	0.0397	2.2103	0.0817	2.2920	0.5950	0.0768	0.6718	0.0000	2,743.9092	2,743.9092	0.0678	0.0000	2,745.3338
2033	0.7415	3.4406	10.9663	0.0394	2.1935	0.0811	2.2746	0.5905	0.0763	0.6668	0.0000	2,719.6187	2,719.6187	0.0667	0.0000	2,721.0195
2034	0.7306	3.4305	10.8852	0.0394	2.1936	0.0811	2.2747	0.5905	0.0763	0.6668	0.0000	2,716.7822	2,716.7822	0.0661	0.0000	2,718.1709
2035	0.7139	3.3373	10.8640	0.0396	2.2021	0.0739	2.2760	0.5928	0.0690	0.6619	0.0000	2,724.9585	2,724.9585	0.0649	0.0000	2,726.3217
2036	0.0127	0.0751	0.1690	3.2000e-004	0.1491	9.5000e-004	0.1500	0.0366	9.5000e-004	0.0375	0.0000	27.4793	27.4793	1.0200e-003	0.0000	27.5008
Total	**26.2728**	**33.2832**	**91.4998**	**0.3106**	**18.2308**	**0.9630**	**19.1937**	**5.2284**	**0.8980**	**6.1265**	**0.0000**	**21,701.9079**	**21,701.9079**	**0.9884**	**0.0000**	**21,722.6649**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2027	0.0936	0.3916	4.1318	7.6300e-003	0.3421	0.0121	0.3541	0.1592	0.0120	0.1712	0.0000	659.0346	659.0346	0.2068	0.0000	663.3777
2028	15.9596	1.5618	9.4273	0.0253	1.4768	0.0403	1.5171	0.4759	0.0382	0.5141	0.0000	1,856.6603	1,856.6603	0.2396	0.0000	1,861.6914
2029	4.9633	2.8027	12.0424	0.0400	2.2468	0.0682	2.3150	0.6047	0.0634	0.6680	0.0000	2,773.4777	2,773.4777	0.1380	0.0000	2,776.3757
2030	0.6559	2.7556	11.5223	0.0396	2.2018	0.0673	2.2691	0.5927	0.0625	0.6552	0.0000	2,742.5072	2,742.5072	0.0691	0.0000	2,743.9589
2031	0.6375	2.7346	11.3384	0.0396	2.2018	0.0674	2.2692	0.5927	0.0625	0.6552	0.0000	2,737.4774	2,737.4774	0.0683	0.0000	2,738.9117
2032	0.6298	2.7335	11.2915	0.0397	2.2103	0.0677	2.2780	0.5950	0.0628	0.6578	0.0000	2,743.9088	2,743.9088	0.0678	0.0000	2,745.3334
2033	0.6144	2.7011	11.1326	0.0394	2.1935	0.0672	2.2607	0.5905	0.0623	0.6528	0.0000	2,719.6183	2,719.6183	0.0667	0.0000	2,721.0191
2034	0.6035	2.6910	11.0515	0.0394	2.1936	0.0672	2.2608	0.5905	0.0624	0.6529	0.0000	2,716.7818	2,716.7818	0.0661	0.0000	2,718.1705
2035	0.5983	2.6950	11.0361	0.0396	2.2021	0.0675	2.2695	0.5928	0.0626	0.6554	0.0000	2,724.9581	2,724.9581	0.0649	0.0000	2,726.3213
2036	3.4300e-003	0.0234	0.1828	3.2000e-004	0.1491	4.3000e-004	0.1495	0.0366	4.3000e-004	0.0370	0.0000	27.4792	27.4792	1.0200e-003	0.0000	27.5008
Total	**24.7594**	**21.0903**	**93.1568**	**0.3106**	**17.4178**	**0.5252**	**17.9430**	**4.8305**	**0.4891**	**5.3195**	**0.0000**	**21,701.9034**	**21,701.9034**	**0.9884**	**0.0000**	**21,722.6604**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.76**	**36.63**	**-1.81**	**0.00**	**4.46**	**45.46**	**6.52**	**7.61**	**45.54**	**13.17**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.3491	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540
Energy	0.2061	1.8732	1.5735	0.0112		0.1424	0.1424		0.1424	0.1424	0.0000	2,039.2206	2,039.2206	0.0391	0.0374	2,051.6309
Mobile	12.5495	32.1325	138.8234	0.5015	29.6330	0.8045	30.4374	7.9527	0.7417	8.6945	0.0000	33,894.8915	33,894.8915	0.7727	0.0000	33,911.1187
Waste						0.0000	0.0000		0.0000	0.0000	618.8220	0.0000	618.8220	36.5713	0.0000	1,386.8200
Water						0.0000	0.0000		0.0000	0.0000	201.3240	0.0000	201.3240	20.6779	0.4883	786.9176
Total	**28.1047**	**34.0059**	**140.4231**	**0.5128**	**29.6330**	**0.9469**	**30.5799**	**7.9527**	**0.8842**	**8.8369**	**820.1460**	**35,934.1633**	**36,754.3093**	**58.0612**	**0.5256**	**38,136.5412**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	15.3491	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540
Energy	0.2061	1.8732	1.5735	0.0112		0.1424	0.1424		0.1424	0.1424	0.0000	2,039.2206	2,039.2206	0.0391	0.0374	2,051.6309
Mobile	12.5495	32.1325	138.8234	0.5015	29.6330	0.8045	30.4374	7.9527	0.7417	8.6945	0.0000	33,894.8915	33,894.8915	0.7727	0.0000	33,911.1187
Waste						0.0000	0.0000		0.0000	0.0000	618.8220	0.0000	618.8220	36.5713	0.0000	1,386.8200
Water						0.0000	0.0000		0.0000	0.0000	201.3240	0.0000	201.3240	20.6779	0.4883	786.9176
Total	**28.1047**	**34.0059**	**140.4231**	**0.5128**	**29.6330**	**0.9469**	**30.5799**	**7.9527**	**0.8842**	**8.8369**	**820.1460**	**35,934.1633**	**36,754.3093**	**58.0612**	**0.5256**	**38,136.5412**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2027	10/1/2027	5	196	
2	Trenching	Trenching	10/8/2027	4/14/2028	5	136	
3	Site Preparation	Site Preparation	4/17/2028	7/31/2028	5	76	
4	Building Construction	Building Construction	8/1/2028	1/29/2036	5	1956	
5	Paving	Paving	8/1/2028	2/9/2029	5	139	
6	Architectural Coating	Architectural Coating	8/1/2028	2/9/2029	5	139	

Acres of Grading (Site Preparation Phase): 190

Acres of Grading (Grading Phase): 190

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,282,500; Non-Residential Outdoor: 1,427,500 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Rubber Tired Dozers	3	8.00	255	0.40
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Excavators	3	8.00	162	0.38
Site Preparation	Excavators	2	8.00	162	0.38
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Scrapers	2	8.00	361	0.48
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	8	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	14	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	14	20.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,136.00	468.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	227.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.6909	0.0000	0.6909	0.3353	0.0000	0.3353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2942	2.6715	3.0725	6.0600e-003		0.1163	0.1163		0.1070	0.1070	0.0000	531.8557	531.8557	0.1720	0.0000	535.4680
Total	**0.2942**	**2.6715**	**3.0725**	**6.0600e-003**	**0.6909**	**0.1163**	**0.8072**	**0.3353**	**0.1070**	**0.4423**	**0.0000**	**531.8557**	**531.8557**	**0.1720**	**0.0000**	**535.4680**

3.2 Grading - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8600e-003	5.8700e-003	0.0590	3.0000e-004	0.0244	1.8000e-004	0.0245	6.4700e-003	1.7000e-004	6.6400e-003	0.0000	17.3482	17.3482	6.7000e-004	0.0000	17.3621
Total	**3.8600e-003**	**5.8700e-003**	**0.0590**	**3.0000e-004**	**0.0244**	**1.8000e-004**	**0.0245**	**6.4700e-003**	**1.7000e-004**	**6.6400e-003**	**0.0000**	**17.3482**	**17.3482**	**6.7000e-004**	**0.0000**	**17.3621**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3109	0.0000	0.3109	0.1509	0.0000	0.1509	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0741	0.3212	3.4083	6.0600e-003		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	531.8551	531.8551	0.1720	0.0000	535.4673
Total	**0.0741**	**0.3212**	**3.4083**	**6.0600e-003**	**0.3109**	**9.8800e-003**	**0.3208**	**0.1509**	**9.8800e-003**	**0.1608**	**0.0000**	**531.8551**	**531.8551**	**0.1720**	**0.0000**	**535.4673**

3.2 Grading - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8600e-003	5.8700e-003	0.0590	3.0000e-004	0.0244	1.8000e-004	0.0245	6.4700e-003	1.7000e-004	6.6400e-003	0.0000	17.3482	17.3482	6.7000e-004	0.0000	17.3621
Total	**3.8600e-003**	**5.8700e-003**	**0.0590**	**3.0000e-004**	**0.0244**	**1.8000e-004**	**0.0245**	**6.4700e-003**	**1.7000e-004**	**6.6400e-003**	**0.0000**	**17.3482**	**17.3482**	**6.7000e-004**	**0.0000**	**17.3621**

3.3 Trenching - 2027

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0765	0.7175	0.7591	1.1900e-003		0.0314	0.0314		0.0289	0.0289	0.0000	104.9723	104.9723	0.0340	0.0000	105.6852
Total	**0.0765**	**0.7175**	**0.7591**	**1.1900e-003**		**0.0314**	**0.0314**		**0.0289**	**0.0289**	**0.0000**	**104.9723**	**104.9723**	**0.0340**	**0.0000**	**105.6852**

3.3 Trenching - 2027

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	1.6400e-003	0.0165	8.0000e-005	6.8200e-003	5.0000e-005	6.8700e-003	1.8100e-003	5.0000e-005	1.8600e-003	0.0000	4.8593	4.8593	1.9000e-004	0.0000	4.8632
Total	**1.0800e-003**	**1.6400e-003**	**0.0165**	**8.0000e-005**	**6.8200e-003**	**5.0000e-005**	**6.8700e-003**	**1.8100e-003**	**5.0000e-005**	**1.8600e-003**	**0.0000**	**4.8593**	**4.8593**	**1.9000e-004**	**0.0000**	**4.8632**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.0629	0.6479	1.1900e-003		1.9300e-003	1.9300e-003		1.9300e-003	1.9300e-003	0.0000	104.9722	104.9722	0.0340	0.0000	105.6851
Total	**0.0145**	**0.0629**	**0.6479**	**1.1900e-003**		**1.9300e-003**	**1.9300e-003**		**1.9300e-003**	**1.9300e-003**	**0.0000**	**104.9722**	**104.9722**	**0.0340**	**0.0000**	**105.6851**

3.3 Trenching - 2027

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0800e-003	1.6400e-003	0.0165	8.0000e-005	6.8200e-003	5.0000e-005	6.8700e-003	1.8100e-003	5.0000e-005	1.8600e-003	0.0000	4.8593	4.8593	1.9000e-004	0.0000	4.8632
Total	**1.0800e-003**	**1.6400e-003**	**0.0165**	**8.0000e-005**	**6.8200e-003**	**5.0000e-005**	**6.8700e-003**	**1.8100e-003**	**5.0000e-005**	**1.8600e-003**	**0.0000**	**4.8593**	**4.8593**	**1.9000e-004**	**0.0000**	**4.8632**

3.3 Trenching - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0941	0.8822	0.9333	1.4700e-003		0.0386	0.0386		0.0355	0.0355	0.0000	129.0643	129.0643	0.0417	0.0000	129.9409
Total	**0.0941**	**0.8822**	**0.9333**	**1.4700e-003**		**0.0386**	**0.0386**		**0.0355**	**0.0355**	**0.0000**	**129.0643**	**129.0643**	**0.0417**	**0.0000**	**129.9409**

3.3 Trenching - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.9500e-003	0.0197	1.0000e-004	8.3900e-003	6.0000e-005	8.4500e-003	2.2300e-003	6.0000e-005	2.2900e-003	0.0000	5.9345	5.9345	2.2000e-004	0.0000	5.9392
Total	**1.2800e-003**	**1.9500e-003**	**0.0197**	**1.0000e-004**	**8.3900e-003**	**6.0000e-005**	**8.4500e-003**	**2.2300e-003**	**6.0000e-005**	**2.2900e-003**	**0.0000**	**5.9345**	**5.9345**	**2.2000e-004**	**0.0000**	**5.9392**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0178	0.0773	0.7966	1.4700e-003		2.3800e-003	2.3800e-003		2.3800e-003	2.3800e-003	0.0000	129.0641	129.0641	0.0417	0.0000	129.9407
Total	**0.0178**	**0.0773**	**0.7966**	**1.4700e-003**		**2.3800e-003**	**2.3800e-003**		**2.3800e-003**	**2.3800e-003**	**0.0000**	**129.0641**	**129.0641**	**0.0417**	**0.0000**	**129.9407**

3.3 Trenching - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2800e-003	1.9500e-003	0.0197	1.0000e-004	8.3900e-003	6.0000e-005	8.4500e-003	2.2300e-003	6.0000e-005	2.2900e-003	0.0000	5.9345	5.9345	2.2000e-004	0.0000	5.9392
Total	**1.2800e-003**	**1.9500e-003**	**0.0197**	**1.0000e-004**	**8.3900e-003**	**6.0000e-005**	**8.4500e-003**	**2.2300e-003**	**6.0000e-005**	**2.2900e-003**	**0.0000**	**5.9345**	**5.9345**	**2.2000e-004**	**0.0000**	**5.9392**

3.4 Site Preparation - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7873	0.0000	0.7873	0.3882	0.0000	0.3882	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1950	1.7256	2.1154	3.8700e-003		0.0762	0.0762		0.0704	0.0704	0.0000	339.1379	339.1379	0.1040	0.0000	341.3214
Total	**0.1950**	**1.7256**	**2.1154**	**3.8700e-003**	**0.7873**	**0.0762**	**0.8635**	**0.3882**	**0.0704**	**0.4586**	**0.0000**	**339.1379**	**339.1379**	**0.1040**	**0.0000**	**341.3214**

3.4 Site Preparation - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5200e-003	3.8400e-003	0.0388	2.0000e-004	0.0308	1.2000e-004	0.0310	7.9000e-003	1.1000e-004	8.0200e-003	0.0000	11.6931	11.6931	4.4000e-004	0.0000	11.7024
Total	**2.5200e-003**	**3.8400e-003**	**0.0388**	**2.0000e-004**	**0.0308**	**1.2000e-004**	**0.0310**	**7.9000e-003**	**1.1000e-004**	**8.0200e-003**	**0.0000**	**11.6931**	**11.6931**	**4.4000e-004**	**0.0000**	**11.7024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3543	0.0000	0.3543	0.1747	0.0000	0.1747	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0468	0.2026	2.2270	3.8700e-003		6.2300e-003	6.2300e-003		6.2300e-003	6.2300e-003	0.0000	339.1375	339.1375	0.1040	0.0000	341.3210
Total	**0.0468**	**0.2026**	**2.2270**	**3.8700e-003**	**0.3543**	**6.2300e-003**	**0.3605**	**0.1747**	**6.2300e-003**	**0.1809**	**0.0000**	**339.1375**	**339.1375**	**0.1040**	**0.0000**	**341.3210**

3.4 Site Preparation - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5200e-003	3.8400e-003	0.0388	2.0000e-004	0.0308	1.2000e-004	0.0310	7.9000e-003	1.1000e-004	8.0200e-003	0.0000	11.6931	11.6931	4.4000e-004	0.0000	11.7024
Total	**2.5200e-003**	**3.8400e-003**	**0.0388**	**2.0000e-004**	**0.0308**	**1.2000e-004**	**0.0310**	**7.9000e-003**	**1.1000e-004**	**8.0200e-003**	**0.0000**	**11.6931**	**11.6931**	**4.4000e-004**	**0.0000**	**11.7024**

3.5 Building Construction - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0742	0.6763	0.8748	1.4600e-003		0.0286	0.0286		0.0269	0.0269	0.0000	125.8728	125.8728	0.0295	0.0000	126.4932
Total	**0.0742**	**0.6763**	**0.8748**	**1.4600e-003**		**0.0286**	**0.0286**		**0.0269**	**0.0269**	**0.0000**	**125.8728**	**125.8728**	**0.0295**	**0.0000**	**126.4932**

3.5 Building Construction - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1494	0.8662	2.1852	5.4600e-003	0.1503	0.0202	0.1705	0.0431	0.0186	0.0617	0.0000	463.9870	463.9870	3.4400e-003	0.0000	464.0592
Worker	0.1172	0.1786	1.8045	9.3900e-003	0.7691	5.6800e-003	0.7748	0.2044	5.2700e-003	0.2097	0.0000	544.3177	544.3177	0.0205	0.0000	544.7491
Total	**0.2666**	**1.0448**	**3.9897**	**0.0149**	**0.9195**	**0.0259**	**0.9453**	**0.2475**	**0.0238**	**0.2713**	**0.0000**	**1,008.3046**	**1,008.3046**	**0.0240**	**0.0000**	**1,008.8082**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0178	0.1215	0.9489	1.4600e-003		2.2100e-003	2.2100e-003		2.2100e-003	2.2100e-003	0.0000	125.8727	125.8727	0.0295	0.0000	126.4931
Total	**0.0178**	**0.1215**	**0.9489**	**1.4600e-003**		**2.2100e-003**	**2.2100e-003**		**2.2100e-003**	**2.2100e-003**	**0.0000**	**125.8727**	**125.8727**	**0.0295**	**0.0000**	**126.4931**

3.5 Building Construction - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1494	0.8662	2.1852	5.4600e-003	0.1503	0.0202	0.1705	0.0431	0.0186	0.0617	0.0000	463.9870	463.9870	3.4400e-003	0.0000	464.0592
Worker	0.1172	0.1786	1.8045	9.3900e-003	0.7691	5.6800e-003	0.7748	0.2044	5.2700e-003	0.2097	0.0000	544.3177	544.3177	0.0205	0.0000	544.7491
Total	**0.2666**	**1.0448**	**3.9897**	**0.0149**	**0.9195**	**0.0259**	**0.9453**	**0.2475**	**0.0238**	**0.2713**	**0.0000**	**1,008.3046**	**1,008.3046**	**0.0240**	**0.0000**	**1,008.8082**

3.5 Building Construction - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1777	1.6195	2.0948	3.5000e-003		0.0685	0.0685		0.0645	0.0645	0.0000	301.4019	301.4019	0.0707	0.0000	302.8874
Total	**0.1777**	**1.6195**	**2.0948**	**3.5000e-003**		**0.0685**	**0.0685**		**0.0645**	**0.0645**	**0.0000**	**301.4019**	**301.4019**	**0.0707**	**0.0000**	**302.8874**

3.5 Building Construction - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3563	2.0694	5.2019	0.0131	0.3600	0.0483	0.4083	0.1032	0.0445	0.1477	0.0000	1,111.2570	1,111.2570	8.2300e-003	0.0000	1,111.4299
Worker	0.2692	0.4126	4.1846	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,295.8686	1,295.8686	0.0481	0.0000	1,296.8795
Total	**0.6255**	**2.4820**	**9.3864**	**0.0356**	**2.2017**	**0.0620**	**2.2637**	**0.5927**	**0.0571**	**0.6498**	**0.0000**	**2,407.1257**	**2,407.1257**	**0.0564**	**0.0000**	**2,408.3094**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	3.5000e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	301.4015	301.4015	0.0707	0.0000	302.8871
Total	**0.0426**	**0.2909**	**2.2721**	**3.5000e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**301.4015**	**301.4015**	**0.0707**	**0.0000**	**302.8871**

3.5 Building Construction - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3563	2.0694	5.2019	0.0131	0.3600	0.0483	0.4083	0.1032	0.0445	0.1477	0.0000	1,111.2570	1,111.2570	8.2300e-003	0.0000	1,111.4299
Worker	0.2692	0.4126	4.1846	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,295.8686	1,295.8686	0.0481	0.0000	1,296.8795
Total	**0.6255**	**2.4820**	**9.3864**	**0.0356**	**2.2017**	**0.0620**	**2.2637**	**0.5927**	**0.0571**	**0.6498**	**0.0000**	**2,407.1257**	**2,407.1257**	**0.0564**	**0.0000**	**2,408.3094**

3.5 Building Construction - 2030

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0333	2.1051	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.5281	341.5281	0.0137	0.0000	341.8160
Total	**0.1702**	**1.0333**	**2.1051**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.5281**	**341.5281**	**0.0137**	**0.0000**	**341.8160**

3.5 Building Construction - 2030

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3548	2.0657	5.1828	0.0131	0.3601	0.0484	0.4084	0.1033	0.0445	0.1477	0.0000	1,111.4347	1,111.4347	8.2400e-003	0.0000	1,111.6076
Worker	0.2586	0.3990	4.0673	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,289.5448	1,289.5448	0.0472	0.0000	1,290.5357
Total	**0.6133**	**2.4647**	**9.2502**	**0.0356**	**2.2018**	**0.0620**	**2.2638**	**0.5927**	**0.0572**	**0.6499**	**0.0000**	**2,400.9795**	**2,400.9795**	**0.0554**	**0.0000**	**2,402.1433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5277	341.5277	0.0137	0.0000	341.8156
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5277**	**341.5277**	**0.0137**	**0.0000**	**341.8156**

3.5 Building Construction - 2030

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3548	2.0657	5.1828	0.0131	0.3601	0.0484	0.4084	0.1033	0.0445	0.1477	0.0000	1,111.4347	1,111.4347	8.2400e-003	0.0000	1,111.6076
Worker	0.2586	0.3990	4.0673	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,289.5448	1,289.5448	0.0472	0.0000	1,290.5357
Total	**0.6133**	**2.4647**	**9.2502**	**0.0356**	**2.2018**	**0.0620**	**2.2638**	**0.5927**	**0.0572**	**0.6499**	**0.0000**	**2,400.9795**	**2,400.9795**	**0.0554**	**0.0000**	**2,402.1433**

3.5 Building Construction - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1702	1.0333	2.1051	4.0200e-003		0.0193	0.0193		0.0193	0.0193	0.0000	341.5281	341.5281	0.0137	0.0000	341.8160
Total	**0.1702**	**1.0333**	**2.1051**	**4.0200e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**341.5281**	**341.5281**	**0.0137**	**0.0000**	**341.8160**

3.5 Building Construction - 2031

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3463	2.0573	5.1041	0.0131	0.3601	0.0484	0.4085	0.1033	0.0445	0.1478	0.0000	1,111.6632	1,111.6632	8.2400e-003	0.0000	1,111.8363
Worker	0.2486	0.3864	3.9622	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,284.2865	1,284.2865	0.0464	0.0000	1,285.2598
Total	**0.5949**	**2.4438**	**9.0663**	**0.0356**	**2.2018**	**0.0621**	**2.2639**	**0.5927**	**0.0572**	**0.6499**	**0.0000**	**2,395.9497**	**2,395.9497**	**0.0546**	**0.0000**	**2,397.0961**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5277	341.5277	0.0137	0.0000	341.8156
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5277**	**341.5277**	**0.0137**	**0.0000**	**341.8156**

3.5 Building Construction - 2031

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3463	2.0573	5.1041	0.0131	0.3601	0.0484	0.4085	0.1033	0.0445	0.1478	0.0000	1,111.6632	1,111.6632	8.2400e-003	0.0000	1,111.8363
Worker	0.2486	0.3864	3.9622	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,284.2865	1,284.2865	0.0464	0.0000	1,285.2598
Total	**0.5949**	**2.4438**	**9.0663**	**0.0356**	**2.2018**	**0.0621**	**2.2639**	**0.5927**	**0.0572**	**0.6499**	**0.0000**	**2,395.9497**	**2,395.9497**	**0.0546**	**0.0000**	**2,397.0961**

3.5 Building Construction - 2032

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1708	1.0372	2.1132	4.0400e-003		0.0193	0.0193		0.0193	0.0193	0.0000	342.8367	342.8367	0.0138	0.0000	343.1257
Total	**0.1708**	**1.0372**	**2.1132**	**4.0400e-003**		**0.0193**	**0.0193**		**0.0193**	**0.0193**	**0.0000**	**342.8367**	**342.8367**	**0.0138**	**0.0000**	**343.1257**

3.5 Building Construction - 2032

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3472	2.0644	5.1219	0.0131	0.3616	0.0486	0.4102	0.1037	0.0447	0.1484	0.0000	1,116.2531	1,116.2531	8.2800e-003	0.0000	1,116.4270
Worker	0.2398	0.3772	3.8888	0.0226	1.8488	0.0137	1.8625	0.4913	0.0128	0.5041	0.0000	1,284.8194	1,284.8194	0.0458	0.0000	1,285.7812
Total	**0.5870**	**2.4416**	**9.0107**	**0.0357**	**2.2103**	**0.0624**	**2.2727**	**0.5950**	**0.0575**	**0.6525**	**0.0000**	**2,401.0725**	**2,401.0725**	**0.0541**	**0.0000**	**2,402.2081**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.2920	2.2808	4.0400e-003		5.3200e-003	5.3200e-003		5.3200e-003	5.3200e-003	0.0000	342.8363	342.8363	0.0138	0.0000	343.1252
Total	**0.0428**	**0.2920**	**2.2808**	**4.0400e-003**		**5.3200e-003**	**5.3200e-003**		**5.3200e-003**	**5.3200e-003**	**0.0000**	**342.8363**	**342.8363**	**0.0138**	**0.0000**	**343.1252**

3.5 Building Construction - 2032

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3472	2.0644	5.1219	0.0131	0.3616	0.0486	0.4102	0.1037	0.0447	0.1484	0.0000	1,116.2531	1,116.2531	8.2800e-003	0.0000	1,116.4270
Worker	0.2398	0.3772	3.8888	0.0226	1.8488	0.0137	1.8625	0.4913	0.0128	0.5041	0.0000	1,284.8194	1,284.8194	0.0458	0.0000	1,285.7812
Total	**0.5870**	**2.4416**	**9.0107**	**0.0357**	**2.2103**	**0.0624**	**2.2727**	**0.5950**	**0.0575**	**0.6525**	**0.0000**	**2,401.0725**	**2,401.0725**	**0.0541**	**0.0000**	**2,402.2081**

3.5 Building Construction - 2033

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1695	1.0293	2.0971	4.0100e-003		0.0192	0.0192		0.0192	0.0192	0.0000	340.2196	340.2196	0.0137	0.0000	340.5064
Total	**0.1695**	**1.0293**	**2.0971**	**4.0100e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**340.2196**	**340.2196**	**0.0137**	**0.0000**	**340.5064**

3.5 Building Construction - 2033

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3432	2.0459	5.0821	0.0130	0.3589	0.0483	0.4071	0.1029	0.0444	0.1474	0.0000	1,108.0135	1,108.0135	8.2200e-003	0.0000	1,108.1861
Worker	0.2288	0.3654	3.7872	0.0224	1.8347	0.0136	1.8483	0.4876	0.0127	0.5002	0.0000	1,271.3856	1,271.3856	0.0448	0.0000	1,272.3270
Total	**0.5719**	**2.4113**	**8.8692**	**0.0354**	**2.1935**	**0.0619**	**2.2554**	**0.5905**	**0.0571**	**0.6476**	**0.0000**	**2,379.3991**	**2,379.3991**	**0.0531**	**0.0000**	**2,380.5132**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	4.0100e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	340.2192	340.2192	0.0137	0.0000	340.5060
Total	**0.0424**	**0.2898**	**2.2634**	**4.0100e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**340.2192**	**340.2192**	**0.0137**	**0.0000**	**340.5060**

3.5 Building Construction - 2033

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3432	2.0459	5.0821	0.0130	0.3589	0.0483	0.4071	0.1029	0.0444	0.1474	0.0000	1,108.0135	1,108.0135	8.2200e-003	0.0000	1,108.1861
Worker	0.2288	0.3654	3.7872	0.0224	1.8347	0.0136	1.8483	0.4876	0.0127	0.5002	0.0000	1,271.3856	1,271.3856	0.0448	0.0000	1,272.3270
Total	**0.5719**	**2.4113**	**8.8692**	**0.0354**	**2.1935**	**0.0619**	**2.2554**	**0.5905**	**0.0571**	**0.6476**	**0.0000**	**2,379.3991**	**2,379.3991**	**0.0531**	**0.0000**	**2,380.5132**

3.5 Building Construction - 2034

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1695	1.0293	2.0971	4.0100e-003		0.0192	0.0192		0.0192	0.0192	0.0000	340.2196	340.2196	0.0137	0.0000	340.5064
Total	**0.1695**	**1.0293**	**2.0971**	**4.0100e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**340.2196**	**340.2196**	**0.0137**	**0.0000**	**340.5064**

3.5 Building Construction - 2034

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3410	2.0433	5.0708	0.0130	0.3589	0.0483	0.4072	0.1030	0.0444	0.1474	0.0000	1,108.2641	1,108.2641	8.2200e-003	0.0000	1,108.4369
Worker	0.2201	0.3579	3.7173	0.0224	1.8347	0.0136	1.8483	0.4876	0.0126	0.5002	0.0000	1,268.2985	1,268.2985	0.0442	0.0000	1,269.2276
Total	**0.5611**	**2.4012**	**8.7881**	**0.0354**	**2.1936**	**0.0619**	**2.2555**	**0.5905**	**0.0571**	**0.6476**	**0.0000**	**2,376.5626**	**2,376.5626**	**0.0525**	**0.0000**	**2,377.6645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	4.0100e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	340.2192	340.2192	0.0137	0.0000	340.5060
Total	**0.0424**	**0.2898**	**2.2634**	**4.0100e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**340.2192**	**340.2192**	**0.0137**	**0.0000**	**340.5060**

3.5 Building Construction - 2034

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3410	2.0433	5.0708	0.0130	0.3589	0.0483	0.4072	0.1030	0.0444	0.1474	0.0000	1,108.2641	1,108.2641	8.2200e-003	0.0000	1,108.4369
Worker	0.2201	0.3579	3.7173	0.0224	1.8347	0.0136	1.8483	0.4876	0.0126	0.5002	0.0000	1,268.2985	1,268.2985	0.0442	0.0000	1,269.2276
Total	**0.5611**	**2.4012**	**8.7881**	**0.0354**	**2.1936**	**0.0619**	**2.2555**	**0.5905**	**0.0571**	**0.6476**	**0.0000**	**2,376.5626**	**2,376.5626**	**0.0525**	**0.0000**	**2,377.6645**

3.5 Building Construction - 2035

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1582	0.9332	2.1000	4.0200e-003		0.0118	0.0118		0.0118	0.0118	0.0000	341.5281	341.5281	0.0127	0.0000	341.7954
Total	**0.1582**	**0.9332**	**2.1000**	**4.0200e-003**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**341.5281**	**341.5281**	**0.0127**	**0.0000**	**341.7954**

3.5 Building Construction - 2035

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3422	2.0506	5.0901	0.0131	0.3604	0.0485	0.4089	0.1034	0.0446	0.1480	0.0000	1,112.7845	1,112.7845	8.2600e-003	0.0000	1,112.9579
Worker	0.2135	0.3536	3.6739	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,270.6460	1,270.6460	0.0439	0.0000	1,271.5683
Total	**0.5557**	**2.4041**	**8.7640**	**0.0356**	**2.2021**	**0.0622**	**2.2642**	**0.5928**	**0.0573**	**0.6501**	**0.0000**	**2,383.4304**	**2,383.4304**	**0.0522**	**0.0000**	**2,384.5263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5277	341.5277	0.0127	0.0000	341.7950
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5277**	**341.5277**	**0.0127**	**0.0000**	**341.7950**

3.5 Building Construction - 2035

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3422	2.0506	5.0901	0.0131	0.3604	0.0485	0.4089	0.1034	0.0446	0.1480	0.0000	1,112.7845	1,112.7845	8.2600e-003	0.0000	1,112.9579
Worker	0.2135	0.3536	3.6739	0.0225	1.8417	0.0137	1.8554	0.4894	0.0127	0.5021	0.0000	1,270.6460	1,270.6460	0.0439	0.0000	1,271.5683
Total	**0.5557**	**2.4041**	**8.7640**	**0.0356**	**2.2021**	**0.0622**	**2.2642**	**0.5928**	**0.0573**	**0.6501**	**0.0000**	**2,383.4304**	**2,383.4304**	**0.0522**	**0.0000**	**2,384.5263**

3.5 Building Construction - 2036

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0127	0.0751	0.1690	3.2000e-004		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	27.4793	27.4793	1.0200e-003	0.0000	27.5008
Total	**0.0127**	**0.0751**	**0.1690**	**3.2000e-004**		**9.5000e-004**	**9.5000e-004**		**9.5000e-004**	**9.5000e-004**	**0.0000**	**27.4793**	**27.4793**	**1.0200e-003**	**0.0000**	**27.5008**

3.5 Building Construction - 2036

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0208	0.0000	0.0208	5.1000e-003	0.0000	5.1000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1283	0.0000	0.1283	0.0315	0.0000	0.0315	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1491**	**0.0000**	**0.1491**	**0.0366**	**0.0000**	**0.0366**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4300e-003	0.0234	0.1828	3.2000e-004		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	27.4792	27.4792	1.0200e-003	0.0000	27.5008
Total	**3.4300e-003**	**0.0234**	**0.1828**	**3.2000e-004**		**4.3000e-004**	**4.3000e-004**		**4.3000e-004**	**4.3000e-004**	**0.0000**	**27.4792**	**27.4792**	**1.0200e-003**	**0.0000**	**27.5008**

3.5 Building Construction - 2036

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0208	0.0000	0.0208	5.1000e-003	0.0000	5.1000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1283	0.0000	0.1283	0.0315	0.0000	0.0315	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1491**	**0.0000**	**0.1491**	**0.0366**	**0.0000**	**0.0366**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0489	0.4590	0.7782	1.2200e-003		0.0224	0.0224		0.0206	0.0206	0.0000	106.7837	106.7837	0.0345	0.0000	107.5090
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0489**	**0.4590**	**0.7782**	**1.2200e-003**		**0.0224**	**0.0224**		**0.0206**	**0.0206**	**0.0000**	**106.7837**	**106.7837**	**0.0345**	**0.0000**	**107.5090**

3.6 Paving - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	2.3600e-003	0.0238	1.2000e-004	0.0102	8.0000e-005	0.0102	2.7000e-003	7.0000e-005	2.7700e-003	0.0000	7.1873	7.1873	2.7000e-004	0.0000	7.1930
Total	**1.5500e-003**	**2.3600e-003**	**0.0238**	**1.2000e-004**	**0.0102**	**8.0000e-005**	**0.0102**	**2.7000e-003**	**7.0000e-005**	**2.7700e-003**	**0.0000**	**7.1873**	**7.1873**	**2.7000e-004**	**0.0000**	**7.1930**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0150	0.0648	0.9226	1.2200e-003		1.9900e-003	1.9900e-003		1.9900e-003	1.9900e-003	0.0000	106.7836	106.7836	0.0345	0.0000	107.5089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0150**	**0.0648**	**0.9226**	**1.2200e-003**		**1.9900e-003**	**1.9900e-003**		**1.9900e-003**	**1.9900e-003**	**0.0000**	**106.7836**	**106.7836**	**0.0345**	**0.0000**	**107.5089**

3.6 Paving - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5500e-003	2.3600e-003	0.0238	1.2000e-004	0.0102	8.0000e-005	0.0102	2.7000e-003	7.0000e-005	2.7700e-003	0.0000	7.1873	7.1873	2.7000e-004	0.0000	7.1930
Total	**1.5500e-003**	**2.3600e-003**	**0.0238**	**1.2000e-004**	**0.0102**	**8.0000e-005**	**0.0102**	**2.7000e-003**	**7.0000e-005**	**2.7700e-003**	**0.0000**	**7.1873**	**7.1873**	**2.7000e-004**	**0.0000**	**7.1930**

3.6 Paving - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0135	0.1263	0.2142	3.3000e-004		6.1600e-003	6.1600e-003		5.6700e-003	5.6700e-003	0.0000	29.3900	29.3900	9.5100e-003	0.0000	29.5896
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0135**	**0.1263**	**0.2142**	**3.3000e-004**		**6.1600e-003**	**6.1600e-003**		**5.6700e-003**	**5.6700e-003**	**0.0000**	**29.3900**	**29.3900**	**9.5100e-003**	**0.0000**	**29.5896**

3.6 Paving - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	6.3000e-004	6.3500e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	1.9668	1.9668	7.0000e-005	0.0000	1.9683
Total	**4.1000e-004**	**6.3000e-004**	**6.3500e-003**	**3.0000e-005**	**2.8000e-003**	**2.0000e-005**	**2.8200e-003**	**7.4000e-004**	**2.0000e-005**	**7.6000e-004**	**0.0000**	**1.9668**	**1.9668**	**7.0000e-005**	**0.0000**	**1.9683**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1200e-003	0.0178	0.2539	3.3000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	29.3900	29.3900	9.5100e-003	0.0000	29.5896
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.1200e-003**	**0.0178**	**0.2539**	**3.3000e-004**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**29.3900**	**29.3900**	**9.5100e-003**	**0.0000**	**29.5896**

3.6 Paving - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	6.3000e-004	6.3500e-003	3.0000e-005	2.8000e-003	2.0000e-005	2.8200e-003	7.4000e-004	2.0000e-005	7.6000e-004	0.0000	1.9668	1.9668	7.0000e-005	0.0000	1.9683
Total	**4.1000e-004**	**6.3000e-004**	**6.3500e-003**	**3.0000e-005**	**2.8000e-003**	**2.0000e-005**	**2.8200e-003**	**7.4000e-004**	**2.0000e-005**	**7.6000e-004**	**0.0000**	**1.9668**	**1.9668**	**7.0000e-005**	**0.0000**	**1.9683**

3.7 Architectural Coating - 2028

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	15.5654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3100e-003	0.0624	0.0986	1.6000e-004		2.8100e-003	2.8100e-003		2.8100e-003	2.8100e-003	0.0000	13.9152	13.9152	7.6000e-004	0.0000	13.9312
Total	**15.5747**	**0.0624**	**0.0986**	**1.6000e-004**		**2.8100e-003**	**2.8100e-003**		**2.8100e-003**	**2.8100e-003**	**0.0000**	**13.9152**	**13.9152**	**7.6000e-004**	**0.0000**	**13.9312**

3.7 Architectural Coating - 2028

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0234	0.0357	0.3606	1.8800e-003	0.1537	1.1400e-003	0.1548	0.0408	1.0500e-003	0.0419	0.0000	108.7677	108.7677	4.1000e-003	0.0000	108.8539
Total	**0.0234**	**0.0357**	**0.3606**	**1.8800e-003**	**0.1537**	**1.1400e-003**	**0.1548**	**0.0408**	**1.0500e-003**	**0.0419**	**0.0000**	**108.7677**	**108.7677**	**4.1000e-003**	**0.0000**	**108.8539**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	15.5654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6200e-003	7.0200e-003	0.0999	1.6000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	13.9152	13.9152	7.6000e-004	0.0000	13.9312
Total	**15.5670**	**7.0200e-003**	**0.0999**	**1.6000e-004**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**13.9152**	**13.9152**	**7.6000e-004**	**0.0000**	**13.9312**

3.7 Architectural Coating - 2028

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0234	0.0357	0.3606	1.8800e-003	0.1537	1.1400e-003	0.1548	0.0408	1.0500e-003	0.0419	0.0000	108.7677	108.7677	4.1000e-003	0.0000	108.8539
Total	**0.0234**	**0.0357**	**0.3606**	**1.8800e-003**	**0.1537**	**1.1400e-003**	**0.1548**	**0.0408**	**1.0500e-003**	**0.0419**	**0.0000**	**108.7677**	**108.7677**	**4.1000e-003**	**0.0000**	**108.8539**

3.7 Architectural Coating - 2029

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5600e-003	0.0172	0.0271	4.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	3.8299	3.8299	2.1000e-004	0.0000	3.8343
Total	**4.2866**	**0.0172**	**0.0271**	**4.0000e-005**		**7.7000e-004**	**7.7000e-004**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**3.8299**	**3.8299**	**2.1000e-004**	**0.0000**	**3.8343**

3.7 Architectural Coating - 2029

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1800e-003	9.4800e-003	0.0961	5.2000e-004	0.0423	3.1000e-004	0.0426	0.0112	2.9000e-004	0.0115	0.0000	29.7639	29.7639	1.1100e-003	0.0000	29.7871
Total	**6.1800e-003**	**9.4800e-003**	**0.0961**	**5.2000e-004**	**0.0423**	**3.1000e-004**	**0.0426**	**0.0112**	**2.9000e-004**	**0.0115**	**0.0000**	**29.7639**	**29.7639**	**1.1100e-003**	**0.0000**	**29.7871**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	4.2840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	1.9300e-003	0.0275	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.8299	3.8299	2.1000e-004	0.0000	3.8343
Total	**4.2845**	**1.9300e-003**	**0.0275**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.8299**	**3.8299**	**2.1000e-004**	**0.0000**	**3.8343**

3.7 Architectural Coating - 2029

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.1800e-003	9.4800e-003	0.0961	5.2000e-004	0.0423	3.1000e-004	0.0426	0.0112	2.9000e-004	0.0115	0.0000	29.7639	29.7639	1.1100e-003	0.0000	29.7871
Total	**6.1800e-003**	**9.4800e-003**	**0.0961**	**5.2000e-004**	**0.0423**	**3.1000e-004**	**0.0426**	**0.0112**	**2.9000e-004**	**0.0115**	**0.0000**	**29.7639**	**29.7639**	**1.1100e-003**	**0.0000**	**29.7871**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	12.5495	32.1325	138.8234	0.5015	29.6330	0.8045	30.4374	7.9527	0.7417	8.6945	0.0000	33,894.8915	33,894.8915	0.7727	0.0000	33,911.1187
Unmitigated	12.5495	32.1325	138.8234	0.5015	29.6330	0.8045	30.4374	7.9527	0.7417	8.6945	0.0000	33,894.8915	33,894.8915	0.7727	0.0000	33,911.1187

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	8,621.89	1,632.84	841.16	25,158,587	25,158,587
Government Office Building	26,262.33	0.00	0.00	37,150,253	37,150,253
Office Park	2,820.74	405.08	187.72	6,079,047	6,079,047
Refrigerated Warehouse-No Rail	2,564.10	2,564.10	2564.10	9,906,313	9,906,313
Total	40,269.06	4,602.02	3,592.98	78,294,200	78,294,200

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Government Office Building	14.70	6.60	6.60	33.00	62.00	5.00	50	34	16
Office Park	14.70	6.60	6.60	33.00	48.00	19.00	82	15	3
Refrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.434629	0.065648	0.154905	0.174590	0.053483	0.008262	0.022235	0.073068	0.001860	0.001165	0.006840	0.000586	0.002729

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.2061	1.8732	1.5735	0.0112		0.1424	0.1424		0.1424	0.1424	0.0000	2,039.2206	2,039.2206	0.0391	0.0374	2,051.6309
NaturalGas Unmitigated	0.2061	1.8732	1.5735	0.0112		0.1424	0.1424		0.1424	0.1424	0.0000	2,039.2206	2,039.2206	0.0391	0.0374	2,051.6309

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	2.69171e+007	0.1451	1.3195	1.1084	7.9200e-003		0.1003	0.1003		0.1003	0.1003	0.0000	1,436.4000	1,436.4000	0.0275	0.0263	1,445.1417
Government Office Building	5.22732e+006	0.0282	0.2562	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.9497	278.9497	5.3500e-003	5.1100e-003	280.6473
Office Park	5.91071e+006	0.0319	0.2897	0.2434	1.7400e-003		0.0220	0.0220		0.0220	0.0220	0.0000	315.4180	315.4180	6.0500e-003	5.7800e-003	317.3376
Refrigerated Warehouse-No Rail	158400	8.5000e-004	7.7600e-003	6.5200e-003	5.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	8.4528	8.4528	1.6000e-004	1.5000e-004	8.5043
Total		**0.2061**	**1.8732**	**1.5735**	**0.0113**		**0.1424**	**0.1424**		**0.1424**	**0.1424**	**0.0000**	**2,039.2206**	**2,039.2206**	**0.0391**	**0.0374**	**2,051.6309**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Government Office Building	5.22732e+006	0.0282	0.2562	0.2152	1.5400e-003		0.0195	0.0195		0.0195	0.0195	0.0000	278.9497	278.9497	5.3500e-003	5.1100e-003	280.6473
Office Park	5.91071e+006	0.0319	0.2897	0.2434	1.7400e-003		0.0220	0.0220		0.0220	0.0220	0.0000	315.4180	315.4180	6.0500e-003	5.7800e-003	317.3376
Refrigerated Warehouse-No Rail	158400	8.5000e-004	7.7600e-003	6.5200e-003	5.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	8.4528	8.4528	1.6000e-004	1.5000e-004	8.5043
General Light Industry	2.69171e+007	0.1451	1.3195	1.1084	7.9200e-003		0.1003	0.1003		0.1003	0.1003	0.0000	1,436.4000	1,436.4000	0.0275	0.0263	1,445.1417
Total		**0.2061**	**1.8732**	**1.5735**	**0.0113**		**0.1424**	**0.1424**		**0.1424**	**0.1424**	**0.0000**	**2,039.2206**	**2,039.2206**	**0.0391**	**0.0374**	**2,051.6309**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.19494e+007	0.0000	0.0000	0.0000	0.0000
Government Office Building	3.85572e+006	0.0000	0.0000	0.0000	0.0000
Office Park	3.19865e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.51361e+007	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.19494e+007	0.0000	0.0000	0.0000	0.0000
Government Office Building	3.85572e+006	0.0000	0.0000	0.0000	0.0000
Office Park	3.19865e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	2.51361e+007	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	15.3491	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540
Unmitigated	15.3491	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9849					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	13.3618					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-003	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540
Total	**15.3492**	**2.4000e-004**	**0.0262**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0513**	**0.0513**	**1.3000e-004**	**0.0000**	**0.0540**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.9849					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	13.3618					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.4000e-003	2.4000e-004	0.0262	0.0000		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	0.0513	0.0513	1.3000e-004	0.0000	0.0540
Total	**15.3492**	**2.4000e-004**	**0.0262**	**0.0000**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0513**	**0.0513**	**1.3000e-004**	**0.0000**	**0.0540**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	201.3240	20.6779	0.4883	786.9176
Unmitigated	201.3240	20.6779	0.4883	786.9176

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	286.056 / 0	90.7525	9.3212	0.2201	354.7252
Government Office Building	75.6893 / 46.3902	24.0127	2.4663	0.0582	93.8589
Office Park	43.9002 / 26.9066	13.9275	1.4305	0.0338	54.4387
Refrigerated Warehouse-No Rail	228.938 / 0	72.6313	7.4599	0.1762	283.8949
Total		**201.3240**	**20.6779**	**0.4883**	**786.9176**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	286.056 / 0	90.7525	9.3212	0.2201	354.7252
Government Office Building	75.6893 / 46.3902	24.0127	2.4663	0.0582	93.8589
Office Park	43.9002 / 26.9066	13.9275	1.4305	0.0338	54.4387
Refrigerated Warehouse-No Rail	228.938 / 0	72.6313	7.4599	0.1762	283.8949
Total		**201.3240**	**20.6779**	**0.4883**	**786.9176**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	618.8220	36.5713	0.0000	1,386.8200
Unmitigated	618.8220	36.5713	0.0000	1,386.8200

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1533.88	311.3638	18.4011	0.0000	697.7863
Government Office Building	354.33	71.9258	4.2507	0.0000	161.1903
Office Park	229.71	46.6291	2.7557	0.0000	104.4987
Refrigerated Warehouse-No Rail	930.6	188.9034	11.1639	0.0000	423.3447
Total		**618.8220**	**36.5713**	**0.0000**	**1,386.8200**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	1533.88	311.3638	18.4011	0.0000	697.7863
Government Office Building	354.33	71.9258	4.2507	0.0000	161.1903
Office Park	229.71	46.6291	2.7557	0.0000	104.4987
Refrigerated Warehouse-No Rail	930.6	188.9034	11.1639	0.0000	423.3447
Total		**618.8220**	**36.5713**	**0.0000**	**1,386.8200**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Crows Landing_Phase 3

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	1,784.00	1000sqft	102.00	1,784,000.00	0
General Light Industry	2,230.00	1000sqft	128.00	2,230,000.00	0
Office Park	446.00	1000sqft	26.00	446,000.00	0
Government Office Building	196.00	1000sqft	18.00	196,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - PD

Construction Phase - Assumes infrastructure is front-loaded

Grading - Total acreage

Construction Off-road Equipment Mitigation - Potential Tier 4 mitigation

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	330.00	139.00

tblConstructionPhase	NumDays	4,650.00	1,956.00
tblConstructionPhase	NumDays	465.00	196.00
tblConstructionPhase	NumDays	180.00	76.00
tblConstructionPhase	NumDays	330.00	139.00
tblConstructionPhase	PhaseEndDate	8/18/2039	2/4/2039
tblConstructionPhase	PhaseEndDate	8/6/2046	2/4/2039
tblConstructionPhase	PhaseStartDate	2/5/2039	7/27/2038
tblConstructionPhase	PhaseStartDate	4/10/2038	4/12/2038
tblConstructionPhase	PhaseStartDate	1/24/2046	7/27/2038
tblGrading	AcresOfGrading	190.00	274.00
tblGrading	AcresOfGrading	490.00	274.00
tblLandUse	LotAcreage	40.96	102.00
tblLandUse	LotAcreage	51.19	128.00
tblLandUse	LotAcreage	10.24	26.00
tblLandUse	LotAcreage	4.50	18.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2035
tblTripsAndVMT	WorkerTripNumber	35.00	15.00
tblTripsAndVMT	WorkerTripNumber	35.00	20.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2037	0.3541	1.2470	3.0124	8.0100e-003	0.7531	0.0401	0.7932	0.3444	0.0401	0.3845	0.0000	769.8061	769.8061	0.0285	0.0000	770.4034
2038	26.9454	1.6879	4.1722	9.2300e-003	1.9581	0.0466	2.0047	0.6695	0.0466	0.7161	0.0000	844.9984	844.9984	0.0320	0.0000	845.6698
2039	5.9951	0.9990	2.3081	4.3900e-003	2.1973	0.0141	2.2115	0.5393	0.0141	0.5535	0.0000	372.8945	372.8945	0.0139	0.0000	373.1871
2040	0.1556	0.8982	2.1001	4.0200e-003	2.1717	9.5800e-003	2.1813	0.5331	9.5800e-003	0.5426	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
2041	0.1556	0.8982	2.1001	4.0200e-003	2.1717	9.5800e-003	2.1813	0.5331	9.5800e-003	0.5426	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
2042	0.1556	0.8982	2.1001	4.0200e-003	2.1717	9.5800e-003	2.1813	0.5331	9.5800e-003	0.5426	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
2043	0.1556	0.8982	2.1001	4.0200e-003	2.1717	9.5800e-003	2.1813	0.5331	9.5800e-003	0.5426	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
2044	0.1556	0.8982	2.1001	4.0200e-003	2.1717	9.5800e-003	2.1813	0.5331	9.5800e-003	0.5426	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
2045	0.1550	0.8947	2.0921	4.0100e-003	2.1634	9.5500e-003	2.1729	0.5310	9.5500e-003	0.5406	0.0000	340.2196	340.2196	0.0122	0.0000	340.4766
2046	0.0101	0.0585	0.1368	2.6000e-004	0.1415	6.2000e-004	0.1421	0.0347	6.2000e-004	0.0353	0.0000	22.2451	22.2451	8.0000e-004	0.0000	22.2619
Total	**34.2379**	**9.3780**	**22.2221**	**0.0460**	**18.0717**	**0.1589**	**18.2306**	**4.7842**	**0.1589**	**4.9432**	**0.0000**	**4,057.8045**	**4,057.8045**	**0.1488**	**0.0000**	**4,060.9293**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2037	0.0896	0.3882	4.0987	8.0100e-003	0.3486	0.0120	0.3605	0.1574	0.0120	0.1693	0.0000	769.8052	769.8052	0.0285	0.0000	770.4025
2038	26.6483	0.4780	5.0428	9.2300e-003	1.5006	0.0131	1.5137	0.4533	0.0131	0.4664	0.0000	844.9974	844.9974	0.0320	0.0000	845.6688
2039	5.8683	0.3062	2.4979	4.3900e-003	2.1973	5.7900e-003	2.2031	0.5393	5.7900e-003	0.5451	0.0000	372.8941	372.8941	0.0139	0.0000	373.1867
2040	0.0426	0.2909	2.2721	4.0200e-003	2.1717	5.3000e-003	2.1770	0.5331	5.3000e-003	0.5384	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
2041	0.0426	0.2909	2.2721	4.0200e-003	2.1717	5.3000e-003	2.1770	0.5331	5.3000e-003	0.5384	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
2042	0.0426	0.2909	2.2721	4.0200e-003	2.1717	5.3000e-003	2.1770	0.5331	5.3000e-003	0.5384	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
2043	0.0426	0.2909	2.2721	4.0200e-003	2.1717	5.3000e-003	2.1770	0.5331	5.3000e-003	0.5384	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
2044	0.0426	0.2909	2.2721	4.0200e-003	2.1717	5.3000e-003	2.1770	0.5331	5.3000e-003	0.5384	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
2045	0.0424	0.2898	2.2634	4.0100e-003	2.1634	5.2800e-003	2.1686	0.5310	5.2800e-003	0.5363	0.0000	340.2192	340.2192	0.0122	0.0000	340.4762
2046	2.7800e-003	0.0190	0.1480	2.6000e-004	0.1415	3.5000e-004	0.1418	0.0347	3.5000e-004	0.0351	0.0000	22.2451	22.2451	8.0000e-004	0.0000	22.2619
Total	**32.8645**	**2.9355**	**25.4115**	**0.0460**	**17.2097**	**0.0630**	**17.2726**	**4.3810**	**0.0630**	**4.4440**	**0.0000**	**4,057.7997**	**4,057.7997**	**0.1488**	**0.0000**	**4,060.9245**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**4.01**	**68.70**	**-14.35**	**0.00**	**4.77**	**60.37**	**5.25**	**8.43**	**60.37**	**10.10**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	21.4250	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877
Energy	0.3352	3.0477	2.5600	0.0183		0.2316	0.2316		0.2316	0.2316	0.0000	3,317.7422	3,317.7422	0.0636	0.0608	3,337.9334
Mobile	12.2661	30.7231	134.3744	0.4738	27.9369	0.7618	28.6987	7.4976	0.7023	8.1999	0.0000	32,017.7777	32,017.7777	0.7322	0.0000	32,033.1534
Waste						0.0000	0.0000		0.0000	0.0000	1,022.9161	0.0000	1,022.9161	60.4526	0.0000	2,292.4210
Water						0.0000	0.0000		0.0000	0.0000	331.9884	0.0000	331.9884	34.0984	0.8051	1,297.6472
Total	**34.0263**	**33.7711**	**136.9769**	**0.4920**	**27.9369**	**0.9935**	**28.9305**	**7.4976**	**0.9341**	**8.4317**	**1,354.9045**	**35,335.6031**	**36,690.5076**	**95.3470**	**0.8660**	**38,961.2426**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	21.4250	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877
Energy	0.3352	3.0477	2.5600	0.0183		0.2316	0.2316		0.2316	0.2316	0.0000	3,317.7422	3,317.7422	0.0636	0.0608	3,337.9334
Mobile	12.2661	30.7231	134.3744	0.4738	27.9369	0.7618	28.6987	7.4976	0.7023	8.1999	0.0000	32,017.7777	32,017.7777	0.7322	0.0000	32,033.1534
Waste						0.0000	0.0000		0.0000	0.0000	1,022.9161	0.0000	1,022.9161	60.4526	0.0000	2,292.4210
Water						0.0000	0.0000		0.0000	0.0000	331.9884	0.0000	331.9884	34.0984	0.8051	1,297.6472
Total	**34.0263**	**33.7711**	**136.9769**	**0.4920**	**27.9369**	**0.9935**	**28.9305**	**7.4976**	**0.9341**	**8.4317**	**1,354.9045**	**35,335.6031**	**36,690.5076**	**95.3470**	**0.8660**	**38,961.2426**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	1/1/2037	10/1/2037	5	196	
2	Trenching	Trenching	10/2/2037	4/9/2038	5	136	
3	Site Preparation	Site Preparation	4/12/2038	7/26/2038	5	76	
4	Building Construction	Building Construction	7/27/2038	1/23/2046	5	1956	
5	Paving	Paving	7/27/2038	2/4/2039	5	139	
6	Architectural Coating	Architectural Coating	7/27/2038	2/4/2039	5	139	

Acres of Grading (Site Preparation Phase): 274

Acres of Grading (Grading Phase): 274

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 6,984,000; Non-Residential Outdoor: 2,328,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Site Preparation	Excavators	3	8.00	162	0.38
Site Preparation	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Excavators	2	8.00	162	0.38
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	125	0.42
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	130	0.36
Trenching	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Trenching	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Scrapers	2	8.00	361	0.48
Building Construction	Welders	1	8.00	46	0.45
Grading	Excavators	2	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	14	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	14	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,891.00	763.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	378.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2037

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.7355	0.0000	0.7355	0.3401	0.0000	0.3401	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2839	0.9277	2.4834	6.6400e-003		0.0309	0.0309		0.0309	0.0309	0.0000	636.9540	636.9540	0.0228	0.0000	637.4317
Total	**0.2839**	**0.9277**	**2.4834**	**6.6400e-003**	**0.7355**	**0.0309**	**0.7664**	**0.3401**	**0.0309**	**0.3710**	**0.0000**	**636.9540**	**636.9540**	**0.0228**	**0.0000**	**637.4317**

3.2 Grading - 2037

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0136	0.0000	0.0136	3.3300e-003	0.0000	3.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0136**	**0.0000**	**0.0136**	**3.3300e-003**	**0.0000**	**3.3300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3310	0.0000	0.3310	0.1530	0.0000	0.1530	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0741	0.3212	3.4083	6.6400e-003		9.8800e-003	9.8800e-003		9.8800e-003	9.8800e-003	0.0000	636.9532	636.9532	0.0228	0.0000	637.4310
Total	**0.0741**	**0.3212**	**3.4083**	**6.6400e-003**	**0.3310**	**9.8800e-003**	**0.3408**	**0.1530**	**9.8800e-003**	**0.1629**	**0.0000**	**636.9532**	**636.9532**	**0.0228**	**0.0000**	**637.4310**

3.2 Grading - 2037

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0136	0.0000	0.0136	3.3300e-003	0.0000	3.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0136**	**0.0000**	**0.0136**	**3.3300e-003**	**0.0000**	**3.3300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Trenching - 2037

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0702	0.3193	0.5291	1.3700e-003		9.1900e-003	9.1900e-003		9.1900e-003	9.1900e-003	0.0000	132.8521	132.8521	5.6900e-003	0.0000	132.9717
Total	**0.0702**	**0.3193**	**0.5291**	**1.3700e-003**		**9.1900e-003**	**9.1900e-003**		**9.1900e-003**	**9.1900e-003**	**0.0000**	**132.8521**	**132.8521**	**5.6900e-003**	**0.0000**	**132.9717**

3.3 Trenching - 2037

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					4.0400e-003	0.0000	4.0400e-003	9.9000e-004	0.0000	9.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**4.0400e-003**	**0.0000**	**4.0400e-003**	**9.9000e-004**	**0.0000**	**9.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0155	0.0670	0.6904	1.3700e-003		2.0600e-003	2.0600e-003		2.0600e-003	2.0600e-003	0.0000	132.8519	132.8519	5.6900e-003	0.0000	132.9715
Total	**0.0155**	**0.0670**	**0.6904**	**1.3700e-003**		**2.0600e-003**	**2.0600e-003**		**2.0600e-003**	**2.0600e-003**	**0.0000**	**132.8519**	**132.8519**	**5.6900e-003**	**0.0000**	**132.9715**

3.3 Trenching - 2037

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					4.0400e-003	0.0000	4.0400e-003	9.9000e-004	0.0000	9.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**4.0400e-003**	**0.0000**	**4.0400e-003**	**9.9000e-004**	**0.0000**	**9.9000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Trenching - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0766	0.3488	0.5779	1.5000e-003		0.0100	0.0100		0.0100	0.0100	0.0000	145.1154	145.1154	6.2200e-003	0.0000	145.2460
Total	**0.0766**	**0.3488**	**0.5779**	**1.5000e-003**		**0.0100**	**0.0100**		**0.0100**	**0.0100**	**0.0000**	**145.1154**	**145.1154**	**6.2200e-003**	**0.0000**	**145.2460**

3.3 Trenching - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					4.4200e-003	0.0000	4.4200e-003	1.0800e-003	0.0000	1.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**4.4200e-003**	**0.0000**	**4.4200e-003**	**1.0800e-003**	**0.0000**	**1.0800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0169	0.0732	0.7541	1.5000e-003		2.2500e-003	2.2500e-003		2.2500e-003	2.2500e-003	0.0000	145.1152	145.1152	6.2200e-003	0.0000	145.2458
Total	**0.0169**	**0.0732**	**0.7541**	**1.5000e-003**		**2.2500e-003**	**2.2500e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**145.1152**	**145.1152**	**6.2200e-003**	**0.0000**	**145.2458**

3.3 Trenching - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					4.4200e-003	0.0000	4.4200e-003	1.0800e-003	0.0000	1.0800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**4.4200e-003**	**0.0000**	**4.4200e-003**	**1.0800e-003**	**0.0000**	**1.0800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Site Preparation - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.8318	0.0000	0.8318	0.3931	0.0000	0.3931	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1805	0.6153	1.6918	4.2400e-003		0.0205	0.0205		0.0205	0.0205	0.0000	401.7122	401.7122	0.0145	0.0000	402.0162
Total	**0.1805**	**0.6153**	**1.6918**	**4.2400e-003**	**0.8318**	**0.0205**	**0.8523**	**0.3931**	**0.0205**	**0.4135**	**0.0000**	**401.7122**	**401.7122**	**0.0145**	**0.0000**	**402.0162**

3.4 Site Preparation - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0184	0.0000	0.0184	4.5100e-003	0.0000	4.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0184**	**0.0000**	**0.0184**	**4.5100e-003**	**0.0000**	**4.5100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3743	0.0000	0.3743	0.1769	0.0000	0.1769	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0468	0.2026	2.2270	4.2400e-003		6.2300e-003	6.2300e-003		6.2300e-003	6.2300e-003	0.0000	401.7117	401.7117	0.0145	0.0000	402.0158
Total	**0.0468**	**0.2026**	**2.2270**	**4.2400e-003**	**0.3743**	**6.2300e-003**	**0.3805**	**0.1769**	**6.2300e-003**	**0.1831**	**0.0000**	**401.7117**	**401.7117**	**0.0145**	**0.0000**	**402.0158**

3.4 Site Preparation - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0184	0.0000	0.0184	4.5100e-003	0.0000	4.5100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0184**	**0.0000**	**0.0184**	**4.5100e-003**	**0.0000**	**4.5100e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0691	0.4076	0.9173	1.7600e-003		5.1300e-003	5.1300e-003		5.1300e-003	5.1300e-003	0.0000	149.1732	149.1732	5.5600e-003	0.0000	149.2900
Total	**0.0691**	**0.4076**	**0.9173**	**1.7600e-003**		**5.1300e-003**	**5.1300e-003**		**5.1300e-003**	**5.1300e-003**	**0.0000**	**149.1732**	**149.1732**	**5.5600e-003**	**0.0000**	**149.2900**

3.5 Building Construction - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.2033	0.0000	0.2033	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.7453	0.0000	0.7453	0.1829	0.0000	0.1829	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.9486**	**0.0000**	**0.9486**	**0.2328**	**0.0000**	**0.2328**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0186	0.1271	0.9924	1.7600e-003		2.3100e-003	2.3100e-003		2.3100e-003	2.3100e-003	0.0000	149.1730	149.1730	5.5600e-003	0.0000	149.2898
Total	**0.0186**	**0.1271**	**0.9924**	**1.7600e-003**		**2.3100e-003**	**2.3100e-003**		**2.3100e-003**	**2.3100e-003**	**0.0000**	**149.1730**	**149.1730**	**5.5600e-003**	**0.0000**	**149.2898**

3.5 Building Construction - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.2033	0.0000	0.2033	0.0499	0.0000	0.0499	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.7453	0.0000	0.7453	0.1829	0.0000	0.1829	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.9486**	**0.0000**	**0.9486**	**0.2328**	**0.0000**	**0.2328**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1576	0.9296	2.0920	4.0100e-003		0.0117	0.0117		0.0117	0.0117	0.0000	340.2196	340.2196	0.0127	0.0000	340.4859
Total	**0.1576**	**0.9296**	**2.0920**	**4.0100e-003**		**0.0117**	**0.0117**		**0.0117**	**0.0117**	**0.0000**	**340.2196**	**340.2196**	**0.0127**	**0.0000**	**340.4859**

3.5 Building Construction - 2039

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4636	0.0000	0.4636	0.1138	0.0000	0.1138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.6998	0.0000	1.6998	0.4172	0.0000	0.4172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1634**	**0.0000**	**2.1634**	**0.5310**	**0.0000**	**0.5310**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	4.0100e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	340.2192	340.2192	0.0127	0.0000	340.4855
Total	**0.0424**	**0.2898**	**2.2634**	**4.0100e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**340.2192**	**340.2192**	**0.0127**	**0.0000**	**340.4855**

3.5 Building Construction - 2039

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4636	0.0000	0.4636	0.1138	0.0000	0.1138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.6998	0.0000	1.6998	0.4172	0.0000	0.4172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1634**	**0.0000**	**2.1634**	**0.5310**	**0.0000**	**0.5310**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2040

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1556	0.8982	2.1001	4.0200e-003		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
Total	**0.1556**	**0.8982**	**2.1001**	**4.0200e-003**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**341.5282**	**341.5282**	**0.0123**	**0.0000**	**341.7861**

3.5 Building Construction - 2040

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5278**	**341.5278**	**0.0123**	**0.0000**	**341.7857**

3.5 Building Construction - 2040

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2041

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1556	0.8982	2.1001	4.0200e-003		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
Total	**0.1556**	**0.8982**	**2.1001**	**4.0200e-003**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**341.5282**	**341.5282**	**0.0123**	**0.0000**	**341.7861**

3.5 Building Construction - 2041

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5278**	**341.5278**	**0.0123**	**0.0000**	**341.7857**

3.5 Building Construction - 2041

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2042

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1556	0.8982	2.1001	4.0200e-003		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
Total	**0.1556**	**0.8982**	**2.1001**	**4.0200e-003**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**341.5282**	**341.5282**	**0.0123**	**0.0000**	**341.7861**

3.5 Building Construction - 2042

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5278**	**341.5278**	**0.0123**	**0.0000**	**341.7857**

3.5 Building Construction - 2042

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2043

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1556	0.8982	2.1001	4.0200e-003		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
Total	**0.1556**	**0.8982**	**2.1001**	**4.0200e-003**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**341.5282**	**341.5282**	**0.0123**	**0.0000**	**341.7861**

3.5 Building Construction - 2043

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5278**	**341.5278**	**0.0123**	**0.0000**	**341.7857**

3.5 Building Construction - 2043

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2044

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1556	0.8982	2.1001	4.0200e-003		9.5800e-003	9.5800e-003		9.5800e-003	9.5800e-003	0.0000	341.5282	341.5282	0.0123	0.0000	341.7861
Total	**0.1556**	**0.8982**	**2.1001**	**4.0200e-003**		**9.5800e-003**	**9.5800e-003**		**9.5800e-003**	**9.5800e-003**	**0.0000**	**341.5282**	**341.5282**	**0.0123**	**0.0000**	**341.7861**

3.5 Building Construction - 2044

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0426	0.2909	2.2721	4.0200e-003		5.3000e-003	5.3000e-003		5.3000e-003	5.3000e-003	0.0000	341.5278	341.5278	0.0123	0.0000	341.7857
Total	**0.0426**	**0.2909**	**2.2721**	**4.0200e-003**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**	**0.0000**	**341.5278**	**341.5278**	**0.0123**	**0.0000**	**341.7857**

3.5 Building Construction - 2044

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4654	0.0000	0.4654	0.1142	0.0000	0.1142	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.7063	0.0000	1.7063	0.4188	0.0000	0.4188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1717**	**0.0000**	**2.1717**	**0.5331**	**0.0000**	**0.5331**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2045

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1550	0.8947	2.0921	4.0100e-003		9.5500e-003	9.5500e-003		9.5500e-003	9.5500e-003	0.0000	340.2196	340.2196	0.0122	0.0000	340.4766
Total	**0.1550**	**0.8947**	**2.0921**	**4.0100e-003**		**9.5500e-003**	**9.5500e-003**		**9.5500e-003**	**9.5500e-003**	**0.0000**	**340.2196**	**340.2196**	**0.0122**	**0.0000**	**340.4766**

3.5 Building Construction - 2045

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4636	0.0000	0.4636	0.1138	0.0000	0.1138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.6998	0.0000	1.6998	0.4172	0.0000	0.4172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1634**	**0.0000**	**2.1634**	**0.5310**	**0.0000**	**0.5310**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0424	0.2898	2.2634	4.0100e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	340.2192	340.2192	0.0122	0.0000	340.4762
Total	**0.0424**	**0.2898**	**2.2634**	**4.0100e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**340.2192**	**340.2192**	**0.0122**	**0.0000**	**340.4762**

3.5 Building Construction - 2045

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.4636	0.0000	0.4636	0.1138	0.0000	0.1138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.6998	0.0000	1.6998	0.4172	0.0000	0.4172	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**2.1634**	**0.0000**	**2.1634**	**0.5310**	**0.0000**	**0.5310**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2046

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.0585	0.1368	2.6000e-004		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	22.2451	22.2451	8.0000e-004	0.0000	22.2619
Total	**0.0101**	**0.0585**	**0.1368**	**2.6000e-004**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**22.2451**	**22.2451**	**8.0000e-004**	**0.0000**	**22.2619**

3.5 Building Construction - 2046

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0303	0.0000	0.0303	7.4400e-003	0.0000	7.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1111	0.0000	0.1111	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1415**	**0.0000**	**0.1415**	**0.0347**	**0.0000**	**0.0347**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.7800e-003	0.0190	0.1480	2.6000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	22.2451	22.2451	8.0000e-004	0.0000	22.2619
Total	**2.7800e-003**	**0.0190**	**0.1480**	**2.6000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**22.2451**	**22.2451**	**8.0000e-004**	**0.0000**	**22.2619**

3.5 Building Construction - 2046

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0303	0.0000	0.0303	7.4400e-003	0.0000	7.4400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1111	0.0000	0.1111	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1415**	**0.0000**	**0.1415**	**0.0347**	**0.0000**	**0.0347**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0636	0.2730	0.8830	1.5600e-003		0.0104	0.0104		0.0104	0.0104	0.0000	134.4441	134.4441	5.1700e-003	0.0000	134.5528
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0636**	**0.2730**	**0.8830**	**1.5600e-003**		**0.0104**	**0.0104**		**0.0104**	**0.0104**	**0.0000**	**134.4441**	**134.4441**	**5.1700e-003**	**0.0000**	**134.5528**

3.6 Paving - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					5.9100e-003	0.0000	5.9100e-003	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**5.9100e-003**	**0.0000**	**5.9100e-003**	**1.4500e-003**	**0.0000**	**1.4500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0157	0.0678	0.9649	1.5600e-003		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	134.4439	134.4439	5.1700e-003	0.0000	134.5526
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.0678**	**0.9649**	**1.5600e-003**		**2.0900e-003**	**2.0900e-003**		**2.0900e-003**	**2.0900e-003**	**0.0000**	**134.4439**	**134.4439**	**5.1700e-003**	**0.0000**	**134.5526**

3.6 Paving - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					5.9100e-003	0.0000	5.9100e-003	1.4500e-003	0.0000	1.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**5.9100e-003**	**0.0000**	**5.9100e-003**	**1.4500e-003**	**0.0000**	**1.4500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0140	0.0599	0.1936	3.4000e-004		2.2900e-003	2.2900e-003		2.2900e-003	2.2900e-003	0.0000	29.4834	29.4834	1.1300e-003	0.0000	29.5072
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0140**	**0.0599**	**0.1936**	**3.4000e-004**		**2.2900e-003**	**2.2900e-003**		**2.2900e-003**	**2.2900e-003**	**0.0000**	**29.4834**	**29.4834**	**1.1300e-003**	**0.0000**	**29.5072**

3.6 Paving - 2039

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.3000e-003	0.0000	1.3000e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.4300e-003	0.0149	0.2116	3.4000e-004		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	29.4833	29.4833	1.1300e-003	0.0000	29.5072
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.4300e-003**	**0.0149**	**0.2116**	**3.4000e-004**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**29.4833**	**29.4833**	**1.1300e-003**	**0.0000**	**29.5072**

3.6 Paving - 2039

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					1.3000e-003	0.0000	1.3000e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**1.3000e-003**	**0.0000**	**1.3000e-003**	**3.2000e-004**	**0.0000**	**3.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2038

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.5488					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7200e-003	0.0432	0.1023	1.7000e-004		5.6000e-004	5.6000e-004		5.6000e-004	5.6000e-004	0.0000	14.5536	14.5536	5.4000e-004	0.0000	14.5648
Total	**26.5555**	**0.0432**	**0.1023**	**1.7000e-004**		**5.6000e-004**	**5.6000e-004**		**5.6000e-004**	**5.6000e-004**	**0.0000**	**14.5536**	**14.5536**	**5.4000e-004**	**0.0000**	**14.5648**

3.7 Architectural Coating - 2038

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1490	0.0000	0.1490	0.0366	0.0000	0.0366	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1490**	**0.0000**	**0.1490**	**0.0366**	**0.0000**	**0.0366**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	26.5488					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6900e-003	7.3400e-003	0.1045	1.7000e-004		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	14.5535	14.5535	5.4000e-004	0.0000	14.5648
Total	**26.5504**	**7.3400e-003**	**0.1045**	**1.7000e-004**		**2.3000e-004**	**2.3000e-004**		**2.3000e-004**	**2.3000e-004**	**0.0000**	**14.5535**	**14.5535**	**5.4000e-004**	**0.0000**	**14.5648**

3.7 Architectural Coating - 2038

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.1490	0.0000	0.1490	0.0366	0.0000	0.0366	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.1490**	**0.0000**	**0.1490**	**0.0366**	**0.0000**	**0.0366**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2039

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4700e-003	9.4700e-003	0.0224	4.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	3.1916	3.1916	1.2000e-004	0.0000	3.1940
Total	**5.8236**	**9.4700e-003**	**0.0224**	**4.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**3.1916**	**3.1916**	**1.2000e-004**	**0.0000**	**3.1940**

3.7 Architectural Coating - 2039

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0327	0.0000	0.0327	8.0200e-003	0.0000	8.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0327**	**0.0000**	**0.0327**	**8.0200e-003**	**0.0000**	**8.0200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.8221					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.7000e-004	1.6100e-003	0.0229	4.0000e-005		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	3.1916	3.1916	1.2000e-004	0.0000	3.1940
Total	**5.8225**	**1.6100e-003**	**0.0229**	**4.0000e-005**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**3.1916**	**3.1916**	**1.2000e-004**	**0.0000**	**3.1940**

3.7 Architectural Coating - 2039

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0327	0.0000	0.0327	8.0200e-003	0.0000	8.0200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0327**	**0.0000**	**0.0327**	**8.0200e-003**	**0.0000**	**8.0200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	12.2661	30.7231	134.3744	0.4738	27.9369	0.7618	28.6987	7.4976	0.7023	8.1999	0.0000	32,017.7777	32,017.7777	0.7322	0.0000	32,033.1534
Unmitigated	12.2661	30.7231	134.3744	0.4738	27.9369	0.7618	28.6987	7.4976	0.7023	8.1999	0.0000	32,017.7777	32,017.7777	0.7322	0.0000	32,033.1534

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	15,543.10	2,943.60	1516.40	34,273,184	34,273,184
Government Office Building	13,510.28	0.00	0.00	16,548,939	16,548,939
Office Park	5,093.32	731.44	338.96	9,501,184	9,501,184
Refrigerated Warehouse-No Rail	4,620.56	4,620.56	4620.56	13,489,776	13,489,776
Total	38,767.26	8,295.60	6,475.92	73,813,083	73,813,083

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Government Office Building	9.50	7.30	7.30	33.00	62.00	5.00	50	34	16
Office Park	9.50	7.30	7.30	33.00	48.00	19.00	82	15	3
Refrigerated Warehouse-No	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.434629	0.065648	0.154905	0.174590	0.053483	0.008262	0.022235	0.073068	0.001860	0.001165	0.006840	0.000586	0.002729

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.3352	3.0477	2.5600	0.0183		0.2316	0.2316		0.2316	0.2316	0.0000	3,317.7422	3,317.7422	0.0636	0.0608	3,337.9334
NaturalGas Unmitigated	0.3352	3.0477	2.5600	0.0183		0.2316	0.2316		0.2316	0.2316	0.0000	3,317.7422	3,317.7422	0.0636	0.0608	3,337.9334

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.85248e+007	0.2617	2.3787	1.9981	0.0143		0.1808	0.1808		0.1808	0.1808	0.0000	2,589.4681	2,589.4681	0.0496	0.0475	2,605.2272
Government Office Building	2.68912e+006	0.0145	0.1318	0.1107	7.9000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	143.5017	143.5017	2.7500e-003	2.6300e-003	144.3750
Office Park	1.06728e+007	0.0576	0.5232	0.4395	3.1400e-003		0.0398	0.0398		0.0398	0.0398	0.0000	569.5402	569.5402	0.0109	0.0104	573.0063
Refrigerated Warehouse-No Rail	285440	1.5400e-003	0.0140	0.0118	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2322	15.2322	2.9000e-004	2.8000e-004	15.3249
Total		**0.3352**	**3.0477**	**2.5600**	**0.0183**		**0.2316**	**0.2316**		**0.2316**	**0.2316**	**0.0000**	**3,317.7422**	**3,317.7422**	**0.0636**	**0.0608**	**3,337.9334**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	4.85248e+007	0.2617	2.3787	1.9981	0.0143		0.1808	0.1808		0.1808	0.1808	0.0000	2,589.4681	2,589.4681	0.0496	0.0475	2,605.2272
Government Office Building	2.68912e+006	0.0145	0.1318	0.1107	7.9000e-004		0.0100	0.0100		0.0100	0.0100	0.0000	143.5017	143.5017	2.7500e-003	2.6300e-003	144.3750
Office Park	1.06728e+007	0.0576	0.5232	0.4395	3.1400e-003		0.0398	0.0398		0.0398	0.0398	0.0000	569.5402	569.5402	0.0109	0.0104	573.0063
Refrigerated Warehouse-No Rail	285440	1.5400e-003	0.0140	0.0118	8.0000e-005		1.0600e-003	1.0600e-003		1.0600e-003	1.0600e-003	0.0000	15.2322	15.2322	2.9000e-004	2.8000e-004	15.3249
Total		**0.3352**	**3.0477**	**2.5600**	**0.0183**		**0.2316**	**0.2316**		**0.2316**	**0.2316**	**0.0000**	**3,317.7422**	**3,317.7422**	**0.0636**	**0.0608**	**3,337.9334**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.15418e+007	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.98352e+006	0.0000	0.0000	0.0000	0.0000
Office Park	5.7757e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	4.52958e+007	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	2.15418e+007	0.0000	0.0000	0.0000	0.0000
Government Office Building	1.98352e+006	0.0000	0.0000	0.0000	0.0000
Office Park	5.7757e+006	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	4.52958e+007	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	21.4250	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877
Unmitigated	21.4250	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	18.1840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8900e-003	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877
Total	**21.4250**	**3.8000e-004**	**0.0425**	**0.0000**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0832**	**0.0832**	**2.1000e-004**	**0.0000**	**0.0877**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.2371					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	18.1840					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.8900e-003	3.8000e-004	0.0425	0.0000		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	0.0832	0.0832	2.1000e-004	0.0000	0.0877
Total	**21.4250**	**3.8000e-004**	**0.0425**	**0.0000**		**1.5000e-004**	**1.5000e-004**		**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0832**	**0.0832**	**2.1000e-004**	**0.0000**	**0.0877**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	331.9884	34.0984	0.8051	1,297.6472
Unmitigated	331.9884	34.0984	0.8051	1,297.6472

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	515.688 / 0	163.6039	16.8037	0.3968	639.4804
Government Office Building	38.9373 / 23.8648	12.3530	1.2688	0.0300	48.2844
Office Park	79.2693 / 48.5844	25.1485	2.5830	0.0610	98.2982
Refrigerated Warehouse-No Rail	412.55 / 0	130.8831	13.4430	0.3174	511.5843
Total		**331.9884**	**34.0984**	**0.8051**	**1,297.6472**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	515.688 / 0	163.6039	16.8037	0.3968	639.4804
Government Office Building	38.9373 / 23.8648	12.3530	1.2688	0.0300	48.2844
Office Park	79.2693 / 48.5844	25.1485	2.5830	0.0610	98.2982
Refrigerated Warehouse-No Rail	412.55 / 0	130.8831	13.4430	0.3174	511.5843
Total		**331.9884**	**34.0984**	**0.8051**	**1,297.6472**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1,022.9161	60.4526	0.0000	2,292.4210
Unmitigated	1,022.9161	60.4526	0.0000	2,292.4210

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2765.2	561.3106	33.1725	0.0000	1,257.9333
Government Office Building	182.28	37.0012	2.1867	0.0000	82.9221
Office Park	414.78	84.1966	4.9759	0.0000	188.6900
Refrigerated Warehouse-No Rail	1676.96	340.4077	20.1175	0.0000	762.8757
Total		**1,022.9161**	**60.4526**	**0.0000**	**2,292.4210**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	2765.2	561.3106	33.1725	0.0000	1,257.9333
Government Office Building	182.28	37.0012	2.1867	0.0000	82.9221
Office Park	414.78	84.1966	4.9759	0.0000	188.6900
Refrigerated Warehouse-No Rail	1676.96	340.4077	20.1175	0.0000	762.8757
Total		**1,022.9161**	**60.4526**	**0.0000**	**2,292.4210**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Crows Landing Operational

Stanislaus County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Government Office Building	740.00	1000sqft	68.00	740,000.00	0
Office Park	2,327.00	1000sqft	78.00	2,327,000.00	0
General Light Industry	13,478.00	1000sqft	767.00	13,478,000.00	0
Refrigerated Warehouse-No Rail	5,955.00	1000sqft	349.00	5,955,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	46
Climate Zone	3			**Operational Year**	2035
Utility Company					
CO2 Intensity (lb/MWhr)	0	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Traffic report and land use plan

Construction Phase - no construction for this run

Off-road Equipment - no construction for this run

Trips and VMT - no construction for this run

Vehicle Trips - traffic report trip rates for all land uses

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	155,000.00	32.00
tblLandUse	LotAcreage	16.99	68.00
tblLandUse	LotAcreage	53.42	78.00
tblLandUse	LotAcreage	309.41	767.00
tblLandUse	LotAcreage	136.71	349.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	OperationalYear	2014	2035
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	VendorTripNumber	3,677.00	15.00
tblTripsAndVMT	WorkerTripNumber	9,122.00	15.00
tblVehicleTrips	ST_TR	2.59	1.68
tblVehicleTrips	SU_TR	2.59	1.68
tblVehicleTrips	WD_TR	6.97	1.53
tblVehicleTrips	WD_TR	68.93	9.06
tblVehicleTrips	WD_TR	11.42	6.48
tblVehicleTrips	WD_TR	2.59	1.68

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0139	0.1431	0.0891	1.7000e-004	4.3900e-003	5.8200e-003	0.0102	1.2000e-003	5.3600e-003	6.5500e-003	0.0000	14.8163	14.8163	2.4200e-003	0.0000	14.8672
Total	**0.0139**	**0.1431**	**0.0891**	**1.7000e-004**	**4.3900e-003**	**5.8200e-003**	**0.0102**	**1.2000e-003**	**5.3600e-003**	**6.5500e-003**	**0.0000**	**14.8163**	**14.8163**	**2.4200e-003**	**0.0000**	**14.8672**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0139	0.1431	0.0891	1.7000e-004	4.3900e-003	5.8200e-003	0.0102	1.2000e-003	5.3600e-003	6.5500e-003	0.0000	14.8163	14.8163	2.4200e-003	0.0000	14.8672
Total	**0.0139**	**0.1431**	**0.0891**	**1.7000e-004**	**4.3900e-003**	**5.8200e-003**	**0.0102**	**1.2000e-003**	**5.3600e-003**	**6.5500e-003**	**0.0000**	**14.8163**	**14.8163**	**2.4200e-003**	**0.0000**	**14.8672**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	103.4891	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238
Energy	1.9416	17.6506	14.8265	0.1059		1.3414	1.3414		1.3414	1.3414	0.0000	19,214.8126	19,214.8126	0.3683	0.3523	19,331.7508
Mobile	20.8166	59.2337	241.6763	0.9745	58.0654	1.5475	59.6129	15.5833	1.4266	17.0099	0.0000	65,871.2705	65,871.2705	1.4822	0.0000	65,902.3965
Waste						0.0000	0.0000		0.0000	0.0000	5,095.1584	0.0000	5,095.1584	301.1152	0.0000	11,418.5784
Water						0.0000	0.0000		0.0000	0.0000	1,599.3293	0.0000	1,599.3293	164.2665	3.8787	6,251.3178
Total	**126.2473**	**76.8862**	**256.7084**	**1.0805**	**58.0654**	**2.8896**	**60.9551**	**15.5833**	**2.7688**	**18.3521**	**6,694.4877**	**85,086.4851**	**91,780.9728**	**467.2332**	**4.2310**	**102,904.4673**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	103.4891	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238
Energy	1.9416	17.6506	14.8265	0.1059		1.3414	1.3414		1.3414	1.3414	0.0000	19,214.8126	19,214.8126	0.3683	0.3523	19,331.7508
Mobile	20.8166	59.2337	241.6763	0.9745	58.0654	1.5475	59.6129	15.5833	1.4266	17.0099	0.0000	65,871.2705	65,871.2705	1.4822	0.0000	65,902.3965
Waste						0.0000	0.0000		0.0000	0.0000	5,095.1584	0.0000	5,095.1584	301.1152	0.0000	11,418.5784
Water						0.0000	0.0000		0.0000	0.0000	1,599.3293	0.0000	1,599.3293	164.2665	3.8787	6,251.3178
Total	**126.2473**	**76.8862**	**256.7084**	**1.0805**	**58.0654**	**2.8896**	**60.9551**	**15.5833**	**2.7688**	**18.3521**	**6,694.4877**	**85,086.4851**	**91,780.9728**	**467.2332**	**4.2310**	**102,904.4673**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/1/2016	2/15/2016	5	32	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	1	15.00	15.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.1194	0.0418	8.0000e-005		5.4200e-003	5.4200e-003		4.9900e-003	4.9900e-003	0.0000	7.4455	7.4455	2.2500e-003	0.0000	7.4927
Total	**0.0101**	**0.1194**	**0.0418**	**8.0000e-005**		**5.4200e-003**	**5.4200e-003**		**4.9900e-003**	**4.9900e-003**	**0.0000**	**7.4455**	**7.4455**	**2.2500e-003**	**0.0000**	**7.4927**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7300e-003	0.0220	0.0318	5.0000e-005	1.4100e-003	3.8000e-004	1.7900e-003	4.0000e-004	3.5000e-004	7.6000e-004	0.0000	4.7197	4.7197	4.0000e-005	0.0000	4.7205
Worker	1.0500e-003	1.5600e-003	0.0155	4.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6511	2.6511	1.4000e-004	0.0000	2.6540
Total	**3.7800e-003**	**0.0236**	**0.0473**	**9.0000e-005**	**4.3900e-003**	**4.0000e-004**	**4.7900e-003**	**1.1900e-003**	**3.7000e-004**	**1.5700e-003**	**0.0000**	**7.3708**	**7.3708**	**1.8000e-004**	**0.0000**	**7.3745**

3.2 Building Construction - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0101	0.1194	0.0418	8.0000e-005		5.4200e-003	5.4200e-003		4.9900e-003	4.9900e-003	0.0000	7.4455	7.4455	2.2500e-003	0.0000	7.4927
Total	**0.0101**	**0.1194**	**0.0418**	**8.0000e-005**		**5.4200e-003**	**5.4200e-003**		**4.9900e-003**	**4.9900e-003**	**0.0000**	**7.4455**	**7.4455**	**2.2500e-003**	**0.0000**	**7.4927**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7300e-003	0.0220	0.0318	5.0000e-005	1.4100e-003	3.8000e-004	1.7900e-003	4.0000e-004	3.5000e-004	7.6000e-004	0.0000	4.7197	4.7197	4.0000e-005	0.0000	4.7205
Worker	1.0500e-003	1.5600e-003	0.0155	4.0000e-005	2.9800e-003	2.0000e-005	3.0000e-003	7.9000e-004	2.0000e-005	8.1000e-004	0.0000	2.6511	2.6511	1.4000e-004	0.0000	2.6540
Total	**3.7800e-003**	**0.0236**	**0.0473**	**9.0000e-005**	**4.3900e-003**	**4.0000e-004**	**4.7900e-003**	**1.1900e-003**	**3.7000e-004**	**1.5700e-003**	**0.0000**	**7.3708**	**7.3708**	**1.8000e-004**	**0.0000**	**7.3745**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	20.8166	59.2337	241.6763	0.9745	58.0654	1.5475	59.6129	15.5833	1.4266	17.0099	0.0000	65,871.2705	65,871.2705	1.4822	0.0000	65,902.3965
Unmitigated	20.8166	59.2337	241.6763	0.9745	58.0654	1.5475	59.6129	15.5833	1.4266	17.0099	0.0000	65,871.2705	65,871.2705	1.4822	0.0000	65,902.3965

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	20,621.34	17,790.96	9165.04	71,784,688	71,784,688
Government Office Building	6,704.40	0.00	0.00	9,483,932	9,483,932
Office Park	15,078.96	3,816.28	1768.52	33,496,326	33,496,326
Refrigerated Warehouse-No Rail	10,004.40	10,004.40	10004.40	38,651,659	38,651,659
Total	52,409.10	31,611.64	20,937.96	153,416,606	153,416,606

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	14.70	6.60	6.60	59.00	28.00	13.00	92	5	3
Government Office Building	14.70	6.60	6.60	33.00	62.00	5.00	50	34	16
Office Park	14.70	6.60	6.60	33.00	48.00	19.00	82	15	3
Refrigerated Warehouse-No	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.434629	0.065648	0.154905	0.174590	0.053483	0.008262	0.022235	0.073068	0.001860	0.001165	0.006840	0.000586	0.002729

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	1.9416	17.6506	14.8265	0.1059		1.3414	1.3414		1.3414	1.3414	0.0000	19,214.8126	19,214.8126	0.3683	0.3523	19,331.7508
NaturalGas Unmitigated	1.9416	17.6506	14.8265	0.1059		1.3414	1.3414		1.3414	1.3414	0.0000	19,214.8126	19,214.8126	0.3683	0.3523	19,331.7508

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	5.56851e+007	0.3003	2.7297	2.2929	0.0164		0.2075	0.2075		0.2075	0.2075	0.0000	2,971.5695	2,971.5695	0.0570	0.0545	2,989.6540
Refrigerated Warehouse-No Rail	952800	5.1400e-003	0.0467	0.0392	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.8450	50.8450	9.7000e-004	9.3000e-004	51.1545
General Light Industry	2.93281e+008	1.5814	14.3765	12.0763	0.0863		1.0926	1.0926		1.0926	1.0926	0.0000	15,650.6060	15,650.6060	0.3000	0.2869	15,745.8530
Government Office Building	1.01528e+007	0.0548	0.4977	0.4181	2.9900e-003		0.0378	0.0378		0.0378	0.0378	0.0000	541.7921	541.7921	0.0104	9.9300e-003	545.0893
Total		**1.9416**	**17.6506**	**14.8265**	**0.1059**		**1.3414**	**1.3414**		**1.3414**	**1.3414**	**0.0000**	**19,214.8126**	**19,214.8126**	**0.3683**	**0.3523**	**19,331.7508**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	5.56851e+007	0.3003	2.7297	2.2929	0.0164		0.2075	0.2075		0.2075	0.2075	0.0000	2,971.5695	2,971.5695	0.0570	0.0545	2,989.6540
Refrigerated Warehouse-No Rail	952800	5.1400e-003	0.0467	0.0392	2.8000e-004		3.5500e-003	3.5500e-003		3.5500e-003	3.5500e-003	0.0000	50.8450	50.8450	9.7000e-004	9.3000e-004	51.1545
General Light Industry	2.93281e+008	1.5814	14.3765	12.0763	0.0863		1.0926	1.0926		1.0926	1.0926	0.0000	15,650.6060	15,650.6060	0.3000	0.2869	15,745.8530
Government Office Building	1.01528e+007	0.0548	0.4977	0.4181	2.9900e-003		0.0378	0.0378		0.0378	0.0378	0.0000	541.7921	541.7921	0.0104	9.9300e-003	545.0893
Total		**1.9416**	**17.6506**	**14.8265**	**0.1059**		**1.3414**	**1.3414**		**1.3414**	**1.3414**	**0.0000**	**19,214.8126**	**19,214.8126**	**0.3683**	**0.3523**	**19,331.7508**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.30197e+008	0.0000	0.0000	0.0000	0.0000
Government Office Building	7.4888e+006	0.0000	0.0000	0.0000	0.0000
Office Park	3.01347e+007	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.51197e+008	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	1.30197e+008	0.0000	0.0000	0.0000	0.0000
Government Office Building	7.4888e+006	0.0000	0.0000	0.0000	0.0000
Office Park	3.01347e+007	0.0000	0.0000	0.0000	0.0000
Refrigerated Warehouse-No Rail	1.51197e+008	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	103.4891	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238
Unmitigated	103.4891	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	15.5965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	87.8738					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0188	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238
Total	**103.4891**	**1.8500e-003**	**0.2056**	**2.0000e-005**		**7.3000e-004**	**7.3000e-004**		**7.3000e-004**	**7.3000e-004**	**0.0000**	**0.4020**	**0.4020**	**1.0400e-003**	**0.0000**	**0.4238**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	15.5965					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	87.8738					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0188	1.8500e-003	0.2056	2.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	0.4020	0.4020	1.0400e-003	0.0000	0.4238
Total	**103.4891**	**1.8500e-003**	**0.2056**	**2.0000e-005**		**7.3000e-004**	**7.3000e-004**		**7.3000e-004**	**7.3000e-004**	**0.0000**	**0.4020**	**0.4020**	**1.0400e-003**	**0.0000**	**0.4238**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1,599.3293	164.2665	3.8787	6,251.3178
Unmitigated	1,599.3293	164.2665	3.8787	6,251.3178

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3116.79 / 0	988.8129	101.5606	2.3981	3,864.9849
Government Office Building	133.698 / 81.9439	42.4162	4.3566	0.1029	165.7927
Office Park	413.586 / 253.488	131.2119	13.4767	0.3182	512.8695
Refrigerated Warehouse-No Rail	1377.09 / 0	436.8883	44.8726	1.0595	1,707.6707
Total		**1,599.3293**	**164.2665**	**3.8787**	**6,251.3178**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	3116.79 / 0	988.8129	101.5606	2.3981	3,864.9849
Government Office Building	133.698 / 81.9439	42.4162	4.3566	0.1029	165.7927
Office Park	413.586 / 253.488	131.2119	13.4767	0.3182	512.8695
Refrigerated Warehouse-No Rail	1377.09 / 0	436.8883	44.8726	1.0595	1,707.6707
Total		**1,599.3293**	**164.2665**	**3.8787**	**6,251.3178**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	5,095.1584	301.1152	0.0000	11,418.5784
Mitigated	5,095.1584	301.1152	0.0000	11,418.5784

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	16712.7	3,392.5311	200.4929	0.0000	7,602.8809
Government Office Building	625.89	127.0500	7.5084	0.0000	284.7273
Office Park	2164.11	439.2948	25.9616	0.0000	984.4879
Refrigerated Warehouse-No Rail	5597.7	1,136.2825	67.1524	0.0000	2,546.4823
Total		**5,095.1584**	**301.1152**	**0.0000**	**11,418.5784**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	16712.7	3,392.5311	200.4929	0.0000	7,602.8809
Government Office Building	625.89	127.0500	7.5084	0.0000	284.7273
Office Park	2164.11	439.2948	25.9616	0.0000	984.4879
Refrigerated Warehouse-No Rail	5597.7	1,136.2825	67.1524	0.0000	2,546.4823
Total		**5,095.1584**	**301.1152**	**0.0000**	**11,418.5784**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

Crows Landing Airport Emissions				
Airport Operational Year	Annual LTOs	Pollutants		
		ROG (tons/yr)	NO_X (tons/yr)	CO_2e (MT/yr)
Opening Year	4,000	11.46	44.97	175
Year 5	6,000	17.20	67.46	422
Year 10	8,000	22.93	89.95	1,200
Year 20	16,000	45.86	179.89	4,668
Year 30	34,000	97.44	382.28	10,456

Notes: ROG = reactive organic gases; NO_X = oxides of nitrogen; CO_2e = carbon dioxide equivalent; MT = metric tons; LTO = landing and take-offs.

Source: AECOM 2016

APPENDIX E

Noise and Vibration Analysis

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Tuesday, November 10, 2015** **Wednesday, November 11, 2015**

Site: Project Site, Public Facilities Area, Between Bell Road and W Ike Crow RoadCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
15:00	45.3	71.6	41.7	38.2
16:00	44.1	58.8	41.4	38.4
17:00	42.7	59.3	40.2	34.5
18:00	37.1	50.2	36.1	34.2
19:00	37.1	47.1	36.4	34.3
20:00	37.5	44.0	36.7	34.6
21:00	37.1	45.9	36.3	34.1
22:00	36.1	52.3	35.0	32.0
23:00	37.6	56.8	34.0	31.5
0:00	34.3	53.7	30.0	28.1
1:00	34.1	56.7	28.9	25.6
2:00	33.6	52.2	30.7	25.9
3:00	35.0	46.3	34.0	31.3
4:00	39.8	52.6	39.4	31.9
5:00	39.7	48.9	38.9	35.9
6:00	45.8	64.5	41.3	37.1
7:00	46.1	62.2	43.7	41.0
8:00	53.0	77.7	45.6	42.6
9:00	50.9	75.2	45.8	42.7
10:00	49.3	65.5	48.2	45.1
11:00	42.9	59.9	36.1	30.5
12:00	43.0	57.4	37.2	31.7
13:00	40.3	59.8	35.7	32.2
14:00	41.1	55.6	38.9	35.1

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	46.1	59.3	40.0	36.6
Nighttime (10 p.m. - 7 a.m.)	39.3	53.8	34.7	31.0

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	53.0	77.7	48.2	45.1
Nighttime (10 p.m. - 7 a.m.)	45.8	64.5	41.3	37.1

Percentage of Energy

Daytime	89%
Nighttime	11%

Calculated L_{dn}, dBA

47.6

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Wednesday, November 11, 2015** **Thursday, November 12, 2015**

Site: Project Site, Public Facilities Area, Between Bell Road and W Ike Crow RoadCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
15:00	41.9	58.1	38.9	36.0
16:00	41.5	59.2	38.8	35.3
17:00	40.6	54.4	38.4	33.1
18:00	35.7	51.8	33.3	30.0
19:00	32.4	50.0	30.2	27.7
20:00	33.8	55.5	29.3	27.1
21:00	32.6	55.8	29.1	26.8
22:00	31.3	53.9	28.6	26.5
23:00	33.5	53.5	28.4	25.2
0:00	27.9	46.5	26.5	24.7
1:00	28.1	41.5	26.0	24.5
2:00	34.5	52.6	27.5	25.1
3:00	32.4	45.3	31.1	26.4
4:00	36.7	51.3	35.5	32.8
5:00	36.5	48.9	35.6	33.1
6:00	52.3	73.9	41.9	37.2
7:00	45.2	62.5	42.2	39.4
8:00	46.7	64.1	43.1	40.2
9:00	40.5	59.2	39.0	36.4
10:00	44.8	64.4	40.9	37.2
11:00	45.1	69.0	38.3	34.4
12:00	42.7	60.8	40.1	35.9
13:00	47.9	67.3	45.3	40.8
14:00	44.2	62.6	42.4	38.3

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	43.2	59.6	38.0	34.6
Nighttime (10 p.m. - 7 a.m.)	43.2	51.9	31.2	28.4

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	47.9	69.0	45.3	40.8
Nighttime (10 p.m. - 7 a.m.)	52.3	73.9	41.9	37.2

Percentage of Energy

Daytime	62%
Nighttime	38%

Calculated L_{dn}, dBA

49.6

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Thursday, November 12, 2015** **Friday, November 13, 2015**

Site: Project Site, Public Facilities Area, Between Bell Road and W Ike Crow RoadCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
15:00	44.2	55.5	42.8	39.2
16:00	48.2	77.5	41.6	38.3
17:00	43.2	54.2	42.3	38.6
18:00	40.0	57.3	38.8	36.9
19:00	37.2	46.4	36.7	34.9
20:00	36.4	45.7	35.7	33.5
21:00	33.3	41.9	32.6	30.8
22:00	35.1	51.6	31.5	29.5
23:00	40.4	61.4	30.8	28.2
0:00	30.0	40.4	28.9	26.6
1:00	33.5	55.2	28.7	26.7
2:00	33.8	53.6	30.5	27.6
3:00	33.8	41.4	33.1	31.2
4:00	35.8	56.5	33.7	31.6
5:00	37.1	48.5	36.6	34.1
6:00	44.9	64.4	41.4	39.0
7:00	45.9	66.4	42.5	40.1
8:00	46.2	69.4	44.3	41.8
9:00	67.8	92.6	45.8	40.7
10:00	65.6	87.7	40.1	34.4
11:00	41.0	59.2	37.9	33.9
12:00	43.2	65.6	36.5	30.5
13:00	41.1	57.6	38.1	31.9
14:00	41.7	59.9	35.4	31.7

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	58.2	62.5	39.4	35.8
Nighttime (10 p.m. - 7 a.m.)	38.4	52.6	32.8	30.5

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	67.8	92.6	45.8	41.8
Nighttime (10 p.m. - 7 a.m.)	44.9	64.4	41.4	39.0

Percentage of Energy

Daytime	99%
Nighttime	1%

Calculated L_{dn}, dBA

56.4

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Tuesday, November 10, 2015** **Wednesday, November 11, 2015**

Site: By 18318 CA-33Patterson, CA 95363

Hour	Leq	Lmax	L50	L90
16:00	58.5	74.8	54.4	45.9
17:00	76.5	104.5	56.5	47.8
18:00	62.8	88.4	56.1	46.1
19:00	59.8	84.0	52.4	43.7
20:00	54.0	71.1	49.9	42.0
21:00	55.2	75.9	49.1	39.6
22:00	51.2	68.0	41.8	34.0
23:00	51.9	72.0	41.7	33.8
0:00	49.9	74.5	34.0	29.6
1:00	47.3	67.5	32.7	28.3
2:00	50.3	73.3	34.9	28.5
3:00	49.6	72.6	36.4	31.5
4:00	53.0	72.1	44.0	36.3
5:00	56.1	73.2	51.1	42.2
6:00	59.3	80.2	54.0	44.1
7:00	73.8	105.2	52.8	47.0
8:00	56.1	72.7	50.0	44.6
9:00	57.1	75.1	49.8	42.7
10:00	55.4	74.4	48.7	40.9
11:00	55.5	72.0	48.9	38.0
12:00	55.2	76.2	48.3	37.6
13:00	55.0	77.0	48.0	39.2
14:00	68.4	99.6	50.6	41.8
15:00	54.7	71.9	48.8	39.8

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	67.4	81.5	51.0	42.4
Nighttime (10 p.m. - 7 a.m.)	53.7	72.6	41.2	34.3

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	76.5	105.2	56.5	47.8
Nighttime (10 p.m. - 7 a.m.)	59.3	80.2	54.0	44.1

Percentage of Energy

Daytime	98%
Nighttime	2%

Calculated L_{dn}, dBA

66.3

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Wednesday, November 11, 2015** **Thursday, November 12, 2015**

Site: By 18318 CA-33Patterson, CA 95363

Hour	Leq	Lmax	L50	L90
16:00	59.8	84.0	51.0	41.4
17:00	55.8	72.2	52.2	43.2
18:00	56.7	75.0	53.1	43.9
19:00	53.4	69.8	50.0	41.3
20:00	54.3	69.0	49.3	38.0
21:00	52.9	71.1	45.8	33.7
22:00	51.9	70.7	41.3	30.7
23:00	52.4	77.5	36.3	28.5
0:00	50.0	73.8	37.3	27.2
1:00	50.7	73.1	35.8	26.3
2:00	48.7	73.5	33.7	28.3
3:00	50.0	72.2	33.7	28.0
4:00	52.9	70.8	42.7	32.3
5:00	58.1	76.1	49.2	39.6
6:00	71.0	102.2	56.0	41.9
7:00	60.0	75.2	56.9	49.8
8:00	56.7	76.9	51.7	44.6
9:00	55.3	71.5	48.2	40.8
10:00	53.9	75.2	46.8	40.4
11:00	56.1	76.7	49.0	42.0
12:00	56.5	80.0	49.3	43.2
13:00	57.0	74.9	52.1	46.1
14:00	56.8	77.7	51.4	45.2
15:00	57.6	78.3	53.3	47.3

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	56.7	75.2	50.7	42.7
Nighttime (10 p.m. - 7 a.m.)	62.0	76.7	40.7	31.4

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	60.0	84.0	56.9	49.8
Nighttime (10 p.m. - 7 a.m.)	71.0	102.2	56.0	41.9

Percentage of Energy

Daytime	33%
Nighttime	67%

Calculated L_{dn}, dBA

67.9

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Thursday, November 12, 2015** **Friday, November 13, 2015**

Site: By 18318 CA-33Patterson, CA 95363

Hour	Leq	Lmax	L50	L90
16:00	71.0	100.4	52.0	44.2
17:00	55.7	73.4	52.0	45.8
18:00	55.0	73.7	51.3	42.8
19:00	54.1	75.0	50.3	41.5
20:00	56.4	78.3	50.8	38.7
21:00	50.9	68.1	45.0	32.7
22:00	52.3	71.6	44.5	32.9
23:00	60.9	90.1	41.6	31.5
0:00	49.7	72.1	33.9	26.5
1:00	47.1	66.8	31.0	27.3
2:00	47.5	68.8	32.3	28.3
3:00	50.8	71.9	37.7	32.4
4:00	51.6	71.6	41.3	34.5
5:00	55.6	72.2	50.2	40.4
6:00	73.0	104.2	54.7	45.8
7:00	58.1	70.9	55.0	48.3
8:00	54.4	69.6	49.3	43.0
9:00	58.5	78.1	54.1	43.5
10:00	56.4	76.3	49.5	41.3
11:00	56.7	75.3	48.8	37.8
12:00	54.5	70.3	47.1	35.5
13:00	54.1	68.7	47.9	37.0
14:00	52.8	69.9	46.0	34.9
15:00	69.1	99.7	52.2	40.2

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	62.3	76.5	50.1	40.5
Nighttime (10 p.m. - 7 a.m.)	63.9	76.6	40.8	33.3

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	71.0	100.4	55.0	48.3
Nighttime (10 p.m. - 7 a.m.)	73.0	104.2	54.7	45.8

Percentage of Energy

Daytime	53%
Nighttime	47%

Calculated L_{dn}, dBA

70.1

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Tuesday, November 10, 2015** **Wednesday, November 11, 2015**

Site: By 1909 Fink RdCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
17:00	50.4	74.0	44.7	34.7
18:00	52.4	76.2	44.7	32.2
19:00	49.9	69.5	36.2	31.7
20:00	49.2	66.5	37.2	32.1
21:00	46.5	66.0	36.0	32.3
22:00	43.9	64.7	33.8	30.1
23:00	50.3	79.6	30.8	28.3
0:00	45.7	69.7	27.2	24.5
1:00	45.2	66.9	25.0	23.3
2:00	45.0	67.4	25.6	23.6
3:00	45.7	61.6	32.1	28.0
4:00	49.4	70.0	41.3	32.9
5:00	53.9	70.2	48.4	35.8
6:00	53.5	76.5	46.5	36.1
7:00	53.8	71.8	48.2	40.1
8:00	50.7	72.4	45.2	40.3
9:00	51.6	73.7	44.4	38.4
10:00	50.5	74.4	39.7	32.7
11:00	44.1	58.4	36.5	29.7
12:00	45.1	68.2	36.1	30.3
13:00	43.4	63.9	36.5	30.9
14:00	43.1	65.5	37.5	29.7
15:00	45.7	72.0	36.5	29.7
16:00	42.8	57.2	37.3	30.7

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	49.3	68.6	39.8	33.0
Nighttime (10 p.m. - 7 a.m.)	49.6	69.6	34.5	29.2

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	53.8	76.2	48.2	40.3
Nighttime (10 p.m. - 7 a.m.)	53.9	79.6	48.4	36.1

Percentage of Energy

Daytime	61%
Nighttime	39%

Calculated L_{dn}, dBA

56.0

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Wednesday, November 11, 2015** **Thursday, November 12, 2015**

Site: By 1909 Fink RdCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
17:00	48.5	70.2	39.5	31.2
18:00	50.0	76.9	40.6	31.4
19:00	49.5	67.2	39.9	29.0
20:00	47.3	66.5	33.8	27.1
21:00	45.4	64.2	28.9	25.5
22:00	46.8	66.3	29.2	24.7
23:00	46.7	69.7	26.1	23.2
0:00	40.4	58.1	24.6	23.3
1:00	40.6	67.0	23.8	22.7
2:00	43.6	65.6	26.0	23.6
3:00	46.4	67.3	34.4	27.0
4:00	48.9	75.5	40.6	34.0
5:00	53.2	68.5	44.3	34.4
6:00	54.1	76.6	45.7	35.2
7:00	55.6	78.2	49.1	39.1
8:00	52.4	74.7	42.6	38.5
9:00	46.2	73.3	39.2	34.6
10:00	45.4	69.7	38.9	34.8
11:00	47.9	75.4	39.0	33.5
12:00	44.1	66.2	39.9	34.9
13:00	45.8	68.9	42.6	37.4
14:00	47.1	70.1	41.4	36.8
15:00	44.8	59.7	42.5	38.1
16:00	45.4	67.9	42.5	38.7

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	49.0	69.9	40.0	34.0
Nighttime (10 p.m. - 7 a.m.)	49.1	68.3	32.7	27.6

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	55.6	78.2	49.1	39.1
Nighttime (10 p.m. - 7 a.m.)	54.1	76.6	45.7	35.2

Percentage of Energy

Daytime	62%
Nighttime	38%

Calculated L_{dn}, dBA

55.5

Long-Term 24 Hour Continuous Noise Monitoring
Model Input Sheet

Project: Crows Landing Redev EIR

Date: **Thursday, November 12, 2015** **Friday, November 13, 2015**

Site: By 1909 Fink RdCrows Landing, CA 95313

Hour	Leq	Lmax	L50	L90
17:00	49.1	71.5	45.7	38.3
18:00	52.4	75.4	46.2	35.6
19:00	50.4	67.5	39.9	33.0
20:00	51.1	73.3	36.0	31.3
21:00	46.9	66.6	32.4	28.0
22:00	48.1	68.3	29.0	26.7
23:00	48.6	72.8	28.3	26.0
0:00	46.6	67.9	27.7	24.5
1:00	42.8	67.0	25.5	24.3
2:00	43.7	66.3	28.9	25.1
3:00	49.4	67.1	35.1	30.6
4:00	52.5	71.2	41.8	29.9
5:00	54.6	68.7	49.2	34.8
6:00	56.1	75.8	51.1	37.6
7:00	54.9	73.7	49.9	40.8
8:00	50.5	69.6	46.6	41.5
9:00	51.2	75.2	44.1	38.8
10:00	57.7	88.0	42.5	34.2
11:00	49.4	70.0	42.0	33.4
12:00	48.2	74.7	40.2	31.8
13:00	57.2	90.1	39.9	31.6
14:00	47.1	70.0	40.1	30.9
15:00	47.9	73.0	40.1	28.6
16:00	48.4	71.4	43.3	32.3

Averages

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	52.3	74.0	41.9	34.0
Nighttime (10 p.m. - 7 a.m.)	51.2	69.5	35.2	28.8

Uppermost-Level

	Leq	Lmax	L50	L90
Daytime (7 a.m. - 10 p.m.)	57.7	90.1	49.9	41.5
Nighttime (10 p.m. - 7 a.m.)	56.1	75.8	51.1	37.6

Percentage of Energy

Daytime	68%
Nighttime	32%

Calculated L_{dn}, dBA

57.8

Railroad Operation Noise Calculation

Input Sheet

AECOM

	Individual Train Events	
1	109.1	8.128E+10
2	103.2	2.089E+10
3	106.0	3.981E+10
4	106.2	4.169E+10
5	108.3	6.761E+10
6	103.9	2.455E+10

Project: Crows Landing Redev EIR

Date: Tuesday, November 10, 2015 to Friday, November 13, 2015

Number of Events	Average SEL	Reference Distance
6	107 dBA	80 feet

# Trains / day	**6**	
Neq	26.3	
Ldn	71.4	dBA
Ref. Distance	**80**	feet

60 dB Contour	461	feet
65 dB Contour	214	feet
70 dB Contour	99	feet

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing
Ground Type : Soft
K Factor : NA
Metric (L_{eq}, L_{dn}, CNEL) : Leq
Traffic Desc. (Peak or ADT) : Peak

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	164	50	100	93	2	5	64	0	36	
2	Fink Road	Davis Road	Bell Road	149	50	100	93	2	5	64	0	36	
3	Fink Road	Bell Road	SR-33	166	50	100	93	2	5	64	0	36	
4	SR-33	Newman Waste Way	Stuhr Road	820	50	100	93	2	5	61	0	39	
5	SR-33	Stuhr Road	Fink Road	512	50	100	93	2	5	61	0	39	
6	SR-33	Fink Rd	Ike Crow Road	362	50	100	93	2	5	61	0	39	
7	SR-33	Ike Crow Road	Marshall Road	355	50	100	93	2	5	61	0	39	
8	SR-33	Marshall Rd	Sperry Ave	416	50	100	93	2	5	61	0	39	
9	Ike Crow Road	SR-33	Bell Road	3	50	100	93	2	5	83	0	17	
10	Bell Road	Fink Road	Ike Crow Road	5	50	100	93	2	5	64	0	36	
11	Davis Road	South of Marshall Road	Marshall Road	8	50	100	93	2	5	61	0	39	
12	Marshall Road	SR-33	Davis Road	66	50	100	93	2	5	61	0	39	
13	Marshall Road	Davis Road	Ward Avenue	64	50	100	93	2	5	61	0	39	
14	Ward Avenue	Marshall Road	Patterson City Limits	125	50	100	93	2	5	61	0	39	
15	Crows Landing Road	Fink Rd	Marshall Road	240	50	100	93	2	5	61	0	39	
16	W. Main St.	0	West of Carpenter Road	734	50	100	93	2	5	61	0	39	
17	Crows Landing Road	Carpenter Road	W. Main Street	524	50	100	93	2	5	61	0	39	
18	W. Main Street	0	East of Crows Landing Road	639	50	100	93	2	5	61	0	39	
19	I-5	0	North of Sperry Avenue	4000	50	100	93	2	5	87	0	13	
20	I-5	Fink Rd	Sperry Ave	3800	50	100	93	2	5	87	0	13	
21	I-5	0	South of Fink Road	3700	50	100	93	2	5	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing
Metric (Leq, Ldn, CNEL) : Leq

		Segment		Noise Levels, dB Leq				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	54.8	45.8	54.0	57.7	15	33	71	152	328
2	Fink Road	Davis Road	Bell Road	54.4	45.4	53.6	57.3	14	31	66	143	308
3	Fink Road	Bell Road	SR-33	54.9	45.9	54.1	57.8	15	33	71	154	331
4	SR-33	Newman Waste W	Stuhr Road	61.8	52.8	61.0	64.7	45	96	207	446	961
5	SR-33	Stuhr Road	Fink Road	59.8	50.8	59.0	62.7	33	70	151	326	702
6	SR-33	Fink Rd	Ike Crow Road	58.3	49.3	57.4	61.2	26	56	120	259	557
7	SR-33	Ike Crow Road	Marshall Road	58.2	49.2	57.4	61.1	26	55	118	255	549
8	SR-33	Marshall Rd	Sperry Ave	58.9	49.9	58.1	61.8	28	61	132	284	611
9	Ike Crow Road	SR-33	Bell Road	37.0	28.0	36.2	39.9	1	2	5	10	21
10	Bell Road	Fink Road	Ike Crow Road	39.7	30.7	38.9	42.6	1	3	7	15	32
11	Davis Road	South of Marshall	Marshall Road	41.6	32.5	40.7	44.5	2	4	9	20	43
12	Marshall Road	SR-33	Davis Road	50.9	41.8	50.0	53.8	8	18	38	83	178
13	Marshall Road	Davis Road	Ward Avenue	50.8	41.7	49.9	53.7	8	18	38	82	176
14	Ward Avenue	Marshall Road	Patterson City Lim	53.7	44.6	52.8	56.6	13	27	59	127	274
15	Crows Landing Road	Fink Rd	Marshall Road	56.5	47.5	55.7	59.4	20	42	91	196	423
16	W. Main St.		West of Carpenter	61.4	52.3	60.5	64.3	41	89	192	414	893
17	Crows Landing Road	Carpenter Road	W. Main Street	59.9	50.9	59.1	62.8	33	71	154	331	713
18	W. Main Street		East of Crows Lan	60.8	51.7	59.9	63.7	38	81	175	378	814
19	I-5		North of Sperry Av	68.7	59.7	67.9	71.6	128	276	595	1283	2764
20	I-5	Fink Rd	Sperry Ave	68.5	59.5	67.7	71.4	124	267	575	1240	2671
21	I-5		South of Fink Roa	68.4	59.4	67.5	71.3	122	262	565	1218	2624

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Ground Type : Soft
K Factor : NA
Metric (L_{eq}, L_{dn}, CNEL) : Leq
Traffic Desc. (Peak or ADT) : Peak

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	664	50	100	93	2	5	87	0	13	
2	Fink Road	Davis Road	Bell Road	649	50	100	93	2	5	87	0	13	
3	Fink Road	Bell Road	SR-33	666	50	100	93	2	5	87	0	13	
4	SR-33	Newman Waste Way	Stuhr Road	1320	50	100	93	2	5	87	0	13	
5	SR-33	Stuhr Road	Fink Road	1012	50	100	93	2	5	87	0	13	
6	SR-33	Fink Rd	Ike Crow Road	862	50	100	93	2	5	87	0	13	
7	SR-33	Ike Crow Road	Marshall Road	855	50	100	93	2	5	87	0	13	
8	SR-33	Marshall Rd	Sperry Ave	916	50	100	93	2	5	87	0	13	
9	Ike Crow Road	SR-33	Bell Road	503	50	100	93	2	5	87	0	13	
10	Bell Road	Fink Road	Ike Crow Road	505	50	100	93	2	5	87	0	13	
11	Davis Road	South of Marshall Road	Marshall Road	508	50	100	93	2	5	87	0	13	
12	Marshall Road	SR-33	Davis Road	566	50	100	93	2	5	87	0	13	
13	Marshall Road	Davis Road	Ward Avenue	564	50	100	93	2	5	87	0	13	
14	Ward Avenue	Marshall Road	Patterson City Limits	625	50	100	93	2	5	87	0	13	
15	Crows Landing Road	Fink Rd	Marshall Road	740	50	100	93	2	5	87	0	13	
16	W. Main St.	0	West of Carpenter Road	1234	50	100	93	2	5	87	0	13	
17	Crows Landing Road	Carpenter Road	W. Main Street	1024	50	100	93	2	5	87	0	13	
18	W. Main Street	0	East of Crows Landing Road	1139	50	100	93	2	5	87	0	13	
19	I-5	0	North of Sperry Avenue	4500	50	100	93	2	5	87	0	13	
20	I-5	Fink Rd	Sperry Ave	4300	50	100	93	2	5	87	0	13	
21	I-5	0	South of Fink Road	4200	50	100	93	2	5	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Metric (Leq, Ldn, CNEL) : Leq

		Segment		Noise Levels, dB Leq				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	60.9	51.9	60.1	63.8	39	83	180	387	835
2	Fink Road	Davis Road	Bell Road	60.8	51.8	60.0	63.7	38	82	177	382	822
3	Fink Road	Bell Road	SR-33	60.9	51.9	60.1	63.8	39	84	180	388	837
4	SR-33	Newman Waste W	Stuhr Road	63.9	54.9	63.1	66.8	61	132	284	613	1320
5	SR-33	Stuhr Road	Fink Road	62.8	53.7	61.9	65.7	51	111	238	513	1106
6	SR-33	Fink Rd	Ike Crow Road	62.1	53.0	61.2	65.0	46	99	214	461	993
7	SR-33	Ike Crow Road	Marshall Road	62.0	53.0	61.2	64.9	46	99	213	458	988
8	SR-33	Marshall Rd	Sperry Ave	62.3	53.3	61.5	65.2	48	103	223	480	1035
9	Ike Crow Road	SR-33	Bell Road	59.7	50.7	58.9	62.6	32	69	149	322	693
10	Bell Road	Fink Road	Ike Crow Road	59.7	50.7	58.9	62.6	32	70	150	323	696
11	Davis Road	South of Marshall	Marshall Road	59.8	50.7	58.9	62.7	32	70	150	324	698
12	Marshall Road	SR-33	Davis Road	60.2	51.2	59.4	63.1	35	75	162	348	750
13	Marshall Road	Davis Road	Ward Avenue	60.2	51.2	59.4	63.1	35	75	161	348	749
14	Ward Avenue	Marshall Road	Patterson City Lim	60.7	51.6	59.8	63.6	37	80	173	372	802
15	Crows Landing Road	Fink Rd	Marshall Road	61.4	52.4	60.6	64.3	42	90	193	416	897
16	W. Main St.		West of Carpenter	63.6	54.6	62.8	66.5	59	126	272	586	1262
17	Crows Landing Road	Carpenter Road	W. Main Street	62.8	53.8	62.0	65.7	52	111	240	517	1114
18	W. Main Street		East of Crows Lan	63.3	54.2	62.4	66.2	56	120	258	555	1196
19	I-5		North of Sperry Av	69.2	60.2	68.4	72.1	139	299	644	1388	2990
20	I-5	Fink Rd	Sperry Ave	69.0	60.0	68.2	71.9	135	290	625	1346	2901
21	I-5		South of Fink Roa	68.9	59.9	68.1	71.8	133	286	615	1325	2855

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing
Ground Type : Soft
K Factor : NA
Metric (L_{eq}, L_{dn}, CNEL) : Ldn
Traffic Desc. (Peak or ADT) : ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	1638	50	100	93	2	5	64	0	36	
2	Fink Road	Davis Road	Bell Road	1490	50	100	93	2	5	64	0	36	
3	Fink Road	Bell Road	SR-33	1661	50	100	93	2	5	64	0	36	
4	SR-33	Newman Waste Way	Stuhr Road	8197	50	100	93	2	5	61	0	39	
5	SR-33	Stuhr Road	Fink Road	5123	50	100	93	2	5	61	0	39	
6	SR-33	Fink Rd	Ike Crow Road	3619	50	100	93	2	5	61	0	39	
7	SR-33	Ike Crow Road	Marshall Road	3545	50	100	93	2	5	61	0	39	
8	SR-33	Marshall Rd	Sperry Ave	4161	50	100	93	2	5	61	0	39	
9	Ike Crow Road	SR-33	Bell Road	27	50	100	93	2	5	83	0	17	
10	Bell Road	Fink Road	Ike Crow Road	50	50	100	93	2	5	64	0	36	
11	Davis Road	South of Marshall Road	Marshall Road	77	50	100	93	2	5	61	0	39	
12	Marshall Road	SR-33	Davis Road	656	50	100	93	2	5	61	0	39	
13	Marshall Road	Davis Road	Ward Avenue	641	50	100	93	2	5	61	0	39	
14	Ward Avenue	Marshall Road	Patterson City Limits	1246	50	100	93	2	5	61	0	39	
15	Crows Landing Road	Fink Rd	Marshall Road	2396	50	100	93	2	5	61	0	39	
16	W. Main St.	0	West of Carpenter Road	7342	50	100	93	2	5	61	0	39	
17	Crows Landing Road	Carpenter Road	W. Main Street	5237	50	100	93	2	5	61	0	39	
18	W. Main Street	0	East of Crows Landing Road	6392	50	100	93	2	5	61	0	39	
19	I-5	0	North of Sperry Avenue	40000	50	100	93	2	5	87	0	13	
20	I-5	Fink Rd	Sperry Ave	38000	50	100	93	2	5	87	0	13	
21	I-5	0	South of Fink Road	37000	50	100	93	2	5	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing
Metric (Leq, Ldn, CNEL) : Ldn

		Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	57.3	48.3	56.5	60.2	22	48	104	224	482
2	Fink Road	Davis Road	Bell Road	56.9	47.9	56.1	59.8	21	45	97	210	452
3	Fink Road	Bell Road	SR-33	57.4	48.4	56.6	60.3	23	49	105	226	486
4	SR-33	Newman Waste W	Stuhr Road	64.6	55.5	63.7	67.5	68	146	314	676	1457
5	SR-33	Stuhr Road	Fink Road	62.5	53.5	61.7	65.4	49	107	229	494	1065
6	SR-33	Fink Rd	Ike Crow Road	61.0	52.0	60.2	63.9	39	84	182	392	845
7	SR-33	Ike Crow Road	Marshall Road	60.9	51.9	60.1	63.8	39	83	180	387	833
8	SR-33	Marshall Rd	Sperry Ave	61.6	52.6	60.8	64.5	43	93	200	430	927
9	Ike Crow Road	SR-33	Bell Road	37.2	28.1	36.3	40.1	1	2	5	10	22
10	Bell Road	Fink Road	Ike Crow Road	42.2	33.2	41.3	45.1	2	5	10	22	47
11	Davis Road	South of Marshall	Marshall Road	44.3	35.3	43.4	47.2	3	6	14	30	65
12	Marshall Road	SR-33	Davis Road	53.6	44.6	52.7	56.5	13	27	58	126	271
13	Marshall Road	Davis Road	Ward Avenue	53.5	44.5	52.6	56.4	12	27	57	124	266
14	Ward Avenue	Marshall Road	Patterson City Lim	56.4	47.3	55.5	59.3	19	42	89	193	415
15	Crows Landing Road	Fink Rd	Marshall Road	59.2	50.2	58.4	62.1	30	64	138	298	642
16	W. Main St.		West of Carpenter	64.1	55.0	63.2	67.0	63	135	292	628	1354
17	Crows Landing Road	Carpenter Road	W. Main Street	62.6	53.6	61.8	65.5	50	108	233	502	1081
18	W. Main Street		East of Crows Lan	63.5	54.4	62.6	66.4	57	123	266	573	1234
19	I-5		North of Sperry Av	68.3	59.3	67.4	71.2	120	258	557	1200	2584
20	I-5	Fink Rd	Sperry Ave	68.1	59.0	67.2	71.0	116	250	538	1159	2498
21	I-5		South of Fink Roa	68.0	58.9	67.1	70.8	114	245	529	1139	2454

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Ground Type : Soft **K Factor :** NA
Metric (L_{eq}, L_{dn}, CNEL) : Ldn **Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	4623	50	100	97	2	1	64	0	36	
2	Fink Road	Davis Road	Bell Road	3400	50	100	97	2	1	64	0	36	
3	Fink Road	Bell Road	SR-33	10391	50	100	97	2	1	64	0	36	
4	SR-33	Newman Waste Way	Stuhr Road	16777	50	100	97	2	1	61	0	39	
5	SR-33	Stuhr Road	Fink Road	14466	50	100	97	2	1	61	0	39	
6	SR-33	Fink Rd	Ike Crow Road	11131	50	100	97	2	1	61	0	39	
7	SR-33	Ike Crow Road	Marshall Road	15180	50	100	97	2	1	61	0	39	
8	SR-33	Marshall Rd	Sperry Ave	18121	50	100	97	2	1	61	0	39	
9	Ike Crow Road	SR-33	Bell Road	4174	50	100	97	2	1	83	0	17	
10	Bell Road	Fink Road	Ike Crow Road	6760	50	100	97	2	1	64	0	36	
11	Davis Road	South of Marshall Road	Marshall Road	8	50	100	97	2	1	61	0	39	
12	Marshall Road	SR-33	Davis Road	29787	50	100	97	2	1	61	0	39	
13	Marshall Road	Davis Road	Ward Avenue	2810	50	100	97	2	1	61	0	39	
14	Ward Avenue	Marshall Road	Patterson City Limits	4084	50	100	97	2	1	61	0	39	
15	Crows Landing Road	Fink Rd	Marshall Road	6944	50	100	97	2	1	61	0	39	
16	W. Main St.	0	West of Carpenter Road	11716	50	100	97	2	1	61	0	39	
17	Crows Landing Road	Carpenter Road	W. Main Street	11534	50	100	97	2	1	61	0	39	
18	W. Main Street	0	East of Crows Landing Road	10083	50	100	97	2	1	61	0	39	
19	I-5	0	North of Sperry Avenue	45341	50	100	97	2	1	87	0	13	
20	I-5	Fink Rd	Sperry Ave	42921	50	100	97	2	1	87	0	13	
21	I-5	0	South of Fink Road	41578	50	100	97	2	1	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Metric (Leq, Ldn, CNEL) : Ldn

		Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	62.0	52.8	54.0	63.1	35	75	161	347	747
2	Fink Road	Davis Road	Bell Road	60.7	51.5	52.7	61.8	28	61	131	282	608
3	Fink Road	Bell Road	SR-33	65.5	56.3	57.5	66.6	59	128	276	595	1281
4	SR-33	Newman Waste W	Stuhr Road	67.8	58.6	59.8	68.9	85	182	393	846	1824
5	SR-33	Stuhr Road	Fink Road	67.2	58.0	59.2	68.3	77	165	356	767	1652
6	SR-33	Fink Rd	Ike Crow Road	66.1	56.9	58.0	67.1	64	139	299	644	1387
7	SR-33	Ike Crow Road	Marshall Road	67.4	58.2	59.4	68.5	79	171	368	792	1706
8	SR-33	Marshall Rd	Sperry Ave	68.2	59.0	60.2	69.2	89	192	414	891	1920
9	Ike Crow Road	SR-33	Bell Road	59.3	50.0	51.2	60.3	23	49	105	226	487
10	Bell Road	Fink Road	Ike Crow Road	63.7	54.5	55.7	64.7	45	96	207	446	962
11	Davis Road	South of Marshall	Marshall Road	34.5	25.3	26.4	35.5	1	1	2	5	11
12	Marshall Road	SR-33	Davis Road	70.3	61.1	62.3	71.4	124	267	576	1241	2674
13	Marshall Road	Davis Road	Ward Avenue	60.1	50.9	52.1	61.2	26	55	119	257	554
14	Ward Avenue	Marshall Road	Patterson City Lim	61.7	52.5	53.7	62.8	33	71	153	330	711
15	Crows Landing Road	Fink Rd	Marshall Road	64.0	54.8	56.0	65.1	47	101	218	470	1013
16	W. Main St.		West of Carpenter	66.3	57.1	58.3	67.4	67	144	309	666	1435
17	Crows Landing Road	Carpenter Road	W. Main Street	66.2	57.0	58.2	67.3	66	142	306	659	1420
18	W. Main Street		East of Crows Lan	65.6	56.4	57.6	66.7	60	130	280	603	1299
19	I-5		North of Sperry Av	69.0	59.8	61.0	70.1	101	218	470	1012	2181
20	I-5	Fink Rd	Sperry Ave	68.8	59.6	60.8	69.8	98	210	453	976	2103
21	I-5		South of Fink Roa	68.6	59.4	60.6	69.7	96	206	444	956	2059

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Ground Type : Soft **K Factor :** NA
Metric (L_{eq}, L_{dn}, CNEL) : Ldn **Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	5767	50	100	97	2	1	64	0	36	
2	Fink Road	Davis Road	Bell Road	5619	50	100	97	2	1	64	0	36	
3	Fink Road	Bell Road	SR-33	5764	50	100	97	2	1	64	0	36	
4	SR-33	Newman Waste Way	Stuhr Road	16757	50	100	97	2	1	61	0	39	
5	SR-33	Stuhr Road	Fink Road	10296	50	100	97	2	1	61	0	39	
6	SR-33	Fink Rd	Ike Crow Road	5588	50	100	97	2	1	61	0	39	
7	SR-33	Ike Crow Road	Marshall Road	5516	50	100	97	2	1	61	0	39	
8	SR-33	Marshall Rd	Sperry Ave	10297	50	100	97	2	1	61	0	39	
9	Ike Crow Road	SR-33	Bell Road	23	50	100	97	2	1	83	0	17	
10	Bell Road	Fink Road	Ike Crow Road	44	50	100	97	2	1	64	0	36	
11	Davis Road	South of Marshall Road	Marshall Road	74	50	100	97	2	1	61	0	39	
12	Marshall Road	SR-33	Davis Road	1327	50	100	97	2	1	61	0	39	
13	Marshall Road	Davis Road	Ward Avenue	1309	50	100	97	2	1	61	0	39	
14	Ward Avenue	Marshall Road	Patterson City Limits	5347	50	100	97	2	1	61	0	39	
15	Crows Landing Road	Fink Rd	Marshall Road	4334	50	100	97	2	1	61	0	39	
16	W. Main St.	0	West of Carpenter Road	21196	50	100	97	2	1	61	0	39	
17	Crows Landing Road	Carpenter Road	W. Main Street	10626	50	100	97	2	1	61	0	39	
18	W. Main Street	0	East of Crows Landing Road	14805	50	100	97	2	1	61	0	39	
19	I-5	0	North of Sperry Avenue	70368	50	100	97	2	1	87	0	13	
20	I-5	Fink Rd	Sperry Ave	66883	50	100	97	2	1	87	0	13	
21	I-5	0	South of Fink Road	64328	50	100	97	2	1	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Metric (Leq, Ldn, CNEL) : Ldn

		Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	63.0	53.8	55.0	64.1	40	87	186	402	865
2	Fink Road	Davis Road	Bell Road	62.9	53.7	54.9	63.9	39	85	183	395	850
3	Fink Road	Bell Road	SR-33	63.0	53.8	55.0	64.1	40	86	186	401	865
4	SR-33	Newman Waste W	Stuhr Road	67.8	58.6	59.8	68.9	85	182	393	846	1822
5	SR-33	Stuhr Road	Fink Road	65.7	56.5	57.7	66.8	61	132	284	611	1317
6	SR-33	Fink Rd	Ike Crow Road	63.1	53.9	55.1	64.1	41	88	189	407	876
7	SR-33	Ike Crow Road	Marshall Road	63.0	53.8	55.0	64.1	40	87	187	403	869
8	SR-33	Marshall Rd	Sperry Ave	65.7	56.5	57.7	66.8	61	132	284	611	1317
9	Ike Crow Road	SR-33	Bell Road	36.7	27.5	28.6	37.7	1	2	3	7	15
10	Bell Road	Fink Road	Ike Crow Road	41.8	32.6	33.8	42.9	2	3	7	16	34
11	Davis Road	South of Marshall	Marshall Road	44.3	35.1	36.3	45.4	2	5	11	23	49
12	Marshall Road	SR-33	Davis Road	56.8	47.6	48.8	57.9	16	34	72	156	336
13	Marshall Road	Davis Road	Ward Avenue	56.8	47.6	48.8	57.8	15	33	72	155	333
14	Ward Avenue	Marshall Road	Patterson City Lim	62.9	53.7	54.9	63.9	39	85	183	395	851
15	Crows Landing Road	Fink Rd	Marshall Road	62.0	52.8	54.0	63.0	34	74	159	343	740
16	W. Main St.		West of Carpenter	68.9	59.7	60.8	69.9	99	213	459	989	2131
17	Crows Landing Road	Carpenter Road	W. Main Street	65.9	56.7	57.8	66.9	62	134	290	624	1345
18	W. Main Street		East of Crows Lan	67.3	58.1	59.3	68.4	78	168	361	779	1678
19	I-5		North of Sperry Av	70.9	61.7	62.9	72.0	136	292	630	1357	2924
20	I-5	Fink Rd	Sperry Ave	70.7	61.5	62.7	71.8	131	283	609	1312	2827
21	I-5		South of Fink Roa	70.5	61.3	62.5	71.6	128	275	593	1278	2754

Traffic Noise Prediction Model, (FHWA RD-77-108)

Model Input Sheet

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Ground Type : Soft **K Factor :** NA
Metric (L_{eq}, L_{dn}, CNEL) : Ldn **Traffic Desc. (Peak or ADT) :** ADT

Segment	Roadway	Segment From	Segment To	Traffic Vol.	Speed (Mph)	Distance to CL	% Autos	%MT	% HT	Day %	Eve %	Night %	Offset (dB)
1	Fink Road	Ward Avenue	Davis Road	10902	50	100	97	2	1	64	0	36	
2	Fink Road	Davis Road	Bell Road	8032	50	100	97	2	1	64	0	36	
3	Fink Road	Bell Road	SR-33	13709	50	100	97	2	1	64	0	36	
4	SR-33	Newman Waste Way	Stuhr Road	23599	50	100	97	2	1	61	0	39	
5	SR-33	Stuhr Road	Fink Road	18000	50	100	97	2	1	61	0	39	
6	SR-33	Fink Rd	Ike Crow Road	12183	50	100	97	2	1	61	0	39	
7	SR-33	Ike Crow Road	Marshall Road	14986	50	100	97	2	1	61	0	39	
8	SR-33	Marshall Rd	Sperry Ave	25030	50	100	97	2	1	61	0	39	
9	Ike Crow Road	SR-33	Bell Road	2865	50	100	97	2	1	83	0	17	
10	Bell Road	Fink Road	Ike Crow Road	6806	50	100	97	2	1	64	0	36	
	Davis Road	South of Marshall Road	Marshall Road	0	50	100		2	1	61	0		
12	Marshall Road	SR-33	Davis Road	32663	50	100	97	2	1	61	0	39	
13	Marshall Road	Davis Road	Ward Avenue	5006	50	100	97	2	1	61	0	39	
14	Ward Avenue	Marshall Road	Patterson City Limits	9103	50	100	97	2	1	61	0	39	
15	Crows Landing Road	Fink Rd	Marshall Road	9715	50	100	97	2	1	61	0	39	
16	W. Main St.	0	West of Carpenter Road	22318	50	100	97	2	1	61	0	39	
17	Crows Landing Road	Carpenter Road	W. Main Street	17849	50	100	97	2	1	61	0	39	
18	W. Main Street	0	East of Crows Landing Road	17213	50	100	97	2	1	61	0	39	
19	I-5	0	North of Sperry Avenue	71690	50	100	97	2	1	87	0	13	
20	I-5	Fink Rd	Sperry Ave	69628	50	100	97	2	1	87	0	13	
21	I-5	0	South of Fink Road	65338	50	100	97	2	1	87	0	13	

Traffic Noise Prediction Model, (FHWA RD-77-108)

Predicted Noise Levels

Project Name : Crows Landing Redev EIR
Project Number : 60308966 - Crows Landing Redev EIR
Modeling Condition : Existing + Construction Traffic
Metric (Leq, Ldn, CNEL) : Ldn

		Segment		Noise Levels, dB Ldn				Distance to Traffic Noise Contours, Feet				
Segment	Roadway	From	To	Auto	MT	HT	Total	70 dB	65 dB	60 dB	55 dB	50 dB
1	Fink Road	Ward Avenue	Davis Road	65.8	56.5	57.7	66.8	61	132	285	614	1323
2	Fink Road	Davis Road	Bell Road	64.4	55.2	56.4	65.5	50	108	232	501	1079
3	Fink Road	Bell Road	SR-33	66.8	57.5	58.7	67.8	72	154	332	715	1541
4	SR-33	Newman Waste W	Stuhr Road	69.3	60.1	61.3	70.4	106	229	493	1063	2289
5	SR-33	Stuhr Road	Fink Road	68.2	58.9	60.1	69.2	89	191	412	887	1911
6	SR-33	Fink Rd	Ike Crow Road	66.5	57.2	58.4	67.5	68	147	317	684	1473
7	SR-33	Ike Crow Road	Marshall Road	67.4	58.1	59.3	68.4	79	169	364	785	1691
8	SR-33	Marshall Rd	Sperry Ave	69.6	60.4	61.6	70.7	111	238	513	1105	2381
9	Ike Crow Road	SR-33	Bell Road	57.6	48.4	49.6	58.7	18	38	82	176	379
10	Bell Road	Fink Road	Ike Crow Road	63.7	54.5	55.7	64.8	45	97	208	448	966
	Davis Road	South of Marshall	Marshall Road									
12	Marshall Road	SR-33	Davis Road	70.7	61.5	62.7	71.8	132	284	613	1320	2843
13	Marshall Road	Davis Road	Ward Avenue	62.6	53.4	54.6	63.7	38	81	175	378	814
14	Ward Avenue	Marshall Road	Patterson City Lim	65.2	56.0	57.2	66.3	56	121	261	563	1213
15	Crows Landing Road	Fink Rd	Marshall Road	65.5	56.3	57.5	66.5	59	127	273	588	1267
16	W. Main St.		West of Carpenter	69.1	59.9	61.1	70.2	102	221	475	1024	2206
17	Crows Landing Road	Carpenter Road	W. Main Street	68.1	58.9	60.1	69.2	88	190	409	882	1900
18	W. Main Street		East of Crows Lan	68.0	58.7	59.9	69.0	86	186	400	861	1855
19	I-5		North of Sperry Av	71.0	61.8	63.0	72.1	137	296	638	1374	2961
20	I-5	Fink Rd	Sperry Ave	70.9	61.7	62.9	71.9	135	290	626	1348	2903
21	I-5		South of Fink Roa	70.6	61.4	62.6	71.7	129	278	600	1292	2783

APPENDIX F

StanCOG RTP/SCS EIR
Executive Summary

EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed project, as well as the project's environmental impacts and recommended mitigation measures.

PROJECT SYNOPSIS

Project Lead Agency

The Stanislaus Council of Governments (StanCOG) is the Lead Agency for the 2014 Regional Transportation Plan / Sustainable Committee Strategy (RTP/SCS) (referred to as the RTP/SCS, Project, or Plan).

Project Description

The 2014 RTP/SCS is an update of the 2011 RTP, adopted by StanCOG in July 2010. This update reflects changes in legislative requirements, local land use policies, and resource constraints. For the first time, StanCOG now also has the responsibility to prepare an SCS as part of the RTP, pursuant to the requirements of California Senate Bill 375 as adopted in 2008. The SCS sets forth a forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies, is intended to reduce greenhouse gas (GHG) emissions from passenger vehicles and light trucks to achieve the regional GHG reduction targets set by the California Air Resources Board (ARB). The RTP/SCS includes both the RTP and SCS for the Stanislaus County region.

In addition to creating requirements for Metropolitan Planning Organizations, SB 375 also created requirements for the California Transportation Commission and ARB. Some of the requirements include the following:

- The California Transportation Commission (CTC) must maintain guidelines for the travel demand models that MPOs develop for use in the preparation of their RTPs.
- The ARB must develop regional GHG emission reduction targets for automobiles and light trucks for 2020 and 2035 by September 30, 2010.
- Each MPO must prepare an SCS as part of its RTP to demonstrate how it will meet the regional GHG targets.
- Each MPO must adopt a public participation plan for development of the SCS that includes informational meetings, workshops, public hearings, consultation, and other outreach efforts.
- If an SCS cannot achieve the regional GHG target, the MPO must prepare an Alternative Planning Strategy (APS) showing how it would achieve the targets with alternative development patterns, infrastructure, or transportation measures and policies.

- Each MPO must prepare and circulate a draft SCS at least 55 days before it adopts a final RTP.

- After adoption, each MPO must submit its SCS to the ARB for review.

- ARB must review each SCS to determine whether or not, if implemented, it would meet the GHG targets. ARB must complete its review within 60 days.

ARB set targets for the StanCOG region as a 5% reduction from 2005 emissions levels by 2020 and a 10% reduction from 2005 emissions levels by 2035. These targets apply to the StanCOG region as a whole for all on-road light-duty trucks and passenger vehicles emissions, and not to apply to individual cities or sub-regions. In 2005, GHG emissions from passenger vehicles in the StanCOG region were approximately 15.9 pounds of carbon dioxide equivalent (CO_2e) per capita. Therefore, StanCOG, through the RTP/SCS, must reduce these levels to 15.1 pounds of CO_2e per capita in 2020 and 14.3 pounds of CO_2e per capita in 2035 in order to meet the established targets.

SB 375 specifically states that local governments retain their autonomy to adopt local General Plan policies and land uses. The 2014 RTP/SCS is intended to provide a regional policy foundation that local governments may build upon, if they so choose. The 2014 RTP/SCS includes and accommodates the quantitative growth projections for the region. SB 375 also requires that the RTP/SCS's forecasted development pattern for the region be consistent with the eight-year regional housing needs as allocated to member jurisdictions through the Regional Housing Needs Allocation (RHNA) process under State housing law.

In addition, this Program EIR lays the groundwork for the streamlined review of qualifying development projects within Transit Priority Areas.[1] Qualifying projects that meet statutory criteria and are consistent with the 2014 RTP/SCS are eligible for streamlined environmental review pursuant to CEQA.

The RTP must comply also with the state's planning regulations as defined in the 2010 California Regional Transportation Plan Guidelines by the California Transportation Commission (April 2010). The state's RTP Guidelines (page 9 of the above mentioned document) sets forth the purpose of the RTP as follows:

- Providing an assessment of the current modes of transportation and the potential of new travel options within the region;

- Projecting/estimating the future needs for travel and goods movement;

- Identification and documentation of specific actions necessary to address regional mobility and accessibility needs;

- Identification of guidance and documentation of public policy decisions by local, regional, state and federal officials regarding transportation expenditures and financing;

[1] *A Transit Priority Area is an area within ½-mile of high quality transit: a rail stop or a bus corridor that provides or will provide at least 15-minute frequency service during peak hours by the year 2035.*

- Identification of needed transportation improvements, in sufficient detail, to serve as a foundation for the: (a) Development of the Federal Transportation Improvement Program (FTIP), and the State Transportation Improvement Program (STIP), (b) Facilitation of the National Environmental Protection Act (NEPA)/404 integration process and (c) Identification of project purpose and need;

- Employing performance measures that demonstrate the effectiveness of the transportation improvement projects in meeting the intended goals;

- Promotion of consistency between the California Transportation Plan, the regional transportation plan and other plans developed by cities, counties, districts, California Tribal

- Governments, and state and federal agencies in responding to statewide and interregional transportation issues and needs;

- Providing a forum for: (1) participation and cooperation and (2) facilitation of partnerships that reconcile transportation issues which transcend regional boundaries; and,

- Involving community-based organizations as part of the public, Federal, State and local agencies, California Tribal Governments, as well as local elected officials, early in the transportation planning process so as to include them in discussions and decisions on the social, economic, air quality and environmental issues related to transportation.

The 2014 RTP/SCS must also comply with requirements specified in federal transportation planning regulations which may have changed since the 2011 RTP. MAP-21, signed into law in July 2012, requires that regional transportation plans describe a set of performance measures and targets, evaluate the transportation system with respect to those targets, and discuss potential environmental mitigation activities. Other federal requirements include consistency with the 1990 Clean Air Act Amendments and consistency with the Federal Transportation Improvement Program (FTIP). Specific requirements of these two programs are described in the Draft 2014 RTP/SCS, which is available for review at StanCOG.

Thematically, the 2014 comprehensive update of the Stanislaus County RTP/SCS continues with the 2011 RTP's overarching concepts of fiscal constraint and system planning. The RTP/SCS also includes general policy direction for countywide transportation as well as a listing of specific actions to be undertaken to meet the policy directives. Actions include various improvements to roadways and bikeways, improvements to transit, rail, and airport service, transportation demand management (TDM), intelligent transportation system (ITS), and alternative fuel projects. Specific actions to be undertaken under each of these major categories are listed in Tables 2-1 through 2-9 of Section 2.0, Project Description.

ALTERNATIVES

This Programmatic Environmental Impact Report (PEIR) examines four alternatives to the proposed Project : Alternative 1, the "No Project" alternative, is comprised of a land use pattern that reflects existing land use trends and a transportation network comprised of transportation

projects that are currently in construction or are funded in the short range Regional Transportation Improvement Plan (RTIP); Alternative 2: Historical Trend, includes a land use pattern that reflects historical land use trends with growth occurring adjacent to existing communities resulting in the expansion of community boundaries. This alternative would provide limited infill development; Alternative 3: New Trend, includes a land use pattern that concentrates forecasted population and employment growth adjacent to existing communities as dictated within the General Plans as well as infill development with some neighborhoods located near services and employment; and Alternative 4: More Change Alternative includes a land use pattern comprised of very limited expansion of existing community boundaries with infill located within downtowns and mixed use neighborhoods.

Based on the alternatives analysis, Alternatives 3 and 4 may be considered environmentally superior to the Proposed Project. Table ES-1 summarizes the findings of the alternatives analysis. The No Project Alternative (Alternative 1) would not be considered environmentally superior overall. Although it would entail the fewest projects and result in the fewest construction-related impacts and impacts associated with ground disturbance, many of the transportation improvements and infill/mixed use and related projects envisioned in the Proposed Project would not be developed. As a consequence, total VMT, energy use, air contaminant and GHG emissions impacts would be greater with this alternative as compared to the Proposed Project. Under Alternative 2, land use patterns would encourage development consistent with historical trends and current General Plans. Alternative 2 would not be considered environmentally superior to the proposed project primarily because VMT and CVMT would be higher. This would result in more severe air quality, GHG, energy, and transportation impacts and have a greater impact to low income and minority populations as fewer people within these communities would be served by transportation improvements than anticipated for the proposed project.

Alternative 3 may be considered environmentally superior to the proposed project. The VMT would be slightly less under this alternative when compared to the proposed project; thus, Alternative 3 would result in less GHG, energy and transportation impacts which is a desired outcome of the overall RTP/SCS process mandated by SB 375. However, relative to the proposed project, fewer people within low income and minority communities would be served by transportation improvements. Further, the CVMT would be greater under this alternative which indicates higher traffic congestion than anticipated for the proposed project. Thus, while Alterative 3 could be considered environmentally superior, it would not perform as well as the proposed project relative to certain StanCOG performance metrics.

Alternative 4 may be considered environmentally superior to the proposed project. The VMT would be slightly less; thus, Alternative 4 would result in less GHG, energy and transportation impacts than the RTP/SCS. Unlike Alternative 3, Alternative 4 would provide better transit performance and higher service levels to minority and low income populations relative to the proposed project. Based on the higher density development proposed, it may result in greater aesthetic (light and glare) and noise impacts than the proposed project, particularly in urban areas. The higher CVMT when compared to the proposed project indicates higher traffic congestion and related impacts to air quality would also occur.

Based on the information presented herein, Alternative 4 is determined to be the environmentally superior alternative when considering overall environmental impact relative

to the performance metrics and attainment of SB 375 requirements. However, superior performance of this alternative with respect to certain metrics is largely attributable to land use parameters that are beyond the control of StanCOG. For example, under this alternative, expansion of existing community boundaries and larger lot single-family residential development would be limited, which would rely upon land use changes by the municipalities within the region that retain land use authority. Therefore, implementation of this alternative and achievement of performance metrics such as lower VMT may not be feasible.

Table ES-1
Alternative Comparison

Issue	Alternative 1: No Project Alternative	Alternative 2: Historical Trend	Alternative 3: New Trend	Alternative 4: More Change
Aesthetics	=	=	=	=
Agriculture	-	+	+	=
Air Quality	+	+	-	-/=
Biological Resources	-	+	=	-
Cultural Resources	-	+	=	-
Energy	+	+	+	=/+
Environmental Justice	+	+	+	-
Geology	=	+	=	=
Greenhouse Gases	+	+	-	-
Hydrology	-	+	=	-
Land Use	-	-	-	+
Noise	=	+	-/=	+
Transportation and Circulation	=/+	+	=/+	=/+
Overall	**-/=**	**+**	**+/-**	**+/-**

- impacts would be less than the 2014 RTP/SCS
= impacts would be similar to the 2014 RTP/SCS
+ Impacts would be greater than the 2014 RTP/SCS

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table ES-2 includes a brief description of the environmental impacts, proposed mitigation measures and the level of significance after mitigation. Specific 2014 RTP/SCS projects that may contribute to the impacts described below are listed in tables at the end of each impact section (4.1 through 4.12). Many of the impacts listed in Table ES-2 have been classified as "Significant and Unavoidable". While mitigation measures that could be implemented to reduce potential impacts to less than significant are recommended, and although StanCOG is the lead agency on this Program EIR, it does not have authority to require that the implementing agencies adopt and/or enforce recommended mitigation; therefore it cannot be assumed that the mitigation will occur. Thus, impacts that could be reduced to less than significant with mitigation are determined to be significant and unavoidable herein.

This document is a Program EIR. Section 15168(a) of the CEQA Guidelines states that:

> *A Program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) geographically; (2) as logical parts in a chain of contemplated actions; (3) in connection with issuance of rules, regulations, plans, or other general criteria, to govern the conduct of a continuing*

program; or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

As a programmatic document, this PEIR presents a regional assessment of the impacts of the proposed RTP/SCS. Analysis of site-specific impacts of individual projects is not the intended use of a program EIR. Many specific projects are not currently defined to the level that would allow for such an analysis. Individual specific environmental analysis of each project will be undertaken as necessary by the appropriate implementing agency prior to each project being considered for approval. Because the act of adopting the 2014 RTP/SCS would not, in itself, result in the implementation of transportation system improvements projects or programs identified in this document, no environmental impacts would be directly associated with this action. This program EIR serves as a first-tier environmental document under CEQA supporting second-tier environmental documents for:

- Transportation projects developed during the engineering design process; and
- Residential or mixed use and infill development projects consistent with RTP/SCS.

For the air quality, energy, greenhouse gas, and traffic environmental impacts resulting from the Program, this PEIR evaluates potential impacts against both (1) a forecast future baseline condition and (2) current, existing baseline conditions, controlling for impacts caused by population growth and other factors.

Class I impacts are defined as significant, unavoidable adverse impacts which require the adoption of a statement of overriding considerations per Section 15093 of the State CEQA Guidelines if the project is approved. Class II impacts are significant adverse impacts that can be feasibly mitigated to less than significant levels and which require findings to be made under Section 15091 of the State CEQA Guidelines. Class III are considered less than significant impacts, and Class IV are beneficial effects. "Project Sponsors" are defined herein as the implementing agency such as Caltrans, Stanislaus County, cities and other agencies responsible for approving and/or implementing a transportation or land development project in accordance with the 2014 RTP/SCS.

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
AESTHETICS		
Impact AES-1 The design of some of the proposed transportation projects may affect public views along designated scenic corridors, adjacent landscaping, and other roadways and highways considered to have high scenic qualities.	**AES-1(a)** Where a particular RTP/SCS improvement affects adjacent landforms, the local jurisdiction in which the project is located should ensure that recontouring provides a smooth and gradual transition between modified landforms and existing grade. This requirement can be accomplished through the placement of conditions on the project by the local jurisdiction during individual environmental review.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	AES-1(b) The local jurisdiction in which a particular RTP/SCS project is located should ensure that associated landscape materials and design enhance landform variation, provide erosion control and blend with the natural setting. This requirement can be accomplished through the placement of conditions on the project by the local jurisdiction during individual environmental review. To ensure compliance with approved landscape plans, the implementing agency shall provide a performance security equal to the value of the landscaping/irrigation installation. **AES-1(c)** The local jurisdiction or lead agency of a particular RTP/SCS project should ensure that a project in a scenic view corridor will have the minimum possible impact, consistent with project goals, upon foliage, existing landscape architecture and natural scenic views. This requirement shall be accomplished through the placement of conditions on the project design by the lead agency during the project specific environmental review and by ensuring that specific design considerations to achieve this mitigation are enacted at each stage of design by the project sponsor. **AES-1(d)** Potential noise impacts arising from increased traffic volumes associated with adjacent land development should be preferentially mitigated through the use of setbacks and the acoustical design of adjacent proposed structures. The use of sound barriers, or any other architectural features that could block views from the scenic highways or other view corridors, shall be discouraged to the extent possible. Where use of sound barriers is found to be necessary, walls shall incorporate offsets, accents, and landscaping to prevent monotony, as described in Mitigation Measure N-2(b).	
Impact AES-2 Development of proposed transportation improvement projects under the RTP/SCS, as well as the land use patterns envisioned by the plan would contribute to the alteration of Stanislaus County's character from primarily rural (or semi-rural) to a somewhat more suburban condition.	**AES-2(a)** Roadway extensions and widenings should avoid the removal of existing mature trees to the extent possible. Consistent with Mitigation Measure B-1(j), any trees that are protected by local agencies and would be removed should be replaced at a minimum ratio of 2:1 (trees planted to trees impacted) and incorporated into the landscaping design for the roadway. **AES-2(b)** Roadway lighting should be minimized to the extent possible, and shall not exceed the minimum height requirements of the local jurisdiction in which the project is proposed.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	AES-2(c) Bus shelters and other ancillary facilities constructed under the RTP/SCS should be designed in accordance with the architectural review requirements of the local jurisdiction in which the project is proposed. Bus shelters shall incorporate colors and wood materials complementary of the natural surroundings.	
AGRICULTURE		
Impact AG--1 Implementation of proposed transportation improvements and the land use scenario envisioned by the RTP/SCS could result in the conversion of Prime Farmland and lands under Williamson Act contract to non-agricultural uses.	**AG-1(a)** When new roadway extensions or widenings are planned, the project sponsor should assure that project-specific environmental reviews consider alternative alignments that reduce or avoid impacts to Prime Farmlands. **AG-1(b)** Rural roadway alignments should follow property lines to the extent feasible, to minimize impacts to the agricultural production value of any specific property. Farmers shall be compensated for the loss of agricultural production at the margins of lost property, based on the amount of land deeded as road right-of-way, as a function of the total amount of production on the property. **AG-1(c)** Project sponsors should consider corridor realignment, buffer zones, setbacks, and fencing to reduce conflict between agricultural lands and neighboring uses. **AG-1(d)** Quantify potential for direct conversion of Important Farmland using the LESA model or a similar quantitative tool. **AG-1(e)** Compensate for conversion impacts to Prime Farmland by purchasing agricultural conservation easements (ACE) or funding the acquisition of agricultural mitigation lands through an appropriate land trust (including, but not limited to the Central Valley Farmland Trust). **AG-1(f)** Project proponents should conduct an analysis of potential conflicts with Williamson Act contracts at the project level, consistent with the State CEQA Guidelines and Chapter 21.20 of the Stanislaus County Code. If the impacts of the proposed roadway projects on Williamson Act contract lands are determined to be significant, implement the following measures to reduce the impacts to a less-than-significant level: a. Design the proposed roadway projects to avoid or minimize the displacement of current and reasonably foreseeable agricultural operations from affected Williamson Act contract lands. b. Where it has been determined that cancellation of a Williamson Act contract for a parcel, or a portion of a parcel, may result in impacts to Prime or Important Farmland, Mitigation Measure AG-1 shall be implemented	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
Impact AG--2 Implementation of proposed transportation improvements and the land use scenario envisioned by the RTP/SCS could create adverse effects on farming operations.	**AG-2** Project sponsors should coordinate with land and agricultural business owners affected by project improvements to identify direct access or related impacts to farmlands or farming operations located adjacent to roadways corridors.	Class I, *Significant and unavoidable*
AIR QUALITY		
Impact AQ-1 Construction activities associated with transportation projects under the RTP/SCS, as well as the land use patterns envisioned by the proposed plan, would have the potential to result in temporary adverse impacts on air quality in Stanislaus County.	**AQ-1(a)** The project sponsor should ensure that SJVAPCD Regulation VIII control measures (listed in Table 6-2 of the GAMAQI) are implemented as necessary to reduce emissions to a less than significant level. The measures shall be noted on all construction plans and the project sponsor shall perform periodic site inspections. SJVAPCD Regulation VIII control measures include the following: • All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover. • All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant. • All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking. • With the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition. • When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained. • All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. (The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions.) (Use of blower devices is expressly forbidden.) • Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant. • Within urban areas, trackout shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	• Any site with 150 or more vehicle trips per day shall prevent carryout and trackout. **AQ-1(b)** The project sponsor should ensure that SJVAPCD enhanced control measures (listed in Table 6-3 of the GAMAQI) are implemented as necessary to reduce emissions to a less than significant level. The measures should be noted on all construction plans and the project sponsor shall perform periodic site inspections. SJVAPCD enhanced control measures include the following: • Limit traffic speeds on unpaved roads to 15 mph. • Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent. ~~**AQ-1(c)** The project sponsor should ensure that applicable SJVAPCD additional control measures (listed in Table 6-3 of the GAMAQI) are implemented as necessary to reduce emissions to a less than significant level. The measures should be noted on all construction plans and the project sponsor shall perform periodic site inspections. SJVAPCD additional control measures include the following:~~ • Install wheel washers for all exiting trucks, or wash off all trucks and equipment leaving the site. • Install wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds exceed 20 mph. • Limit area subject to excavation, grading, and other construction activity at any one time **AQ-1(c~~d~~)** ———The project sponsor should incorporate the following SJVAPCD heavy duty construction equipment mitigation measures (listed in Table 6-4 of the GAMAQI) to the maximum extent feasible: • Use alternative fueled or catalyst equipped diesel construction equipment. • Minimize idling time. • Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use. • Replace fossil-fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set). • Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak-hour of vehicular traffic on adjacent roadways.	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	• Implement activity management (e.g. rescheduling activities to reduce short-term impacts).	
Impact AQ-2 Implementation of the RTP/SCS would result in an overall reduction of on-road vehicle emissions when compared to the 2012 EIR Baseline and existing conditions established by applicable air quality plans, and would not result in an increase in criteria pollutants over the future 'no project scenario.'	None required.	Class III, *Less than significant.*
Impact AQ-3 The transportation improvement projects and the land use envisioned by the RTP/SCS may facilitate increased exposure of sensitive receptors to hazardous air pollutants that may cause health risks. Implementation of the RTP/SCS would not result in a regional increase in toxic air emissions when compared to the 2012 EIR baseline and applicable air quality plan baselines, or when compared to the future 'no project scenario'. However, localized increases may occur as a result of infill and transit oriented development facilitated by the RTP/SCS land use scenario.	**AQ-3(a)** The project sponsor should retain a qualified air quality consultant to prepare a health risk assessment in accordance with the California Air Resources Board and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to stationary air quality polluters prior to issuance of a demolition, grading, or building permit. The health risk assessment shall be submitted to the Lead Agency for review and approval. The sponsor shall implement the approved health risk assessment recommendations, if any. Such measures may include: • Do not locate sensitive receptors near the entry and exit points of a distribution center. • Do not locate sensitive receptors in the same building as a perchloroleythene dry cleaning facility. • Maintain a 50 foot buffer from a typical gas dispensing facility (under 3.6 million gallons of gas per year). • Install, operate and maintain in good working order a central heating and ventilation system or other air take system in the building, or in each individual residential unit, that meets the efficiency standard of the minimum efficiency reporting value 13. The heating and ventilation system should include the following features: Installation of a high efficiency filter and/or carbon filter-to-filter particulates and other chemical matter from entering the building. Either high efficiency particulate absorption filters or American Society of Heating, Refrigeration, and Air-Conditioning Engineers 85% supply filters should be used. • Retain a qualified heating and ventilation consultant or high efficiency particulate absorption rater during the design phase of the project to locate the heating and ventilation system based on exposure modeling from the mobile and/or stationary pollutant sources. • Maintain positive pressure within the building.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	• Achieve a performance standard of at least one air exchange per hour of fresh outside filtered air. • Achieve a performance standard of at least 4 air exchanges per hour of recirculation. • Achieve a performance standard of .25 air exchanges per hour of in unfiltered infiltration if the building is not positively pressurized.	
Impact AQ-4 Re-entrained dust has the potential to increase airborne PM_{10} and $PM_{2.5}$ levels in Stanislaus County. The increase in growth expected through the RTP/SCS planning horizon would result in additional vehicle miles traveled, which would add to the PM_{10} and $PM_{2.5}$ levels in the area. However, re-entrained dust levels would be lower with the RTP/SCS than the 2012 EIR baseline and 2007 existing conditions established by the applicable air quality plans.	None required.	Class III, *Less than significant.*
Impact AQ-5 The proposed RTP/SCS forecast horizon and growth assumptions are not consistent with those of applicable air quality plans.	None required.	The 2014 RTP/SCS is considered consistent with the SJVAPCD air quality plans.
BIOLOGY		
Impact B-1 Implementation of transportation improvements proposed and the land use scenario envisioned by the 2014 RTP/SCS may result in impacts to special status plant and animal species	**B-1(a) Biological Resources Screening and Assessment.** Because of the programmatic nature of the 2014 RTP/SCS and specific impacts for a given project are unknown at this time, on a project-by-project basis, a preliminary biological resource screening should be performed to determine whether the project has any potential to impact biological resources. If it is determined that the project has no potential to impact biological resources, no further action is required. If the project would have the potential to impact biological resources, prior to construction, a qualified biologist shall conduct a biological resources assessment (BRA) or similar type of study to document the existing biological resources within the project footprint plus a buffer and to determine the potential impacts to those resources. The BRA should evaluate the potential for impacts to all biological resources including, but not limited to special status species, nesting birds, wildlife movement, sensitive plant communities/critical habitat and other resources judged to be sensitive by local, state, and/or federal agencies. Pending the results of the BRA, design alterations, further technical studies (i.e. protocol surveys) and/or consultations with the USFWS, CDFW and/or other local, state, and federal agencies may be required. The following mitigation measures [B-1(b) through B-1(k)] shall be incorporated, only as applicable, into the BRA for	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	projects where specific resources are present or may be present and impacted by the project. Note that specific surveys described in the mitigation measures below may be completed as part of the BRA where suitable habitat is present. **B-1(b) Special Status Plant Species Surveys.** If completion of the project-specific BRA determines that special status plant species may occur on-site, surveys for special status plants shall be completed prior to any vegetation removal, grubbing, or other construction activity of each segment (including staging and mobilization). The surveys shall be floristic in nature and shall be seasonally-timed to coincide with the target species identified in the project-specific BRA. All plant surveys shall be conducted by a qualified biologist approved by the implementing agency no more than two years before initial ground disturbance. All special status plant species identified on-site shall be mapped onto a site-specific aerial photograph and topographic map. Surveys shall be conducted in accordance with the most current protocols established by the CDFW, USFWS, and the local jurisdictions if said protocols exist. A report of the survey results shall be submitted to the implementing agency, and the CDFW and/or USFWS, as appropriate, for review and approval. **B-1(c) Special Status Plant Species Avoidance, Minimization, and Mitigation.** If State listed or California Rare Plant List 1B species are found during special status plant surveys [pursuant to mitigation measure B-1(b)], then the project shall be re-designed to avoid impacting these plant species, if feasible. Rare plant occurrences that are not within the immediate disturbance footprint, but are located within 50 feet of disturbance limits shall have bright orange protective fencing installed at least 30 feet beyond their extent to protect them from harm. **B-1(d) Restoration and Monitoring.** If special status plants species cannot be avoided and will be impacted by a project implemented under the 2014 RTP/SCS, all impacts shall be mitigated at a minimum ratio of 2:1 (number of acres/individuals restored to number of acres/individuals impacted) for each species as a component of habitat restoration. A restoration plan shall be prepared and submitted to the jurisdiction overseeing the project for approval. (Note: if a state listed plant species will be impacted, the restoration plan shall be submitted to the CDFW for approval). The restoration plan shall include, at a minimum, the following components: • Description of the project/impact site (i.e., location, responsible parties, areas to be impacted by habitat type);	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	• Goal(s) of the compensatory mitigation project [type(s) and area(s) of habitat to be established, restored, enhanced, and/or preserved; specific functions and values of habitat type(s) to be established, restored, enhanced, and/or preserved]; • Description of the proposed compensatory mitigation site (location and size, ownership status, existing functions and values); • Implementation plan for the compensatory mitigation site (rationale for expecting implementation success, responsible parties, schedule, site preparation, planting plan); • Maintenance activities during the monitoring period, including weed removal as appropriate (activities, responsible parties, schedule); • Monitoring plan for the compensatory mitigation site, including no less than quarterly monitoring for the first year (performance standards, target functions and values, target acreages to be established, restored, enhanced, and/or preserved, annual monitoring reports); • Success criteria based on the goals and measurable objectives; said criteria to be, at a minimum, at least 80 percent survival of container plants and 30 percent relative cover by vegetation type; • An adaptive management program and remedial measures to address any shortcomings in meeting success criteria; • Notification of completion of compensatory mitigation and agency confirmation; and • Contingency measures (initiating procedures, alternative locations for contingency compensatory mitigation, funding mechanism). **B-1(e) Endangered/Threatened Species Habitat Assessment and Protocol Surveys.** Specific habitat assessment and survey protocol surveys are established for several federally and State Endangered or Threatened species. If the results of the BRA determine that suitable habitat may be present any such species, protocol habitat assessments/surveys shall be completed in accordance with CDFW and/or USFWS protocols prior to issuance of any construction permits. If through consultation with the CDFW and/or USFWS it is determined that protocol habitat assessments/surveys are not required, said consultation shall be documented prior to issuance of any construction permits. Each protocol has different survey and timing requirements. The applicants for each project shall be responsible for ensuring they understand the protocol requirements.	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	B-1(f) Endangered/Threatened Species Avoidance and Minimization. The habitat requirements of endangered and threatened species throughout the County are highly variable. The potential impacts from any given project implemented under the 2014 RTP/SCS are likewise highly variable. However, there are several avoidance and minimization measures which can be applied for a variety of species to reduce the potential for impact, with the final goal of no net loss of the species. The following measures may be applied to aquatic and/or terrestrial species. Project sponsors shall select from these measures as appropriate. • Ground disturbance shall be limited to the minimum necessary to complete the project. The project limits of disturbance shall be flagged. Areas of special biological concern within or adjacent to the limits of disturbance shall have highly visible orange construction fencing installed between said area and the limits of disturbance. • All projects occurring within/adjacent to aquatic habitats (including riparian habitats and wetlands) shall be completed between April 1 and October 31, if feasible, to avoid impacts to sensitive aquatic species. • All projects occurring within or adjacent to sensitive habitats that may support federally and/or state Endangered/Threatened species shall have a CDFW and/or USFWS-approved biologist present during all initial ground disturbing/vegetation clearing activities. Once initial ground disturbing/vegetation clearing activities have been completed, said biologist shall conduct daily pre-activity clearance surveys for Endangered/Threatened species. Alternatively, and upon approval of the CDFW and/or USFWS, said biologist may conduct site inspections at a minimum of once per week to ensure all prescribed avoidance and minimization measures are begin fully implemented. • No Endangered/Threatened species shall be captured and relocated without expressed permission from the CDFW and/or USFWS. • If at any time during construction of the project an Endangered/Threatened species enters the construction site or otherwise may be impacted by the project, all project activities shall cease. A CDFW/USFWS-approved biologist shall document the occurrence and consult with the CDFW and/or USFWS as appropriate. • For all projects occurring in areas where Endangered/Threatened species may be present and are at risk of entering the project site during construction, exclusion fencing shall be placed along the project boundaries prior to	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	start of construction (including staging and mobilization). The placement of the fence shall be at the discretion of the CDFW/USFWS-approved biologist. This fence shall consist of solid silt fencing placed at a minimum of 3 feet above grade and 2 feet below grade and shall be attached to wooden stakes placed at intervals of not more than 5 feet. The fence shall be inspected weekly and following rain events and high wind events and shall be maintained in good working condition until all construction activities are complete. • All vehicle maintenance/fueling/staging shall occur not less than 100 feet from any riparian habitat or water body. Suitable containment procedures shall be implemented to prevent spills. A minimum of one spill kit shall be available at each work location near riparian habitat or water bodies. • No equipment shall be permitted to enter wetted portions of any affected drainage channel. • All equipment operating within streams shall be in good conditions and free of leaks. Spill containment shall be installed under all equipment staged within stream areas and extra spill containment and clean up materials shall be located in close proximity for easy access. • If project activities could degrade water quality, water quality sampling shall be implemented to identify the pre-project baseline, and to monitor during construction for comparison to the baseline. • If water is to be diverted around work sites, a diversion plan shall be submitted (depending upon the species that may be present) to the CDFW, RWQCB, USFWS, and/or NMFS for their review and approval prior to the start of any construction activities (including staging and mobilization). If pumps are used, all intakes shall be completely screened with wire mesh not larger than five millimeters to prevent animals from entering the pump system. • At the end of each work day, excavations shall be secured with cover or a ramp provided to prevent wildlife entrapment. • All trenches, pipes, culverts or similar structures shall be inspected for animals prior to burying, capping, moving, or filling. • The CDFW/USFWS-approved biologist shall remove invasive aquatic species such as bullfrogs and crayfish from suitable aquatic habitat whenever observed and shall dispatch them in a humane manner and dispose of properly.	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	• If any federally and/or state protected species are harmed, the CDFW/USFWS-approved biologist shall document the circumstances that led to harm and shall determine if project activities should cease or be altered in an effort to avoid additional harm to these species. Dead or injured special status species shall be disposed of at the discretion of the CDFW and USFWS. All incidences of harm shall be reported to the CDFW and USFWS within 48 hours. **B-1(g) Non-Listed Special Status Animal Species Avoidance and Minimization.** Several State Species of Special Concern may be impacted by projects implemented under the 2014 RTP/SCS. The ecological requirements and potential for impacts is highly variable among these species. Depending on the species identified in the BRA, several of the measures identified under B-1(f) shall be applicable to the project. In addition, measures shall be selected from among the following to reduce the potential for impacts to non-listed special status animal species: • For non-listed special-status terrestrial amphibians and reptiles, coverboard surveys shall be completed within three months of the start of construction. The coverboards shall be at least four feet by four feet and constructed of untreated plywood placed flat on the ground. The coverboards shall be checked by a qualified biologist once per week for each week after placement up until the start of vegetation removal. All non-listed special status and common animals found under the coverboards shall be captured and placed in five-gallon buckets for transportation to relocation sites. All relocation sites shall be reviewed by the project sponsor and shall consist of suitable habitat. Relocation sites shall be as close to the capture site as possible but far enough away to ensure the animal(s) is not harmed by construction of the project. Relocation shall occur on the same day as capture. CNDDB Field Survey Forms shall be submitted to the CDFW for all special status animal species observed. • Pre-construction clearance surveys shall be conducted within 14 days of the start of construction (including staging and mobilization). The surveys shall cover the entire disturbance footprint plus a minimum 200 foot bufferand shall identify all special status animal species that may occur on-site. All non-listed special status species shall be relocated from the site either through direct capture or through passive exclusion (e.g., American badger). A report of the pre-construction survey shall be submitted to StanCOGand/or the local	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	jurisdiction for their review and approval prior to the start of construction. • A qualified biologist shall be present during all initial ground disturbing activities, including vegetation removal to recover special status animal species unearthed by construction activities. • Upon completion of the project, a qualified biologist shall prepare a Final Compliance report documenting all compliance activities implemented for the project, including the pre-construction survey results. The report shall be submitted within 30 days of completion of the project. • If special status bat species may be present and impacted by the project, a qualified biologist shall conduct within 30 days of the start of construction presence/absence surveys for special status bats in consultation with the CDFW where suitable roosting habitat is present. Surveys shall be conducted using acoustic detectors and by searching tree cavities, crevices, and other areas where bats may roost. If active roosts are located, exclusion devices such as netting shall be installed to discourage bats from occupying the site. If a roost is determined by a qualified biologist to be used by a large number of bats (large hibernaculum), bat boxes shall be installed near the project site. The number of bat boxes installed will depend on the size of the hibernaculum and shall be determined through consultations with the CDFW. If a maternity colony has become established, all construction activities shall be postponed within a 500-foot buffer around the maternity colony until it is determined by a qualified biologist that the young have dispersed. Once it has been determined that the roost is clear of bats, the roost shall be removed immediately. **B-1(h) Preconstruction Surveys for Nesting Birds.** For construction activities occurring during the nesting season (generally February 1 to September 15), surveys for nesting birds covered by the California Fish and Game Code and the Migratory Bird Treaty Act shall be conducted by a qualified biologist no more than 14 days prior to vegetation removal. The surveys shall include the entire segment disturbance area plus a 200 foot buffer around the site. If active nests are located, all construction work shall be conducted outside a buffer zone from the nest to be determined by the qualified biologist. The buffer shall be a minimum of 50 feet for non-raptor bird species and at least 150 feet for raptor species. Larger buffers may be required depending upon the status of the nest and the construction activities	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	occurring in the vicinity of the nest. The buffer area(s) shall be closed to all construction personnel and equipment until the adults and young are no longer reliant on the nest site. A qualified biologist shall confirm that breeding/nesting is completed and young have fledged the nest prior to removal of the buffer. A report of these preconstruction nesting birds surveys shall be submitted to StanCOG and/or the local jurisdiction. **B-1(i) Worker Environmental Awareness Program (WEAP).** Prior to initiation of construction activities (including staging and mobilization), all personnel associated with project construction shall attend WEAP training, conducted by a qualified biologist, to aid workers in recognizing special status resources that may occur in the project area. The specifics of this program shall include identification of the sensitive species and habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. A fact sheet conveying this information shall also be prepared for distribution to all contractors, their employers, and other personnel involved with construction of the project. All employees shall sign a form documenting that they have attended the WEAP and understand the information presented to them. The form shall be submitted to StanCOG and/or the local jurisdiction to document compliance. **B-1(j) Tree Protection.** If it is determined that construction may impact trees protected by local agencies, the project sponsor shall procure all necessary tree removal permits. A tree protection and replacement plan shall be developed by a certified arborist as appropriate. The plan shall include, but would not be limited to, an inventory of trees to within the construction site, setbacks from trees and protective fencing, restrictions regarding grading and paving near trees, direction regarding pruning and digging within root zone of trees, and requirements for replacement and maintenance of trees. If protected trees will be removed, replacement tree plantings of like species in accordance with local agency standards, but at a minimum ratio of 2:1 (trees planted to trees impacted), shall be installed on-site or at an approved off-site location and a restoration and monitoring program shall be developed in accordance with B-1(d) and shall be implemented for a minimum of seven years. If a protected tree shall be encroached upon but not removed, a certified arborist shall be present to oversee all trimming of roots and branches.	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
Impact B-2 Implementation of transportation improvements proposed and the land use scenario envisioned by the 2014 RTP/SCS may result in impacts to sensitive habitats, including federally protected wetlands..	**B-2(a) Jurisdictional Delineation.** If projects implemented under the 2014 RTP/SCS occur within or adjacent to wetland, drainages, riparian habitats, or other areas that may fall under the jurisdiction of the CDFW, USACE, and/or RWQCB, a qualified biologist shall complete a jurisdictional delineation. The jurisdictional delineation shall determine the extent of the jurisdiction for each of these agencies and shall be conducted in accordance with the requirement set forth by each agency. The result shall be a preliminary jurisdictional delineation report that shall be submitted to the implementing agency, USACE, RWQCB, and CDFW, as appropriate, for review and approval. If jurisdictional areas are expected to be impacted, then the RWQCB would require a Waste Discharge Requirements (WDR) permit and/or Section 401 Water Quality Certification (depending upon whether or not the feature falls under federal jurisdiction). If CDFW asserts its jurisdictional authority, then a Streambed Alteration Agreement pursuant to Section 1600 *et seq.* of the California Fish and Game Code would also be required prior to construction within the areas of CDFW jurisdiction. If the USACE asserts its authority, then a permit pursuant to Section 404 of the Clean Water Act would likely be required. **B-2(b) Wetland and Riparian Habitat Restored.** Impacts to jurisdictional wetland and riparian habitat shall be mitigated at a minimum ratio of 2:1 (acres of habitat restored to acres impacted), and shall occur on-site or as close to the impacted habitat as possible, <u>except within an Airport Influence Area (AIA) as identified in the County's Airport Land Use Compatibility Plan (ALUCP)</u>. <u>Mitigation for impacts to jurisdictional wetland and riparian habitat shall only be included within an AIA if consistent with the ALUCP</u>. A mitigation and monitoring plan shall be developed by a qualified biologist in accordance with mitigation measure B-1(d) above and shall be implemented for no less than five years after construction of the segment, or until the StanCOG/local jurisdiction and/or the permitting authority (e.g., CDFW or USACE) has determined that restoration has been successful. **B-2(c) Landscaping Plan.** If landscaping is proposed for a specific project, a qualified biologist/landscape architect shall prepare a landscape plan for that project. This plan shall indicate the locations and species of plants to be installed. Drought tolerant, locally native plant species shall be used. Noxious, invasive, and/or non-native plant species that are recognized on the Federal Noxious Weed List, California Noxious Weeds List, and/or California Invasive Plant Council Lists 1, 2, and 4 shall not be permitted. Species selected for planting shall be similar to those species found in adjacent native habitats. <u>If landscaping is proposed within an Airport</u>	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	Influence Area, the plan and planting materials should be developed to prevent the attraction of potentially hazardous wildlife and should be reviewed by an FAA-qualified hazard biologist. **B-2(d) Invasive Weed Prevention and Management Program.** Prior to start of construction for each project, an Invasive Weed Prevention and Management Program shall be developed by a qualified biologist to prevent invasion of native habitat by non-native plant species. A list of target species shall be included, along with measures for early detection and eradication. All disturbed areas shall be hydroseeded with a mix of locally native species upon completion of work in those areas. In areas where construction is ongoing, hydroseeding shall occur where no construction activities have occurred within six (6) weeks since ground disturbing activities ceased. If exotic species invade these areas prior to hydroseeding, weed removal shall occur in consultation with a qualified biologist and in accordance with the restoration plan. If hydroseeding is proposed within an Airport Influence Area, the seed mixture shall be developed to prevent the attraction of potentially hazardous wildlife and shall be reviewed by an FAA-qualified hazard biologist.	
Impact B-3 Implementation of transportation improvements proposed and the land use scenario envisioned by the 2014 RTP/SCs may impact wildlife movement, including fish migration, and/or impede the use of native wildlife nursery.	**B-3(a) Fence and Lighting Design.** All projects including long segments of fencing and lighting should be designed to minimize impacts to wildlife. Fencing shall not block wildlife movement through riparian or other natural habitat. Where fencing is required for public safety concerns, the fence shall be designed to permit wildlife movement by incorporating design features such as: • A minimum 16 inches between the ground and the bottom of the fence to provide clearance for small animals; • A minimum 12 inches between the top two wires, or top the fence with a wooden rail, mesh, or chain link instead of wire to prevent animals from becoming entangled; and • If privacy fencing is required near open space areas, openings at the bottom of the fence measure at least 16 inches in diameter shall be installed at reasonable intervals to allow wildlife movement. If fencing must designed in such a manner that wildlife passage would not be permitted, wildlife crossing structures shall be incorporated into the project design as appropriate. Similarly, lighting installed as part of any project shall be designed to be minimally disruptive to wildlife. This may be accomplished through the use of hoods to direct light away from natural habitat, using low intensity lighting, and using a few lights as necessary to achieve the goals of the project.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	B-3 (b) Construction Best Management Practices. The following construction Best Management Practices (BMPs) should be incorporated into all grading and construction plans: • Designation of a 20 mile per hour speed limit in all construction areas. • All vehicles and equipment shall be parked on pavement, existing roads, and previously disturbed areas, and clearing of vegetation for vehicle access shall be avoided to the greatest extent feasible. • The number of access routes, number and size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the goal of the project. • Designation of equipment washout and fueling areas to be located within the limits of grading at a minimum of 100 feet from waters, wetlands, or other sensitive resources as identified by a qualified biologist. Washout areas shall be designed to fully contain polluted water and materials for subsequent removal from the site. • Daily construction work schedules shall be limited to daylight hours • Mufflers shall be used on all construction equipment and vehicles shall be in good operating condition. • Drip pans shall be placed under all stationary vehicles and mechanical equipment. • All trash shall be placed in sealed containers and shall be removed from the project site a minimum of once per week. • No pets are permitted on project site during construction.	
CULTURAL RESOURCES		
Impact CR-1 Implementation of proposed transportation improvements and the land use scenario envisioned by the 2014 RTP/SCS could disturb known and unknown cultural resources.	**CR-1(a)** The project sponsor of a 2014 RTP/SCS project involving earth disturbance, the installation of pole signage or lighting, or construction of permanent above ground structures or roadways should ensure that the following elements are included in the project's individual environmental review: 1. Prior to project construction, a map defining the Area of Potential Effects (APE) shall be prepared on a project by project basis for 2014 RTP/SCS improvements which involve earth disturbance, the installation of pole signage or lighting, or construction of permanent above ground structures. This map will indicate the areas of primary and secondary disturbance associated with construction and operation of the facility and will help in determining whether known archeological, paleontological or historical resources are located within the impact zone.	Class I, *Significant and unavoidable*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	2. A preliminary study of each project area, as defined in the APE, shall be completed to determine whether or not the project area has been studied under an earlier investigation, and to determine the impacts of the previous project. 3. If the results of the preliminary studies indicate additional studies are necessary; development of field studies and/or other documentary research shall be developed and completed (Phase I studies). Negative results would result in no additional studies for the project area. 4. Based on positive results of the Phase I studies, an evaluation of identified resources shall be completed to determine the potential eligibility/ significance of the resources (Phase II studies). 5. Phase III mitigation studies shall be coordinated with the Office of Historic Preservation, as the research design will require review and approval from the OHP. In the case of prehistoric or Native American related resources, the Native American Heritage Commission and/or local representatives of the Native American population shall be contacted and permitted to respond to the testing/mitigation programs. **CR-1(b)** If development of the proposed improvement requires the presence of an archaeological, Native American, or paleontological monitor, the project sponsor shall ensure that a Native American monitor, certified archaeologist, and/or certified paleontologist, as applicable, monitors the grading and/or other initial ground altering activities. The schedule and extent of the monitoring will depend on the grading schedule and/or extent of the ground alterations. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review. **CR-1(c)** The project sponsor should ensure that materials recovered over the course of any given improvement are adequately cleaned, labeled, and curated at a recognized repository. This requirement can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.	

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	CR-1(d) The project sponsor should ensure that mitigation for potential impacts to significant cultural resources includes one or more of the following: • Realignment of the project right-of-way (avoidance; the most preferable method); • Capping of the site and leaving it undisturbed; • Addressing structural remains with respect to NRHP guidelines (Phase III studies); • Relocating structures per NRHP guidelines; • Creation of interpretative facilities; and/or • Development of measures to prevent vandalism. This can be accomplished through placement of conditions on the project by the local jurisdiction during individual environmental review.	
ENERGY		
Impact E-1 Future transportation improvement projects and implementation of the land use scenario envisioned by the RTP/SCS would increase demand for energy beyond existing conditions.	• New facilities should be designed with energy-efficient equipment and passive solar design (e.g., orientation of building to maximize natural heating and cooling, solar water heating, use of daylighting, and placement of trees to aid passive cooling, protection from prevailing winds and maximum year-round solar access), provided that additional capital costs are offset by estimated energy savings during the first 5 years of operation. Additional improvements with longer payback periods such as photovoltaic solar electric systems should be considered where applicable. • All lighting should be energy efficient and designed to use the least amount of energy to serve the purpose of the lighting. Lighting should utilize solar energy wherever feasible. • New landscaping design and irrigation systems should be water efficient.	Class III, *Less than significant.*
Impact E-2 RTP/SCS projects would not significantly impact the transportation of energy resources within the County.	None required.	Class III, *Less than significant.*
ENVIRONMENTAL JUSTICE		
Impact EJ-1 Implementation of the Valley Vision Stanislaus Plan may cause adverse effects on a minority or low-income population; however, these potential impacts would not be disproportionately high as per Executive Order 12898	None required in addition to those recommended to address impacts to Air Quality, Noise and Transportation and Circulation referenced above.	Class III, *Less than significant.*

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Impact	Mitigation Measures	Significance After Mitigation
Impact EJ-2 The benefits derived from the 2014 Valley Vision Stanislaus Plan in terms of travel times and accessibility by transit, single-occupancy vehicles, bicycling or walking and access and availability of housing options will not be substantially less in environmental justice communities in StanCOG region.	None required.	Class III, *Less than significant*
GEOLOGY		
Impact G-1 Some RTP/SCS projects could be at risk from seismic activity. Although fault rupture and seismically induced liquefaction do not pose a substantial threat in Stanislaus County, RTP/SCS projects may be subject to substantial ground-shaking	**G-1(a)** The local jurisdiction in which a particular RTP/SCS bridge project is located shall ensure that the structure is designed and constructed to the latest geotechnical standards. This may necessitate site-specific geologic and soils engineering investigations to exceed the code for high ground-shaking zones. This can be accomplished through the placement of conditions on the project by the local jurisdiction during individual environmental review. **G-1(b)** If a RTP/SCS project is located in a zone of high potential ground-shaking intensity, the project sponsor should ensure that the structure is designed and constructed to the latest geotechnical standards. In most cases, this will necessitate site-specific geologic and soils engineering investigations conducted by a qualified geotechnical expert. Any investigations shall comply with the California Geological Survey's *Guidelines for Evaluating and Mitigating Seismic Hazards in California.*	Class I, *Significant and unavoidable.*
Impact G-2 Some projects envisioned in the RTP/SCSmay be located on unstable soils subject to riverbank erosion, shrinking, and swelling	**G-2(a)** If a RTP/SCS project is located in an area of highly expansive or erosive soils, the project sponsor should ensure that a site-specific geotechnical investigation is conducted. The investigation will identify hazardous conditions and recommend appropriate design factors to minimize hazards. Such measures could include concrete slabs on grade with increased steel reinforcement, removal of highly expansive material and replacement with non-expansive import fill material, or chemical treatment with hydrated lime to reduce the expansion characteristics of the soils. **G-2(b)** If a RTP/SCS project requires cut slopes over 20 feet in height or is located in areas of bedded or jointed bedrock, the project sponsor should ensure that specific slope stabilization studies are conducted. Possible stabilization methods include buttresses, retaining walls and soldier piles.	Class I, *Significant and unavoidable.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
GREENHOUSE GAS EMISSIONS		
Impact GHG-1 Construction of the transportation improvement projects and future land use patterns envisioned by the RTP/SCS would generate temporary short-term GHG emissions.	**GHG-1** The project sponsor should ensure that applicable GHG-reducing diesel particulate and NOX emissions measures for off-road construction vehicles are implemented during construction. The measures shall be noted on all construction plans and the project sponsor shall perform periodic site inspections. Applicable GHG-reducing measures include the following. • Use of diesel construction equipment meeting ARB's Tier 2 certified engines or cleaner off-road heavy-duty diesel engines, and comply with the State Off-Road Regulation; • Use of on-road heavy-duty trucks that meet the ARB's 2007 or cleaner certification standard for on-road heavy-duty diesel engines, and comply with the State On-Road Regulation; • All on and off-road diesel equipment shall not idle for more than 5 minutes. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of the 5 minute idling limit; • Use of electric equipment in place of diesel-powered equipment, where feasible; • Substitute gasoline-powered in place of diesel-powered equipment, where feasible; and • Use of alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel	Class I, *Significant and unavoidable.*
Impact GHG-2 Implementation of the RTP/SCS would not result in a significant increase in GHG emissions	None required.	Class III, *Less than significant.*
Impact GHG-3 Implementation of the RTP/SCS would not interfere with the GHG emissions reduction goals of AB 32 or SB 375	None required.	Class III, *Less than significant.*
Impact GHG-4 Implementation of the RTP/SCS would not interfere with the goals of applicable GHG reduction plans and policies, including the adopted climate action plan for the City of Oakdale, as well as AB 32 and SB 375.	None required.	Class III, *Less than significant.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
HYDROLOGICAL AND WATER RESOURCES		
Impact W-1 Implementation of proposed transportation improvements and future projects facilitated by the land use scenario envisioned in the RTP/SCS would incrementally increase countywide water demand.	**W-1(a)** The sponsor of a RTP/SCS project should ensure that, where economically feasible and available, reclaimed water is used for dust suppression during construction activities. This measure shall be noted on construction plans and shall be spot checked by the local jurisdiction. **W-1(b)** The sponsor of a RTP/SCS project should ensure that low water use landscaping (i.e., drought tolerant plants and drip irrigation) is installed. When feasible, native plant species shall be used. **W-1(c)** The sponsor of a RTP/SCS project should ensure that, if feasible, landscaping associated with proposed improvements is maintained using reclaimed water. **W-1(d)** The sponsor of a RTP/SCS project shall ensure that porous pavement materials are utilized, where feasible, to allow for groundwater percolation. **W-1(e)** The sponsor of a RTP/SCS project that requires potable water service should coordinate with water supply system operators to ensure that the existing water supply systems have the capacity to handle the increase. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility should be provided by the project sponsor. In addition, wherever feasible, reclaimed water should be used for landscaping purposes instead of potable water.	Class I, *Significant and unavoidable.*
Impact W-2 Implementation of proposed transportation improvements and future projects facilitated by the land use scenario envisioned in the RTP/SCS could result in erosion and contaminants in runoff during construction and operations, which could degrade surface and ground water quality.	**W-2(a)** The sponsor of a RTP/SCS project should ensure that fertilizer/pesticide application plans for any new right-of-way landscaping are prepared to minimize deep percolation of contaminants. The plans shall specify the use of products that are safe for use in and around aquatic environments. **W-2(b)** The sponsor of a RTP/SCS widening or roadway extension project shall ensure that the improvement directs runoff into subsurface percolation basins and traps which would allow for the removal of urban pollutants, fertilizers, pesticides, and other chemicals. **W-2(c)** For a RTP/SCS project that would disturb at least one acre, a SWPPP shall be developed prior to the initiation of grading and implemented for all construction activity on the project site. The SWPPP shall include specific BMPs to control the discharge of material from the site and into the creeks and local storm drains. BMP methods may include, but would not be limited to, the use of temporary retention basins, straw bales, sand bagging, mulching, erosion control blankets and soil stabilizers.	Class I, *Significant and unavoidable.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
Impact W-3 Implementation of proposed transportation improvements and future development projects facilitated by the land use scenario envisioned in the RTP/SCS could be subject to flood hazards due to storm events and/or dam failure.	**W-3** If a RTP/SCS project is located in an area with high flooding potential due to a storm event or dam inundation, the project sponsor should ensure that the structure is elevated at least one foot above the 100-year flood zone elevation and that bank stabilization and erosion control measures are implemented along creek crossings**.**	Class I, *Significant and unavoidable.*
LAND USE		
Impact LU-1 Implementation of proposed transportation improvements and the land use scenario envisioned by theRTP/SCS could result in land use conflicts with existing sensitive land uses.	Mitigation measures listed under Impact AQ-1 and AQ-3 in Section 4.3, *Air Quality,* would reduce localized air quality impacts. Mitigation measures listed under Impact N-1, in Section 4.12, *Noise,* would reduce potential noise impacts. No mitigation is required for impacts related to dividing established communities.	Class III, *Less than significant.*
Impact LU-2 The RTP/SCS would be consistent with applicable adopted state and local goals, policies and regulations.	None required.	Class III, *Less than significant.*
Impact LU-3 Implementation of proposed transportation improvements and the land use scenario envisioned by the RTP/SCS could temporarily and permanently displace or disrupt existing residences and businesses	**LU-3(a)** The project sponsor of RTP/SCS projects with the potential to displace residences or businesses should assure that project-specific environmental reviews consider alternative alignments and developments that avoid or minimize impacts to nearby residences and businesses. **LU-3(b)** Where project-specific reviews identify displacement or relocation impacts that are unavoidable, the project sponsor should ensure that all applicable local, state, and federal relocation programs are used to assist eligible persons to relocate. In addition, the local jurisdiction shall review the proposed construction schedules to ensure that adequate time is provided to allow affected businesses to find and relocate to other sites. **LU-3(c)** For all Valley Vision Stanislaus Plan projects that could result in temporary lane closures or access blockage during construction, a temporary access plan should be implemented to ensure continued access to affected cyclists, businesses, and homes. Appropriate signs and safe access shall be guaranteed during project construction to ensure that businesses remain open.	Class I, *Significant and unavoidable.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
Impact LU-4 Implementation of proposed transportation improvements and the land use scenario envisioned by the RTP/SCS could redistribute residential and commercial development; however, RTP/SCS projects that are included in local General Plans would not significantly induce growth beyond that already anticipated, as the primary purpose of proposed improvements is to accommodate projected growth.	No mitigation measures are required.	Class III, *Less than significant.*
NOISE		
Impact N-1 Construction activity associated with transportation improvement projects, and development envisioned by the RTP/SCS would create temporary noise and vibration level increases in discrete locations throughout the County.	**N-1(a)** Project sponsors of RTP/SCS projects should ensure that, where residences or other noise sensitive uses are located within 800 feet of construction sites, appropriate measures shall be implemented to ensure consistency with local general plan noise element policies and ordinance requirements relating to construction. Specific techniques may include, but are not limited to, restrictions on construction timing, use of sound blankets on construction equipment, and the use of temporary walls and noise barriers to block and deflect noise. **N-1(b)** If a particular project within 800 feet of sensitive receptors requires pile driving, the local jurisdiction in which this project is located should require the use of pile drilling techniques instead, where feasible. This shall be accomplished through the placement of conditions on the project during its individual environmental review. **N-1 (c)** Project sponsors should ensure that equipment and trucks used for project construction utilize the best available noise control techniques (including mufflers, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds). **N-1(d)** Project sponsors should ensure that impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction be hydraulically or electrical powered wherever feasible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatically powered tools is unavoidable, use of an exhaust muffler on the compressed air exhaust can lower noise levels from the exhaust by up to about 10 dBA. When feasible, external jackets on the impact equipment can achieve a reduction of 5 dBA. Whenever feasible, use quieter procedures, such as drilling rather than impact equipment operation.	Class I, *Significant and unavoidable.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
	N-1(e) Locate stationary noise sources as far from sensitive receptors as possible. Stationary noise sources that must be located near existing receptors will be adequately muffled.	
Impact N-2 Implementation of the RTP/SCS would increase traffic-generated noise levels on highways and roadways which could expose sensitive receptors to noise in excess of normally acceptable levels.	**N-2(a)** Sponsor agencies of RTP/SCS projects should complete detailed noise assessments using applicable guidelines (e.g., Federal Transit Administration Transit Noise and Vibration Impact Assessment for rail and bus projects and the California Department of Transportation Traffic Noise Analysis Protocol for roadway projects). The project sponsor shall ensure that a noise survey is conducted to determine potential alternate alignments which allow greater distance from, or greater buffering of, noise-sensitive areas. The noise survey shall be sufficient to indicate existing and projected noise levels, to determine the amount of attenuation needed to reduce potential noise impacts to applicable State and local standards. This shall be accomplished during the project's individual environmental review. **N-2(b)** Where new or expanded roadways, rail, or transit are found to expose receptors to noise exceeding normally acceptable levels, the project sponsor shall consider various sound attenuation techniques. The preferred methods for mitigating noise impacts will be the use of appropriate setbacks and sound attenuating building design, including retrofit of existing structures with sound attenuating building materials where feasible. In instances where use of these techniques is not feasible, the use of sound barriers (earthen berms, sound walls, or some combination of the two) will be considered. Long expanses of walls or fences should be interrupted with offsets and provided with accents to prevent monotony. Landscape pockets and pedestrian access through walls should be provided. Whenever possible, a combination of elements should be used, including solid fences, walls, and, landscaped berms. Determination of appropriate noise attenuation measures will be assessed on a case-by-case basis during a project's individual environmental review pursuant to the regulations of the applicable agency.	Class I, *Significant and unavoidable.*

Table ES-2 Summary of Environmental Impacts, Mitigation Measures, and Significance After Mitigation

Impact	Mitigation Measures	Significance After Mitigation
Impact N-3 The proposed RTP/SCS land use scenario would encourage infill and mixed use development, which may place sensitive receptors in areas with unacceptable noise levels.	**N-3** If a RTP/SCS project is located in an area with exterior ambient noise levels above local noise standards the project sponsor should ensure that a noise study is conducted to determine existing and projected noise levels and feasible attenuation measures needed to reduce potential noise impacts to such uses to an exterior and interior noise level below local standards. Such measures may include, but are not limited to: dual-paned windows, solid core exterior doors with perimeter weather stripping, air condition system so that windows and doors may remain closed, and situating exterior doors away from roads. This shall be accomplished during the project's individual environmental review.	Class I, *Significant and unavoidable.*
TRANSPORATION AND CIRCULATION		
Impact T-1 Implementation of the RTP/SCS would reduce total VMT and CVMT as defined by total and peak hour congested vehicle miles traveled, when compared to 2040 conditions without the RTP/SCS.	No mitigation measures are required for transportation operations.	Class III, *Less than significant.*
Impact T-2 The RTP/SCS would generally be consistent with applicable alternative transportation plans and policies.	No mitigation measures are required.	Class III, *Less than significant.*

PROJECT-SPECIFIC IMPACT SUMMARY

The proposed projects listed in Table 2-1 to Table 2-8 of Section 2.0 *Project Description*, could result in impacts to multiple issue areas discussed in this EIR. As discussed above, many of the impacts listed in Table ES-2 have been classified as "Significant and Unavoidable" because StanCOG cannot require implementing agencies to adopt mitigation. In most of these cases if mitigation were implemented, impacts would be less than significant. The discussion of project-specific impact summary below reflects impacts to issue areas if sponsor agencies were to implement suggested mitigation.

All projects that include a construction component could cause aesthetic and air quality impacts. (Impact AQ-1). Projects that include roadway, rail, and transit features and/or expansions would associate with Impacts AQ-2 and AQ-4. Projects located to nearby agricultural lands have the potential to impact agricultural resources, as described in Impacts AG-1 and AG-2. Projects requiring substantial ground disturbance in undisturbed areas have the potential to impact biological, cultural resources, geology/soils and hydrology/water quality. Projects located in urban infill or previously disturbed areas have a greater potential to impact historic built environment resources, as well as historic archaeological resources in older developed areas. The 2014 RTP/SCS is expected to improve access and mobility throughout Stanislaus County including to/from and within Environmental Justice communities. Individual projects could impact Environmental Justice communities, but would not necessarily do so disproportionately when compared to the overall population. Projects that require new

construction or landscaping may result in impacts to hydrology and water quality. All proposed projects listed in Section 2.0 *Project Description* would associate with Impacts LU-1, LU-2, LU-3, and LU-4. Some project types listed may create noise impacts that could result in noise or vibration impacts, such as auxiliary lane and rail projects.

Other issue areas are not anticipated to be impacted by the specific projects identified in the 2014 RTP/SCS. No specific projects have been identified that would result in significant or wasteful consumption of energy. All projects have the potential to result in GHG emissions; however, the 2014 RTP/SCS as a whole is designed to reduce per capita transportation-related GHG emissions in accordance with SB 375 and AB 32. Similarly, the projects that comprise the program are intended to improve traffic circulation rather than create adverse impacts and projects that are likely to have an adverse impact on traffic/transportation system would not be implemented.

Project-specific analyses would need to be conducted as appropriate and applicable as the individual projects are designed and implemented to determine the actual magnitude of impact for each issue area. Mitigation measures listed in Table ES-2 may apply to specific projects as impacts are identified.