Draft

City of Suisun City
Highway 12 Logistics Center
Environmental Impact Report

Prepared for:

City of Suisun City

AECOM

August 2023

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Environmental Impact Report

Prepared for:

City of Suisun City
701 Civic Center Boulevard
Suisun City, CA 94585

Contact:

Jim Bermudez
Development Services Director
jbermudez@suisun.com

Prepared by:

AECOM
2020 L Street, Suite 300
Sacramento, CA 95811

Contact:

J. Matthew Gerken, AICP
Project Manager
(916) 414-5892

AECOM

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ACRONYMS AND OTHER ABBREVIATIONS

µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
A-40	Agriculture 40 Acres
AAQS	ambient air quality standards
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ADT	average daily traffic
AEI	AEI Consultants
AEP	annual exceedance probability
AFB	Air Force Base
afy	acre-feet per year
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
APN	Assessor's Parcel Number
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ATCM	Airborne Toxic Control Measure
B.P.	Before Present
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BASH	Bird/Wildlife Aircraft Strike Hazard
Basin ID 2-003	Suisun-Fairfield Valley Groundwater Basin
Basin Plan	Water Quality Control Plan for the San Francisco Bay Basin
BASMAA	Bay Area Stormwater Management Agencies Association
Bay Area Clean Air Plan	Bay Area Clean Air Plan: Spare the Air, Cool the Climate
Bay-Delta	Sacramento–San Joaquin Delta
BCDC	Bay Conservation and Development Commission
bhp	brake horsepower
BMPs	best management practices
BP	Before Present
CAAQS	California Ambient Air Quality Standards
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards
CALGreen Code	California Green Building Standards Code
California NRCS	California Natural Resources Conservation Services
CalOSHA	California Occupational Safety and Health Administration

CalRecycle	California Integrated Waste Management Board
Caltrans	California Department of Transportation
Caltrans Construction NPDES Permit	SWRCB's Statewide NPDES Permit CAS000003, SWRCB Order 2012-0011-DWQ as amended in 2017
CASGEM	California Statewide Groundwater Elevation Monitoring
CASQA	California Stormwater Quality Association
CBC	California Building Standards Code
CC&Rs	Covenants, Conditions & Restrictions
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFC	California Fire Code
CFNR	California Northern Railroad
CFR	Code of Federal Regulations
CFS	Commercial Services & Fabricating
CGS	California Geological Survey
CHABA	Committee of Hearing, Bio Acoustics, and Bio Mechanics
CHRIS	California Historic Resources Inventory System
City	City of Suisun City
CLOMR	Conditional Letters of Map Revision
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
COCs	chemicals of concern
Construction General Permit	SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities [Order WQ 2022-0057-DWQ]
CPRR	California Pacific Railroad
CRHR	California Register of Historical Resources
CS	Service Commercial
CSF	Commercial Services and Fabricating
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
dBA/DD	A-weighted decibels per doubling of distance
DCA	1,1-dichloroethane
DCE	1,1-dichloroethene
Design Guidebook	Green Stormwater Infrastructure Design Guidebook
DOC	Department of Conservation
DPM	diesel particulate matter
DPR	California Department of Pesticide Regulation
DPR	Department of Parks and Recreation
Drainage Plan	Draft Drainage Master Plan

DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
E. coli	fecal bacterial contamination
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESLs	Environmental Screening Levels
EV	electric vehicle
EZRI	Earthquake Zones of Required Investigation
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FHWA-RD-77-108	Federal Highway Administration Highway Traffic Noise Prediction Model
FIRMs	Flood Insurance Rate Maps
FP	floodplain
FPD	Suisun Fire Protection District
FSSD	Fairfield-Suisun Sewer District
FSURMP	Fairfield-Suisun Urban Runoff Management Program
FTA	Federal Transit Administration
g	peak ground acceleration
GHGs	Greenhouse gases
gpm	gallons per minute
GSAs	groundwater sustainability agencies
GSI Plan	Green Stormwater Infrastructure Plan
HARP2	Hot Spots Analysis and Reporting Program
HASP	Health and Safety Plan
HI	hazard index
HMBP	Hazardous Materials Business Plan
HMTA	Hazardous Materials Transportation Act
HRA	health risk assessment
HUC	Hydrologic Unit Code
HUD	U.S. Department of Housing and Urban Development
HVAC	heating, ventilation and air conditioning
Hz	hertz
IBP	Industrial Business Park
IGRA	Indian Gaming Regulatory Act
in/sec	inches per second
LAFCO	Local Agency Formation Commission
LDL	Larson Davis Laboratories
L_{dn}	Day-Night Noise Level
LEAs	local enforcement agencies
LED	light emitting diode

L_{eq}	Equivalent Noise Level
LID	Low impact development
L_{max}	Maximum Noise Level
L_{min}	Minimum Noise Level
LODES	Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics
LOMR	Letters of Map Revision
LRAs	local responsibility areas
MCLs	Maximum Contaminant Levels
mgd	million gallons per day
MMRP	mitigation monitoring and reporting program
MRZ	mineral resource zone
MS4 Permit	Municipal Regional Stormwater NPDES Permit
MTC	Metropolitan Transportation Commission
MUN	Municipal and Domestic Supply
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEHRP	National Earthquake Hazards Reduction Program
NEHRPA	National Earthquake Hazards Reduction Program Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Agency
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service formerly U.S. Soil Conservation Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
O^3	Ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OS	Open Space
Pb	lead
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PG&E	Pacific Gas & Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM_{10}	particulate matter equal to and less than 10 microns in diameter
$PM_{2.5}$	particulate matter equal to and less than 2.5 microns in diameter
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
PPA	Priority Production Area

ppd	pounds per day
PPDG	Project Planning and Design Guide
PPV	peak particle velocity
proposed Project	Highway 12 Logistics Center Project
PUD	Planned Unit Development
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act of 1976
RMS	root mean square
ROG	Reactive organic gases
RWD	Reports of Waste Discharge
RWQCB	Regional Water Quality Control Board
SAFE	Safer Affordable Fuel Efficient
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCPD	Suisun City Police Department
SEL	sound exposure level
SENL	Single-Event [Impulsive] Noise Level
SFBAAB	San Francisco Bay Area Air Basin
SFPD	Suisun Fire Protection District
SGMA	Sustainable Groundwater Management Act
SID	Solano Irrigation District
Small MS4s	Small Municipal Separate Storm Sewer Systems
SNR	Sacramento Northern Railway
SO_2	sulfur dioxide
SOI	Sphere of Influence
SO_X	oxides of sulfur
SPRR	Southern Pacific Railroad
SR	State Route
SR 12	State Route 12
SRA	state responsibility areas
SS	Stationary Source
SSWA	Suisun-Solano Water Authority
Suisun City	City of Suisun City
SWIS	Solid Waste Information System
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
TCRs	Tribal Cultural Resources
TDS	Total Dissolved Solids
TMDLs	Total Maximum Daily Loads
tpd	tons per day
TPH-d	total petroleum hydrocarbons as diesel

TPH-o	total petroleum hydrocarbons as oil
TRU	transportation refrigeration unit
U.S. EPA	United States Environmental Protection Agency
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
USFS	U.S. Forest Service
USTs	underground storage tanks
UWMP	Urban Water Management Plan
VdB	vibration decibels
VMT	vehicle miles traveled
VOC	volatile organic compound
WDRs	waste discharge requirements
WHA	wildlife hazard analysis
WPCP	Water Pollution Control Program
WWTP	Wastewater Treatment Plant
µin/sec	microinch per second

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1 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Environmental Impact Report (EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to inform decision makers, representatives of affected and responsible agencies, the public, and other interested parties of the potential environmental effects that may result from the implementation of the proposed Highway 12 Logistics Center Project, also referred to in this EIR as the "proposed Project." This document is prepared in conformance with CEQA (California Public Resources Code section 21000, *et seq.*) and the CEQA Guidelines (California Code of Regulations, Title 14 section 15000, *et seq.*).

As required by CEQA Guidelines section 15123(a), "[a]n EIR shall contain a brief summary of the proposed action and its consequences." This executive summary includes (1) a summary description of the proposed Project, (2) a synopsis of environmental impacts (including significant and unavoidable impacts) and recommended mitigation measures (Table 1-1), (3) identification of the alternatives evaluated, and (4) a discussion of the areas of controversy associated with the proposed Project.

1.2 PROJECT SUMMARY

1.2.1 PROJECT LOCATION

The proposed Project Site consists of approximately 487 acres of land area, which is primarily in unincorporated Solano County, California, west of the city of Suisun City (Suisun City or City) with an approximately 4.5-acre site within the existing City jurisdiction. Suisun City is in central Solano County, southwest of the city of Fairfield, and is situated along State Route 12 (SR 12), just west of the intersection with Interstate 80, centrally located between the San Francisco Bay Area and Sacramento Valley. The Project Site is bordered by SR 12 to the north, a drainage channel and warehouse development to the west, the Union Pacific Railroad to the east, and Suisun Marsh to the south.

1.2.2 SUMMARY OF PROJECT DESCRIPTION

The Project proposes a General Plan amendment, annexation, and pre-zoning of approximately 161 acres of land into the City of Suisun City (referred to as the 'Annexation Area').[1] Annexation will be required to comply with the policies and standards of the Solano Local Agency Formation Commission (LAFCO) and this EIR has been prepared so that LAFCO may rely on the analysis and mitigation when considering the boundary changes required for the Project.

[1] "Pre-zoning" communicates to the Solano Local Agency Formation Commission the intended zoning of the subject properties prior to annexation. Upon annexation, the pre-zoning would become City of Suisun City zoning districts. The land area within the Annexation Area – 161 acres – includes a 5-acre property east of Pennsylvania Avenue that is not a part of the Project Site, but that is surrounded by the Project Site. The Project does not propose any physical changes, General Plan changes, prezoning, or any other change to this property, but the acreage is included in the total Annexation Area since annexation of this property would be required to avoid an unincorporated "island."

Approximately 93.4 acres of land would be developed (referred to as the 'Development Area') for warehouse and logistic uses, and the remainder would be Managed Open Space. Upon annexation, the proposed Development Area would be zoned Commercial Services & Fabricating (CFS) and the remaining Annexation Area would be zoned Open Space (OS) or would be within roadway rights-of-way. The Commercial Services & Fabricating zoning would accommodate light manufacturing, research and development, warehousing, and accessory office space. The Open Space zoning would allow agriculture, resource protection and restoration, and resource-related recreation.

Construction within the Development Area would be developed over time based on market conditions. At full buildout, the Development Area would accommodate six warehouse buildings of approximately 1.28 million square feet collectively, and truck and trailer parking (collectively approximately 2,024 stalls). Four buildings (Buildings A, B/C, D, and E) would be clustered west of Pennsylvania Avenue and north of the railroad line operated by the California Northern Railroad; one building (Building F) would be bounded by Cordelia Road to the south and southeast and by the railroad line operated by the California Northern Railroad to the north. The last building (Building G) is proposed in the area east of Pennsylvania Avenue, adjacent to undeveloped land to the east and south.

Pennsylvania Avenue Creek runs along the eastern perimeter of the Development Area proposed for Building G. The proposed Project would also include construction and operation of on- and off-site infrastructure improvements, including stormwater facilities, and water, wastewater, electricity, natural gas, and telecommunications utilities to serve demand resulting from the Project.

The proposed Development Area would be designed to allow for trucks to enter the site from driveway access points along Pennsylvania Avenue and Cordelia Road separate from passenger vehicles to minimize conflicts. Truck access points would be designed to allow for truck stacking to minimize impacts to the public streets. Access to the Project Site for passenger vehicles would also be provided at separate driveway access points along both Pennsylvania Avenue and Cordelia Road.

Within the Annexation Area, approximately 57 acres east of Pennsylvania Avenue, not otherwise designated as CFS, would be designated OS. The proposed Project envisions primarily unimproved and/or Managed Open Space on this portion of the Annexation Area. The proposed Project Site also includes a 4.5-acre parcel northeast of the proposed annexation area, southwest of the intersection of SR 12 and the Union Pacific Railroad line; this parcel is within the existing City limits and therefore is not proposed for annexation but is included in the overall Project Site and the total area to be maintained as Managed Open Space. An additional approximately 332 acres of the Project site that would be maintained within the unincorporated area of Solano County south of Cordelia Road and the railroad line operated by the California Northern Railroad is also proposed as Managed Open Space. These open space areas (totaling approximately 393.2 acres) would be managed to protect the existing habitat and also to provide for mitigation of development impacts. Any on-site mitigation proposed by the Project would be subject to approval of the appropriate resource agencies. The Managed Open Space area would be protected in perpetuity with a deed restriction or conservation easement.

1.2.3 PROJECT OBJECTIVES

The City has identified the following objectives to guide planning for the proposed Project, as well as the analysis included within the EIR:

- Further the goals and policies of the City of Suisun City General Plan by developing land contemplated to support urban development.
- Promote economic growth through new capital investment, expansion of the tax base, and creation of new employment opportunities.
- Improve the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas.
- Capitalize on the existing Interstate 80 and State Highway 12 transportation corridor, the existing rail facilities that can provide direct rail service unique to this logistics market area, and the increased demand for warehouse and distribution services in the City and region.
- Create a master planned complex of buildings to accommodate the current and future need for warehouse and distribution uses in an economically viable project with coordinated infrastructure and landscaping.
- Create opportunities to generate jobs and attract new employment-creating industries to Suisun City that generate new tax revenue and minimize demands on City services.
- Continue the orderly development of the western gateway of Suisun City and provide a visual environment that gives visitors an immediate positive first impression of Suisun City with attractive building facades and landscaping.
- Preserve and manage areas of the Project Site with concentrations of wetlands and other sensitive habitat for permanent open space to mitigate impacts and further regional habitat and species preservation goals.
- Implement a range of sustainability measures aimed at conserving resources, decreasing energy and water consumption, and reducing air and water pollution.
- Install circulation improvements along Pennsylvania Avenue and Cordelia Road that provide efficient ingress and egress to the proposed Project, while also ensuring these facilities operate at acceptable levels.
- Design internal circulation to provide efficient ingress and egress while ensuring facilities operate at acceptable levels.
- Offer a project with the scale, location, amenities, and sustainability features necessary to create competitive advantages in attracting and retaining a variety of reputable warehousing and logistics users.

1.3 ALTERNATIVES TO THE PROJECT

The CEQA Guidelines (Section 15126.6) require that an EIR describe a range of reasonable alternatives to a proposed project that could feasibly attain the basic objectives and avoid or lessen the environmental effects. Below is a summary of the alternatives to the proposed Project, which are considered in Chapter 6, "Alternatives," of this EIR.

1.3.1 ALTERNATIVE 1, NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 assumes that the current land use designations at the Project Site as set forth in the Suisun City General Plan would remain unchanged. The City's General Plan designates the portion of the Alternative 1 site that is west of Pennsylvania Avenue and north of the railroad line operated by the California Northern Railroad as Commercial Mixed-Use development. The remainder of the Alternative 1 site is designated as Agriculture and Open Space under the Suisun City General Plan (City of Suisun City 2015), and as Marsh, Extensive Agriculture, and Park & Recreation under the Solano County General Plan (Solano County 2008). Alternative 1 assumes that the approximately 161 acres north of Cordelia Road and Cordelia Street within the City's Sphere of Influence would be annexed into the city in the same way as the proposed Project. Areas with the Commercial Mixed-Use designation would be developed consistent with the intent of this land use designation, and consistent with allowable uses and development intensities provided in the City's Land Use Element of the General Plan. Under this alternative, the remainder of the Alternative 1 site would remain in open space. Land uses developed within the Commercial Mixed-Use designated area could include retail development, as well as research, assembly, fabrication, storage, distribution, and processing uses; professional offices; public services and facilities; and other compatible uses, such as higher-density dwelling units (Suisun City General Plan Table 3-1). Alternative 1 assumes a mix of commercial uses, including retail and commercial services. Land south of Cordelia Road and the California Northern Railroad tracks would be a part of the Alternative 1 site.

1.3.2 ALTERNATIVE 2, REDUCED FOOTPRINT ALTERNATIVE

Alternative 2 would propose annexation and prezoning for Commercial Services & Fabricating in the same manner as the proposed Project but would only provide for approximately 51.2 acres of developed area and 529,708 square feet of building space. The Development Area would include approximately 38.7 acres west of Pennsylvania Avenue and north of the railroad, and 13.14 acres north of Cordelia Road and south of the railroad. The Development Area west of Pennsylvania Avenue would be split, with one building and supporting circulation infrastructure in the northwestern corner and one building and supporting circulation and infrastructure in the southern portion. The area south of the railroad tracks would support a building and related infrastructure and circulation. All of the buildings would be similar in size, ranging from approximately 170,000 to 187,000 square feet, and would range in height from 44 to 47 feet.

Under Alternative 2, approximately 437 acres would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. All of the Annexation Area east of Pennsylvania Avenue would be designated Managed Open Space, as well as approximately 30 acres in the central portion of the Alternative 2 site west of Pennsylvania Avenue that would not be developed. Under Alternative 2, the Development Area west of Pennsylvania Avenue is specifically designed and oriented to avoid existing wetlands. Other portions of the Alternative 2 site designated for Managed Open Space under this alternative would include a 4.5-acre parcel in the northeastern corner of the Alternative 2 site within the existing City limits and an approximately 331-acre area southeast of Cordelia Road and south of the railroad line operated by the California Northern Railroad.

On-site detention basins and low impact development features would be required under Alternative 2 to detain and treat stormwater runoff, just as under the proposed Project, but the size of these features would be reduced compared to the proposed Project, since the proposed Development Area would also be reduced in size. Off-site

sewer and water conveyance pipelines would still be necessary under Alternative 2 and would be installed in the same locations as under the proposed Project. Under Alternative 2, only the west side of Pennsylvania Avenue would require roadway frontage improvements (to accommodate an additional lane for driveway access, along with sidewalks and bicycle lanes), as compared to the proposed Project where acceleration and deceleration lanes and additional roadway improvements would also be required east of Pennsylvania Avenue. Similar to the proposed Project, Alternative 2 would require roadway improvements to the north side of Cordelia Road to accommodate an additional lane for driveway access, along with sidewalks and bicycle lanes.

1.3.3 ALTERNATIVE 3, REDUCED VEHICLE MILES TRAVELED ALTERNATIVE

Alternative 3 would provide for land uses within the Development Area that would provide employment opportunities that are somewhat more aligned with occupational demand of the local region and existing working residents. The land uses would be relatively more focused on those occupations for which existing residents are currently commuting outside the city to reach places of employment. Though there are many factors involved in household location, many households consider the location of employment in decision on a place of residence. Alternative 3 is focused on providing additional employment opportunities in sectors that match the occupations of the local labor force, but where there are relatively low numbers of matching local jobs in Suisun City.

Examining private, primary job types, employed Suisun City residents had occupations in a variety of industry sectors, while jobs in Suisun City are provided also in a variety of sectors that do not match the job types of local residents. Some of the largest variance between the occupations of local residents and the job types offered locally are in occupations that are in office settings, such as finance and insurance, information, real estate, professional services, management, administration and support, and health care and social assistance (U.S. Census Longitudinal Employer-Household Dynamics 2020).

Total warehousing and logistics space under Alternative 3 would be limited to approximately 203,000 square feet (approximately 15 percent of that provided under the proposed Project), with approximately 268,000 square feet, provided in a variety of increments, in office space, over approximately 46 acres, compared with the approximately 93-acre Development under the proposed Project. The total number of employees at the Project site would remain the same as under the proposed Project – 1,275. Instead of 1,275 employees in warehousing and logistics, approximately 1,100 employees would be in office settings, while the remaining 200 employees would be in warehousing and logistics. As with any new employment offerings, it would be anticipated that some local jobs under this alternative would be filled by existing local residents, some would be filled by exiting residents of Solano County, some would be filled by existing residents in the region, and the balance would be filled by new residents of the city, Solano County, or the region. Since jobs in office settings represent the biggest need in terms of fitting Suisun City residents with local job opportunities, this alternative would have the potential to reduce commuting distances and associated vehicle miles traveled (VMT) by future employees.

Alternative 3 would include the annexation and prezoning for Commercial Services & Fabricating in the same manner as the proposed Project, but would provide for a reduced Development Area of approximately 46 acres, all west of Pennsylvania Avenue and north of the railroad in the area designated Commercial Mixed Use in the City's General Plan. This alternative would not include a managed open space area. The locations of proposed on-site detention basins and low impact development drainage features that would be implemented under Alternative 3 to detain and treat stormwater runoff would be reduced compared to the proposed Project, since the proposed Development Area would also be reduced. Off-site sewer and water conveyance pipelines would still be necessary

under Alternative 3 and would be installed in the same locations as the proposed Project. Roadway improvements would be similar to that required under the proposed Project.

1.4 POTENTIAL AREAS OF CONCERN AND ISSUES TO BE RESOLVED

CEQA Guidelines Section 15123(b) requires that the summary of an EIR identify areas of controversy known to the lead agency, including issues raised by agencies and the public, and issues to be resolved including the choice among alternatives and whether and how to mitigate potentially significant effects. Based on public comments and input received to date, areas of interest that are related to potential adverse physical environmental effects consist of:

- Impacts related to climate change
- Interference with passenger and freight rail operations
- Impacts to rare species and habitats
- Release of hazardous wastes and substances near the project site
- Air pollutant emissions from construction worker trips
- Impacts of building operation
- Cumulative impacts related to increased demand for workers and housing
- Ensuring right-of-way for emergency access
- Impacts to tribal cultural resources
- Impacts related to sea level rise and the Suisun Marsh
- Impacts related to total vehicle miles traveled
- Impacts related to Solano County agricultural zoning
- Cumulative impacts related to a second logistics center in Suisun City
- Impacts to Travis Air Force Base
- Impacts related to agriculture and prime agricultural lands
- Aesthetic impacts
- Air pollutant emissions impacts including those contributing to health risk

Each topic raised during outreach and public input on the scope of analysis of potential adverse physical impacts associated with the proposed Project has been incorporated into this EIR, as appropriate.

1.5 SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 1-1 summarizes the potentially significant environmental impacts, mitigation measures, and resulting level of significance after mitigation for the relevant environmental issue areas evaluated for the proposed Project. The table is intended to provide an overview. Narrative discussions for the issue areas are included in the corresponding topic area sections in Chapters 4 and 5 of this EIR.

Table 1-1. Summary of Significant Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
4.1 Aesthetics. Impact 4.1-1. Effects on Scenic Vistas. Operation of the proposed Project would result in new urban development that would permanently block some views of the Coast Ranges, Suisun Marsh, Howell Mountains, Vaca Mountains, Cement Hill, Potrero Hills, and Mt. Diablo from several public viewpoints, which are defined by the City as locally important scenic vistas.	S	No feasible mitigation.	SU
4.1 Aesthetics. Impact 4.1-3. Substantial New Light and Glare and Skyglow Effects. Project implementation would result in new urban development on approximately 93 acres of the Project Site. The Development Area would require security lighting and other types of lighting during project operation. This could inadvertently cause increased light and glare, potentially obscuring views of stars and other features of the nighttime sky. In addition, nighttime lighting or the presence of reflective surfaces on buildings could result in glare shining on motorists traveling along SR 12, Pennsylvania Avenue, and Cordelia Road.	S	**Mitigation Measure 4.1-3: Prepare an Exterior Lighting Plan Including an Off-Site Photometric Analysis.** The Project applicant or contractor(s) shall prepare and submit to the City Planning Division for review and approval, an Exterior Lighting Plan, which shall present the size, orientation, location, height, and appearance of proposed fixtures (Suisun City Municipal Code Title 18, Chapter 18.76.030). Before issuing any occupancy permit, the City will review each site-specific lighting plan to ensure that it includes the following standards: • Shield or screen all exterior lighting fixtures to direct the light downward and prevent light spill on adjacent properties. • Place and shield or screen flood and area lighting needed for security so as not to disturb adjacent properties or passing motorists. • Light fixtures that are of unusually high intensity or brightness (e.g., harsh mercury vapor, low-pressure sodium, or fluorescent bulbs) or that blink or flash, shall not be used. Light-emitting diode (LED) lighting shall be used where feasible. • Motion-controlled exterior nighttime lighting, rather than lighting that is always on, shall be used where feasible. • Based on an off-site photometric analysis, proposed on-site lighting fixtures shall be demonstrated to avoid spillage onto any property other than the boundaries for which lighting is intended.	SU
4.2 Air Quality. Impact 4.2-1. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. A project that would conflict with or obstruct the goals would be considered inconsistent with the 2017 Bay Area Clean Air Plan. Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the BAAQMD 2017 Bay Area Clean Air Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan goals.	S	**Mitigation Measure 4.2-1a: Implement BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions.** The Project applicant shall require all construction contractors to implement the basic construction best management practices recommended by BAAQMD for construction-related fugitive dust. Emission reduction measures shall include, at a minimum, the following measures. Additional measures may be identified by BAAQMD or contractor as appropriate. The Project applicant shall demonstrate to the City the inclusion of these measures through applicable provisions of construction contracts requiring the use of the BAAQMD basic construction best management practices for fugitive dust prior to the issuance of a grading permit.	SU

B = Beneficial LTS = less than significant PS = potentially significant S = significant SU = significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. • All haul trucks transporting soil, sand, or other loose material off-site shall be covered. • All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. • All vehicle speeds on unpaved roads shall be limited to 15 mph. • All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. • All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. • All trucks and equipment, including their tires, shall be washed off prior to leaving the site. • Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel. • Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations. **Mitigation Measure 4.2-1b: Implement Construction Exhaust Emissions Control Measures.** The Project applicant shall require that the construction contractor(s) comply with the following heavy-duty construction equipment exhaust emissions control measures. Prior to the issuance of grading permits for the Project, the Project applicant shall include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The Project applicant shall demonstrate to the City the inclusion of these measures through applicable provisions of construction contracts prior to the issuance of a grading permit. • Use Tier 4 final certified engines for all on-site, diesel-powered construction equipment rated at equal to or greater than 50 horsepower. • Prohibit the idling of construction equipment and trucks, if diesel-fueled, for more than two minutes. The Project applicant or construction contractor(s) shall provide appropriate signage onsite communicating this requirement to onsite equipment operators.	

B = Beneficial LTS = less than significant PS = potentially significant S = significant SU = significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		• Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible. • Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites. • Use battery-powered equipment for all off-road construction equipment with a power rating below 19kW (e.g., plate compactors, pressure washers) during construction. **Mitigation Measure 4.2-1c: Omit the Inclusion of Natural Gas Infrastructure.** The City shall require the Project applicant to omit the inclusion of natural gas infrastructure in the design and construction of the proposed Project. The final design drawings must demonstrate the omission of natural gas connections to the Project Site and be provided to and approved by the City prior to the issuance of grading permits. **Mitigation Measure 4.2-1d: Implement Mitigation Measure 4.12-1, Transportation Demand Management (TDM) Plan.** **Mitigation Measure 4.2-1e: Incorporate CALGreen Tier 2 Standards for Electric Vehicle Infrastructure into Project Design.** The City shall require the Project applicant to include electric vehicle (EV) capable parking at the rate consistent with the California Green Building Standards Code (CALGreen) Tier 2 standards for the proposed Project land use. The EV capable parking shall include the installation of the enclosed conduit that forms the physical pathway for electrical wiring and adequate panel capacity to accommodate future installation of a dedicated branch and charging stations(s). The total EV capable parking to be provided shall be based on the proposed size and scale of development and the most current CALGreen Tier 2 standards at the time of the application for a building permit. **Mitigation Measure 4.2-1f: Electrification of Yard Equipment** The Project applicant shall stipulate in tenant lease agreements that all yard equipment and similar on-site off-road equipment, such as forklifts, be electric. Prior to the issuance of an occupancy permit, the Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating that the building occupant shall only use on-site off-road equipment that is electric-powered. **Mitigation Measure 4.2-1g: Electrification of Transportation Refrigeration Units**	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		The Project applicant shall require that all transportation refrigeration units operating on the Project Site be electric or alternative zero-emissions technology, including hydrogen fuel cell transport refrigeration and cryogenic transport refrigeration, to reduce emissions of NO_X without substantially increasing other emissions. The Project design shall also include necessary infrastructure; for example, requiring all dock doors serving transportation refrigeration units to be equipped with charging infrastructure to accommodate the necessary plug-in requirements for electric transportation refrigeration units while docked or otherwise idling, as well as the electrical capacity to support the on-site power demand associated with electric transportation refrigeration unit charging requirements. **Mitigation Measure 4.2-1h: Prohibition of Truck Idling for More than Two Minutes** The Project applicant shall require that onsite idling of all visiting gasoline- or diesel-powered trucks not exceed two minutes, and that appropriate signage and training for on-site workers and truck drivers be provided to support effective implementation of this limit. **Mitigation Measure 4.2-1i: Limitation of Model Year of Visiting Trucks** The Project applicant shall require that lease agreements stipulate that any gasoline- or diesel-powered vehicle, whether owned by tenant(s), that enters or operates on the Project Site and has a gross vehicle weight rating greater than 14,000 pounds, have a model year dated no older than model year 2014. **Mitigation Measure 4.2-1j: Diesel Backup Generator and Fire Pump Specifications** The project applicant shall ensure that the diesel backup generators and fire pumps meet or exceed the air board's Tier 4 emission standards. Additionally, once operational, the diesel backup generators and fire pumps shall be maintained in good working order for the life of the equipment, and any future replacement of the equipment shall be required to be consistent with these emissions specifications. To ensure compliance with this measure, the project applicant shall ensure that records of the testing schedule for the diesel backup generators and fire pumps are maintained for the life of the equipment and make these records available to the City upon request.	
4.2 Air Quality. Impact 4.3-2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. Emissions of criteria air pollutants and ozone precursors could exceed an ambient air quality standard or contribute substantially to an existing or predicted air quality exceedance.	S	Construction **Implement Mitigation Measures 4.2-1a and 4.2-1b.** Operation **Implement Mitigation Measures 4.2-1c through 4.2-1j.**	SU

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
4.2 Air Quality. Impact 4.3-3. Expose sensitive receptors to substantial pollutant concentrations. As discussed in the Environmental Setting section above, the nearest sensitive receptors include residents on the north side of SR 12 approximately 500 feet from the northern border of the Project Site and two commercial uses, an auto repair shop and U-Haul rental shop on one parcel and a concrete contractor on another, somewhat central to the Project parcels but not within the Project Site, adjacent to the west side of Pennsylvania Avenue at the intersection of Pennsylvania Avenue and Cordelia Street. Residences are also located east of the Union Pacific Railroad tracks, more than 1,500 feet from the easternmost border of the Development Area and 200 feet from the eastern border of the Project Site.	PS	Construction **Implement Mitigation Measure 4.2-1a and 4.2-1b.** Operations: **Implement Mitigation Measures 4.2-1c through 4.2-1j.**	LTS
4.3 Biological Resources. Impact 4.3-1. Contra Costa Goldfields & Critical Habitat. Development of the proposed Project would directly impact an estimated 183 to 231 individual Contra Costa goldfields plants over an approximately 0.03-acre area of occupied habitat for Contra Costa goldfields, would directly impact 38.0 acres of marginal habitat for Contra Costa goldfields, and may indirectly impact occupied Contra Costa goldfields habitat in proposed Managed Open Space area as a result of mitigation wetland grading. The proposed Project also would impact 93.4 acres of Critical Habitat Subunit 5G.	PS	**Mitigation Measure 4.3-1a: Establish New Contra Costa goldfields Habitat and Populations.** The Project applicant shall establish/create a minimum of 0.03 acre (1:1 ratio) of Contra Costa goldfields habitat with the performance standard of supporting a minimum of 183 individual Contra Costa goldfields plants at least 2 out of the 10 years of the monitoring period. Establishing new populations of Contra Costa goldfields shall be done in consultation with USFWS and CDFW and with approval from these agencies and may be accomplished by collecting seed from extant populations and salvaging seed and topsoil from occupied Contra Costa goldfields habitat within the proposed Development Area. As described in the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C), the new Contra Costa goldfields populations would be established in the 38-acre wetland creation/establishment area within the proposed Managed Open Space area of the Project Site, adjacent to the existing large population within the Pescadero silty clay loam soil type. A plan for collecting seed and establishing new populations shall be coordinated with the USFWS during the ESA Section 7 consultation process, as described in the Mitigation and Monitoring Plan. **Mitigation Measure 4.3-1b: Establish and Manage 38 Acres of Wetland Habitat.** To ensure a no-net-loss of potential Contra Costa goldfields habitat the project applicant shall establish/create 38 acres of in-kind, or higher quality, wetland habitat that is suitable for Contra Costa Goldfields within the proposed Managed Open Space area of the project site, prior to or concurrent with project construction. The established/created wetlands shall be implemented, and performance standards shall be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C). Management actions to be implemented to manage, protect, and enhance wetlands and associated rare plant populations shall include	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created wetlands shall continue in perpetuity as described in the Mitigation and Monitoring Plan. Prior to site mobilization the project applicant shall secure approval of detailed construction plans for wetland mitigation in the Managed Open Space from USFWS, CDFW, RWQCB and BCDC. If additional wetland mitigation is required by the USFWS, CDFW, RWQCB or BCDC to compensate for impacts on unoccupied habitat for Contra Costa Goldfields or if success criteria for created wetlands cannot be fully attained with onsite wetland mitigation, the project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the project site and which support existing populations of Contra Costa goldfields. The North Suisun Mitigation Bank and Goldfields Conservation Bank currently service the proposed Project Site. Purchase of preservation credits may be used to accomplish this compensation; the ratio of credits purchased to habitat impacted shall be approved by USFWS and CDFW. If no mitigation banks that service the proposed development area are available, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. **Mitigation Measure 4.3-1c: Preserve and Manage Contra Costa goldfields Habitat.** The Project applicant shall preserve and manage the Contra Costa goldfields occupied habitat in the proposed Managed Open Space area as described in the Mitigation and Monitoring Plan. The Managed Open Space area contains an approximately 17-acre area in the southwestern area of the Project Site that currently supports from 8,000 to 7.7 million individual Contra Costa goldfields plants within the Pescadero silty clay loam soil, a 2.4-acre area of occupied habitat currently supporting 267 individual plants in the northern area east of Pennsylvania Road, approximately 107.2 acres of existing unoccupied seasonal wetlands similar to the 38-acres of unoccupied wetland habitat that would be impacted, and 38 acres of the wetland creation/establishment area, all of which will be preserved within the Managed Open Space area. To ensure a no-net-loss of CCG Critical Habitat, a minimum of 93.4 acres CCG Critical Habitat Subunit 5G shall be preserved and managed within proposed Managed Open Space area. Management actions to be implemented to manage, protect, and enhance Contra Costa goldfields occupied habitat shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		authorizing agencies. Protection and management of the created Contra Costa goldfields habitat shall continue in perpetuity as described in the Mitigation and Monitoring Plan (Attachment 7 to Appendix C). **Mitigation Measure 4.3-1d: Install Construction Fencing.** To avoid direct or indirect impacts to occupied Contra Costa goldfields habitat during grading activities within the proposed Managed Open Space area of the Project Site, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied Contra Costa goldfields habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the Contra Costa goldfields populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed. **Mitigation Measure 4.3-1c: Limit Introduction and Spread of Invasive Species.** To reduce and limit the spread of invasive nonnative plant species on the Project Site from invasive or noxious weeds, construction vehicles and equipment shall be cleaned inside and out before arrival at the project site; debris will be properly disposed of. Exterior cleaning shall consist of pressure washing vehicles and equipment, with close attention paid to the tracks, feet, and/or tires and on all elements of the undercarriage. Vehicle cabs shall be swept out, and refuse shall be disposed at an approved off-site location. If vehicles are driven in areas of invasive or noxious weeds already present in portions of the Project Site, vehicles shall be cleaned before moving from infested areas to areas that are weed-free.	
4.3 Biological Resources. Impact 4.3-2. Alkali Milk-Vetch. Development of the proposed Project would directly impact and estimated 12 individual alkali milk-vetch plants over an approximately 0.02-acre area, and 16.3acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch and may indirectly affect occupied alkali milk-vetch habitat in the proposed Managed Open Space area as a result of mitigation wetland grading.	PS	**Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)** **Mitigation Measure 4.3-2a: Preserve and Establish Alkali Milk-Vetch Habitat.** Within the proposed Managed Open Space area of the Project Site, the Project applicant shall (1) preserve the 0.01 acre of seasonally saturated annual grassland habitat occupied with approximately 250 alkali milk-vetch plants, and (2) establish/create the equivalent of 16.3 acres of seasonally saturated annual grassland habitat. Topsoil from occupied alkali milk-vetch habitat within the proposed	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Development Area shall be collected and used to inoculate the established/created seasonally saturated annual grassland. **Mitigation Measure 4.3-2b: Install Construction Fencing.** To ensure no impacts to occupied alkali milk-vetch habitat occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, a non-disturbance buffer delineated by orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied alkali milk-vetch habitat. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect alkali milk-vetch populations from direct and indirect impacts. The contractor, in consultation with the qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.	
4.3 Biological Resources. Impact 4.3-3. Saline Clover**.** Development of the proposed Project would directly impact an estimated 465 individual saline clover plants over a 1.4-acre area, would directly impact 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support saline clover, and may indirectly affect occupied saline clover habitat in proposed Managed Open Space area as a result of mitigation wetland grading.	PS	**Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)** **Mitigation Measure 4.3-3a: Preserve and Establish Saline Clover Habitat.** Within the proposed Managed Open Space portion of the project site, the Project applicant shall (1) preserve 19.1 acres of saline clover habitat occupied with an estimated 6,335individual plants; and (2) establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of vernal pool and seasonally saturated annual grassland habitat within the proposed Managed Open Space area of the Project Site as mitigation for the loss of potential habitat for the Contra Costa goldfields will also serve as mitigation for the loss of potential saline clover habitat. Topsoil from occupied saline clover habitat within the proposed Development Area of the project site shall be collected and used to inoculate the established/created vernal pools and seasonally saturated annual grassland. **Mitigation Measure 4.3-3b: Install Construction Fencing.** To ensure no impact to occupied saline clover occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied saline clover habitat. The contractor, in consultation with a qualified biologist and in accordance with the	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect saline clover populations from direct and indirect impacts. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when Project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.	
4.3 Biological Resources. Impact 4.3-4. Suisun Marsh Aster. Development of the proposed Project could directly impact a few individual plants of Suisun Marsh aster if they occur at the location of the proposed stormwater culvert.	PS	**Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)** **Mitigation Measure 4.3-4a: Conduct Preconstruction Plant Survey and Implement Avoidance Measures.** Plant surveys shall be conducted prior to the design of the stormwater culvert outfall to determine the location of Suisun Marsh aster plants in relation to the proposed outfall. If individual plants occur in the proposed location of the stormwater outfall culvert or in an area where impacts could occur to the plants, the location shall be modified to avoid directly or indirectly affecting the plants. **Mitigation Measure 4.3-4b: Mitigate for Impacts on Suisun Marsh Aster.** If impacts to individual plants are unavoidable, even with modifications to the Project design, the Project applicant shall establish/create a minimum of 0.002 acres (1:1 ratio) of Suisun Marsh aster habitat in the proposed Managed Open Space portion of the Project site. The performance standard for this mitigation shall be supporting the same or greater number of plants impacted for at least 2 out of the 10 years of the monitoring period. This mitigation measure for establishing new Suisun Marsh aster plants shall be incorporated into the Preliminary Mitigation and Monitoring Plan provided in Appendix C, Attachment 7.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
4.3 Biological Resources. Impact 4.3-5. Long-styled sand-spurrey plants. Development of the proposed Project would directly impact long-styled sand-spurrey plants and would remove 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support the species.	PS	**Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)** **Mitigation Measure 4.3-5a: Preserve and Establish Long-Styled Sand-Spurrey Habitat.** Within the proposed Managed Open Space area of the Project Site, the Project applicant shall establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat within the proposed Managed Open Space area as part of the Mitigation and Monitoring Plan to mitigate for elimination of long-styled sand-spurrey habitat. Collection of topsoil within the proposed Development Area within occupied habitat for alkali milk-vetch and saline clover and use of the soil to inoculate established/created seasonally saturated grassland (Mitigation Measures 4.3-2a and 4.3-3a) shall be accomplished such that soil will also contain seeds for long-styled sand-spurrey. **Mitigation Measure 4.3-5b: Install Construction Fencing.** The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall install construction fencing to clearly demarcate the boundaries of a non-disturbance buffer to protect Contra Costa goldfields, alkali milk-vetch, and saline clover populations, if found in the Managed Open Space area within 100 feet from the Project disturbance footprint.	LTS
4.3 Biological Resources. Impact 4.3-6. Crotch Bumble Bee. Project construction could result in direct impacts to underground nest or queen overwintering sites and removal of 92.0 acres of upland and seasonal wetland habitat that could serve as potential foraging habitat for the Crotch bumble bee, if present on-site during construction.	PS	**Mitigation Measure 4.3-6a: Avoid, Minimize, and Mitigate for Impacts on Crotch Bumble Bee.** Prior to construction, a qualified biologist shall conduct focused surveys for the Crotch bumble bee in potential habitat within the Project Site during the Crotch bumble bee worker flight period (March-September, preferably near the peak in July). Surveys shall follow the *USFWS-approved Survey Protocols for the Rusty Patched Bumble Bee (Bombus affinis)* (USFWS 2019). During the survey, the qualified biologist shall flag inactive small mammal burrows and other potential nest or overwintering sites. If the Crotch bumble bee is detected, a site-specific Crotch's Bumble Bee Avoidance and Minimization Plan shall be prepared in coordination with CDFW and implemented. The Plan shall include a description of onsite habitat, potential nest and overwintering sites present, recommendations for avoidance and minimization (such as unoccupied burrow avoidance buffers), potential identification of methods to evaluate potential nest sites for use (e.g., burrow scoping or emergence surveys), and compensatory mitigation for the loss of potential nest sites, such as incorporation of appropriate native flower resources that would support this species throughout the flight period and promote development of queens (i.e., perennial plants) into the Mitigation and	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		Monitoring Plan for the Managed Open Space area, and/or reducing use of harmful pesticides within the Managed Open Space.	
4.3 Biological Resources. Impact 4.3-7. Northern Harrier and Short-Eared Owl. Grading or vegetation removal associated with construction of the proposed Project, including the proposed development area or for creation of mitigation wetlands within the proposed Managed Open Space area, could result in disruption of northern harrier or short-eared owl nesting.	PS	**Mitigation Measure 4.3-7a: Preconstruction Nesting Survey.** A qualified biologist shall conduct a preconstruction nesting survey for northern harrier and short-eared owl if construction is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance by walking transects through all suitable habitat (grassland, seasonal wetlands, and swales) within the proposed Development Area and the proposed Managed Open Space area of the Project Site. **Mitigation Measure 4.3-7b: Implement Non-Disturbance Buffers.** If an active northern harrier or short-eared owl nest is detected during the surveys, the nest site shall be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer shall be extended onto the Project Site and demarcated where it intersects the Project Site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that northern harriers or short-eared owls may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified raptor biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.	LTS
4.3 Biological Resources. Impact 4.3-8. Swainson's Hawk. Project construction would result in the loss of 92.0 acres of Swainson's hawk foraging habitat. Construction activities could disturb nesting Swainson's hawk if individuals of this species were found to be nesting within one-half mile of Project construction activities.	PS	**Mitigation Measure 4.3-8a: Preserve Swainson's Hawk Foraging Habitat** To offset impacts to 92.0 acres of Swainson's hawk foraging habitat, the Project applicant shall provide habitat preservation at a location that will provide foraging habitat value to Swainson's hawks consistent with CDFW guidance as set forth in the 1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California. CDFW 1994 guidance provides that mitigation lands should be provided if an active nest is located within a 10-mile radius of the Project Site, mitigation habitat value shall be equal to or higher than what currently occurs on the project site, and at a minimum of 1:1 ratio. Currently, the Project proposes 393.2 acres of Managed Open Space area, of which 205.4 acres consists of annual grasslands and seasonal wetlands considered suitable foraging habitat, shall be preserved and protected in perpetuity by deed restriction or a conservation easement that would provide more than the minimum 1:1 compensation acreage for Swainson's hawk foraging habitat. Furthermore, the Project proposes that the	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		preserved 205.39 acres of Swainson's hawk foraging habitat would be enhanced by grazing the Managed Open Space area to control the buildup of thatch. If additional Swainson's hawk foraging habitat mitigation is required by the CDFW, the Project applicant shall purchase mitigation credits from an approved Swainson's hawk mitigation bank which services the project site, or preserve suitable foraging habitat off-site at an approved CDFW location so as to satisfy the additional CDFW requirement to offset the permanent loss of foraging habitat. **Mitigation Measure 4.3-8b: Preconstruction Nesting Surveys.** Preconstruction surveys for Swainson's hawk shall be conducted prior to initiation of Project construction activities. Surveys shall follow CDFW guidelines for conducting surveys for Swainson's hawk (SHTAC 2000). These preconstruction surveys shall include investigation of all potential nesting trees within a one-half-mile radius around all Project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. If no nesting Swainson's hawk are found during the first two required survey periods (Survey Period II and III) starting March 20 and extending to April 20, then project construction may commence. If during the third survey period (June 10 to July 30) Swainson's hawks are found to be nesting in the Project vicinity and construction has commenced, the Project applicant shall consult CDFW to determine whether the nesting Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the project site and setbacks can be reduced or whether additional measures are needed to avoid adversely affecting nesting activities. **Mitigation Measure 4.3-8c: Implement Nest Buffer.** If Swainson's hawks are found to be nesting within 0.25 miles of Project construction, a non-disturbance buffer shall be established to keep all construction activities a minimum of 0.25 miles from the nest site (CDFW 1994). The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified biologist.	
4.3 Biological Resources. Impact 4.3-9. Burrowing Owl. Construction of the Project, including the proposed Development Area or for creation of wetlands within the proposed Managed Open Space area, could impact burrowing owls if found to be present in or near areas of construction.	PS	**Mitigation Measure 4.3-9a: Preconstruction Burrowing Owl Nesting Survey.** A pre-construction survey for burrowing owls shall be conducted in suitable habitat prior to any ground-disturbance for construction of the Project at the proposed Development Area of the Project Site, and off-site improvement areas, and for construction of mitigation wetlands within the proposed Managed Open Space area of the Project Site. The pre-construction survey shall be conducted by a qualified raptor biologist following CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) survey methods to establish the status of burrowing owl on the Project Site.	LTS

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		Mitigation Measure 4.3-9b: Avoid Impacts to Occupied Burrows. If preconstruction surveys determine that burrowing owls occupy the Project Site during the non-breeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone in consultation with CDFW. During the non-breeding season, if a qualified raptor biologist determines in consultation with CDFW that an occupied burrow(s) may be impacted even with implementation of non-disturbance buffers, the Project applicant shall consult CDFW to determine if a passive relocation effort and implementation of a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW guidelines (CDFG 2012) is appropriate to avoid impacts. Implementation of such a Burrowing Owl Exclusion Plan would likely require habitat mitigation consistent with the requirements of the 2012 CDFW Staff Report. If burrowing owls are found to be present on the Project Site or off-site improvement areas during the breeding season (February 1 to August 31), the Project applicant shall consult CDFW and implement the CDFW-recommended avoidance protocol (CDFG 2012) whereby occupied burrows will be avoided with a no-disturbance buffer during the breeding season.	
4.3 Biological Resources. Impact 4.3-10. California Black Rail. Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space portion of the Project Site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present.	PS	**Mitigation Measure 4.3-10a: Preconstruction Nesting Surveys.** If construction work is proposed during the black rail nesting season (February 1 through August 31) pre-construction surveys for nesting California black rail shall be conducted in suitable habitat within 700 feet of the work area to determine if setbacks are warranted to protect nesting California black rail from indirect impacts. Surveys shall be conducted using the methodology described in *Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges* (Wood et al. 2017), or a variation thereof as approved by CDFW. If the surveys detect the presence of a California black rail nest, or the activity center of vocalizing California black rails, a non-disturbance buffer or other appropriate avoidance measures shall be established in consultation with CDFW.	LTS
4.3 Biological Resources. Impact 4.3-11. Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. Grading or vegetation removal associated with construction of the Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space area of the Project Site, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of are present.	PS	**Mitigation Measure 4.3-11a: Preconstruction Nesting Surveys.** If construction will occur during the nesting season (February 1 through August 31) in the proposed Development Area of the Project Site or for construction of mitigation wetlands within the proposed Managed Open Space area of the Project Site, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to any ground-disturbance. Surveys shall be conducted by a qualified biologist to search for nesting of loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony. If the surveys find an active tricolored blackbird colony CDFW shall be consulted to develop an appropriate non-	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		disturbance buffer. If nests of loggerhead shrike, Suisun song sparrow, or grasshopper sparrow are found, appropriate buffer zones determined by the qualified biologist shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. The buffer shall be marked with orange construction fencing. The size of buffer zones shall be determined per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.	
4.3 Biological Resources. Impact 4.3-12. Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew. Direct and indirect impacts to salt marsh harvest mouse or Suisun shrew may occur as a result of construction or operation of the proposed Project.	PS	**Mitigation 4.3-12a: Worker Environmental Awareness Training.** All workers involved in the clearing of vegetation or other construction activities associated with construction of the proposed Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space portion of the Project Site, shall participate in a training session led by a qualified biologist prior to initiation of work. This training session shall include information on the ecology and identification of salt marsh harvest mouse and Suisun shrew. The training shall also include information related to the Endangered Species Act and penalties associated with harm done to an individual of a listed species and the need to stop work and inform the on-site biologist in the event of a potential sighting. **Mitigation Measure 4.3-12b** Where the Project footprint borders perennial marsh habitat suitable for this species (i.e., within 100 feet), work shall be scheduled to target the dry season to minimize the potential for wet weather, surface flooding, and high water tables in and adjacent work areas such that it might push salt marsh harvest mouse or Suisun shrew to seek refuge in the higher ground of the work areas. **Mitigation Measure 4.3-12c: Vegetation Removal and Installation of Exclusion Fencing.** Proposed construction work areas in areas immediately adjacent to brackish marsh habitat shall be protected with exclusion fencing to ensure that individuals of salt marsh harvest mouse or Suisun shrew do not wander into the work area during the construction period. The fence shall be established in all areas subject to construction disturbance within 50 feet of brackish marsh habitat subsequent to removal of pickleweed and other vegetation as described below Exclusion fencing shall be made of a material that does not allow small mammals to pass through, such as a properly installed silt fence or other material (e.g., plastic or metal) so that the outside is too smooth to be climbed, and shall be buried at least 6 inches below	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		the ground surface and extend a minimum of 2 feet above ground with stakes angling up and away from the work area so small mammals use the stakes to make their way over the fence and out of the work area rather than into it. The exclusion fence shall be installed on all three sides of the development associated with Planning Area 3 (e.g., Pennsylvania Avenue east to the perennial brackish marsh slough channel, south along the channel, and west back to Pennsylvania Avenue) and between areas of proposed created mitigation wetlands and brackish marsh in the proposed Open Space Management Area. The final design and proposed location of the fencing shall be submitted to USFWS and CDFW for review and approval prior to installation. Prior to installation of the exclusion fence described above, efforts shall be made to ensure that salt marsh harvest mouse and Suisun shrew are not present in areas of salt or brackish marsh or immediately adjacent uplands subject to potential impact from either the development or from construction of created mitigation wetlands within the proposed Open Space Management Area through vegetation removal. Prior to removal of vegetation, a qualified biologist will walk the work zone to ensure no nests of harvest mouse or Suisun shrew are present. Pickleweed and other vegetation shall be removed using hand tools such as weed-whackers from all construction areas within 50 feet of brackish marsh habitat. Immediately after vegetation removal is complete and no evidence of salt marsh harvest mouse or Suisun shrew presence is observed within the construction zone, the temporary exclusion fencing will be placed around the defined work area prior to the start of construction activities to prevent salt marsh harvest mouse or Suisun shrew from moving into construction areas. A biological monitor approved by USFWS and CDFW shall be present during vegetation clearing and installation of the exclusion fence. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed. **Mitigation Measure 4.3-12d: Biological Construction Monitoring.** A qualified biologist shall remain on-site during all work involving vegetation clearing and ground disturbance associated with construction of the Development Area (especially near Planning Area 3) or of mitigation wetlands within the Managed Open Space to help ensure that no salt marsh harvest mouse or Suisun shrew are harmed. The biological monitor shall check the integrity of the exclusion fence, search for salt marsh harvest mouse or Suisun shrew that may have wandered into the work area, and monitor construction to ensure impacts to the species do not occur. If a salt marsh harvest mouse is found on the site within the work area,	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		construction should be halted until it appears that the individual has left the project area of its own volition. If a Suisun shrew is found in the work area, the individual should be relocated outside of the work area after coordination with CDFW regarding appropriate relocation methodologies. **Mitigation Measure 4.3-12e: Establish Setback of 50 feet.** Establish a minimum of a 50-foot (average) setback from the proposed Development Area of the Project Site and the adjacent perennial brackish marsh that is suitable for salt marsh harvest mouse and Suisun shrew to minimize indirect impacts to salt marsh harvest mouse and Suisun shrew habitat from industrial uses introduced by the proposed Project. The 50-foot setback would begin at the edge of the perennial brackish marsh on the east side of the slough channel adjacent to Planning Area 3. The open channel of the slough and areas to the west are not suitable for these species; the open slough channel would also act as a movement barrier to the species. **Mitigation Measure 4.3-12f: Install Permanent Fencing.** Install a permanent fence along the boundaries of the proposed Development Area of the Project Site adjacent to perennial brackish marsh slough channel, to prevent people from accessing potential salt marsh harvest mouse and Suisun shrew w habitat. **Mitigation Measure 4.3-12g: Proper Waste Disposal** During operation of the proposed Project, appropriate waste disposal procedures shall be adopted and enforced for the industrial uses proposed (i.e., all garbage shall be placed in cans with lids) to avoid and minimize attracting predators such as crows and ravens. **Mitigation Measure 4.3-12h: Night Lighting Shielding** Night lighting shall be shielded and directed onto the proposed Development Area of the Project Site and away from marsh areas and immediately surrounding uplands.	
4.3 Biological Resources. Impact 4.3-13. Loss of Upland Refugia. Proposed Project construction would permanently develop 54.2 acres of upland annual grassland, of which approximately 3 acres are directly adjacent to perennial marsh, and would convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the Project Site. This habitat loss and conversion could result in potential indirect impacts to salt marsh harvest mouse, the Suisun shrew, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events.	PS	**Mitigation Measure 4.3-13a: Create Upland Refugia in Managed Wetland.** To offset potential loss of annual grassland upland refugia for salt marsh harvest mouse, Suisun shrew and any other species that need upland cover during high tide events, soil from the excavation of mitigation wetlands shall be used to raise the topographic elevation of portions of the remaining 60.2 acres of upland areas within the Managed Open Space area that are adjacent to the perennial brackish tidal marsh such that they would no longer become inundated and would serve as upland refugia during high tide events. Detailed design plans, including a Vegetation Planting Plan, for the	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		upland refugia in the Managed Open Space shall be developed in consultation with USFWS.	
4.3 Biological Resources. Impact 4.3-14. Nesting Birds. The removal of vegetation during the February 1 to August 31 breeding season for the proposed Project could result in mortality of nesting avian species if they are present.	PS	**Mitigation Measure 4.3-14a: Preconstruction Nesting Surveys.** If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 14 days prior to the onset of construction activity. Nesting bird surveys shall cover the Project footprint in addition to a 500-foot buffer beyond the boundaries of the footprint. **Mitigation Measure 4.3-14b: Nest Zone Buffers.** If bird nests are found, appropriate non-disturbance buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Buffer zones shall be 500 feet for raptors and 250 feet for passerines, and other bird species. The size of the buffer zone may be modified per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.	LTS
4.3 Biological Resources. Impact 4.3-15. Special Status Fish Species. Proposed Project construction activities could result in potential water quality impacts in Ledgewood Creek and other waterways and could adversely affect special status fish species.	PS	**Mitigation Measure 4.3-15a: Implement SWPPP and BMPs** The Project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges. The SWPPP shall provide guidance for measures to protect environmentally sensitive areas, and to prevent and minimize stormwater and non-stormwater discharges. Protective measures shall include the following, at a minimum: • Discharge of pollutants into storm drains or watercourses from vehicle and equipment cleaning will be prohibited. • Maintenance and refueling areas for equipment will be located a minimum of 50 feet from active stream channels in predesignated staging areas, except at an established commercial gas station or vehicle maintenance facility. • Spill containment kits will be maintained on-site at all times during construction operations and/or staging or fueling of equipment. • Dust control measures will include the use of water trucks and dust palliatives to control dust in excavation-and-fill areas, and to cover	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		temporary stockpiles when weather conditions warrant such action. • Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment. • Permanent erosion control measures, such as biofiltration strips and swales to receive stormwater discharges from the highway or other impervious surfaces, will be implemented to the maximum extent practicable. • Construction Site Management Practices. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats: o Routes and boundaries of roadwork will be clearly marked before initiation of construction or grading. o All equipment will be maintained to prevent leaks of automotive fluids, such as gasoline, oils, or solvents, and a spill response plan will be prepared. o Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is located at least 100 feet from wetlands and aquatic habitats. o Before construction activities begin, the contractor, in consultation with a qualified biologist and in accordance with the project plans, will clearly demarcate environmentally sensitive areas adjacent to the project footprint. Temporary fencing will be installed along the perimeter of all environmentally sensitive areas that are to be avoided; will remain in place throughout the duration of construction and will be fully maintained and inspected daily when project activities are underway. Repairs to the fencing will be made within 24 hours of identifying the need for repair. After construction is completed, the fencing will be completely removed. o Restrict Vehicles and Construction to Designated Work Areas. All construction equipment will be restricted to operating within the designated work areas, staging areas, and access routes. The limits of designated work areas and staging areas (i.e., project footprint) will be clearly marked before beginning construction.	
4.3 Biological Resources. Impact 4.3-16. Riparian Habitat. Construction activities near the riparian corridor of Ledgewood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with proposed Project operation could also adversely affect wildlife in the riparian corridor.	PS	**Mitigation Measure 4.3-16a: Construction Best Management Practices** Construction activities shall be implemented using the following BMPs to protect Ledgewood Creek: • Install temporary fencing during construction. The Project applicant shall install fencing along the boundary of the Riparian Corridor Protection Zone during construction in the vicinity of Ledgewood Creek. Fencing during construction will ensure that construction	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		related ground-disturbances do not encroach into the minimum 50-foot Riparian Corridor Protection Zone referenced in Mitigation Measure 4.3-12b. The location of the fencing shall be marked in the field with stakes and flagging prior to installation and shown on the construction drawings. The construction specifications shall include clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities beyond the fence. Temporary construction fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the temporary fencing shall be completely removed. • Vehicle Fueling and Maintenance. All fueling and maintenance of vehicles and other equipment as well as locations of staging areas shall occur at least 100 feet from the edge of the riparian area of Ledgewood Creek. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. • Proper Waste Disposal. Food, trash, and other solid wastes shall be disposed of in contained, covered refuse containers and regularly removed from the construction site. **Mitigation Measure 4.3-16b: Riparian Corridor Protection Zone.** The Project applicant shall establish a riparian corridor buffer zone to be protected with permanent fencing upon completion of construction. The western boundary of the proposed Development Area of the Project Site and the permanent fence line adjacent to Ledgewood Creek shall be set back a minimum of 50 feet from the top of the bank or the outside edge of riparian vegetation, whichever distance is greater. Fencing details including the material, specifications, and location of the fence line shall be approved by CDFW prior to installation.	
4.3 Biological Resources. Impact 4.3-17. Wetlands. Grading activities would result in the permanent placement of fill material into 16.3 acres of Seasonally Saturated Annual Grassland; 14.1 acres of Vernal Pools; 7.4 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh. In addition, grading within the Managed Open Space to establish/create wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands.	PS	**Implement Mitigation Measure 4.3.3-13a: Implement SWPPP and BMPs (see Impact 4.3-13, above)** **Mitigation Measure 4.3-17a: Secure Permits and Implement All Permit Conditions** The Project applicant shall coordinate with the San Francisco District USACE, the San Francisco Bay RWQCB, and the BCDC to obtain proper permits for the placement of fill material within approximately 38 acres of wetlands and implementation of the Mitigation and Monitoring Plan, which includes construction of mitigation wetlands in the Managed Open Space area of the Project Site within the Suisun Marsh primary and Secondary Management Areas. The Project applicant shall implement all conditions required in these permits.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		The Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay RWQCB, San Francisco District USACE, and BCDC for review and permit conditioning as part of the permitting process with these agencies. **Mitigation Measure 4.3-17b: Wetland Establishment and Performance Monitoring.** The Project applicant shall establish/create wetlands at a 1:1 ratio to include 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh concurrent with project construction. Performance standards for the established/created wetlands will be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C). If the permits described above specify additional wetland mitigation beyond that described in the Mitigation and Monitoring Plan, the Project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available that service the proposed Development Area of the Project Site, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. **Mitigation Measure 4.3-17c: Avoid Impacts to Existing Wetlands in Managed Open Space** To ensure detailed construction plans will avoid potential indirect impacts to existing wetlands and special status plants and wildlife, the Project applicant shall obtain detailed topographic plans, at minimum of 0.5-foot contours, before implementing the proposed wetland creation activities described in Attachment 7 in Appendix C. This topographic information will be used to conduct a water balance study to determine if construction of the created wetlands in the proposed Managed Open Space could adversely affect ponding and/or soil saturation in adjacent existing wetlands. This study would supplement the "Adequate Hydrology Determination" presented in the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C). If it is determined there is an adverse effect on the hydrology of existing wetlands due to grading within the Managed Open Space area to establish/create wetlands that would reduce the extent of the wetlands, construction plans will be modified to avoid alterations to the hydrology of existing wetlands. If the revised plans result in a reduction in available acreage for wetland creation for mitigation, and the acreage of wetlands established needs to be reduced, the project applicant shall purchase wetland mitigation credits to offset the reduced acreage, and/or	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		preserve land offsite, approved by the USFWS, that is suitable for preserving and creating/establishing wetland habitat. The mitigation credits shall be purchased from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available which service the proposed development area, the project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Currently, according to the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), there are banks with a service area that encompasses the project site with wetland preservation credits (e.g., Goldfields Conservation Bank) and establishment/creation credits (e.g., Elsie Gridley Mitigation Bank) available which may be suitable to off-set wetland impacts that cannot be mitigated on-site. In addition, according to RIBITS, there are mitigation banks with preservation and wetland creation credits with service areas that encompass the Solano-Colusa Vernal Pool Region. **Mitigation Measure 4.3-17d: Limit Staging Areas and Access Routes.** To avoid potential impacts to preserved wetlands during construction of the proposed Project, including the proposed Development Area and construction of mitigation wetlands of the proposed Managed Open Space area, the number of access routes, and number and size of staging areas shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly marked/flagged. These areas shall be outside of wetland areas and other sensitive areas proposed for preservation. **Mitigation Measure 4.3-17e. Implement Mitigation and Monitoring Plan** To compensate for loss of wetlands and impacts to rare plant populations, the Project applicant shall implement an Agency-approved Mitigation and Monitoring Plan. A draft Mitigation and Monitoring Plan for the proposed Managed Open Space portion of the project site (Appendix C, Attachment 7), has been prepared in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board Procedures, and in accordance with the State Water Resources Control Board Implementation Guidance dated April 2020. The referenced Mitigation and Monitoring plan may be modified based on recommendations from the USACE, USFWS, and RWQCB during the permitting process. In summary, the Mitigation and Monitoring Plan shall: • Establish within the Managed Open Space a minimum of 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of	

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		Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh. • Provide financial assurances to ensure a high level of confidence that the Mitigation and Monitoring Plan will be successfully completed, in accordance with applicable performance standards. • Design ecological performance standards to assess whether the Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected conditions or function, and attaining any other applicable metrics such as acres, percent cover of native plants, structural patch richness, control of invasive plants, water depth etc. • Monitor the site for a minimum of 10 years to determine if the Mitigation and Monitoring Plan is meeting the performance standards; and • Assess the potential effects of changing weather patterns that are currently occurring, and that may occur due to climate change in the foreseeable future and how these changes may impact the long-term viability of the constructed wetlands. The purpose of this assessment is to locate and design the wetlands to avoid and minimize impacts from climate change and to develop adaptive management measures into the Mitigation and Monitoring Plan specifically to minimize these potential effects. The Mitigation and Monitoring Plan shall include a site protection instrument (e.g., deed restriction or conservation easement[s]) that will restrict use of the proposed Managed Open Space area of the Project Site to offset impacts to wetlands and impacts to rare plants and shall include a long-term endowment funded by the proposed Project to manage the entire 381.6693.2-acre Managed Open Space area in perpetuity and in accordance with the Mitigation and Monitoring Plans' Long-Term Management Plan (see Property Analysis Record in the Mitigation and Monitoring Plan, in Appendix C).	
4.4 Cultural and Tribal Cultural Resources. **Impact 4.4-2. Substantial adverse change to undiscovered historical resources or unique archaeological resources.** Earth disturbance in the Development Area, off-site infrastructure improvement areas, and areas proposed for the creation of mitigation wetlands within the proposed Managed Open Space Area could affect precontact or historic-era archaeological cultural resources.	PS	**Mitigation Measure 4.4-2 Stop Work and Evaluate if Materials are Encountered, and Implement a Treatment Plan, as Necessary, to Avoid Potential Effects on Cultural Resources.** During ground disturbing activities, and in the event that archaeological cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural resources are discovered during Project ground disturbing activities, the Project applicant or construction contractor(s) shall ensure that all ground disturbing activity in the area of the discovery are halted until a qualified archaeologist can access the significance of the find. If it is a precontact archeological site, the appropriate Native American group shall be notified. If the archaeologist determines that the find does not meet the CRHR	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan shall be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with the Project applicant to avoid disturbance to the resources and, if completed avoidance is not possible, follow accepted professional standards in recording any find including submittal of the standard DPR Record forms and location information to the appropriate California Historical Resources Information System office for the Project Site (the NWIC).	
4.4 Cultural and Tribal Cultural Resources. **Impact 4.4-3. Disturbance of human remains.** It is possible that unknown human remains could be discovered through ground-disturbing construction activities associated with the proposed Project.	PS	**Mitigation Measure 4.4-3: Halt Construction if Human Remains are Discovered and Implement Appropriate Actions** In accordance with California law and local policies described above, if human remains are uncovered during Project ground-disturbing activities, the Project applicant and/or their contractor(s) would be required to halt potentially damaging excavation in the area of the burial and notify the County Coroner and a qualified 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, the coroner must contact the NAHC 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 5097.9. Following the coroner's findings, the Project applicant and/or contractor(s), a qualified 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 Project applicant and/or their contractor(s) would be required to ensure that the immediate vicinity (according to 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 5097.9 suggests that the concerned parties may extend	LTS

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		discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that could be employed: 1. record the site with the NAHC or the appropriate Information Center, 2. use an open-space or conservation zoning designation or easement, and 3. record 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. In the event that Native American human remains are found during development of a Project and the Yocha Dehe Wintun Nation or a member of the Tribe is determined to be the Most Likely Descendant, the following additional provisions shall apply. The Tribe shall complete its inspection and make its MLD recommendation within forty-eight (48) hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b). The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.	
4.4 Cultural and Tribal Cultural Resources. **Impact 4.4-4. Substantial adverse change in the significance of a tribal cultural resources.** The Sacred Lands File records search indicated that no Native American resources are on file fall within the Project Site. Nonetheless, it is possible that construction of the Project could affect existing or previously undiscovered tribal cultural resources.	PS	**Mitigation Measure 4.4-4a: Cultural Sensitivity Training and Non-Disclosure of TCRs** To minimize the potential for destruction of, or damage to, existing or previously undiscovered tribal cultural resources, to identify any such resources at the earliest possible time during Project-related earthmoving activities, and to prevent the disturbance of reburied	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		TCRs, the Project applicant and its construction contractor(s) will implement the following measures: 1. Cultural sensitivity training shall be provided to assist construction teams with the identification and protection of TCRs prior to the beginning of earth disturbance. This training shall provide a definition and examples of TCRs that may be encountered during construction. 2. If any resources are encountered, unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System ("CHRIS") on a form that is acceptable to the CHRIS center. The Tribe may also suggest that the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property. **Mitigation Measure 4.4-4b: Native American Monitoring** To minimize the potential for destruction of, or damage to, existing or previously undiscovered tribal cultural resources and to identify any such resources prior to Project-related earthmoving activities, the Project applicant and its construction contractor(s) will implement the following measures: 1. Native American Monitors from Yocha Dehe Wintun Nation will be invited to monitor the vegetation grubbing, stripping, grading, or other ground-disturbing activities in the Development Area and off-site improvement areas to determine the presence or absence of any TCRs. Native American Representatives from culturally affiliated tribes act as a representative of their Tribal government and shall be consulted before any cultural studies or ground-disturbing activities begin. 2. Native American Representatives and Native American Monitors have the authority to identify sites or objects of significance to Native Americans and to request that work be stopped, diverted, or slowed if such sites or objects are identified within the direct impact area; however, only a Native American Representative can recommend appropriate treatment of such sites or objects. **Mitigation Measure 4.4-4c: Treatment of Native American Remains** In the event that Native American human remains are found during development of a Project and the Yocha Dehe Wintun Nation or a	

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		member of the Tribe is determined to be the Most Likely Descendant, implement Mitigation Measure 4.4-3. **Mitigation Measure 4.4-4d: Treatment of Cultural Resources** Treatment of all cultural items, including ceremonial items and archeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archeological items, which may be found at a Project site should be turned over to the Tribe for appropriate treatment, unless otherwise ordered by a court or agency of competent jurisdiction. The Project applicant shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archeological items, which may be found on a Project site in favor of the Tribe. If any intermediary, (for example, an archaeologist retained by the Project applicant) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.	
4.5 Geology, Soils, Minerals, and Paleontological Resources No potentially significant impacts and no mitigation required for geology, soils, minerals, or paleontological resources.	LTS	None required.	LTS
4.6 Greenhouse Gas Emissions & Energy	S	**Mitigation Measure 4.6-1a: Use Battery or Electric-powered Construction Equipment** The Project applicant shall require that construction contractor(s): • Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible. • Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites. • Use battery-powered equipment for all off-road construction equipment with a power rating below 19kW (e.g., plate compactors, pressure washers) during construction. Prior to the issuance of grading permits for the Project, the Project applicant shall include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities.	SU

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		Mitigation Measure 4.6-1b: Reduce Construction Worker Travel for Meals The Project applicant shall provide meal options on-site or shuttles between the facility and nearby meal destinations for construction employees. **Mitigation Measure 4.6-c: Limit Model Year of On-road Heavy Duty Haul Trucks** The Project applicant shall require the construction contractor(s) use on-road heavy-duty haul trucks to be model year 2014 or newer if diesel-fueled. **Mitigation Measure 4.6-1d: Limit Idling of Heavy-Duty Construction Equipment & Trucks** The Project applicant shall require the construction contractor(s) forbid the idling of construction equipment and trucks, if diesel-fueled, for more than two minutes. The Project applicant or construction contractor(s) shall provide appropriate signage onsite communicating this requirement to onsite equipment operators. **Mitigation Measure 4.6-1e: Omit the Inclusion of Natural Gas Infrastructure.** The City shall require the Project applicant to omit the inclusion of natural gas infrastructure in the design and construction of the proposed Project. The final design drawings must demonstrate the omission of natural gas connections to the Project Site and be provided to and approved by the City prior to the issuance of grading permits. **Mitigation Measure 4.7-1f: Source Electricity for Project Operations from a Power Mix that is 100 Percent Carbon-free.** Electricity to serve the Project Site shall be supplied from a power mix that comprises 100 percent carbon-free electricity sources. The Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating the Project's electricity demand, including that of electric vehicle charging stations and other onsite electric infrastructure required to support electrification of the onsite offroad equipment, will be supplied with 100 percent carbon-free electricity sources. These sources may include, but are not limited to, on-site renewable generation system(s) or Pacific Gas and Electric Company (PG&E) 100 percent solar electricity service option, or a	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		similar 100 percent carbon-free utility option that becomes available in the future and meets the requirements of this mitigation measure. To ensure that 100 percent of the Project's electricity demand generated by the proposed Project is supplied with 100 percent carbon-free electricity sources, the project applicant or other appropriate Project Site operations manager shall maintain records for all electricity consumption and supply associated with the proposed Project's operation and make these records available to the City upon request. These records shall be maintained until such time as the only grid-available power options are inherently carbon-free and this mitigation does not serve to provide any additional Project requirements to reduce electricity-related GHG emissions. **Mitigation Measure 4.6-1g: Implement Mitigation Measure 4.12-1, Transportation Demand Management (TDM) Plan.** **Mitigation Measure 4.6-1h: Incorporate CALGreen Tier 2 Standards for Electric Vehicle Infrastructure into Project Design.** The City shall require the Project applicant to include electric vehicle (EV) capable parking at the rate consistent with the California Green Building Standards Code (CALGreen) Tier 2 standards for the proposed Project land use. The EV capable parking shall include the installation of the enclosed conduit that forms the physical pathway for electrical wiring and adequate panel capacity to accommodate future installation of a dedicated branch and charging stations(s). The total EV capable parking to be provided shall be based on the proposed size and scale of development and the most current CALGreen Tier 2 standards at the time of the application for a building permit. **Mitigation Measure 4.6-1i: Electrification of Yard Equipment** The Project applicant shall stipulate in tenant lease agreements that all yard equipment and similar on-site off-road equipment, such as forklifts, be electric. Prior to the issuance of an occupancy permit, the Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating that the building occupant shall only use on-site off-road equipment that is electric-powered.	

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		Mitigation Measure 4.6-1j: Electrification of Transportation Refrigeration Units The Project applicant shall require that all transportation refrigeration units operating on the Project Site be electric or alternative zero-emissions technology, including hydrogen fuel cell transport refrigeration and cryogenic transport refrigeration, to reduce emissions of NO_X without substantially increasing other emissions. Any electric or hybrid transportation refrigeration units shall be charged via grid power (i.e., not an idling truck or diesel engine). The Project design shall also include necessary infrastructure; for example, requiring all dock doors serving transportation refrigeration units to be equipped with charging infrastructure to accommodate the necessary plug-in requirements for electric transportation refrigeration units while docked or otherwise idling, as well as the electrical capacity to support the on-site power demand associated with electric transportation refrigeration unit charging requirements. **Mitigation Measure 4.6-1k: Prohibition of Truck Idling for More than Two Minutes** The Project applicant shall require that onsite idling of all visiting gasoline- or diesel-powered trucks not exceed two minutes, and that appropriate signage and training for on-site workers and truck drivers be provided to support effective implementation of this limit. **Mitigation Measure 4.6-1l: Limitation of Model Year of Visiting Trucks** The Project applicant shall require that lease agreements stipulate that any gasoline- or diesel-powered vehicle, whether owned or operated by tenant(s), that enters or operates on the Project Site and has a gross vehicle weight rating greater than 14,000 pounds, have a model year dated no older than model year 2014. **Mitigation Measure 4.6-1m: Use of Reduced GWP Refrigerants** Future buildings and tenants using cold storage shall use R-407F or class of refrigerant that has an equivalent or lower global warming potential (i.e., global warming potential of 1,825 or less). The Project applicant shall require that lease agreements stipulate that any refrigeration unites operated onsite meet these requirements and that equipment specifications and maintenance records demonstrating	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		system and refrigerant type and compliance with service and maintenance requirements to minimize fugitive leaks. **Mitigation Measure 4.6-1n: Purchase and Retire GHG Emissions Credits.** The Project applicant shall purchase and retire greenhouse gas (GHG) emissions credits for the proposed Project. Prior to the issuance of a building permit, the Project applicant shall provide documentation for review and approval by the City, that demonstrates consistency with the requirements of this mitigation measure, including the specific performance standards outlined below regarding the credit program selected. The Project applicant shall purchase and retire GHG emissions credits in an amount sufficient to reduce the proposed Project's annual amortized construction and operational emissions, after implementation of Mitigation Measures 4.6-1a through 4.6-1m, to a level considered less than cumulatively considerable based upon the 2030 GHG efficiency threshold of 13.98 MT CO_2e per employee and the State's target of an 85 percent reduction from 1990 levels by 2045, represented by the 2045 GHG efficiency threshold of 3.32 MT CO_2e per employee. The Project applicant shall purchase and retire GHG emissions credits sufficient to meet such requirements for operations through 2055, which reflects the assumed 30-year lifetime of the proposed Project. Total amortized construction emissions plus operational emissions, with implementation of Mitigation Measures 4.6-1a through 4.6-1n, and required GHG credits were estimated the 30-year Project lifetime. Based on these timelines and the Project's operational emissions between 2025 and 2055, the total required amount credits is currently estimated to be 358,128 MT CO_2e for the life of the Project. The purchase and retirement of credits may occur through one of the following programs, which are all developed consistent with ARB's offset protocols: (i) a California Air Resources Board (CARB) approved registry, such as the Climate Action Reserve, California Offsets through the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		the California Air Pollution Control Officers Association (CAPCOA) GHG Rx. Such credits shall be based on protocols approved by ARB, consistent with Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California. Off-site mitigation credits shall be real, additional, quantifiable, verifiable, enforceable, permanent, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2) and that satisfy all of the following criteria: • Real: emission reduction must have actually occurred, yielding quantifiable and verifiable reductions or removals determined using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the offset project boundary and account for uncertainty and the potential for activity-shifting leakage and market-shifting leakage. • Additional: an emission reduction cannot be required by an existing law, rule, or other requirement that applies directly to the proposed Project, or otherwise have occurred in a conservative business-as-usual scenario, consistent with CEQA Guidelines Section 15126.4(c)(3) and Health and Safety Code section 38562(d)(2). One carbon offset credit shall mean the past reduction or sequestration of one metric ton of carbon dioxide equivalent that is 'not otherwise required', consistent with CEQA Guidelines Section 15126.4(c)(3). • Quantifiable: reductions must be quantifiable through tools or tests that are reliable, based on applicable methodologies, relative to the proposed project baseline in a reliable and replicable manner for all GHG emission sources and recorded with adequate documentation. • Verifiable: the action taken to produce credits can be audited by an accredited verification body and there is sufficient evidence to show that the reduction occurred and was quantified correctly. • Enforceable: an enforcement mechanism must exist to ensure that the reduction project is implemented correctly. • Permanent: emission reductions or removals must continue to occur for the expected life of the reduction project (i.e., not be reversible, or if the reductions may be reversible, that mechanisms are in place to replace any reversed GHG emissions reductions). The purchase and retirement of credits shall be prior to the issuance of any grading permit for the Project. Purchase and retirement of	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		credits can also occur for multiple years in advance up to the total purchase requirement described above. The applicant shall provide the City with evidence of the purchase and retirement of credits in adequate amounts and appropriate timing to achieve the 2030 and 2045 efficiency thresholds. If the entire amount is retired up-front, the applicant shall provide the City evidence of the purchase and retirement prior to approval of any building permit associated with the project. If the reduction credits are purchased annually, the applicant shall provide evidence to the City prior to the annual renewal of the business license. The evidence of purchase and retirement of credits shall include (i) the applicable protocol(s) and methodologies associated with the carbon offsets, (ii) the third-party verification report(s) and statement(s) affiliated with the carbon offset projects, and (iii) the unique serial numbers assigned by the registry(ies) to the carbon offsets to be retired, which serves as evidence that the registry has determined the carbon offset project to have been implemented in accordance with the applicable protocol or methodology and ensures that the offsets cannot be further used in any manner.	
4.7 Hazards and Hazardous Materials. Impact 4.7-3. Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed. Development of the proposed Project could expose people and the environment to existing hazards and hazardous materials from development in a Cortese-listed site, leachate from a former landfill, accidental rupture of underground pipelines, chemicals from railroad tracks, and aerially deposited lead potentially disturbed by proposed SR 12 roadway improvements.	PS	**Mitigation Measure 4.7-3a: Prepare and Implement a Site-Specific Health and Safety Plan.** To protect the health of construction workers and the environment, the Project applicant or construction contractor(s) shall prepare and implement a site-specific Health and Safety Plan (HASP) as described below: • The HASP shall be prepared in accordance with State and federal OSHA regulations (29 CFR 1910.120) and approved by a certified industrial hygienist. Copies of the HASP shall be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP shall identify potential hazards (including stained or odiferous soils at any location where earthmoving activities would occur within the proposed Development Area), chemicals of concern (i.e., VOCs, heavy metals, and gases), personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures. • The HASP shall state that if stained or odiferous soil or groundwater is discovered during project-related construction activities, project applicants shall retain a licensed environmental professional to conduct a Phase II ESA that includes appropriate soil and/or groundwater analysis. Recommendations contained in	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		the Phase II ESA to address any contamination that is found shall be implemented before initiating ground-disturbing activities in these areas. • The HASP shall also require notification of the appropriate federal, State, and local agencies if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater, or groundwater with a surface sheen) or if previously undiscovered underground storage tanks are encountered during construction activities. Any contaminated areas shall be remediated in accordance with recommendations made by the RWQCB, DTSC, the Solano County Environmental Health Division, and/or other appropriate federal, State, or local regulatory agencies. • The HASP shall address potential accidental damage to utility lines, including high-pressure natural gas and jet fuel lines. The plan shall identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan shall include worker education training in response to such situations. The HASP shall include telephone numbers for emergency response providers, as well as the location of the nearest hospital; this information shall also be posted in the construction superintendent's trailer on the job site during construction. • Because construction activities will be occurring in the immediate vicinity of an active rail line (i.e., California Northern Railroad), the HASP shall address potential railroad safety hazards for project-related construction workers, including the need to: (1) stay a safe distance away from the tracks while working; (2) refrain from parking or driving vehicles or equipment across the tracks at any location other than the existing Pennsylvania Avenue crossing, and (3) observe all train crossing signals and warning lights. If there is a need for a temporary halt to train traffic on the California Northern Railroad lines during project-related construction activities, the project applicant and/or its construction contractor shall coordinate directly with the railroad and shall hold a site safety meeting to inform construction workers of their responsibilities and safety protocols. The appropriate emergency contact numbers for personnel at California Northern Railroad shall be included in the HASP and posted in the construction superintendent's trailer. **Mitigation Measure 4.7-3b: Locate and Avoid Underground Utilities in Areas Where Development is Proposed, and Prepare a Response Plan to be Implemented if Accidental Rupture Occurs.** The project applicant or construction contractor(s) shall implement the following measures before construction begins, to avoid and	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		minimize potential damage to utilities that could result in hazardous materials incidents. • Prior to the start of earthmoving activities in the vicinity of the pipelines identified on Exhibit 4.71, the project applicant shall coordinate with Kinder Morgan, PG&E, and the City of Vallejo to identify and clearly mark the exact locations of the pipelines. All construction personnel shall be informed of the location of the pipelines during safety briefings throughout the period when construction is occurring. The locations of the pipelines shall be clearly identified on construction drawings and posted in the construction superintendent's trailer. • Verify with Kinder Morgan that the pipeline underneath the proposed parking lot adjacent to Building A is no longer in service, and coordinate with Kinder Morgan for pipeline removal if necessary. • As required by Suisun City General Plan Policy PHS-10.8, dedicated pipeline rights-of-way shall be permanently protected from construction encroachment, particularly in areas where high-pressure pipelines (see Exhibit 4.71) adjoin proposed development. High-visibility orange exclusionary fencing, or other clearly visible above-ground markers, shall be placed along the pipeline rights-of-way prior to the start of earthmoving activities. • Verify through field surveys and the use of the Underground Service Alert services, the locations of any other utilities that may be buried at the Project Site in the areas where development is proposed (e.g., stormwater, sewer, water, electrical, or communication cables). Any buried utility lines shall be clearly marked in the field and on the construction drawings in advance of any project-related earthmoving activities.	
4.7 Hazards and Hazardous Materials. Impact 4.7-5. Interference with Emergency Response or Evacuation Plans. Construction of the off-site improvements could result in short-term, temporary lane closures on SR 12; in addition, construction would increase construction-related truck traffic on SR 12 that could interfere with and result in slower emergency response times..	PS	**Mitigation Measure 4.7-5: Implement Traffic Control Plans.** The Project applicant or contractor(s) shall implement traffic control plans for construction activities that may affect road rights-of-way during project construction. The traffic control plans shall be designed to avoid traffic-related hazards and maintain emergency access during construction phases. The traffic control plans shall illustrate the location of the proposed work area; provide a diagram showing the location of areas where the public right-of-way would be closed or obstructed and the placement of traffic control devices necessary to perform the work; show the proposed phases of traffic control; and identify the time periods when traffic control would be in effect and the time periods when work would prohibit access to private property from a public right-of-way. The plans may be modified by the City or Caltrans in order to eliminate or avoid traffic conditions that are hazardous to the safety of the public. Traffic control plans shall be submitted to the affected agencies, as appropriate, and shall be submitted to the City for review and approval before City approval of	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		improvement plans, where future construction may cause impacts on traffic.	
4.10 Noise & Vibration. Impact 4.10-1. Temporary, Short-term Exposure of Sensitive Receptors to Construction Noise. Short-term construction source noise levels could exceed the applicable City standards at nearby noise-sensitive receptors. In addition, if construction activities were to occur during more noise-sensitive hours, construction source noise levels could also result in annoyance and/or sleep disruption to occupants of existing and proposed noise-sensitive land uses and create a substantial temporary increase in ambient noise levels.	S	**Mitigation Measure 4.10-1a: Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.** The Project applicant(s) and their primary contractors for engineering design and construction of all Project phases shall ensure that the following requirements are implemented at each worksite during Project construction to avoid and minimize construction noise effects on sensitive receptors. The Project applicant(s) and primary construction contractor(s) shall employ noise-reducing construction practices. Measures that shall be used to limit noise shall include the measures listed below: • Noise-generating construction operations shall be limited to the hours between 7 a.m. and 6 p.m. Monday through Friday, and between 8 a.m. and 5 p.m. on Saturdays (conservatively assuming the hours based on Solano County's permitted hours of construction). • Noisy construction equipment and equipment staging areas shall be located as far as possible from nearby noise-sensitive land uses. • All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation. • All motorized construction equipment shall be shut down when not in use to prevent idling. • Individual operations and techniques shall be replaced with quieter procedures (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site). • Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators) as planned phases are built out and future noise-sensitive receptors are located within 250 feet of future construction activities. • Written notification of construction activities shall be provided to all noise-sensitive receptors located within 800 feet of typical construction activities and 2,000 feet of pile driving activity. The notification shall include anticipated dates and hours during which construction activities are anticipated to occur and contact information, including a daytime telephone number, for the project representative to be contacted in the event that noise levels are deemed excessive. Recommendations to assist noise-sensitive	SU

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		land uses in reducing interior noise levels (e.g., closing windows and doors) shall also be included in the notification. • To the extent feasible and necessary to reduce construction noise levels consistent with applicable policies, acoustic barriers (e.g., lead curtains, sound barriers) shall be constructed to reduce construction-generated noise levels at affected noise-sensitive land uses. The barriers shall be designed to obstruct the line of sight between the noise-sensitive land use and on-site construction equipment. • When future noise-sensitive uses are within close proximity to prolonged construction noise, noise-attenuating buffers such as structures, truck trailers, or soil piles shall be located between noise sources and future residences, as feasible, to shield sensitive receptors from construction noise.	
4.10 Noise & Vibration. Impact 4.10-3. Temporary, short-term exposure of sensitive receptors to potential groundborne noise and vibration from project construction. Future development would result in temporary increases in on- and off-site roadway traffic noise associated with project construction. Construction-generated traffic could expose sensitive receptors to noise levels along on- and off-site roadways that would not exceed the applicable noise standards and/or result in a substantial increase in ambient noise.	S	**Mitigation Measure 4.10-2a: Implement Measures to Reduce Groundborne Noise and Vibration Levels at Sensitive Receptors during Pile Driving Activities.** The Project applicant and contractor(s) for engineering design and construction of all proposed Project components and off-site improvements shall ensure that the following controls are implemented to reduce avoid and minimize construction vibration effects on sensitive receptors: • Place stationary construction equipment as far as possible from vibration sensitive uses. • Use smaller construction equipment when practical, particularly smaller vibratory rollers that are as small as practicable, or that have an adjustable vibratory force feature. • Locate loading areas, staging areas, stationary noise, vibration-generating equipment, etc., as far as feasible from sensitive receptors. • Prohibit the use of vibratory rollers near the existing, occupied residential structures. • If vibratory rollers are required to be used and need to be used within 110 feet of residential structures, the contractor must use a vibratory roller whose vibratory force can be turned down or turned off. • A disturbance coordinator shall be designated and this person's contact information shall be posted in a location near the Project Site that is clearly visible to the nearby receivers most likely to be disturbed. The director would manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the disturbance coordinator, and if necessary, evaluated by a professional with construction vibration expertise.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		• The pre-existing condition of all buildings within a 500-foot radius within the immediate vicinity of proposed pile driving activities shall be recorded in the form of a preconstruction survey. The preconstruction survey shall determine conditions that exist before construction begins for use in evaluating the damage caused by construction activities. Fixtures and finishes within a 500-foot radius of construction activities susceptible to damage shall be documented (photographically and in writing) before construction. All damage will be repaired to its pre-existing condition. • Vibration monitoring shall be conducted before and during pile driving operations occurring within 500 feet of the sensitive receptors. Every attempt shall be made to limit construction-generated vibration levels in accordance with Caltrans recommendations during pile driving and impact activities in the vicinity of the historic structures. • Pile driving required within a 500-foot radius of sensitive receptors should use alternative installation methods, where possible (e.g., pile cushioning, jetting, predrilling, cast-in-place systems, resonance-free vibratory pile drivers). This would reduce the number and amplitude of impacts required to seat the pile.	
4.10 Noise & Vibration. Impact 4.10-5. Long-term non-transportation noise levels at existing noise-sensitive receivers. Future development would result in an increase in stationary and non-transportation noise sources. These non-transportation noise sources could exceed the applicable noise standards (hourly Leq dBA) and result in a substantial increase in ambient noise levels.	S	**Mitigation Measure 4.10-3a: Implement Measures to Reduce Potential Exposure of Sensitive Receptors to Non-Transportation Source–Generated Noise.** To reduce potential long-term exposure of sensitive receptors to noise generated by Project-related non-transportation noise sources, the Project applicant or contractor(s) for all Project phases shall implement the below measures to assure maximum reduction of project interior and exterior noise levels from operational activities. The City shall evaluate individual facilities for compliance with the City Noise Ordinance and policies contained in the City's General Plan at the time that tentative subdivision maps and improvements plans are submitted. All Project elements shall comply with City noise standards. • The proposed land uses shall be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, and generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible from or shielded from nearby noise-sensitive land uses. • Air conditioning units shall be shielded to reduce operational noise levels at adjacent dwellings or designed to meet City noise standards. Shielding may include the use of fences or partial equipment enclosures. To provide effectiveness, fences or barriers shall be continuous or solid, with no gaps, and shall block the line of sight to windows of neighboring dwellings. • To the extent feasible, residential land uses located within 2,500 feet of and within the direct line of sight of major noise-generating	LTS

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<table>
<tr><th>Impacts</th><th>Significance before Mitigation</th><th>Mitigation Measures</th><th>Significance after Mitigation</th></tr>
<tr><td></td><td></td><td>commercial uses (e.g., loading docks and equipment/vehicle storage repair facilities,) shall be shielded from the line of sight of these facilities by construction of a noise barrier. To provide effectiveness, noise barriers shall be continuous or solid, with no gaps, and shall block the line of sight to windows of neighboring dwellings.
• Routine testing and preventive maintenance of emergency electrical generators shall be conducted during the less sensitive daytime hours (i.e., 7:00 a.m. to 6:00 p.m.). All electrical generators shall be equipped with noise control (e.g., muffler) devices in accordance with manufacturers' specifications.
• On-site landscape maintenance equipment shall be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications.
• For maintenance areas located within 500 feet of noise-sensitive land uses, the operation of on-site landscape maintenance equipment shall be limited to the least noise-sensitive periods of the day, between the hours of 7 a.m. and 6 p.m.</td><td></td></tr>
<tr><td>4.12 Transportation and Circulation. Impact 4.12-1. Near-Term Vehicle-Miles Traveled (VMT). The proposed Project home-based work VMT per employee is above 85 percent of the City-wide average.</td><td>PS</td><td>Mitigation Measure 4.12-1: Transportation Demand Management (TDM) Plan.
Prior to issuance of building permits, the Project applicant shall develop a TDM Plan for the proposed Project, including any anticipated phasing, and shall submit the TDM Plan to the City for review and approval. The TDM Plan shall identify trip reduction strategies, as well as mechanisms for funding and overseeing the delivery of trip reduction programs and strategies. The TDM Plan shall be designed to achieve the trip reduction, as required to reduce the commute trip VMT per employee from 14.2 to 12.6, consistent with an 11.3-percent reduction. The analysis prepared to support the TDM Plan shall demonstrate that the selected reduction measures will achieve the necessary VMT reduction.
Based on research in the Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook), Table 4.12-3 describes feasible measures for the Project's TDM Plan aimed to reduce Project-generated trips. The GHG Handbook calculates maximum VMT reduction based on a project's land use type and locational context. The proposed Project is considered a commercial project type in a suburban setting. A 11.3-percent reduction is potentially achievable with implementation of the measures listed below.
Table 4.12-3. TDM Plan (From Section 4.12 of the Draft EIR)
<table>
<tr><th>TDM Measure</th><th>Description</th><th>Maximum VMT Reduction[1]</th></tr>
</table></td><td>LTS</td></tr>
</table>

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Impacts	Significance before Mitigation	Mitigation Measures			Significance after Mitigation
		Commute Trip Reduction Marketing	Designate a TDM Coordinator to plan, implement, and manage commute programs. The TDM Coordinator shall share information via regular emails, bulletin postings, challenges, or events on resources and incentives to encourage employees to use alternative modes of travel to work. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving, such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.	4.00 precent	
		Ridesharing Program	Implement a ridesharing program and establish a permanent transportation management association with funding requirements for employers. Ridesharing encourages carpooled vehicle trips in place of single-occupied vehicle trips, thereby reducing the number of trips, VMT, and GHG emissions. Ridesharing must be promoted through a multi-faceted approach. Examples include the following: Designating a certain percentage of desirable parking spaces for ridesharing vehicles. Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles. Providing an app or website for coordinating rides, or promoting the use of the existing free ridematch program at merge.511.org for the Bay Area. The larger the pool of participants, the more effective the program will be.	4.00 percent	
		Subsidized or Discounted Transit Program – Work Trips Only	Provide subsidized or discounted, or free transit passes for employees. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.	0.84 percent	
		End-of-Trip Bicycle Facilities	Install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The	2.50 percent	

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation

	provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.	
Employer-Sponsored Vanpool	Implement an incentive to use vanpool services. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting. The mode shift from long-distance, single-occupied vehicles to shared vehicles reduces overall commute VMT, thereby reducing GHG emissions. Provide an app or website for coordinating rides, or promote the use of the existing free ridematch program at merge.511.org for the Bay Area. The larger the pool of participants, the more effective the program will be.	3.76 percent
Total VMT Reduction (with multiplicative dampening)	**Not applicable.**	**14.3 percent[2]**

Table Notes
1. VMT reduction can range based on the level of effort in promoting and implementing the TDM strategies. A site operator doing just the bare minimum would result in lower VMT reduction, and a site operator willing to promote and invest heavily in TDM programs is expected to achieve the maximum VMT reduction. The reductions and measures are not additive but complementary of one another.
2. The values in the Maximum VMT Reduction column cannot be purely added for a total VMT reduction as effectiveness is reduced or capped when measures are combined. Multiplicative dampening considers the reduced or capped effectiveness of combined measures based on national research used to develop the calculations in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook)*. The Total VMT Reduction value was calculated with multiplicative dampening.

As part of the TDM Plan, the Project applicant/contractor(s) shall monitor and report its effectiveness at reducing home-based work VMT per employee. Tenant/s shall submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, the daily vehicle trips generated by the Project, and length of the trips being generated by the Project. The report shall be prepared by an independent City-approved transportation planning/engineering firm. The TDM Coordinator will provide information to the firm to monitor implementation effectiveness of the approved TDM Plan. To assess the TDM Plan's commute trip reductions, a baseline daily driveway count of vehicle

B = Beneficial LTS = less than significant PS = potentially significant S = significant SU = significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		trips shall be conducted before implementation of the TDM Plan and compared to the driveway count after one year of TDM Plan implementation. If the monitoring report shows that there was at least 11.3 percent commute trip VMT reduction, then the TDM Plan is presumed to effectively mitigate the Project impact on VMT. If the monitoring report shows that the TDM Plan does not reduce commute trip VMT by at least 11.3 percent, then the transportation planning/engineering firm shall assess for financial penalties for non-compliance and provide guidance for TDM Plan modification to achieve the VMT reduction goal. Additionally, if the initial TDM Plan strategies do not reduce commute trip VMT by at least 11.3 percent, the Project shall incorporate additional TMD strategies, such as the following to increase TDM effectiveness in the future: • Provide enhancements to bus service to the Project site area during peak commute times in coordination with FAST and SolTrans (not quantifiable at this time as future coordination with FAST and SolTrans is required and has not occurred) • Compliance with a future City VMT/TDM ordinance (not quantifiable at this time as the City does not have a VMT/TDM ordinance) • Participation in a future City VMT fee program (not quantifiable at this time as the City does not have a VMT fee program)	
4.12 Transportation and Circulation. Impact 4.12-2. Vehicle System. The proposed driveway lengths and turn angles, lack of directional markers and signs, and mix of vehicular and rail activity pose potentially hazardous conditions for vehicles.	PS	**Mitigation Measure 4.12-2: Vehicle System Improvements.** Prior to issuance of building permits, the Project shall provide site plans that include the following on-site and off-site vehicle system improvements to minimize hazardous conditions. • Driveway access improvements. o The Project Site tenant has yet to be determined, and thus the exact operations are still unknown. The project shall design each driveway width and throat length appropriate for the vehicle types expected to be served. For passenger vehicle access only, provide at least 10 feet driveway width for each direction of travel and a throat length of at least 50 feet to hold the approximate length of two vehicles. For driveways that serve trucks, provide at least 15 feet driveway width for each direction of travel and a throat length that can hold at least one of the longest expected trucks to access the site. o Combine driveways #1 and #2 to a single right-in right-out only driveway 300 feet south of the Pennsylvania Avenue and SR-12 intersection. This would improve the sight distance of drivers exiting the driveway and reduce vehicular conflicts with northbound vehicles on Pennsylvania Avenue. o Connect the northernmost parking lot accessible by driveways #1 and #2 to the vehicle system of Building B-C. This would improve on-site connectivity and circulation. Vehicles that want	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		to make a left turn in and out from the northernmost parking would use driveway #3. o Orient all driveways to be perpendicular to the public road for improved sight distance and vehicle maneuvers. • On-site circulation improvements. o Orient drive aisles to be perpendicular to the extent feasible for improved sight distance and vehicle maneuvers. o Add directional markers (e.g., signs or painted strips) for on-site circulation guidance and efficiency. o At the rail spurs, prohibit vehicles from crossing tracks with the use of signs or physical barriers and remove the adjacent parking spaces. • Off-site vehicle system improvements. o The Suisun City General Plan plans to widen Pennsylvania Avenue and Cordelia Road from a two-lane road to a four-lane road. Coordinate with the City to determine the roadway cross section. o For vehicle system efficiency and improved safety, add a center two-way left-turn lane between driveways #3 and #11 for vehicle deceleration and acceleration when making left-turns into and out of the Project driveways.	
4.12 Transportation and Circulation. Impact 4.12-4. Pedestrian and Bicycle Systems. The Project is expected to increase pedestrian and bicycle activity and the increased activity would be incompatible with the existing transportation infrastructure for pedestrians and bicyclists by exposing users to potential hazards.	PS	**Mitigation Measure 4.12-3: Provide adequate pedestrian and bicycle facilities and improvements along Project Site frontages and on site.** In accordance with Suisun City requirements and design standards, the project shall provide adequate pedestrian and bicycle facilities along Project Site frontages and on-site to improve the pedestrian and bicycle transportation conditions. • Pedestrian Facilities List. o Continuous sidewalks of at least five feet at the Project Site frontages along both sides of Cordelia Road and Pennsylvania Avenue. o Physical barriers between Planning Area No. 1 and Planning Area No. 3 to designed to prevent jaywalking. Use signs to direct pedestrians to the nearby crosswalks. o High visibility crosswalks at the Pennsylvania Avenue and Cordelia Road/Cordelia Street intersection. o Adequate pedestrian-scale lighting along Project Site frontages and on-site. o On-site markings or signage to notify drivers of pedestrians traveling between off-site pedestrian facilities or on-site parking facilities and building access points. o At the rail spurs, prohibit bicyclists from crossing tracks with the use of signs or physical barriers.	LTS

B = Beneficial LTS = less than significant PS = potentially significant S = significant SU = significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		• Bicycle Facilities List. o Continuous bicycle facilities of at least four feet at the Project Site frontages along both sides of Cordelia Road and Pennsylvania Avenue with even surface pavement, appropriate signage, delineation, and other features to improve the bicycle transportation conditions. o Bicycle parking facilities near the site access points. o On-site markings or signage to notify drivers of bicyclists traveling between bicycle parking facilities and building access points. o At the rail spurs, prohibit bicyclists from crossing tracks with the use of signs or physical barriers.	

Notes:
LTS = less than significant
PS = potentially significant
S = significant
SU = significant and unavoidable

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2 INTRODUCTION

2.1 PURPOSE OF THIS ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) evaluates the impacts of the Highway 12 Logistics Center Project (also referred to as the "proposed Project"). This EIR was prepared in compliance with the California Environmental Quality Act (CEQA) of 1970 (Public Resources Code Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.).

The CEQA Guidelines charge public agencies with the responsibility of avoiding or minimizing environmental damage that could result from implementation of a project, where feasible. As part of this responsibility, public agencies are required to balance various public objectives, including economic, environmental, and social issues.

Under CEQA, the lead agency for a project is the public agency with primary responsibility over the proposed project. In accordance with CEQA Guidelines Section 15051(b)(1), "[t]he lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." The City of Suisun City (the City) is the lead agency under CEQA for this proposed project. 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.

Furthermore, the City anticipates that Solano LAFCo will rely on this EIR as it considers changes in public agency organization related to proposed annexation.

The purpose of an EIR is neither to recommend approval nor denial of a project. An EIR is an informational document used in the planning and decision-making process by the lead agency and responsible and trustee agencies. An EIR describes the potentially significant and significant environmental impacts of a project, identifies potentially feasible measures to mitigate potentially significant and significant impacts, and describes potentially feasible alternatives to the project that can reduce or avoid significant environmental effects. CEQA requires decision-makers to balance the benefits of a project against its unavoidable environmental effects in deciding whether to carry out a project.

As the lead agency, the City prepared this EIR to evaluate and disclose the significant adverse effects on the physical environment (potentially significant and significant impacts) that could result from implementation, both during construction and operational phases, of the proposed Project; identify feasible mitigation, including mitigation that would avoid, eliminate, or reduce potentially significant or significant impacts; and identify and evaluate a range of alternatives to the proposed Project that would feasibly reduce or avoid potentially significant or significant impacts while meeting most of the objectives of the proposed project. The analysis in this EIR includes both direct impacts attributable to the Project, as well as reasonably foreseeable indirect impacts.

The CEQA Guidelines have specific requirements for EIRs related to description of a project, environmental setting, and impact analysis. Table 2-1 identifies the required elements of an EIR (with CEQA Guidelines sections referenced) and the corresponding chapters or sections in which each item is discussed in this document.

Table 2-1. Analyses Required by the CEQA Guidelines

Required Description and Analysis	EIR Chapter or Section
Summary (Section 15123)	1
Project Description (Section 15124)	3
Description of the Existing Setting (Section 15125)	4
Environmental Impacts (Sections 15126 and 15143)	4
Cumulative Impacts (Section 15355)	5
Alternatives (Section 15126.6)	6
Growth-Inducing Impacts (Section 15126[d])	7
Irreversible Environmental Effects (Section 15126.2[c])	7
Significant Environmental Effects Which Cannot be Avoided (Section 15126.2[b])	7

Note:
CEQA = California Environmental Quality Act
EIR = Environmental Impact Report

2.2 ORGANIZATION AND CONTENT OF THIS DRAFT EIR

This Draft EIR is organized as follows:

- **Chapter 1, "Executive Summary,"** provides an overview of the findings, conclusions, and any recommended mitigation measures in the DEIR.
- **Chapter 2, "Introduction,"** describes the intended uses and purposes of this Draft EIR; environmental review process; issues to be resolved and areas of controversy; lead, responsible, and trustee agencies; public involvement process; and organization of this document.
- **Chapter 3, "Project Description,"** describes the Project location, Project characteristics, supporting infrastructure, project schedule, construction plans, required approvals and entitlements, and Project Objectives.
- **Chapter 4, "Impact Analysis,"** details the existing environmental setting and regulatory framework, and then evaluates the physical environmental effects of the project and identifies mitigation for potentially significant and significant effects.
- **Chapter 5, "Cumulative Impact Analysis,"** provides the resource-specific analysis of cumulative effects – impacts of implementing the project in combination with other impacts of related past, present, and reasonably foreseeable future projects – for each topic area presented in Chapter 4.
- **Chapter 6, "Alternatives,"** provides a comparative analysis between the proposed Project and alternatives to the Project. The Alternatives chapter provides a summary of the relative environmental impacts of the proposed Project alternatives, including the No Project Alternative. This chapter also identifies the "environmentally superior" alternative.
- **Chapter 7, "Other CEQA Considerations"** discusses the Project's growth inducement potential, any significant irreversible environmental changes associated with the Project, and any significant and unavoidable effects of the Project.

- **Chapter 8, "References,"** lists the sources of information cited throughout the Draft EIR.
- **Chapter 9, "List of Preparers,"** lists the individuals who contributed to preparation of the Draft EIR.
- **Appendices** provide background and technical information.

2.3 ENVIRONMENTAL REVIEW PROCESS AND SCOPE OF THIS EIR

2.3.1 APPLICATION AND PRELIMINARY REVIEW

The City received an application for development of a warehouse and logistics center along Highway 12 at Pennsylvania Avenue, a gateway to the city. The City reviewed the application and determined that the proposed Project would have the potential to result in a significant impact the environment, and staff elected to not prepare an initial study, consistent with CEQA Guidelines Section 15063(s), and move directly to the preparation of an EIR.

2.3.2 SCOPING

NOTICE OF PREPARATION

To initiate the EIR process, the City issued a Notice of Preparation (NOP) consistent with CEQA Guidelines Section 15060(d) and 15082 on April 1, 2021, and reissued the NOP on May 14, 2021, revised for clarity and to provide additional information related to planned sewer service that was not known at the time of the initial NOP release. The City held a public scoping meeting for the project on April 13, 2021, at a regular Planning Commission meeting. The release of the NOP initiated the scoping period, which went through June 14, 2021, 30 days after the release of the updated NOP. The NOP was submitted to the State Clearinghouse web portal of the Governor's Office of Planning and Research and was posted on the City's website for public review and to accept comments for a 30-day period through June 14, 2021. In response to the NOP, the City received comments on the scope and content of the EIR, as summarized below. The NOP and comment letters received during the scoping period are provided in Appendix A of this EIR.

IDENTIFIED ISSUES OF POTENTIAL IMPACT

The following topics of interest were identified during circulation of the NOP and the scoping meeting. Each topic of interest that relates to a potential adverse physical environmental impact of the Project is addressed in this EIR. The NOP comment letters and comments at the scoping meeting suggest that the following topics related to adverse physical environmental impacts should be particular areas of focus for the City's environmental analysis:[1]

- Land use, traffic, noise and air quality concerns
- Visual changes at the western gateway to the city
- Direct and cumulative state highway system impacts

[1] CEQA Guidelines Section 15123 requires than an "EIR shall contain a brief summary of the proposed action and its consequences" and the "summary shall identify: […] (2) Areas of controversy known to the Lead Agency including issues raised by agencies and the public; and (3) Issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects." Comments received on the Notice of Preparation, along with additional review by the City, helped to inform the areas of controversy and issues to be resolved and were taken into account when developing the proposed project and alternatives and conducting the analysis of potential impacts.

- Adequacy of available water supply and wastewater services
- Appropriate consideration and treatment of tribal cultural resources
- Water quality
- Impacts related to climate change
- Interference with passenger and freight rail operations
- Impacts to rare species and habitats
- Release of hazardous wastes and substances near the project site
- Air pollutant emissions from construction worker trips
- Impacts of building operation
- Cumulative impacts related to increased demand for workers and housing
- Ensuring right-of-way for emergency access
- Impacts to tribal cultural resources
- Impacts related to sea level rise and the Suisun Marsh
- Impacts related to total vehicle miles traveled
- Impacts related to Solano County agricultural zoning
- Cumulative impacts related to a second logistics center in Suisun City
- Impacts to Travis Air Force Base
- Impacts related to agriculture and prime agricultural lands
- Aesthetic impacts
- Air pollutant emissions impacts including those contributing to health risk

2.3.3 NATIVE AMERICAN CONSULTATION

The City conducted Native American consultation that met the requirements of Assembly Bill (AB) 52 for the proposed Project. The Yocha Dehe tribe responded to the project notification on May 19, 2021, noting its conclusion that the Project Site is within the aboriginal territories of the Yocha Dehe Wintun Nation. The Yocha Debe tribe requested the Project include cultural monitors during development and ground disturbance, including cultural sensitivity training prior to all ground disturbance activities, as well as that the Project incorporate Yocha Dehe Wintun Nation's recommended treatment protocol into the mitigation measures and continue to consult with the Tribe. City representatives met with representatives of the Yocha Dehe Wintun Nation to invite additional input on August 28, 2023 and the Tribal representatives confirmed that preconstruction should be required, that Tribal monitoring should be allowed during the grading and early construction, and that the EIR should stipulate actions in case of uncovering resources. The Tribal recommendations are incorporated in this EIR.

2.3.4 PUBLIC REVIEW

As noted above, 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 evaluating those effects and identifying mitigation measures and Project alternatives to reduce those effects to the extent feasible. This Draft EIR will be available for public review and comment for a 45-day period.

2.3.5 FINAL ENVIRONMENTAL IMPACT REPORT

After the close of the public review period, a Response to Comments document will be prepared, containing all the comments received during the public review period, responses to those comments, and other information the

City deems relevant. This document will be made available for review before the City considers certification. The Response to Comments document, the Draft EIR, and any changes to the Draft EIR together will comprise the Final EIR. Written responses to each public agency's comments on the Draft EIR will be sent to that agency at least 10 days prior to certification of the EIR (CEQA Guidelines Section 15088[b]). The Final EIR will be made available for review before the City certifies it as complete. The City must certify that the Final EIR has been adequately prepared in compliance with CEQA prior to approving the proposed project.

If significant environmental effects are identified, a lead agency must adopt "findings" indicating whether feasible mitigation measures or alternatives exist that can avoid or reduce those effects. If the environmental impacts are identified as significant and unavoidable, the City may still approve the proposed project if it determines that social, economic, legal, technological, or other factors override the unavoidable impacts. The City would then be required to prepare a "statement of overriding considerations" discussing the specific reasons for approving the project, based on information in the EIR and other information in the record.

The City is responsible for certifying that the EIR has been adequately prepared in compliance with CEQA. After certification, responsible agencies may use the EIR when they determine whether to approve any discretionary actions over which they have jurisdiction.

Pursuant to Section 15097 of the CEQA Guidelines, if the City approves the proposed project and the EIR identifies significant impacts and mitigation measures, the City must adopt a mitigation monitoring and reporting program (MMRP). The purpose of the MMRP is to ensure compliance with required mitigation during implementation of the project. An MMRP defines the requirements for monitoring and reporting on the implementation of project revisions, or for compliance with mitigation measures that the lead agency has required as conditions of project approval. The MMRP will be prepared concurrently with the Final EIR

2.4 AVAILABILITY OF THIS DRAFT EIR

This Draft EIR was submitted to the State Clearinghouse to initiate the public review period.

Copies of this Draft EIR are available through the City Development Services Department, Planning Division. The City has circulated the document to public agencies, other public and private organizations, property owners, developers, and other interested individuals. Detailed information related to this EIR are available at the City Planning Division website, https://www.suisun.com/departments/development-services/planning/.

Comments on the EIR are invited in writing or via email to:

Jim Bermudez, Development Services Director
City of Suisun City
701 Civic Center Boulevard
jbermudez@suisun.com

Comments should be focused on the adequacy and completeness of the EIR. "Adequacy" is defined as the thoroughness of the EIR in addressing significant adverse physical environmental effects, identifying mitigation measures for those impacts, and supplying enough information for public officials to make decisions about the merits of the project.

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3 PROJECT DESCRIPTION

This chapter describes the proposed Highway 12 Logistics Center Project (proposed Project) that is the subject of analysis in this EIR. Following is a detailed project description, both for temporary construction and long-term operations, the location of the Project Site, the objectives of the proposed Project, as well as and the intended use uses of the EIR by the lead and other agencies for decision making, needed permits, and other approvals.

3.1 PROJECT LOCATION AND SURROUNDING LAND USES

3.1.1 REGIONAL AND LOCAL PROJECT LOCATION

The Project Site comprises approximately 487 acres of land area in unincorporated Solano County, California, abutting the west boundary of the city of Suisun City (Suisun City).[1] Suisun City is in central Solano County, southwest of the city of Fairfield, and is situated along SR 12, just east of the intersection with Interstate 80, centrally located between the San Francisco Bay Area and the Sacramento Valley.

The Project Site is bounded to the east by the Union Pacific Railroad and to the north by SR 12. The western perimeter of the Project Site is bounded by the eastern edge of Ledgewood Creek in the northern portion of the site and Orehr Road in the southern portion of the Project Site. To the south, the Project Site meets the Suisun Marsh. The California Northern Railroad is oriented west to east, horizontally dividing the Project Site and meeting with the Union Pacific Railroad tracks at the eastern perimeter of the Project Site. Pennsylvania Avenue is located in the northern portion of the Project Site, from the California Northern Railroad line to and north of Highway 12.

An approximately 4.5-acre parcel in the northwest portion of the Project Site lies within the existing City of Suisun City limits, and the remainder of the Project Site is located west of the existing City limits. Approximately 161 acres, that which lies north of the California Northern Railroad tracks and Cordelia Road, is within the City of Suisun City Sphere of Influence (SOI) and would be proposed for annexation along with intervening public rights-of-way. See Exhibit 3-1 for the Project Site's location within the region, and Exhibit 3-2 for a more detailed depiction of the Project Site within the local vicinity.

3.1.2 EXISTING PROJECT SITE AND SURROUNDING LAND USES

The Project Site is mostly within unincorporated Solano County. The Solano County General Plan designates the portion of the Project Site north of the California Northern Railroad as Urban Industrial. The southern portion of the Project Site is designated Public/Quasi-Public with a Resource Conservation Overlay. The Solano County Zoning Ordinance zoning for the northern portion of the site is "Exclusive Agriculture 40 Acres" (A-40) and the northern portion is zoned as "Marsh Preservation," as shown in Exhibit 3-5 below.

1 This land area of approximately 487 acres includes the properties that are a part of the Project. This does not include approximately 3.7 acres of roads or 2.1 acres of railroad property that are adjacent to the Project Site. The figure of approximately 487 acres also does not include the separately owned approximately five-acre property that is east of Pennsylvania Avenue and is essentially surrounded by the Project Site since the Project applicant does not control this property and the Project does not propose any physical change to this property. While the Project Site does not include the acreage of roads in the acreage total, the impact of improvements required to all roads, and all infrastructure improvements on- and off-site, are included in the analysis in this EIR.

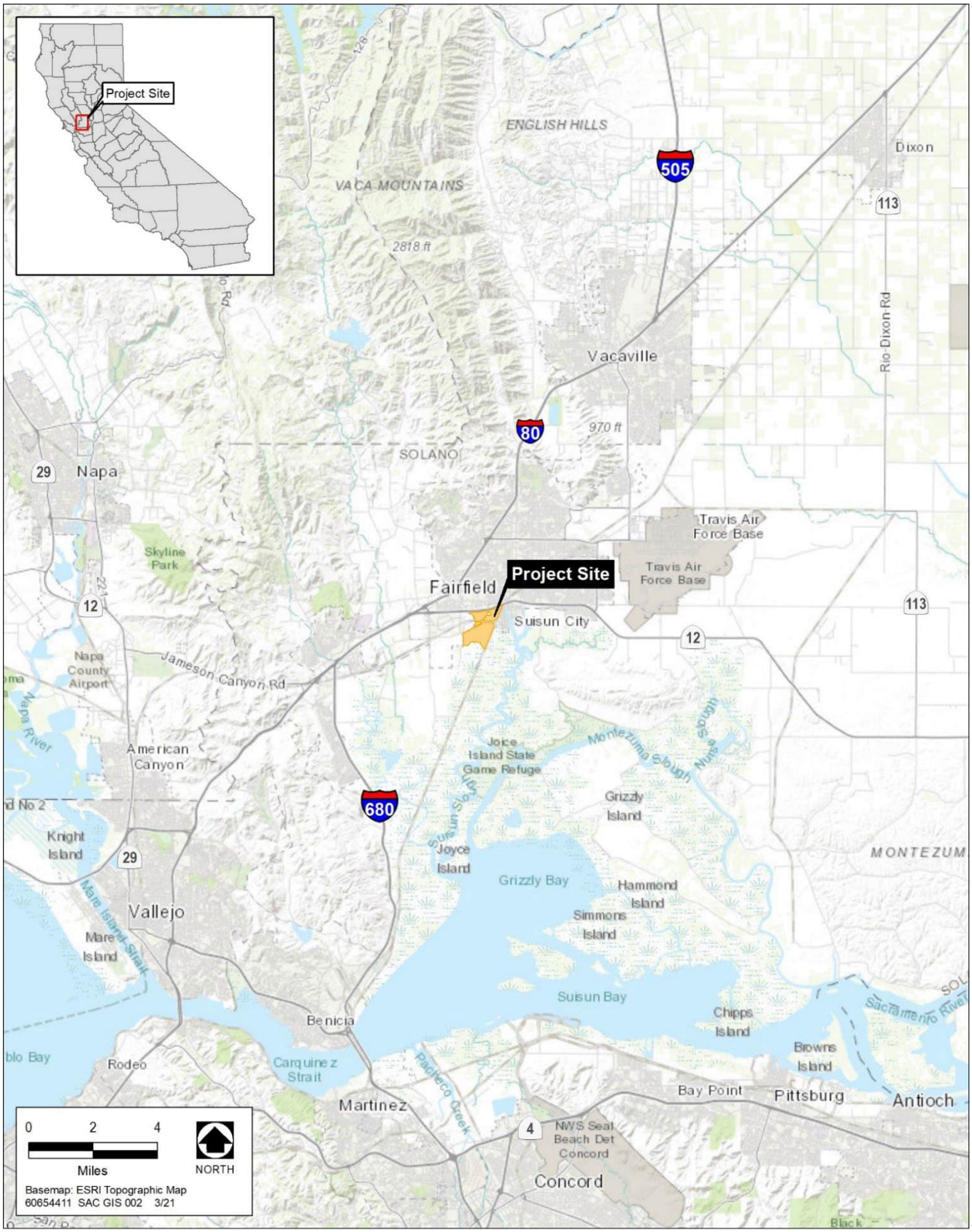


Exhibit 3-1. Regional Location

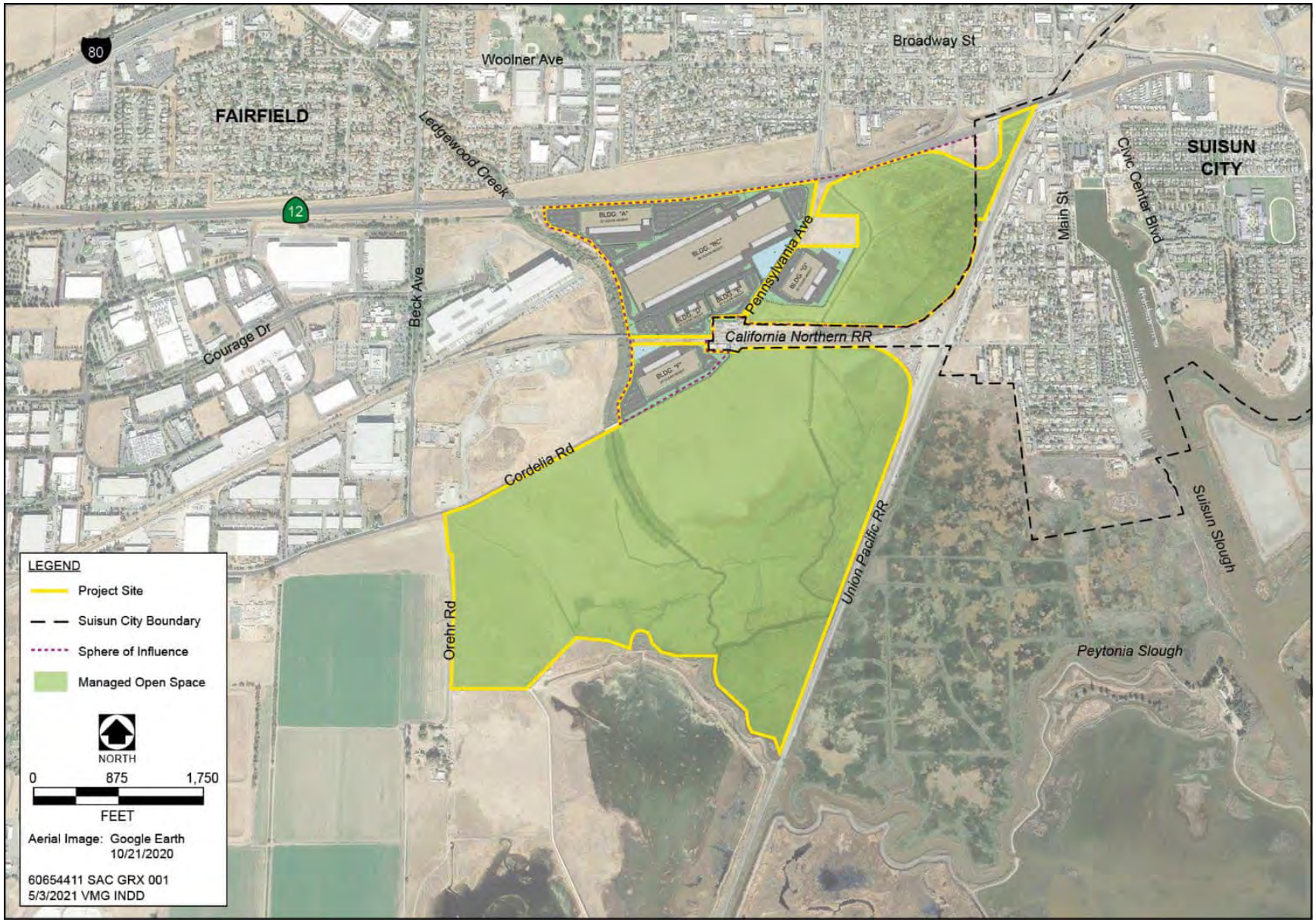


Exhibit 3-2. Project Site

The City's General Plan designates the areas of the Project Site west of Pennsylvania Avenue and north of the California Northern Railroad line as Commercial Mixed Use and the remainder is designated as Agriculture and Open Space (Exhibit 3-5).

The southern portion of the Project Site is within the Primary Management Area of the Suisun Marsh Protection Plan and a small portion of the southwestern extremity of the Project Site is within the Secondary Management Area of the Suisun Marsh Protection Plan. As shown in Exhibit 3-3, all portions of the Project Site that are in the Primary Management Area and Secondary Management Area of the Suisun Marsh Protection Plan south and southeast of Cordelia Road and Cordelia Street are proposed as Managed Open Space as a part of the project. Pennsylvania Avenue Creek flows south along the Project Site to Peytonia Slough and then into Suisun Marsh. Ledgewood Creek flows south along the northwestern Project boundary to Cordelia Road; south of Cordelia Road, Ledgewood Creek turns and flows southeast through the Project Site to Peytonia Slough (and thence into Suisun Marsh). Several other smaller unnamed drainage channels bisect the Project Site.

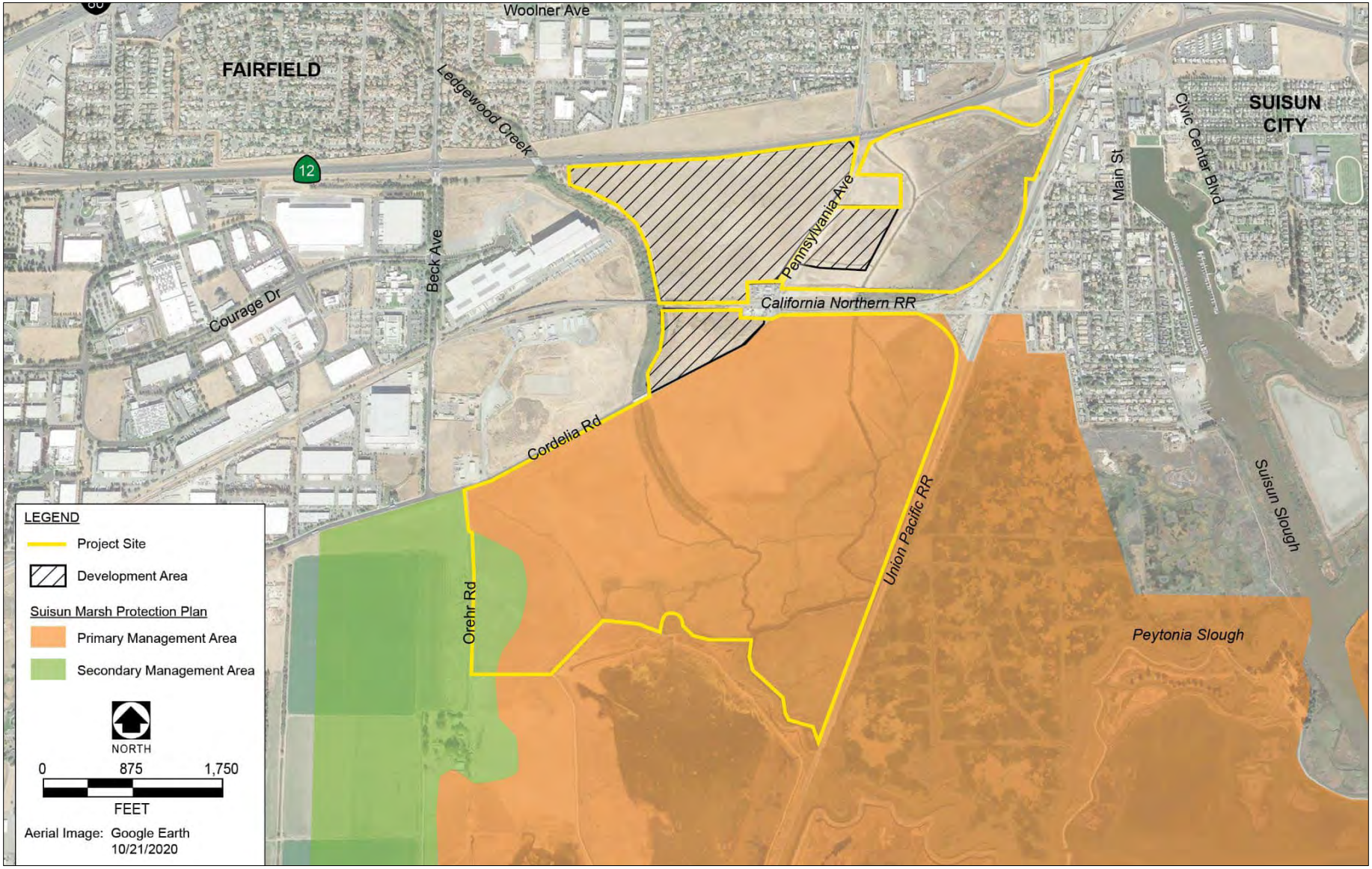
The Project Site is currently agricultural grazing land and undeveloped open space. Cattle graze throughout the northern portion of the Project Site. Various utilities (e.g., telephone, power, natural gas lines) exist along Pennsylvania Avenue and Cordelia Road, but there are no known utility improvements or irrigation within the Project Site other than a raw water line bisecting the northern portion of the Project Site that is owned by the City of Vallejo. However, there are two jet fuel pipelines that traverse the project site: one fuel pipeline traverses the Project Site in a southwest to northeasterly direction along Cordelia Road, turning east along the California Northern Railroad and the northwest following the Union Pacific Railroad. A second jet fuel pipeline also parallels the Union Pacific Railroad adjacent to the eastern perimeter of the Project Site.

Located near the center of the project parcels, but not within the Project Site, are two commercial businesses operating near the intersection of Pennsylvania Avenue and the California Northern Railroad: (1) Kings of Auto/U-Haul, located at 1001 South Pennsylvania Avenue, consists of an auto repair shop and a U-Haul rental shop, and (2) Nor Cal Concrete, a concrete contractor, is immediately south of Kings of Auto.

An approximately 5-acre parcel (APN 0032-020-040) is east of Pennsylvania Avenue and adjacent to the Project Site. This is not a part of the Project Site and the Project does not propose any change of use or any physical change of any kind to this property.

The city of Fairfield southern city limit is on the opposite side of SR 12, north of the Project Site. Existing uses in this portion of Fairfield include single-family residences, offices, and light industrial uses. East of the Union Pacific Railroad tracks that are adjacent to the eastern perimeter of the Project Site is Downtown Suisun City and the Suisun City waterfront, which is developed with a variety of commercial, residential, assembly, repair, and retail land uses. To the west of the Project Site, across Ledgewood Creek, are industrial warehouse and office uses. Undeveloped land is to the west and south of the Project Site, including Suisun Marsh to the south.

The Project Site is within Zone D of the Travis Airport Land Use Compatibility Plan (ALUCP), which has few restrictions on land use or development. However, the project will be required to demonstrate consistency with ALUCP provisions related to any proposed commercial scale solar facilities and bird strike hazards. The EIR summarizes how the project proposes consistency with the ALUCP (see Exhibit 3-10).



Source: Huffman-Broadway Group 2023

Exhibit 3-3. Project Site and Suisun Marsh Primary and Secondary Management Areas

3.2 PROPOSED PROJECT CHARACTERISTICS

3.2.1 PROPOSED LAND USE

ANNEXATION AND GENERAL PLAN AMENDMENT

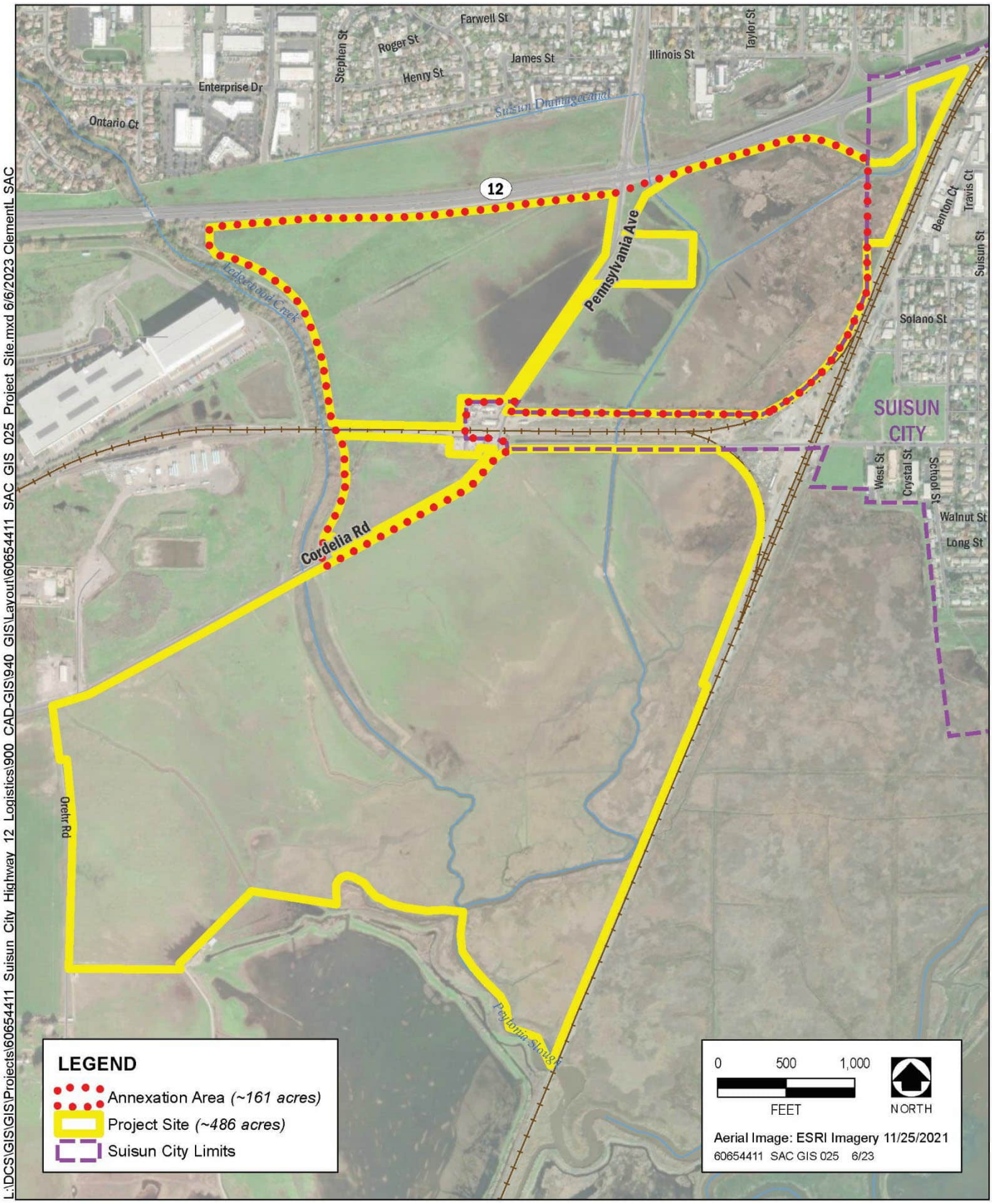
The Project proposes to pre-zone and annex approximately 161 acres of land (referred to as the 'Annexation Area') into the City of Suisun City, as shown in Proposed Annexation Area.[2] Annexation will be required to be consistent with policies and standards of the Local Agency Formation Commission (LAFCO) and this EIR is structured to address all direct and reasonably foreseeable indirect effects of the Project, including information and analysis of interest to LAFCO. As a responsible agency, LAFCO will rely on this EIR when considering the boundary changes required to implement the proposed Project.

The project proposes an amendment to the City's General Plan Land Use Diagram so that the General Plan's Commercial Mixed Use and Open Space land use designations are consistent with the proposed development and conservation areas. The project also proposes a change to the Vehicular Circulation Diagram in the Transportation Element of the General Plan to show Cordelia Road and Pennsylvania Avenue in areas adjacent to the Project Site as two-lane Arterials rather than four-lane Arterials, as currently shown.

Approximately 93.4 acres of the Annexation Area would be pre-zoned as Commercial Services & Fabricating (CSF), as described below under "Proposed Development," and the remaining Annexation Area would be pre-zoned as Open Space (OS) or within roadway rights-of-way, as further described below under "Managed Open Space." The CSF zoning would accommodate light manufacturing, research and development, warehousing, and accessory office space. The OS zoning would allow agriculture, resource protection and restoration, and resource-related recreation. The Project Site also includes a 4.5-acre parcel northeast of the proposed Annexation Area, southeast of the intersection of SR 12 and the Union Pacific Railroad line; this parcel is within the City's current municipal boundary and therefore not proposed for annexation but is included in the overall Project Site. The area is proposed as Managed Open Space. The approximately 331.7 acres of the Project Site that is south and southeast of the California Northern Railroad line and Cordelia Road is outside the City's SOI, is not proposed for any SOI change or annexation, and would remain within unincorporated Solano County.

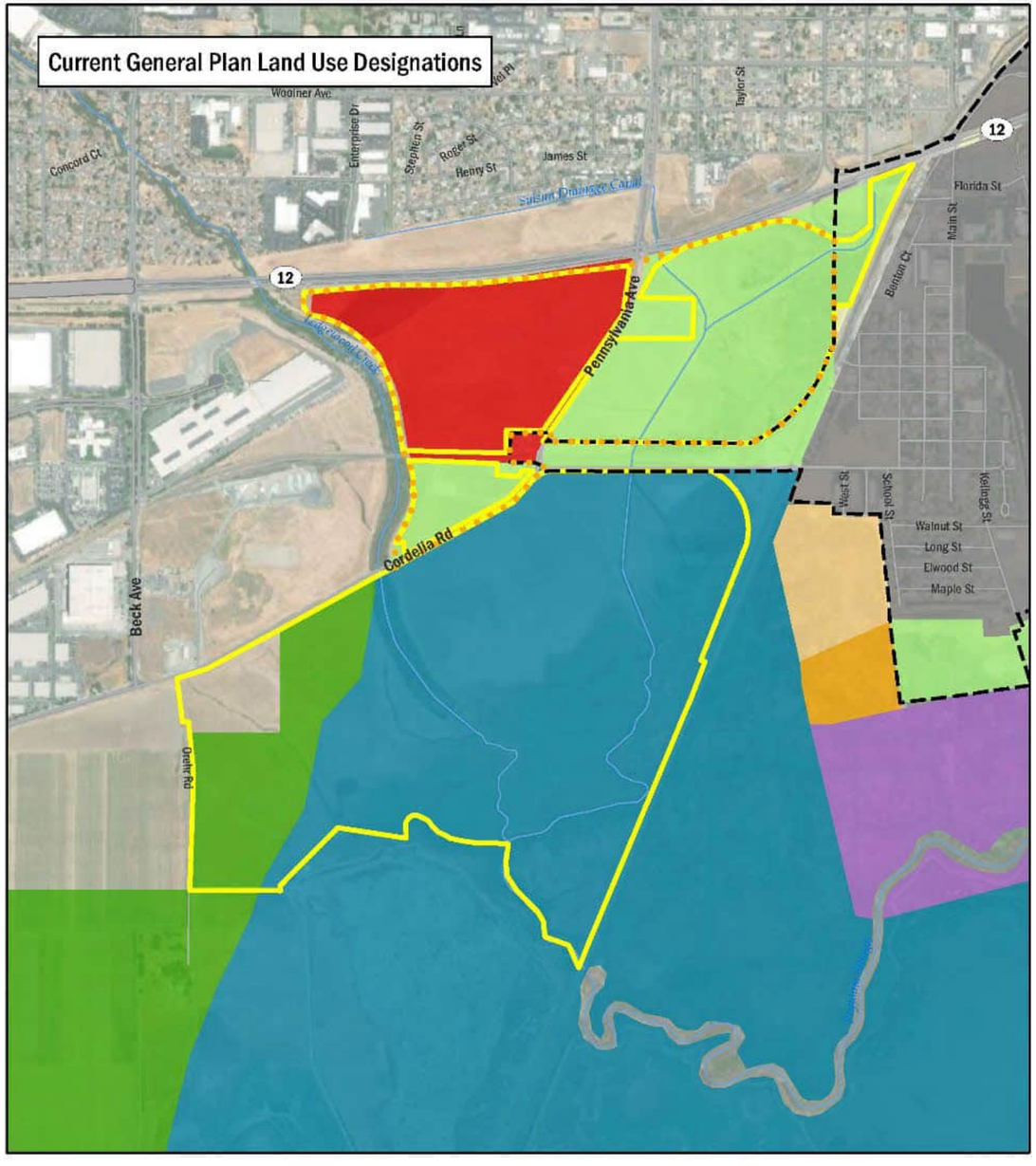
Exhibit 3-5 depicts the current and proposed General Plan land use designations for the Project Site, which include Commercial Mixed Use for the proposed Development Area and Agriculture and Open Space for the proposed Managed Open Space portion of the Project Site. The area of the Project Site proposed for development, shown in Exhibit 3-5 as proposed for the Commercial Mixed Use General Plan land use designation, would be pre-zoned as CSF as part of the annexation process.

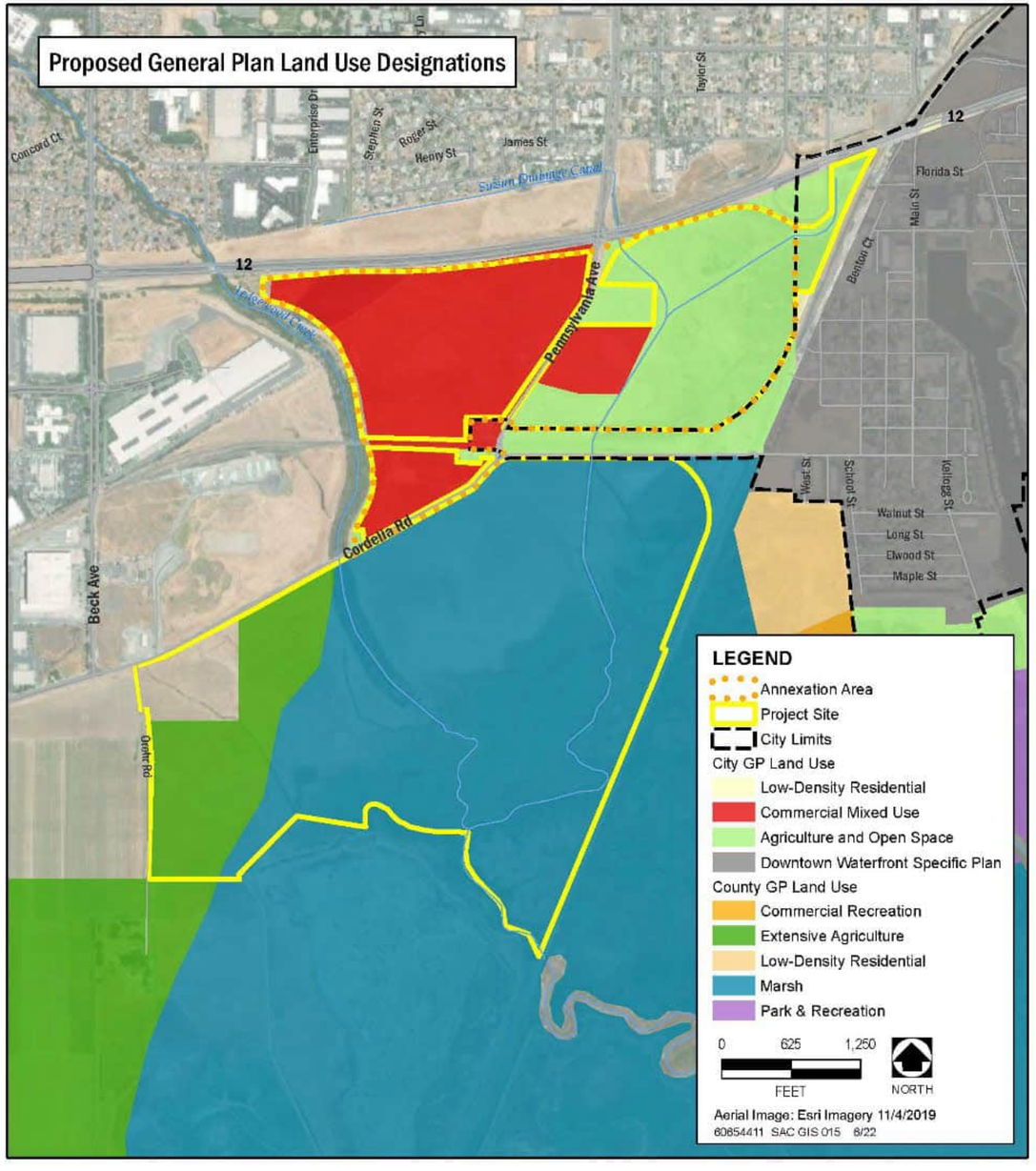
2 The land area within the Annexation Area – 161 acres – includes a 5-acre property east of Pennsylvania Avenue that is not a part of the Project Site, but that is surrounded by the Project Site. The Project does not propose any physical changes, General Plan changes, prezoning, or any other change to this property, but the acreage is included in the total Annexation Area since annexation of this property would be required to avoid an unincorporated "island."



Sources: AECOM 2022, Morton & Pitalo 2022

Exhibit 3-4. Proposed Annexation Area





Source: AECOM 2015, Solano County 2008

Exhibit 3-5. Current County General Plan Land Use Designations and Current and Proposed City General Plan Land Use Designations

PROPOSED DEVELOPMENT

The Project proposes development of approximately 1.28 million square feet of building space on approximately 93.4 acres of land area (referred to throughout this EIR as the 'Development Area').[3] The Development Area has within it three Planning Areas that have a total of six buildings, as summarized in Table 3-1 and Table 3-2 and shown in Exhibit 3-6.

Table 3-1. Proposed Project Site Planning Areas

Planning Area	Acreage[1]	Associated Buildings	Paved Area[1] (square feet)
1	69.6	A, B/C, D, E	1,260,894
2	13.1	F	169,606
3	10.7	G	176,362
Total Development Area	**93.4**	**A through G**	**1,606,862**

Notes:

[1.] Paved area listed is inclusive of parking, hardscaped areas, and associated roadway improvements.

Table 3-2. Proposed Project Buildings and Parking

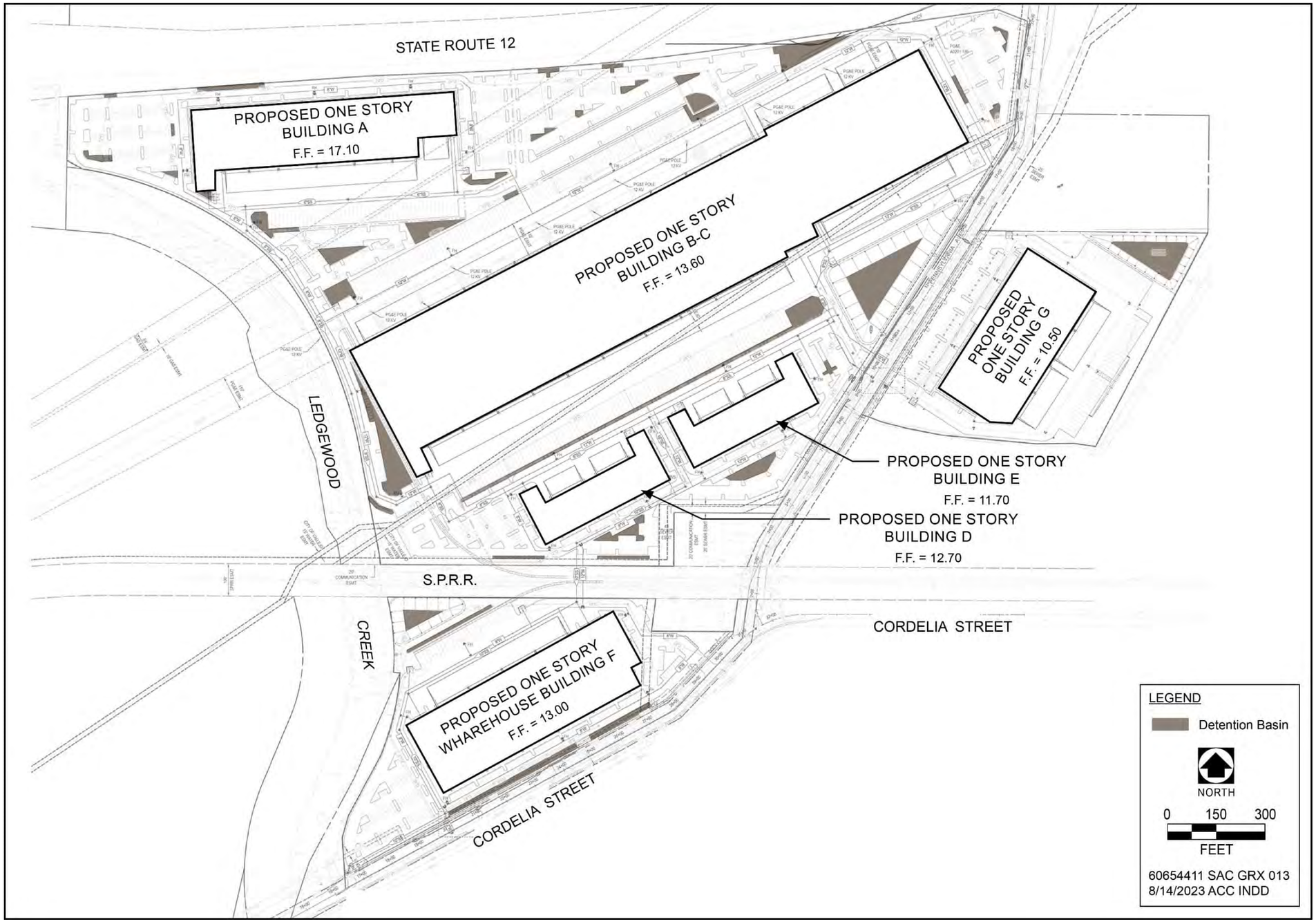
Proposed Buildings	Building Square Footage	Parking Stalls
A	152,305	416
B/C	710,489	771
D	56,880	183
E	56,880	197
F	172,380	269
G	127,303	188
All Proposed Buildings	**1,276,237**	**2,024**

Planning Area 1 comprises the portion of the Project Site bounded by the California Northern Railroad line to the south and Pennsylvania Avenue to the east. Planning Area 2 comprises the portion of the Project Site bounded by Cordelia Road to the south and southeast and by the California Northern Railroad line to the north. Planning Area 3, comprises the portion of the Project Site east of Pennsylvania Avenue, somewhat centrally located along the eastern perimeter of Planning Area 1, with the former landfill parcel fenced along the northern boundary and undeveloped land to the east and south. Pennsylvania Avenue Creek runs along the eastern perimeter of Planning Area 3 (see Exhibit 3-8 for the location of Pennsylvania Creek). As shown in Exhibit 3-6, four buildings would be within Planning Area 1, and one building within each of Planning Areas 2 and 3, along with supporting parking, circulation, and other improvements such as stormwater detention basins, landscaping, signage, and utility connections.

The Project Site is situated at the gateway entry to the west side of Suisun City when approaching Suisun City along Highway 12 from the west and on Pennsylvania Avenue at Highway 12 from the north. In consideration of this important gateway location, the proposed Project includes guidelines to preserve native vegetation and add new landscaping with the intent to enhance aesthetics and provide an attractive streetscape environment. In

3 The Development Area acreage of 93.4 includes an approximately 0.8-acre right-of-way easement.

addition, signage, building facades and surface parking would be designed consistent with the City's Design Guidelines for Key Community Gateways (City of Suisun City General Plan 2015, pages 2-9 through 2-11).



Source: Morton & Pitalo, Inc. 2021, adapted by AECOM 2022

Exhibit 3-6. Proposed Project Development Area Plan

The project applicant has prepared a Planned Unit Development (PUD), for City approval, to establish the land use, zoning, development standards, and regulations for development of the Project Site (David Babcock & Associates et al. 2023). Chapter 5 of the PUD includes design guidelines for the Project Site, which are intended to guide development of the Project by establishing criteria for development character, site planning, architecture, detailing, and landscape themes for the CSF and OS zoning districts. The design guidelines are to be used in conjunction with the Development Standards in PUD Chapter 4, which provide the standards for setbacks, building height, intensity of development, and the permitted and conditionally permitted uses. The PUD focuses on three design elements to create a framework for development: On-Site Landscape Theme and Design, Freeway and Street Frontage Corridors, and Building Architecture Theme and Design, as described below.

a. **On-Site Landscape Theme and Design.** Landscaping will be a key element that will tie the Project together. Consistent use of landscape design concepts and planting palette throughout the Project will create a visual appearance that will complement the building design.

b. **Freeway and Street Frontage Corridors.** The State Route 12 frontage has no site access but is an important gateway to the city and as such, shall receive special attention as a Project design feature. An opportunity exists to create a gateway to the City at State Route 12 that is consistent with the City General Plan…State Route 12 and Pennsylvania Avenue are the main points of access to the Project [site]. The building architecture facing the street frontages and landscape design establish the visual appearance for the perimeter of the Project.

c. **Building Architecture Theme and Design.** Building architectural design, detailing, and materials will be important in creating a cohesive warehouse and distribution development and sense of place…Materials and colors are to be consistent between all … buildings to provide a consistent design theme for the Project.

Design guidelines for the Project as established in the PUD address site planning and building orientation, pedestrian circulation, screening and utilities, parking and circulation, walls and fences for screening and security, and lighting. Building design guidelines for CSF zoning district include the following elements, among others:

- Buildings should be designed with a consistent use of materials, design elements and detailing, and architectural design theme to create a unified look for the project.
- Building facades shall be articulated to add visual variety and distinctiveness by adding breaks in long building facades in the form of score lines, varying roof heights, and/or color variations.
- Building entries shall be designed with the human scale in mind by concentrating windows and enhanced colors and materials at the office uses.
- Decorative features, textural changes, or relief techniques should be used to break up large building elevations. Glass, or other surface and design treatments should be incorporated into the office portions of each building.
- Include landscape planting areas to reduce the visibility of the loading docks, truck trailer parking, and service doors from public streets.

- Vehicle parking located adjacent to streets shall be screened from view by the siting of buildings and through the use of landscaping, berming, screen walls, or any combination of these methods to the extent possible.
- Parking areas for truck trailer parking are allowed to face public streets with the use of screening to include landscaping, berming, screen walls, or any combination of these methods to the extent possible.
- Utilitarian portions of buildings, such as vents, gutters, downspouts, flashing, electrical conduit, and other wall-mounted utilities shall be painted to match the color of the adjacent surface or otherwise designed in harmony with the building exterior.
- All buildings shall be designed to screen any roof-mounted equipment, including, but not limited to, heating, ventilation and air conditioning (HVAC) units, vents, fans, antennas, sky lights and satellite dishes from view from public rights-of-way only.

A Community Gateway sign is proposed along SR 12 and four monument signs are proposed within the Project Site along Pennsylvania Avenue. The PUD specifies that structures which accommodate several tenants must use a single monument sign that identifies the overall project name and individual tenants. Color palettes must match the materials and colors shown in the PUD for the various signage types to achieve project consistency. The proposed Community Gateway sign would be 45 feet tall with a 12-foot-wide base. Monument signage may not exceed 10 feet in height and width (excluding the base).

The PUD design guidelines also include landscape guidelines, and a preliminary landscape plan (see Exhibit 4.1-6) with a suggested plant list, with the goal of creating a framework that visually unifies signage, hardscape, and the landscape planting palette. Native and climate-adapted plantings are proposed, along with natural materials in simple designs to create a modern character. The landscape design guidelines include the following elements, among others:

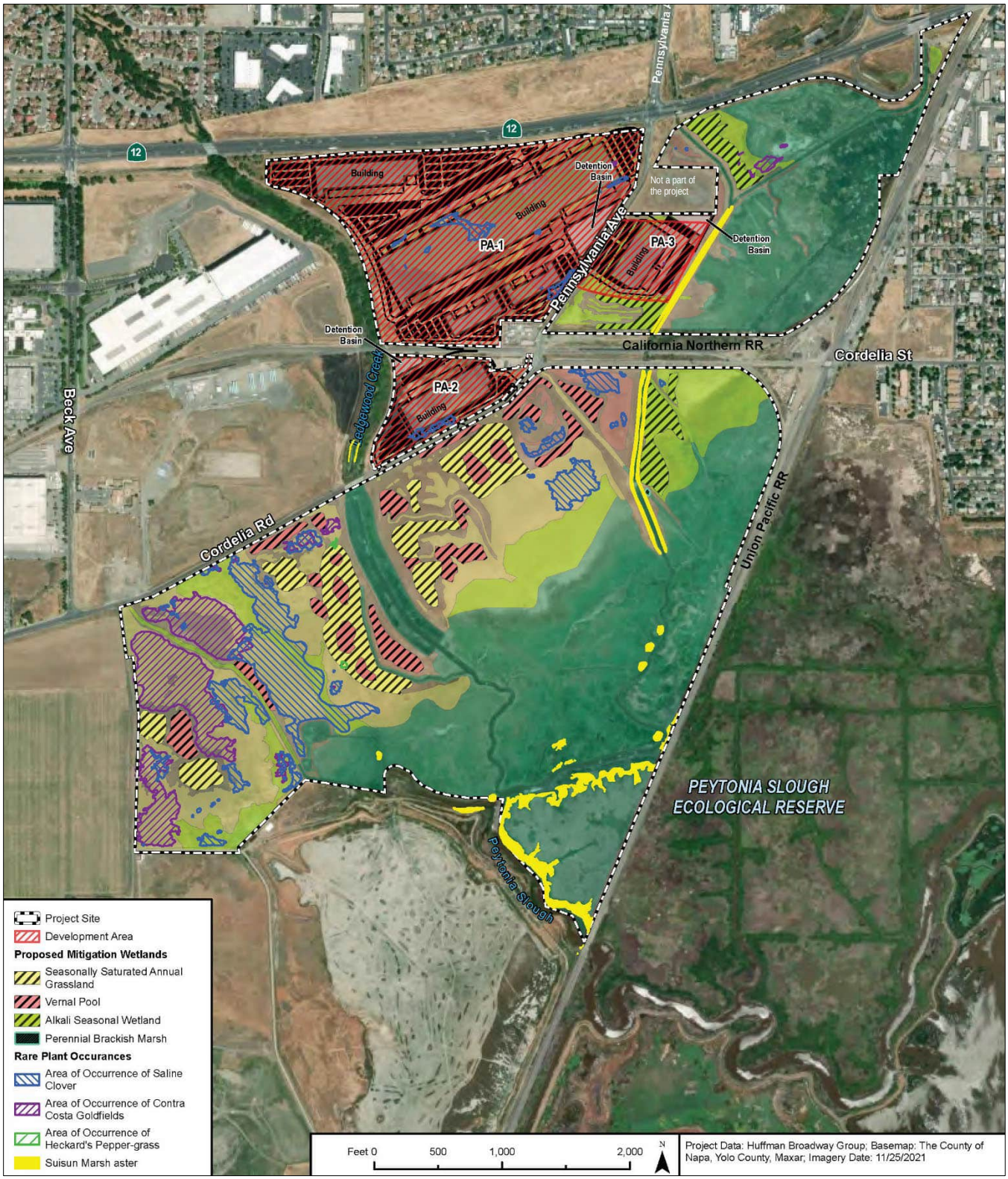
- Vehicle parking and loading docks, when fronting public streets shall be screened by landscaping, walls and berming, or any combination of these methods.
- Fast-growing trees closely spaced in groupings to create visual mass are encouraged in the developed area frontage along SR 12.
- Planting areas should be provided between parking and roads to provide visual relief in large expanses of hardscape.
- Landscape Design should include simple plant palettes, masses of native and climate adapted grasses and clustered tree plantings. There should be a consistency of landscape design throughout the project area.
- Portions of the Project not devoted to buildings, structures, parking, outdoor storage or paving should be landscaped, to the extent feasible. Landscapes should be designed to reach a reasonable level of maturity within five years.
- Trees shall be installed at a minimum size of 15 gallon, with larger 24-inch box trees at key design features.
- Shrub planting shall consist of 1- and 5-gallon container sizes.

- Trees may be clustered to define circulation routes, frame site views, and reinforce State Highway 12 edge planting. Large scale, high branching shade trees should be used in all visitor/employee parking areas.
- Enhanced building entries and other special landscape features are encouraged and should feature bold foliage, spreading shade trees and seating elements. Accent lighting is also encouraged.
- Vegetated bioswales are encouraged in parking lot planting islands to treat on-site stormwater and provide visual relief within the hardscape.
- Property owners are responsible for installing and maintaining the landscape within each of their properties. Covenants, Conditions & Restrictions (CC&Rs) and landscape maintenance agreements will ensure for proper maintenance and planting replacement.
- Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution.
- Plantings for bioretention areas will be selected to be appropriate to anticipated soil and moisture conditions.
- Plants will be selected appropriate to site soils, slopes, climates, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.
- Turf should be minimized. The use of turf for solely decorative purposes is strongly discouraged.
- Stormwater Best Management Practices such as bioswales should be incorporated into the landscape to maximize on-site infiltration of stormwater, to the extent possible.
- Site furnishings [such as benches] should be high quality and contemporary in design and compatible with the overall building and landscape design.

Large scale trees and shrubs appropriate to the scale of the architecture should be emphasized to minimize visual dominance of large architecture.

MANAGED OPEN SPACE

The proposed Project would bring additional funding and management oversight to 393 acres of the Suisun Marsh and adjacent uplands; this area of the proposed Project Site is referred to as Managed Open Space. As part of the proposed Project, approximately 393 acres of the Project Site, east of Pennsylvania Avenue and south of Cordelia Road would be proposed as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. *The Permittee Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Management Plan for the Highway 12 Logistics Center, Solano County, California* (Mitigation and Monitoring Plan), (Attachment 7 in Appendix C, the *Biological Resources Report, Highway 12 Logistics Center, Suisun City,*



Sources: Huffman-Broadway Group, Inc. 2022

Exhibit 3-7. Proposed Wetland Establishment Locations

Solano County, California [Huffman-Broadway Group 2022]) describes the proposed Managed Open Space portion of the Project Site for environmental mitigation and conservation purposes. The proposed Annexation Area would include approximately 57 acres of total Managed Open Space east of Pennsylvania Avenue and North of the California Northern Railroad line, respectively. The 4.5-acre parcel of the Project Site that is currently within the city limits of the City of Suisun City would also be Managed Open Space. The proposed Project also proposes approximately 331.7 acres of Managed Open Space southeast of Cordelia Road and south of the California Northern Railroad to be maintained within unincorporated Solano County. These open space areas will serve to protect the existing habitat and to also provide for any mitigation of development impacts. Wetlands are proposed to be constructed within the Managed Open Space area both within the Managed Open Space in the eastern portion of the Annexation Area and within the Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh. Any on-site mitigation proposed by the Project would be subject to approval of the appropriate resource agencies having jurisdiction with the mitigation measure. The Managed Open Space portion of the Project Site would be managed consistent with the Suisun Marsh Protection Plan and in accordance with any required permit conditions imposed by applicable regulatory agencies such as the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and San Francisco Bay Conservation and Development Commission. As described in Appendix C, Attachment 7, a site protection instrument and a long-term endowment fund is proposed to provide additional resources to support wildlife habitat enhancements and management of the proposed Managed Open Space portion of the Project Site.

The proposed Project will include ongoing land management requirements for the Managed Open Space and will include features to avoid environmental degradation, such as improvements and a management regime to capture and remove solid waste that historically has been accumulating in area drainages. Grazing on the Project Site will be planned and managed consistent with the Project's habitat conservation strategy and mitigation requirements and relevant direction in the Suisun Marsh Protection Plan and applicable permit conditions.

3.2.2 SUPPORTING INFRASTRUCTURE (ON- AND OFF-SITE)

This EIR includes analysis and mitigation, as needed, to comprehensively address potential impacts related to construction and operation of on- and off-site infrastructure improvements.

ROADWAY AND CIRCULATION IMPROVEMENTS

Access to the Project Site would be provided in four locations along Pennsylvania Avenue to both Planning Area 1 and Planning Area 3, and at three occurrences along Cordelia Road to Planning Area 2. Approximately 2,024 parking stalls are anticipated to serve all six buildings, as detailed in Table 3-2, above.

Regional access to the Project Site is primarily provided by SR 12 via Pennsylvania Avenue. Local access is provided by Pennsylvania Avenue and Cordelia Road. The proposed Project will also improve Pennsylvania Avenue and Cordelia Road within and along the Project frontages. The improvements include adding one continuous acceleration/deceleration lane in each direction for project driveway access and one center two-way left-turn lane Pennsylvania Avenue south of SR 12. On Cordelia Road, along the Project frontage only, the proposed Project would also add an acceleration/deceleration lane for project driveway access and one center two-way left-turn lane. The two-way left-turn lane would open up to a left-turn pocket for vehicles traveling on Cordelia Road to continue onto Pennsylvania Avenue at the Cordelia Street/Cordelia Road/Pennsylvania Avenue intersection.

The Project will construct a northbound right turn lane on northbound Pennsylvania Avenue and SR 12, constructing a second eastbound left turn lane at the intersection of SR 12 and Pennsylvania Avenue, and installing a traffic signal at the intersection of Cordelia Road and Chadbourne Road.

The Project Site has direct access to an existing rail spur, and the Project applicant will coordinate with the Southern Pacific Railroad, which merged with Union Pacific Railroad in 1996, regarding access to this existing railroad spur for proposed on-site uses where future tenants identify the need for rail access.

STORM DRAINAGE

A drainage master plan prepared for the proposed Project describes the required drainage improvements and design standards for storm drain facilities within the Project Site (Morton & Pitalo 2022) (Appendix D). The Drainage Master Plan identifies the improvements necessary for development of the proposed Project to satisfy the City of Suisun City's drainage design requirements, as shown below in Exhibit 3-8.

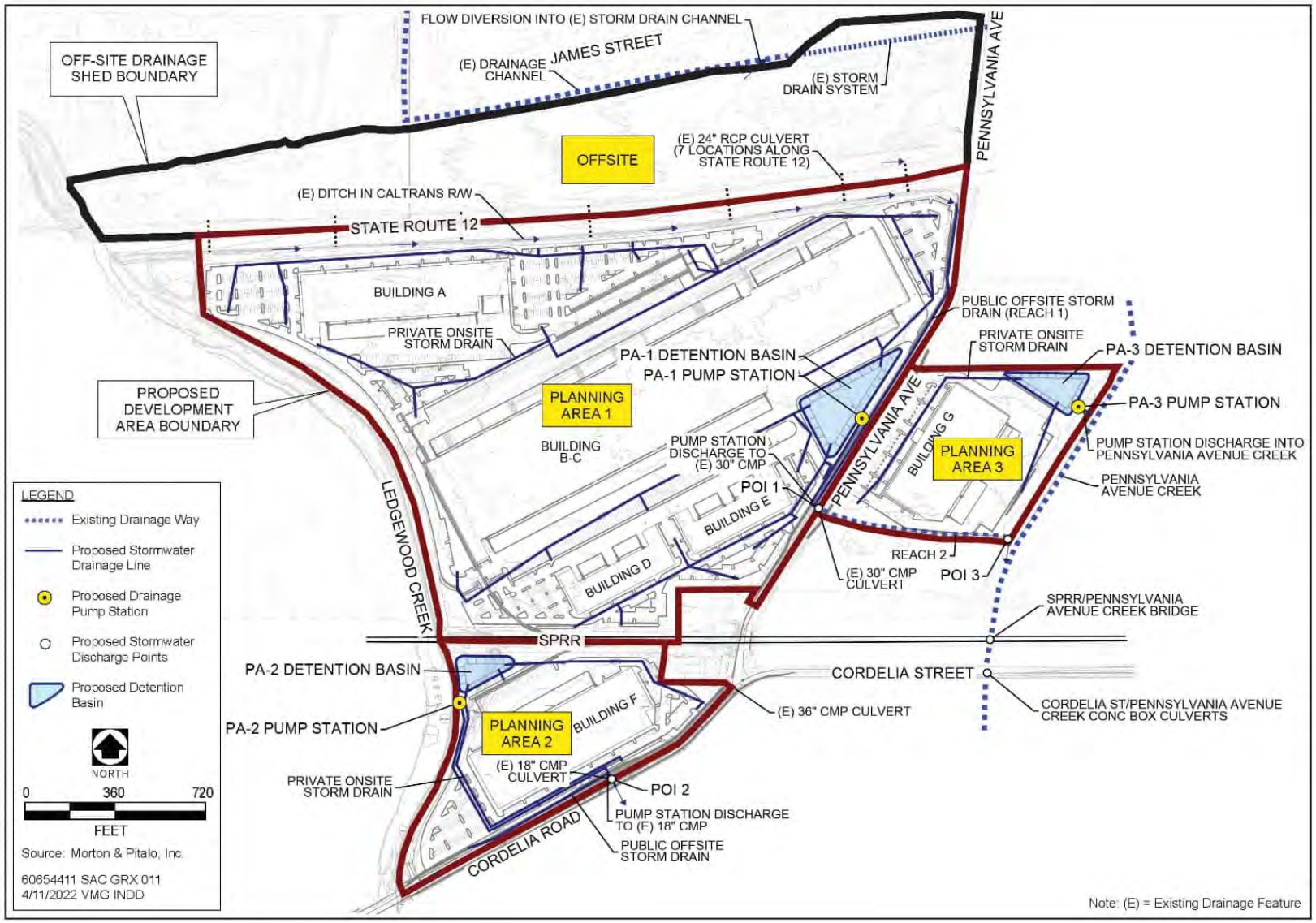
The objectives of the proposed storm drain facilities are to:

- attenuate the peak discharge from post-development conditions by pumping discharge at a level equal to or less than pre-development levels (or as required by the City of Suisun City) so that no increase in peak flow from pre-development conditions is discharged downstream; and

- include additional volume reduction and treatment control measures with the detention basins in order to capture pollutants and heavier suspended solids, as well as additional design features to capture floatable materials prior to their discharge, thereby preventing such materials from entering Ledgewood Creek or the tributary of Peytonia Slough.

Three detention basins are proposed to reduce post-development storm runoff to pre-development levels or less. All stormwater runoff from impervious surfaces (roofs and paving) will be routed into landscape vegetated swales, bioretention planters, and other open areas for infiltration and treatment prior to discharge to the on-site detention basin. Due to topographical constraints (nearly flat ground) of the Project Site, the construction of three new drainage pump stations will be required to service the eastern portion of the Project Site. The drainage pump stations shall be supplied with acceptable backup power and backup pumps. Inlet pipes to the detention basins are anticipated to be below the gravity discharge elevation and, therefore, a storm drain pump station will be installed at each detention basin location, at a depth of 21 to 23 feet, prior to discharge to the public main or existing drainage ditch/channel.

The proposed on-site detention basin volumes shall be based on the 100-year, 24-hour storm event with outflows restricted to 95 percent of pre-development flows or less. The proposed storm drainage system shall comply with the City of Suisun City's Design Standards for Drainage and Stormwater (City of Suisun City 1996). Where needed, the Solano County Water Agency Hydrology Manual may also be used or stormwater modeling requitements.



Source: Morton & Pitalo 2021, adapted by AECOM 2022

Exhibit 3-8. Proposed Drainage Plan

Low impact development (LID) stormwater quality treatment control measures and flood control measures will be implemented strategically throughout the Project Site to ensure stormwater runoff is captured, stored, and treated on-site, thereby resulting in cleaner and more controlled discharge to the receiving bodies of water. LID measures, such as disconnected roof drains and pavement, will be considered during the detailed design phase. Treatment control measures, including bioretention facilities, will also be considered during detailed design phase.

UTILITIES AND SERVICE SYSTEMS

The proposed Project would require installation of supporting underground utilities, including water, wastewater, electricity, natural gas, and telecommunications. The following provides descriptions of the planned infrastructure improvements that would be required to serve demand resulting from the Project. Infrastructure would comply with relevant design standards of service agencies and be consistent with the public facilities and infrastructure policies of the City.

Water Supply and Distribution

Currently, there are no public water supply facilities within the Project Site. While there is an existing 36-inch transmission main in Cordelia Road and Pennsylvania Avenue owned by City of Fairfield, the Project does not propose to connect to this transmission main. The proposed Project will connect to an existing 12-inch distribution water main in Cordelia Street, approximately 2,800 feet east of the intersection of Cordelia Street and Pennsylvania Avenue. A new waterline will be jacked-and-bored at two locations along Cordelia Street under the rail line operated by the California Northern Railroad, at a minimum depth of 3 feet, to connect Planning Areas 1 and 2 (Exhibit 3-9). It may also be necessary to jack-and-bore under the existing box culvert crossing of Pennsylvania Avenue Creek, if the proposed 12-inch waterline cannot be connected to the existing box culvert headwall. The new public 12-inch water line would then be extended north along Pennsylvania Avenue to serve Planning Areas 1 and 3, and approximately 300 feet southwest along Cordelia Road to serve Planning Area 2, at a minimum depth of 3 feet. From the points of connection at each Planning Area, the public 12-inch waterline will become private with new backflow prevention assemblies at each point of connection. Water meters will be set on the public side of the new backflow prevention devices.

The City of Vallejo owns a raw water transmission main that is in the northwestern portion of the Project Site. The City of Suisun City has coordinated with the City of Vallejo and has required the Project to be designed to avoid adverse effects to the maintenance and operation of this transmission main pursuant to direction from the City of Vallejo.

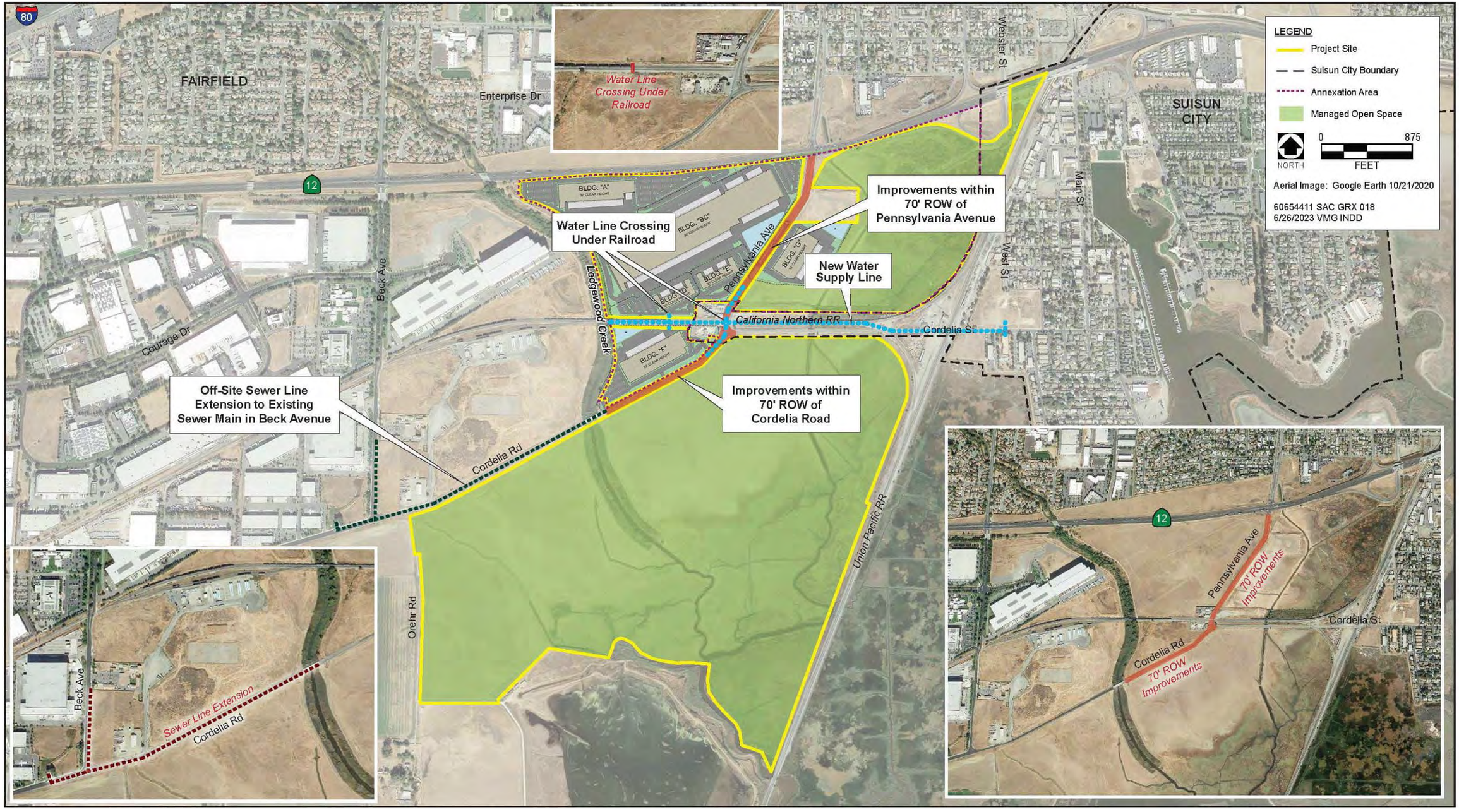
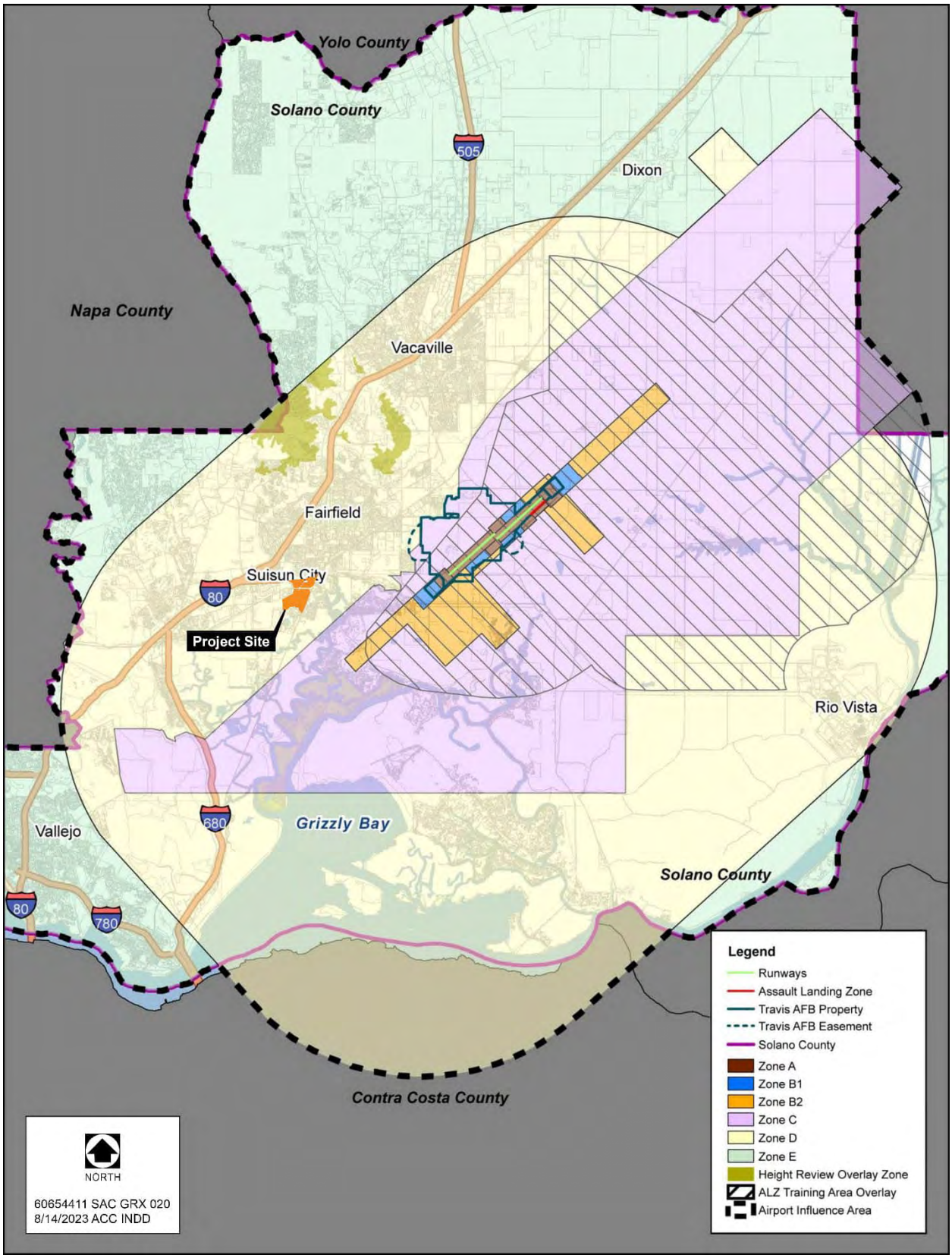


Exhibit 3-9. Off-Site Improvements



Source: Solano County 2015, adapted by AECOM 2023

Exhibit 3-10. Travis Air Force Base Airport Land Use Compatibility Plan and the Project Site

Wastewater Collection and Treatment

The Project Site is not currently within, but is proposed to be annexed to the Fairfield-Suisun Sewer District. The proposed wastewater system includes the on-site private sewer pipe system, one on-site private pump station, and an off-site public combination force main and gravity line in Cordelia Road right-of-way.

The proposed on-site sewer system serving Planning Areas 1 and 2 would be designed using a gravity-fed system. The general pattern of sewer discharge will be from north to south. The sewer service from Planning Area 3 will be brought cross Pennsylvania Avenue, at a depth of 9 to 12 feet, and combine with the Planning Area 1 sewer system via gravity line. The combined Planning Area 1 and 3 on-site sewer mains will then cross under the California Northern Railroad tracks and right-of-way and combine with the Planning Area 3 on-site sewer line until it reaches Cordelia Road at the southwest corner of Planning Area 2 frontage. At this location, an on-site private sewer lift station will be constructed, at a depth of 24 to 30 feet, to pump sewer flows via an off-site force main and gravity sewer line in Cordelia Road, at a depth of 9 to 15 feet, 6 feet south of the centerline within the paved area of the road, to the intersection with Beck Avenue, approximately 2,700 feet west, at which location the 10-inch wastewater line will tie into the Fairfield-Suisun Sewer District facilities at an existing sanitary sewer manhole and 15-inch sewer main owned and operated by the Fairfield-Suisun Sewer District (Exhibit 3-8). A force main would be attached to the side of the existing Ledgewood Creek bridge in order to convey sewer flows from the Project pump station to the west side of Ledgewood Creek; the Project applicant would coordinate with Solano County, as the owner of the bridge.[4]

Solid Waste Collection

The City has an exclusive solid waste handling franchise agreement with a solid waste provider. With annexation, the Development Area of the Project Site would be incorporated within the City's limits, as shown in Exhibit 3-4. The provision of solid waste handling services under the existing service agreement would then apply to the Annexation Area in the same manner it does currently for area within the City's limits.

Electricity & Natural Gas

Three existing natural gas pipelines are present within and adjacent to the Project Site. One traverses the Project Site in a southwest to northeasterly direction, paralleling Cordelia Road and Pennsylvania Avenue. A second traverses the northwest corner of the Project Site from SR 12 and southwest toward and in alignment with Meyer Way west of the Project Site. A third parallels the Union Pacific Railroad.

Electricity and natural gas service for the proposed Project would be provided by Pacific Gas and Electric. Service laterals would be extended to Project buildings from existing facilities along Pennsylvania Avenue and Cordelia Road. On-site electrical transmission infrastructure and natural gas lines would be installed underground, between 18 and 24 inches deep.

[4] The proposed project Sewer Master Plan (Morton Pitalo, October 2022) originally contemplated a second engineering option for the sewer force main to cross Ledgewood Creek. However, this second option, which was a bore and jack option under Ledgewood Creek, has since been dismissed and is not considered in this EIR.

3.3 CONSTRUCTION

Construction of the Development Area will be phased, subject to market conditions. Construction will typically occur five days per week, Monday through Friday, between the hours of 7 a.m. and 8 p.m. On-site construction activities will include site clearing, excavation and fill, grading, utility trenching, foundation and building construction, paving and architectural coatings. Additional off-site construction activities will include utility trenching and installation and roadway improvements, as detailed above.

Phase 1 of construction will include site preparation, grading, utility trenching for the entire Development Area and off-site improvements, as well as off-site roadway and utility improvements described above; Phase 1 is assumed to last for approximately 9 months. Phase 1 initial site work will be followed by Phase 2 development that will include construction of Buildings A and B/C and the related on-site parking and circulation and stormwater improvements (Phase 3 will include the balance of the proposed Project). Each of Phase 2 and Phase 3 is assumed to last for approximately 10 months.

Proposed Managed Open Space will also require construction (i.e., grading) of approximately 38 acres of perennial brackish marsh, alkali seasonal wetland, vernal pool, seasonally saturated annual grassland, and rare plant habitats; and construction of enhanced upland refugia within existing upland annual grasslands. A detailed construction plan with topographic contours at 0.5 foot minimum will be prepared during the permitting process and after input from the agencies has been received. The detailed plan will include plan and section view drawings and construction notes prepared by a professional engineer. The temporary site access route to the construction site and temporary construction area will be designated together with the location of wetland and sensitive plant species habitat exclusion fencing. Habitat construction within the Managed Open Space would require mass excavation followed by fine excavation with a rubber-tired backhoe and front-end loader to shape the side slopes and bottom microtopography. To prevent sedimentation in existing wetlands during construction activities, appropriate erosion control measures will be implemented. Excavation depths would range from 1 to 4 feet. Excavated soils would be removed from the location in a rubber-tired dump truck and may be placed in upland areas or used as fill in the Development Area. Construction would begin at or around the time of ground disturbing activities for the Development Area and last approximately 45 days.

A stormwater pollution prevention plan (SWPPP) will be prepared in conformance with the State Water Resources Control Board's latest General Construction Permit Guidelines and implemented during construction.

3.4 REQUIRED PROJECT APPROVALS

The proposed Project construction and operations would require various permits and other types of approvals from the City of Suisun City and other agencies with a purview over air quality, biological resources, water quality, public services and utilities, and other topics.

The proposed Project would require the following approvals by the City of Suisun City:

- General Plan Amendment
- Grading Permit
- Prezoning
- Planned Unit Development

- Site Plan / Architectural Review
- Tentative Parcel Map
- Use Permit
- Development Agreement

The following parties may act as responsible agencies for the proposed Project:

- Bay Area Air Quality Management District – Authority to Construction Permit
- California Department of Fish and Wildlife – Section 1602 Lake and Streambed Alteration Agreement
- California Department of Transportation – Improvements along SR 12 within Caltrans Right-of-Way
- Fairfield-Suisun Sewer District – Annexation into the District
- San Francisco Bay Regional Water Quality Control Board – Section 401 Water Quality Certification
- Solano County Airport Land Use Commission – Land Use Compatibility Review
- Solano Irrigation District – Negotiated Agreement for Water
- Solano LAFCo – Annexation
- United States Army Corps of Engineers – Section 404 Permit

Other agencies that may require permissions or approvals may include, but are not limited to:

- Central Valley Regional Water Quality Control Board
- City of Vallejo
- Solano County
- Solano County Water Agency
- San Francisco Bay Conservation and Development Commission (BCDC)
- Suisun-Solano Water Authority
- U.S. Fish and Wildlife Service

The City anticipates that Solano LAFCo will rely on this EIR as it considers changes in public agency organization, including concurrent annexation of the Annexation Area of the Project Site into the City of Suisun City, along with annexation into Fairfield-Suisun Sewer District and Solano Irrigation District (SID), and detachments from the Suisun Fire Protection District (SFPD) and the County Service Area.

3.5 PROJECT OBJECTIVES

The following project objectives have guided planning for the Project Site, as well as the analysis included within the EIR:

- Further the goals and policies of the City of Suisun City General Plan by developing land contemplated to support urban development.

- Promote economic growth through new capital investment, expansion of the tax base, and creation of new employment opportunities.

- Improve the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas.

- Capitalize on the existing Interstate 80 and State Highway 12 transportation corridor, the existing rail facilities that can provide direct rail service unique to this logistics market area, and the increased demand for warehouse and distribution services in the City and region.
- Create a master planned complex of buildings to accommodate the current and future need for warehouse and distribution uses in an economically viable project with coordinated infrastructure and landscaping.
- Create opportunities to generate jobs and attract new employment-creating industries to Suisun City that generate new tax revenue and minimize demands on City services.
- Continue the orderly development of the western gateway of Suisun City and provide a visual environment that gives visitors an immediate positive first impression of Suisun City with attractive building facades and landscaping.
- Preserve and manage areas of the project site with concentrations of wetlands and other sensitive habitat for permanent open space to mitigate impacts and further regional habitat and species preservation goals.
- Implement a range of sustainability measures aimed at conserving resources, decreasing energy and water consumption, and reducing air and water pollution.
- Install circulation improvements along Pennsylvania Avenue and Cordelia Road that provide efficient ingress and egress to the proposed Project, while also ensuring these facilities operate at acceptable levels.
- Design internal circulation to provide efficient ingress and egress while ensuring facilities operate at acceptable levels.
- Offer a project with the scale, location, amenities, and sustainability features necessary to create competitive advantages in attracting and retaining a variety of reputable warehousing and logistics users.

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4 ENVIRONMENTAL IMPACT ANALYSIS

4.0 APPROACH TO THE ANALYSIS

4.0.1 INTRODUCTION

Consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15126.2, Chapter 4 of this Environmental Impact Report (EIR) is focused on an evaluation of topic areas where significant impacts on the physical environment associated with the Highway 12 Logistics Center Project (the proposed Project) may occur, and identifies feasible mitigation for those impacts, where necessary. These topics areas consist of:

- aesthetics;
- air quality;
- biological resources;
- cultural and tribal cultural resources;
- geology, soils, mineral resources, and paleontology;
- greenhouse gas emissions and energy;
- hazards, including wildfire, and hazardous materials;
- hydrology and water quality;
- land use and planning, including agricultural resources, population, and housing;
- noise and vibration;
- public services and recreation;
- transportation and circulation; and
- utilities and service systems.

The following discussion addresses the affected environment, regulatory framework, environmental consequences, and mitigation measures for each of the environmental issue areas in Chapter 4; and explains the terminology used in the analysis in Chapter 4. The reader is referred to the individual topic area sections regarding specific assumptions, methodology, and significance criteria (thresholds of significance) used in the analysis and determination of significance of impacts.

4.0.2 FORMAT AND CONTENT

Topic area analyses in Sections 4.1 through 4.13 are organized in the following format:

1. The **Environmental Setting** subsection provides an overview of the baseline physical environmental conditions (i.e., the environmental baseline), in accordance with the CEQA Guidelines (14 CCR Section 15125[a][1]).

2. The **Regulatory Framework** subsection identifies the plans, policies, laws, regulations, and ordinances that are relevant to each topical section based on current conditions.

3. The **Environmental Impacts and Mitigation Measures** subsection identifies the adverse physical environmental impacts of the proposed Project in accordance with the CEQA Guidelines (14 CCR Sections 15125 and 15143). This subsection is organized as follows:

- The **Thresholds of Significance** provide criteria to define at what level 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 relative to the City's jurisdiction; legislative or regulatory performance standards of federal, state, regional, or local agencies relevant to the impact analysis; or other factors. Generally, however, the thresholds of significance used are derived from Appendix G of the CEQA Guidelines, as amended; factual or scientific information and data; and applicable regulatory standards of federal, state, regional, and local agencies.

- The **Impact Analysis** describes potential adverse physical environmental effects associated with implementation of the proposed Project. The Impact Analysis 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, based on the identified thresholds of significance. The impacts are listed numerically and sequentially throughout each section.

- **Mitigation Measures** to avoid, minimize, rectify, reduce, or compensate for significant and potentially significant impacts of the proposed Project, in accordance with the CEQA Guidelines (14 CCR Sections 15370, 15002[a][3], 15021[a][2], and 15091[a][1]), where feasible, are recommended for each significant and potentially significant impact. If implementation of feasible mitigation measures is not sufficient to reduce an impact to a "less-than-significant" level, or no feasible mitigation measures are available, the impacts are described as "significant and unavoidable."

4.0.3 TERMINOLOGY USED TO DESCRIBE IMPACTS

IMPACT LEVELS

This EIR uses the following terminology to denote the significance of each identified environmental impact throughout Chapter 4.

- **No impact** indicates that the construction, operation, and maintenance of the proposed Project would not have any direct or indirect effects on the environment. It means no change from existing conditions. This impact level does not need mitigation.

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

- A **significant impact** is defined by Public Resources Code Section 21068 as one that would cause "a substantial, or potentially substantial, adverse change in the environment." CEQA Guidelines Section 15382 further clarifies that the environment includes "any of the physical conditions within the area affected by the project." Levels of significance can vary by project, based on the change in the existing physical condition. Under CEQA, mitigation measures or alternatives to a proposed project must be provided, where feasible, to reduce the magnitude of significant impacts.

- A **potentially significant impact** is one that, if it were to occur, would be considered a significant impact as described above before the application of mitigation. For CEQA purposes, a potentially significant impact is treated as if it were a significant impact.

- A **significant and unavoidable impact** is one 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 any feasible mitigation. Under CEQA, a project with significant and unavoidable impacts may proceed, but the lead agency is required to prepare a "statement of overriding considerations" in accordance with CEQA Guidelines Section 15093, explaining why specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project outweigh the unavoidable adverse environmental effects.

- A **beneficial impact** is an impact that is considered to cause a positive change or improvement in the environment and for which no mitigation measures are required.

- An impact may have a level of significance that is too uncertain to be reasonably determined, which would be designated **too speculative for meaningful evaluation**, in accordance with CEQA Guidelines Section 15145. Where some degree of evidence points to the reasonable potential for a significant effect, the EIR may explain that a determination of significance is uncertain, but is still assumed to be "potentially significant," as described above. In other circumstances, after thorough investigation, the determination of significance may still be too speculative to be meaningful. This is an effect for which the degree of significance cannot be determined for specific reasons, such as because aspects of the impact itself are either unpredictable or the severity of consequences cannot be known at this time.

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4.1 AESTHETICS

4.1.1 ENVIRONMENTAL SETTING

VISUAL CHARACTER OF THE PROJECT SITE

Both natural and created features in a landscape contribute to its visual character. Landscape characteristics influencing visual character include geologic, hydrologic, botanical, wildlife, recreation, and urban features. The description of the visual character at the Project Site begins with a brief overview of the existing landscape characteristics. Next, the relevant Key Community Gateways as designated by Suisun City are described in detail and photographs from each gateway are provided. Finally, the remaining portions of the Project Site, and the off-site improvement areas, are described, and photographs from key viewpoints are provided to illustrate the descriptions. Exhibit 4.1-1 shows the location of each of the key viewpoints.

Overview

The Project Site and the off-site improvement areas consist of an open, flat, alluvial plain that slopes very gently to the south/southeast towards Suisun Marsh. The site historically has been used for cattle grazing, which continues today. There are no structures at the Project Site; barbed wire fencing is present around the perimeter of parcels that comprise the Project Site, and on both sides of Ledgewood Creek. Pennsylvania Avenue provides access to the center of the Project Site from the north, and Cordelia Road/Cordelia Street provides east-west access. A portion of Ledgewood Creek, which is designated as an Open Space Conservation area by the City of Fairfield, is adjacent to, and west of the proposed Development Area, off the Project Site. South of Cordelia Road, Ledgewood Creek flows through the Project Site (in the proposed Managed Open Space area) to the southeast towards Peytonia Slough. Several drainage channels flow through the Project Site, generally in a north-south direction. Wood power poles with overhead electrical lines are present along Cordelia Road/Cordelia Street, Pennsylvania Avenue, and Orehr Road. Two rows of tall, metal lattice towers with overhead high-tension power lines bisect the site in an east-west direction. The eastern edge of the Project Site is bordered by parallel sets of Union Pacific Railroad tracks (running north-south) surrounded by gravel. A set of California Northern Railroad tracks, surrounded by gravel, bisect the center of the site in an east-west direction.

Key Community Gateways

As discussed in the Suisun City General Plan, Chapter 2 Community Character & Design (City of Suisun City 2015), there are three Key Community Gateways (shown in Exhibit 4.1-2) whose viewsheds encompass portions of the Project Site. Each of these gateways are discussed separately below:

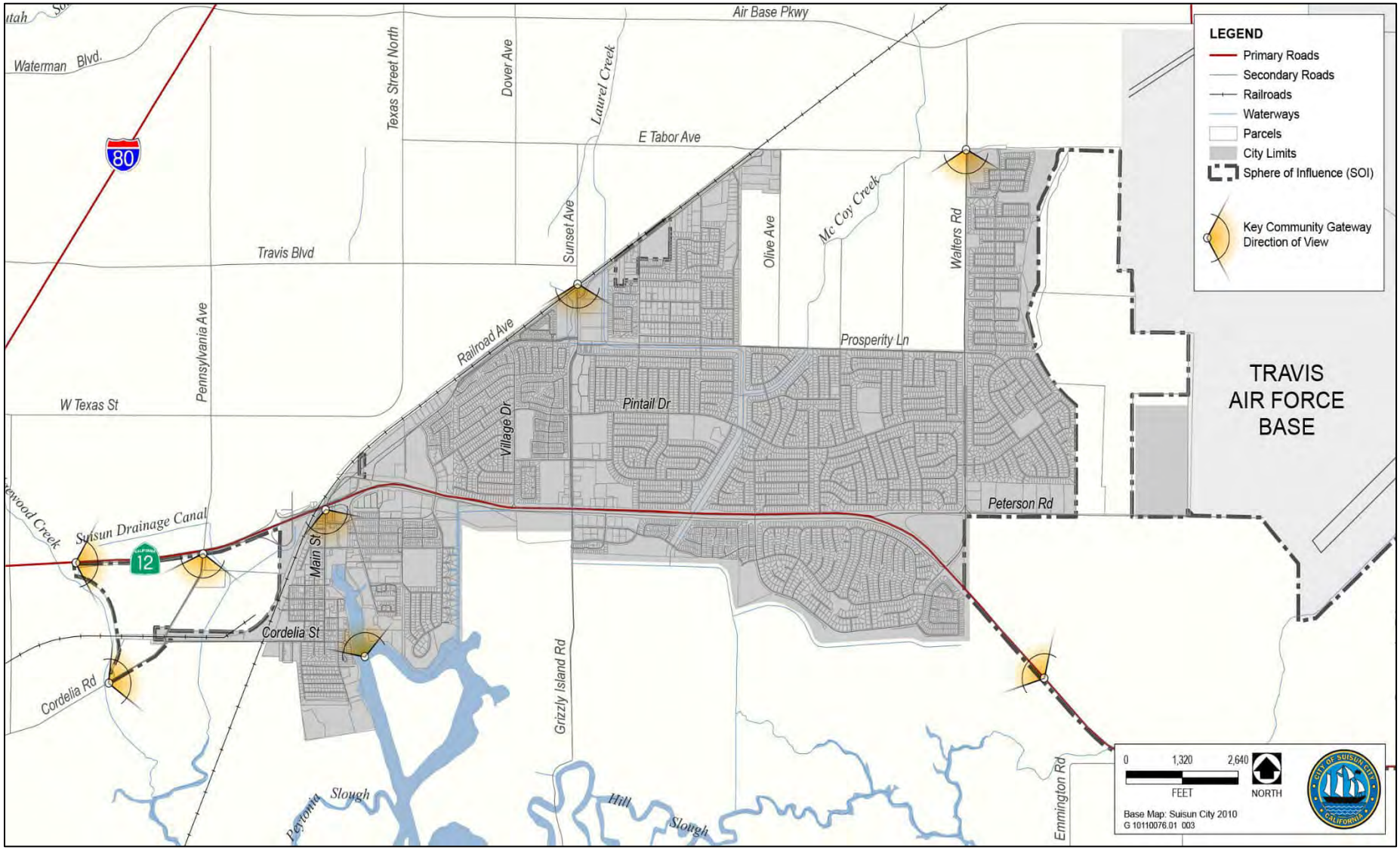
- State Route (SR) 12 east of Ledgewood Creek looking east;
- Cordelia Road east of Ledgewood Creek looking northeast; and
- Pennsylvania Avenue at its intersection with SR 12 looking south.

Key Gateway 1 – SR 12 East of Ledgewood Creek

The Project Site is bordered on the northern side by SR 12, which consists of four lanes and is topographically level with the surrounding properties. One small deciduous tree is present on the south side of SR 12, but views of the Project Site to the south/southeast from SR 12 are otherwise unobstructed and consist of flat grazing land. Grasses at the Project Site are green in the spring but brown the remainder of the year. A tall, three-story tan and

Source: AECOM 2023

Exhibit 4.1-1. Key Viewpoint Locations



Source: City of Suisun City 2015

Exhibit 4.1-2. Key Community Gateways

white building associated with the Meyer Corporation warehouse stands out in the landscape to the south. Trees adjacent to Ledgewood Creek, off the Project Site to the west, are visible in the foreground. The Potrero Hills are visible to the east in the background. A line of tall, metal power poles with overhead transmission lines across the Project Site are visible in the middleground (Viewpoint 1a). Large, two-story grey and white buildings associated with commercial and light industrial development, which are partially screened by mature landscaping, are visible on the north side of SR 12 in the city of Fairfield (Viewpoint 1b).

Source: Google Earth 2018

Viewpoint 1a. Key Community Gateway 1 Looking Southeast along SR 12

Source: Google Earth 2018

Viewpoint 1b. Key Community Gateway 1 Looking Northeast along SR 12

Key Gateway 2 – Cordelia Road East of Ledgewood Creek

Key Gateway 2 is located at the eastern edge of the Project Site, just east of the Cordelia Road overcrossing of Ledgewood Creek (Viewpoint 2). A portion of the proposed Development Area is visible in the foreground on the left side of the viewpoint and proposed Managed Open Space area is visible in the foreground on the right side of the viewpoint. The Project Site appears as a flat, featureless plain covered with grasses that are green in the spring but brown the remainder of the year. Wood power poles with overhead power lines dominate the view. Cement Hill is visible in the background to the north. Landscape trees and buildings associated with development in Suisun City are visible in the background to the east.

Source: Google Earth 2015

Viewpoint 2. Key Community Gateway 2 Looking Northeast along Cordelia Road

In the middleground, development associated with the Kings of Auto and NorCal Concrete businesses are visible, along with grazing cows. Cement Hill is visible in background views to the north. Trees on the north side of SR 12 and the east side of the Union Pacific Railroad tracks appear as dark green, horizontal lines in the background.

Key Gateway 3 – Pennsylvania Avenue South of SR 12

Key Gateway 3 is located at the northern edge of the Project Site on Pennsylvania Avenue, just south of the intersection with SR 12 (Viewpoint 3). Signage for the Kings of Auto commercial business dominates the foreground view, along with grassland associated with the proposed Development Area (Building BC). Green shrubs on the left side of this viewpoint mark the former City of Fairfield landfill (not part of the Project Site). The middleground view includes buildings associates with the Kings of Auto and NorCal Concrete businesses, existing open space/grazing land on the Project Site, and metal lattice towers with overhead high-tension electrical lines, along with off-site trees along Ledgewood Creek and the east side of the Meyer Corporation warehouse building. Background views are dominated by the Coast Ranges.

Source: Google Earth 2016

Viewpoint 3. Key Community Gateway 3 Looking Southwest along Pennsylvania Avenue from the Intersection with SR 12

Other Project Site Views

Viewpoint 4 shows the location of proposed Building BC, looking northwest from Pennsylvania Avenue. A barbed wire fence along Pennsylvania Avenue and cows grazing on the flat grassland at the Project Site fill the foreground view. The middleground view is composed of off-site features: trees along Ledgewood Creek and the eastern edge of the Meyer Corporation warehouse building to the west; commercial/light industrial development to the northwest; and traffic on SR 12, along with residential development and associated landscaping to the north. Tall metal lattice towers with overhead high-tension power lines cross the Project Site in an east-west direction. Background views are dominated by the Howell Mountains.

Source: Google Earth 2016

Viewpoint 4. Location of Proposed Building BC from Pennsylvania Avenue Looking Northwest

Viewpoint 5 shows the proposed location of Building G in the foreground, looking northeast from Pennsylvania Avenue. Wood power poles with overhead transmission lines are present along Pennsylvania Avenue, along with barbed wire fencing. Flat, brown grassland is visible in the foreground, and green areas proposed for Managed Open Space are visible in the middleground. At the left side of the viewpoint, green shrubs on a low hill mark the location of the former City of Fairfield landfill. Trees and buildings visible in background views are located on the east side of the Union Pacific Railroad tracks, in Suisun City.

Source: Google Earth 2016

Viewpoint 5. Location of Proposed Building G from Pennsylvania Avenue Looking Northeast

Viewpoint 6 shows the location of proposed Building F in the middleground and the proposed underground sewer line in the foreground, looking north from Cordelia Road. Flat grassland on the Project Site dominates the foreground views. In the middleground, buildings associated with the Kings of Auto and NorCal Concrete commercial development are the main feature. The California Northern Railroad tracks, which bisect the site from east to west, are marked by a line of low green shrubs. Background views are dominated by Cement Hill and the Vaca Mountains. Landscape trees and commercial and light industrial buildings north of SR 12 are also visible in the background on the left side of the viewpoint.

Source: Google Earth 2015

Viewpoint 6. Location of Proposed Building F from Cordelia Road Looking North

Viewpoint 7 shows the southwestern portion of the proposed Managed Open Space area, from the intersection of Cordelia Road and Orehr Road looking southeast. A drainage channel and flat grasslands that comprise the Project Site fill the foreground and middleground views. A line of tall metal lattice towers with overhead high-tension power lines, which bisects the site in an east-west direction, is present at the left side of this viewpoint. Background views include the Potrero Hills and Mt. Diablo.

Source: Google Earth 2015

Viewpoint 7. Proposed Managed Open Space from the Cordelia Road/Orehr Road Intersection Looking Southeast

Viewpoint 8 shows the southwestern Project Site boundary, looking northeast from Orehr Road. Foreground and middleground views are dominated by the flat grassland at the Project Site. The Meyer Corporation warehouse building is visible in the middleground on the left side of this viewpoint. The background view is dominated by Cement Hill and the Vaca Mountains.

Source: Google Earth 2007

Viewpoint 8. Proposed Managed Open Space from Orehr Road Looking Northeast

Viewpoint 9 shows the northeastern portion of the Project Site, proposed for Managed Open Space, looking southwest from SR 12 at the eastbound Webster Street off-ramp. The viewshed is dominated by SR 12 and associated vehicles, concrete barrier, a tan concrete sound wall, signage, light standards, and power poles. Green grasses (part of a wetland area at the Project Site, are visible in the foreground and middleground to the south. The Howell Mountains and the Coast Ranges are visible in the background.

Source: Google Earth 2019

Viewpoint 9. Northeastern Edge of Project Site from SR 12 Looking Southwest

Viewpoint 10 shows the proposed location of Building G in the middleground and location of the proposed underground water line in the foreground, from Cordelia Street, just east of Pennsylvania Avenue, looking north. A wood power pole along Cordelia Street, and the California Northern Railroad tracks are visible in the foreground, along with a tan-colored metal storage container on grassland north of the railroad tracks that is proposed for Managed Open Space. Grassland in the middleground, north of the storage container, is proposed for Building G. A line of landscape trees adjacent to urban development north of SR 12 is visible in the background. Cement Hill and the Vaca Mountains dominate the background view.

Source: Google Earth 2016

Viewpoint 10. Location of Proposed Building G from Cordelia Street Looking North

Viewpoint 11 shows most of the proposed Managed Open Space area south of the California Northern Railroad tracks, looking west from Cordelia Street near the Union Pacific Railroad tracks (east of its intersection with Pennsylvania Avenue, Cordelia Road becomes Cordelia Street). Wood power poles with overhead power lines, along with barbed wire fencing, are present on both sides of the roadway. The Northern California Railroad tracks with rail cars (not part of the Project Site) and the location of the proposed underground water line are visible in the foreground on the right side of this viewpoint. Flat grassland that comprises the Project Site to the south is visible in the foreground on the left side of this viewpoint. White buildings associated with development in Fairfield, west of the Project Site, are visible in the middleground. The Howell Mountains and the Coast Ranges dominate the background view.

Source: Google Earth 2016

Viewpoint 11. Proposed Managed Open Space from Cordelia Street near Union Pacific Railroad and California Northern Railroad Looking Southwest

Viewpoint 12 shows the proposed Managed Open Space area along the eastern edge of the Project Site north of the California Northern Railroad tracks, as viewed from West Street in Suisun City. The Union Pacific Railroad tracks are visible in the foreground, along with green wetland areas on the Project Site. Middleground views include buildings and landscaping north of SR 12. Background views consist of the Howell Mountains.

Source: Google Earth 2016

Viewpoint 12. Proposed Managed Open Space from West Street Looking West

VISUAL QUALITY OF THE PROJECT SITE

Definitions

Several sets of criteria have been developed for defining and evaluating visual quality. The criteria developed by the Federal Highway Administration (FHWA) (FHWA 1988) and the U.S. Forest Service (USFS) (USFS 1995), which are used in this analysis, include the concepts of vividness, intactness, and unity. According to these criteria, none of these is itself equivalent to visual quality; all three must be considered high to indicate high-quality visual resources. These terms are defined below.

- "Vividness" is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- "Intactness" is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements.
- "Unity" is the visual coherence and compositional harmony of the landscape considered as a whole.

Viewer sensitivity, also considered in relation to visual quality, depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and expectations in combination with the number of viewers and the duration of the view. The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer.

Visual Quality Elements

Vividness—The flat land at the Project Site is composed of grassland used for cattle grazing; and grassland and other low-growing vegetation associated with wetlands. Several waterways bisect the Project Site, including Ledgewood Creek, Pennsylvania Creek, and a variety of unnamed drainage channels. Vegetation in and among the waterways is green most of the year, and presents a high degree of vividness (particularly during the summer and fall months when the surrounding cattle grazing land is brown). Background views that include the Coast Ranges and Howell Mountains to the west, the Vaca Mountains and Cement Hill to the north, and the Potrero Hills to the west, dominate the landscape and contrast with the grasslands in a way that is both vivid and memorable. Vividness at the Project Site is considered high.

Intactness—Most of the approximately 487-acre Project Site displays a high degree of intactness. The land has been used for grazing, or has existed as wetlands, for at least 100 years. As a result, most of the Project Site has a cohesive and uniform appearance. Although low barbed-wire fencing is present around the property boundaries, and there are two sets of high-tension power lines with metal lattice towers that bisect the site in an east-west direction, these encroaching elements represent only a minor degree of distraction.

Unity—Considered as a whole, particularly during the spring and summer months when most of the viewshed is green, the grasslands in foreground and middleground views, and the mountains in background views, blend together to provide a pleasing and harmonious visual pattern. Background views of the mountains and hills to the west, north, and southeast dominate the viewshed and provide a sense of visual coherence and compositional harmony in the landscape. Therefore, the Project Site viewshed has a moderate degree of unity.

Viewer Sensitivity—Viewer sensitivity is considered high for all parts of the Project Site and the off-site improvement areas. Public views of the Project Site are available from a variety of locations. SR 12, which is immediately adjacent to the Project Site to the north, is traveled daily by thousands of motorists and is considered to be one of the Key Community Gateways to Suisun City. Cordelia Road provides access to the Project Site and Suisun City from the west, and therefore is also considered a Key Community Gateway. Cordelia Street provides access to the Project Site and the City of Fairfield from Suisun City to the east. From SR 12, Pennsylvania Avenue (also a Suisun City Key Community Gateway) provides access to the Project Site and two existing businesses, plus access to the City of Fairfield via Cordelia Road and access to the City of Suisun City via Cordelia Street. Therefore, viewer sensitivity is considered high for all groups viewing the various Project components.

Visual Quality Rating

Considering the high degree of viewer sensitivity, and the high degree of vividness and intactness and the moderate unity, the viewshed encompassing the Project Site and off-site improvement areas is considered to be of high visual quality.

Light and Glare

The Project Site itself does have any existing sources of nighttime lighting or buildings or other structures that could generate glare. Minor nighttime security lighting is generated by the Kings of Auto and NorCal Concrete businesses at the intersection of Pennsylvania Avenue and Cordelia Road. Nighttime lighting is present to the west, north, and east of the Project Site from urban development in the cities of Fairfield and Suisun City. In addition, high-mast light standards that provide nighttime lighting are present along SR 12, along the Project Site's northern boundary. Pennsylvania Avenue and Cordelia Road, where off-site roadway improvements are proposed, do not have nighttime lighting. Beck Avenue, where off-site sewer improvements are proposed, does have high-mast light standards that provide nighttime lighting.

Designated Scenic Highways

SR 12 is not a designated or eligible State scenic highway (Caltrans 2021). Furthermore, SR 12 from Interstate-80 east to Main Street in the City of Suisun City is not a County-designated scenic roadway (Solano County 2008). The proposed Development Area at the Project Site is approximately 0.6 miles (3,000 feet) west of the County-designated portion of SR 12 at the Main Street overpass; from this location, the proposed Development Area is visible, but only in middleground views to the south from the westbound lanes of SR 12.

4.1.2 Regulatory Framework

Federal Plans, Policies, Regulations and Laws

There are no federal plans, policies, regulations, or laws related to aesthetics that would apply to the proposed Project.

State Plans, Policies, Regulations, and Laws

There are no state plans, policies, regulations, or laws related to aesthetics that would apply to the proposed Project.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Solano County General Plan

Continuing the existing land uses in the Managed Open Space area would not change the existing aesthetics in that area. However, the new land uses in the proposed Development Area would be visible from the Managed Open Space areas that would not be annexed and would remain under the County's jurisdiction. The Solano County General Plan (Solano County 2008) contains the following policies related to aesthetics that would apply to the proposed Project.

Land Use Element

- **LU.P-22:** Encourage development of commercial uses to use architecture and site design compatible with the rural character of the surrounding community, the county, and adopted County policies.
- **LU.P-24:** Ensure that commercial and industrial development that occurs adjacent to a city is developed consistent with the development design standards of the adjacent city.

Resources Element

- **RS.G-4:** Preserve, conserve, and enhance valuable open space lands that provide wildlife habitat; conserve natural and visual resources; convey cultural identity; and improve public safety.
- **RS.G-6:** Preserve the visual character and identity of communities by maintaining open space areas between them.
- **RS.P-6:** Protect oak woodlands and heritage trees and encourage the planting of native tree species in new developments and along road rights-of-way.
- **RS.P-35:** Protect the unique scenic features of Solano County, particularly hills, ridgelines, wetlands, and water bodies.
- **RS.P-36:** Support and encourage practices that reduce light pollution and preserve views of the night sky.

City of Fairfield General Plan

Because the northern portion of the Project Site (along SR 12), where Project-related development is proposed abuts the city of Fairfield, and a portion of the Ledgewood Creek Open Space area within the city of Fairfield is immediately adjacent to the northwestern property boundary where Project-related development is proposed, the City of Suisun City has considered the following City of Fairfield General Plan (City of Fairfield 2002) policies related to aesthetics.

Urban Design Element

- **Policy UD 1.1:** Create entryways to the City that achieve a sense of arriving into the City. These entryways shall incorporate signage, landscaping, architectural features, and combinations of land uses that enhance the image of the City.
- **Policy UD 1.4:** Develop positive, high quality edges along Interstate 80, major arterials, and the city limits.

- **Policy UD 2.2:** Encourage variety in the use of complementary colors, textures, forms, styles, structures, and/or materials.
- **Policy UD 2.3:** Allow the careful use of contrast where it would be appropriate for providing focus and interest to an area.
- **Policy UD 2.4:** Reinforce key patterns that positively characterize an area through the use of common design features.
- **Policy UD 4.2:** All aspects of development, including, but not limited to, grading, site planning, signage, fencing, landscaping, screening, lighting, color scheme, size, bulk, height, etc., must be integrated and relate to their surroundings in a complementary manner.
- **Policy UD 5.1:** Development should be designed to provide continuity with features of the surrounding area.
- **Policy UD 5.2:** Restrict development from significantly encroaching on public views of ridgelines, agricultural areas, the Cement Hill Range, and the Suisun Marsh.

Open Space and Conservation Element

- **Policy OS 6.1:** Preserve views of hills and other scenic features surrounding Fairfield.
- **Policy OS 6.3:** All grading shall be integrated and compatible with adjacent areas so as to create a natural topographical appearance and avoid abrupt changes in slope.

City of Suisun City General Plan

The City of Suisun City General Plan (City of Suisun City 2015) includes the following policies and programs related to aesthetics that apply to the proposed Project.

Community Character and Design

- **Policy CCD-1.1:** The City will review and condition new developments, as necessary, to ensure that development is consistent with the desired future character of the City. This review will take into consideration the size, location, orientation, and height of buildings, as well as proposed signs, fences, drainage, walls, landscaping, and lighting.
- **Policy CCD-1.2:** The City will require the use of durable, high-quality building materials to reduce maintenance and replacement needs and ensure the aesthetic appeal of new developments.
- **Policy CCD-1.3:** The architectural style, exterior materials, and other design features of accessory buildings, including garages, shall complement the primary structure.
- **Policy CCD-1.5:** New developments should locate and size proposed surface parking areas in a way that reduces the visual dominance of parking as viewed from the front property line. In general, street frontages should be composed of building fronts and complementary landscaping, with parking located to the side or rear of the site.

- **Policy CCD-1.6:** Proposed buildings of more than 20,000 square feet in gross floor area shall use balconies, bay windows or other window treatments, pitched roofs, arcades, or other architectural features to provide visual interest.

- **Policy CCD-1.17:** Trash bins, HVAC equipment, and other required mechanical equipment should be located in areas that are accessible for their intended use and screened from view along public rights-of-way.

- **Policy CCD-1.18:** Colors and logos associated with a company shall not be a significant architectural element in any new development. Commercial signage should be restrained in size and height and shall not involve any more than one square foot of building signage for each linear foot of building frontage facing a public street.

- **Policy CCD-3.1:** Key Community Gateways include SR 12 east of the City limits, Sunset Avenue at the Southern Pacific Railroad tracks, Walters Road between Tabor Avenue and Prosperity Lane, SR 12 near Ledgewood Creek, Cordelia Road in the western edge of the Planning Area, Pennsylvania Avenue at SR 12, the pedestrian crossing from downtown Fairfield, and the Suisun Slough.

- **Policy CCD-3.2:** Key Community Gateways should provide distinctive entrances to Suisun City that enhance the image of, and reflect the natural environment, history, culture, and identity of the community.

- **Policy CCD-3.3:** New developments visible from Key Community Gateways should provide an attractive streetscape environment; preserve healthy native vegetation and add new landscaping to enhance aesthetics; and frame views of waterways and surrounding hills and mountains, where possible.

- **Policy CCD-3.4:** The City will support construction of attractive civic landmarks, public artwork, and other public improvements in areas near Key Community Gateways.

- **Policy CCD-3.5:** New private developments shall provide attractive building façades and locate surface parking in a way that reduces the visual dominance in areas adjacent to, and visible from Key Community Gateways.

- **Policy CCD-3.6:** The City will support the installation of attractive signage and lighting in Key Community Gateways that directs visitors to the Downtown, parks, schools, and other important civic areas.

    - **Program 3-1: Design Guidelines for Key Community Gateways**. The City will prepare and implement design guidelines for Key Community Gateways, consistent with General Plan policy. This will include landscaping requirements, building materials and orientation, lighting, signage, and other important physical elements of development. These guidelines should be incorporated into the Zoning Ordinance or Citywide design guidelines.

- **Policy CCD-4.2:** New developments shall provide connecting streets with short blocks that create a pedestrian-scale environment.

- **Policy CCD-4.3:** New developments shall provide direct access routes to buildings from sidewalks and parking areas for pedestrians and bicyclists.

- **Policy CCD-4.4:** The City will require visually attractive streetscapes with street trees, planting strips, attractive transit shelters, benches, pedestrian-scale streetlights in appropriate locations, and landscaping along fences and low walls, if present.

- **Policy CCD-4.5:** New developments shall provide for trees at an average frequency of one every 20 feet on center along City streets.

- **Policy CCD-4.8:** New utilities shall be installed underground. Aboveground utilities along public rights-of-way should be undergrounded, as feasible.

- **Policy CCD-4.9:** Benches, trash receptacles, drinking fountains, bus shelters, signage, and other improvements should be located along sidewalks and designed to enhance the visual environment and provide a welcoming place for pedestrians.

- **Policy CCD-4.10:** The City will work with Caltrans to install aesthetic and functional improvements along the SR 12 corridor, including landscaping, trees, pedestrian and bicycle pathways separated from the travelway, and noise attenuation improvements.

- **Policy CCD-4.11:** The City will support efforts to reduce the visual impact of surface parking lots on the character of streetscapes.

- **Policy CCD-6.1:** Locally important scenic resources include the Suisun Marsh, the Coastal Range, Cement Hill, the Potrero Hills, and the Vaca Mountains. Locally important scenic vistas are those available from public properties and rights-of-way of locally important scenic resources.

- **Policy CCD-6.2:** New developments shall be designed to retain or enhance views along existing public rights-of-way of locally important scenic resources, to the extent feasible.

- **Policy CCD-6.3:** New developments should be designed, where feasible, to frame views of locally important scenic resources, by providing direct lines of sight along public rights-of-way and open space in areas where these features are prominently visible.

- **Policy CCD-6.4:** The City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis.

- **Policy CCD-6.5:** The City will preserve and enhance visual connections to Suisun Marsh, including the development of environmentally-sensitive recreational facilities, as funding is available.

- **Policy CCD-7.1:** Windows and active rooms in new buildings should allow occupants to view yards, corridors, entrances, streets, alleys, and other public and semi-public places.

- **Policy CCD-7.2:** New developments should front onto adjacent parks and open space, or provide windows, outdoor seating areas or other orientation to these features.

- **Policy CCD-8.1:** Low, pedestrian-scaled, ornamental lighting should be emphasized in new developments in order to avoid adverse effects on adjacent uses.

- **Policy CCD-8.2:** New developments shall use attractive lighting that is complementary to the design of proposed structures.

- **Policy CCD-8.4:** Light fixtures shall aim light sources downward and provide shielding to prevent glare and reflection.

- **Policy CCD-8.5:** Permanent lighting cannot blink, flash, or be of unusually high intensity or brightness. Lighting standards shall avoid the use of harsh mercury vapor, low-pressure sodium, or fluorescent bulbs for lighting of public areas or for lighting within residential neighborhoods.

- **Policy CCD-8.6:** New developments shall not include reflective surfaces that could cast glare toward pedestrians, bicyclists, or motorists. Bare metallic surfaces, such as pipes, vents, and light fixtures shall be painted to minimize reflectance.

    - **Program 8-1: Site Design for Lighting and Glare**. The City will review and condition new developments, as necessary, to avoid introduction of light and glare that would adversely affect motorists, bicyclists, and pedestrians using public travelways. New developments have several design options that can be used, as appropriate to avoiding substantial adverse light and glare effects, including: carefully planning the location and orientation of on-site lighting, use of non-reflective paint and building materials, use of vegetation screening or shielding of light at the source, use of directional or lower-intensity lighting, use of timing devices or sound/motion-controlled lighting, or other techniques.

Suisun City Development Guidelines for Architecture and Site Planning

The *Development Guidelines for Architecture and Site Planning* (City of Suisun City 1989) contains a combination of specific standards and general guidelines that are intended to guide development in the city in accordance with the General Plan. The Guidelines encourage new structures to provide community landmarks, and the planting of urban street trees. The scale and character of new buildings should relate to the existing surrounding development. Site design specifications for residential and commercial development are provided in the Guidelines, including building orientation, fencing, landscaping, open space, height limits, vehicular access, parking, screening of utilities, design of primary access points for commercial centers and large residential developments, outdoor storage, lighting, and pedestrian and bicycle circulation. Specific building design guidelines include requirements to provide for architecturally interesting and creative designs, and to avoid block-style, repetitious structures. The use of visually interesting and appropriate color schemes as well as a variety of building materials are encouraged. Mechanical and utility equipment must be screened from view. Commercial development should reflect "human-scale design" with abundant use of landscaping, entries, courtyards, and parking plazas. On-site lighting must be shielded and may not be visible from off-site viewpoints. Landscape buffers are required between commercial and residential land uses.

Suisun City Municipal Code Title 20 – Water Efficient Landscaping Ordinance

The City's Water Efficient Landscaping Ordinance (Title 20 of the Suisun City Municipal Code) promotes the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible, and establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects. The ordinance achieves efficient water use without

waste by setting a maximum applied water allowance as an upper limit for water use and reducing water use to the lowest practical amount.

The ordinance applies to new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review. Project applicants are required to submit a landscape design package to the City Planning Department for review, which must include the total landscape area, water supplier, hydrozone information, water budget calculations, soil management report, landscape design plan, irrigation design plan, and grading design plan.

Suisun City Municipal Code Title 18 – Zoning, Architectural Review, Lighting

Title 18, Article III, Sections 18.31 through 18.47 of the Suisun City Municipal Code contain specific standards that regulate residential and commercial development including lot sizes, setbacks, building heights, open space, driveways, parking and loading areas, fences and walls, and signage. All development in the city must be designed to comply with these requirements. In addition, Municipal Code Section 18.76 requires submittal of site plans and an architectural review by the Suisun City Planning Department.

As part of the City-required site plan and architectural review, project applicants are required to prepare and submit for review by the City Planning Department, an exterior lighting plan, which must present the size, orientation, location, height, and appearance of proposed fixtures (Suisun City Municipal Code Title 18, Chapter 18.76.030).

4.1.3 Environmental Impacts and Mitigation Measures

Methodology

The aesthetic value of an area is a measure of the variety and contrast of the area's visual features, the character and quality of those features, and the scope and scale of the scene, combined with the anticipated viewer response. The analysis of visual resources for this project uses a qualitative approach for characterizing and evaluating the visual resources of the areas that could be affected by the proposed Project. The analysis was based on evaluation of the changes to existing visual resources that would result from implementation of the proposed Project. In making a determination of the extent and implications of the visual changes, consideration was given to specific changes in the visual composition, character, and valued qualities of the affected environment and the extent to which the affected environment contained places or features that have been designated in plans and policies for protection or special consideration.

The above factors were considered in combination with the proposed Project elements that would be visible during operation, and the type and duration of anticipated construction activities.

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to aesthetics if it would:

- have a substantial adverse effect on a scenic vista;

- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway;

- except as provided in Public Resources Code Section 21099, substantially degrade the existing visual character or quality of public views of the site and its surroundings (public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or

- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

Damage to Scenic Resources within a State- or County-Designated Scenic Highway—SR 12 is not a designated or eligible State scenic highway (Caltrans 2021); thus, there would be **no impact**. Furthermore, SR 12 from I-80 east to Main Street in the City of Suisun City (which includes the portion along the northern boundary of the Project Site) is not a County-designated scenic roadway. The proposed Development Area at the Project Site is approximately 0.6 miles (3,000 feet) west of the County-designated portion of SR 12 at the Main Street (Suisun City) overpass; from this location, the proposed Development Area is barely visible in middleground views from the westbound lanes of SR 12. The proposed buildings at the Project Site would appear only as a low, thin line in the middleground; whereas the dominant view from this location on SR 12 is the foreground view of the roadway with its concrete barriers in the center and outer edges, along with the Howell Mountains in the background. Thus, there would be **no impact** from damage to scenic resources within a County-designated scenic roadway. Therefore, these issues are not evaluated further in this EIR.

IMPACT ANALYSIS

Impact 4.1-1 Effects on Scenic Vistas. *The proposed Project would result in new urban development that would permanently block some views of Suisun Marsh, Howell Mountains, Vaca Mountains, Cement Hill, and Potrero Hills, and Mt. Diablo from several public viewpoints, which are defined by the City as locally important scenic vistas. This impact would be significant.*

The Project Site consists primarily of flat, featureless grazing land that is green in the spring and brown for the remainder of the year; along with wetlands and associated low-growing vegetation that are green most of the year. Most of the Project Site would not be developed and therefore would allow for the continuation of existing scenic views in the proposed Managed Open Space areas. However, the approximately 93 acres proposed for development would include six buildings with a maximum height of up to 47 feet. As shown in Exhibit 3-2, Project Site (Chapter 3, "Project Description"), nearly all of the proposed 93-acre Development Area is south of SR 12, west of Pennsylvania Avenue, and north of Cordelia Road.

The 2035 Suisun City General Plan (City of Suisun City 2015) Policy CCD-6.1 defines locally important scenic vistas as those that are available from public properties and rights-of-way, and states that Suisun City's unique waterfront location and proximity to Suisun Marsh, the Vaca Mountains, Cement Hill, the Potrero Hills, and the Coast Ranges, provide for scenic views.

Construction of the proposed Project and the off-site improvements would occur in phases, as market conditions allow. As each of the buildings, with associated parking, landscaping, and stormwater retention basins; and the

off-site roadway, water, and sewer improvements; are built, construction equipment, materials, and personnel would be visible in foreground and middleground views from many of the previously described public viewpoints, such as SR 12, Pennsylvania Avenue, Cordelia Road, and Cordelia Street. Construction activities in each phase would be short-term and temporary, and background views of the surrounding mountains would not be blocked. Therefore, construction activities would have a **less-than-significant** impact on scenic vistas.

Given the distance of the proposed buildings from West Street in Suisun City (Viewpoint 12), and from the west side of Orehr Road in the city of Fairfield (Viewpoint 8), scenic views from these public locations would not be blocked by Project operation and there would be **no impact**.

Key Community Gateway 1, which encompasses SR 12 eastbound from the northwestern edge of the Project Site adjacent to the proposed Development Area, does not constitute a scenic vista (Viewpoints 1a and 1b). This viewshed includes a variety of large, tall, block-style grey and white commercial and industrial buildings on both sides of SR 12, with associated landscape trees in a variety of shapes and sizes. The buildings constructed at the Project Site would have a similar appearance and would be of a similar size as compared to nearby off-site buildings. Ledgewood Creek itself is not visible; instead, the northern edge of a variety of deciduous trees of non-uniform heights and shapes are visible in a narrow line heading southward away from the viewer. The Project Site to the south consists of flat, featureless grazing land. The western edge of the Potrero Hills are barely visible to the southeast, and appear as one long, low, brown hill. Therefore, operation of the proposed Project would have **a less-than-significant impact** on scenic vistas for motorists traveling east on SR 12 at Key Community Gateway 1.

From SR 12 westbound at the northeastern edge of the Project Site, motorists are afforded a view of wetlands at the Project Site in the foreground, and the Coast Ranges and the Howell Mountains in the background; however, most of the viewshed is comprised of the SR 12 pavement, concrete center barrier, tan concrete sound wall, vehicles, signage, high-mast light standards, and power poles along SR 12 (Viewpoint 9). At the Project Site, nearly all of the area south of SR 12 from the Union Pacific Railroad line west to Pennsylvania Avenue, and extending south to the Suisun Marsh, would be preserved as Managed Open Space. Therefore, this area would still afford motorists traveling westbound in SR 12 with scenic vistas of the natural environment. Improvements to SR 12 and Pennsylvania Avenue at this intersection would have a similar visual appearance to existing conditions. Because the proposed buildings would be developed approximately 0.6 mile to the west, motorists traveling westbound on SR 12 would still have views of the Coast Ranges and the Howell Mountains. Views of the Coast Ranges to the southwest would be blocked from SR 12 for westbound motorists for a few seconds, west of Pennsylvania Avenue. However, these motorists would still have west and northwest views of the Coast Ranges and the Howell Mountains. Therefore, operation of the proposed Project would have a **less-than-significant** impact on scenic vistas for motorists traveling west on SR 12.

During the Project's operational stage, the proposed buildings would block scenic views of the Coast Ranges, Howell Mountains, Vaca Mountains, and Cement Hill, which are considered by the City to be scenic vistas, from the following public viewpoints:

- Key Community Gateway 2: the north side of Cordelia Road, from the Ledgewood Creek overcrossing to Pennsylvania Avenue (Viewpoints 2 and 6);
- Key Community Gateway 3: Pennsylvania Avenue between SR 12 and Cordelia Road (Viewpoints 3 and 4);

- an approximately 800-foot section of Cordelia Street east of the Pennsylvania Avenue intersection (to the north) (Viewpoint 10).

The Suisun City 2035 General Plan (City of Suisun City 2015) contains several policies that are intended to help protect scenic vistas. For example, Policy CCD-6.2 requires new developments to be designed to retain or enhance views along existing public rights-of-way of locally important scenic resources, to the extent feasible. Policy CCD-6.3 requires new developments to be designed, where feasible, to frame views of locally important scenic resources, by providing direct lines of sight along public rights-of-way and open space in areas where these features are prominently visible. Policy CCD-3.3 states that new developments visible from Key Community Gateways should frame views of waterways and surrounding hills and mountains, where possible. Policy CCD-6.5 establishes that the City will preserve and enhance visual connections to Suisun Marsh, including the development of environmentally-sensitive recreational facilities, as funding is available.

Continuation of existing open space/grazing land uses on approximately 393 acres of the Project Site would preserve most of the existing views. However, scenic views to the north would be blocked by proposed buildings and landscaping from Key Community Gateway 2 and from Viewpoint 10 along Cordelia Street, and scenic views to the southwest would be blocked from Key Community Gateway 3. Scenic views of the Coast Ranges, Howell Mountains, Vaca Mountains, Cement Hill, and the Potrero Hills would still be available from all of these viewpoints looking in other directions. As shown in Exhibit 3-2, Project Site (Chapter 3, "Project Description"), the site design at the Project Site would provide a line-of-sight corridor from north to south for motorists along Pennsylvania Avenue that would provide limited views of Cement Hill and the Vaca Mountains to the north. Furthermore, most of the proposed Development Area is planned for future urban development—the Suisun City General Plan designates nearly the entire 93-acre development area (west of Pennsylvania Avenue and north of the California Northern Railroad tracks) for Commercial Mixed Use. The Solano County General Plan (Solano County 2008) designates the proposed development area for Urban Commercial and Urban Industrial land uses. Nevertheless, because the primary scenic views to the north and southwest, respectively, would be permanently blocked by the proposed development from Key Community Gateways 2 and 3, this impact is considered **significant.**

Mitigation Measure

No feasible mitigation measures are available.

Significance after Mitigation

No feasible mitigation is available that could fully preserve the existing views of the Coast Ranges, Howell Mountains, Cement Hill, or the Vaca Mountains while also accommodating operation of the buildings and landscaping that are proposed as part of the Project. Therefore, this impact is considered **significant and unavoidable**.

Impact 4.1-2 Degradation of Visual Character or Quality. *Implementing the proposed Project would result in new commercial and light industrial buildings and landscaping in an approximately 93-acre area of existing flat grazing land and open space, most of which has been previously designated for urban development in the Suisun City and Solano County General Plans. The Suisun City General Plan does not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character. A Planned Unit Development has been prepared, for*

City approval, that contains design guidelines for the proposed Project. Project consistency with City Municipal Code and City Design Guidelines is also required. Therefore, this impact is considered ***less than significant.***

As defined in the CEQA Guidelines Section 15387, the Project Site is not located in an "urbanized area," which is "[A] central city or a contiguous group of cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile." CEQA Guidelines Section 15387 states that a lead agency may make this determination by reviewing U.S. Census maps, which, in this case, show that the Project Site is not designated as an urbanized area (U.S. Census Bureau 2018).

Managed Open Space

Approximately 81 percent of the Project Site—393 acres, is proposed as Managed Open Space. The applicant proposes only grading of relatively small areas focused for the establishment of wetlands, and therefore the visual character and quality of this area would not change and there would be **no impact.**

Proposed Development Area

New warehousing and logistics land uses are proposed on approximately 93 acres of flat grazing land at the Project Site. Construction of the proposed Project would occur in phases, as market conditions allow. As each of the buildings, with associated parking, landscaping, and stormwater retention basins, are built, along with the proposed off-site improvements, construction equipment, materials, and personnel would be visible to motorists in foreground and middleground views from the following public roadways: SR 12, Pennsylvania Avenue, Cordelia Road, Cordelia Street, and Beck Avenue. Construction activities in each phase would be short-term and temporary, are a common sight in the nearby developed areas of Fairfield and Suisun City (through which motorists are passing before they arrive at the Project Site), and would be scattered across a large area during each phase of construction. Therefore, construction activities would have a **less-than-significant** impact on degradation of visual character.

As noted previously, the Suisun City General Plan designates nearly the entire 93-acre Development Area (west of Pennsylvania Avenue and north of the California Northern Railroad tracks) for Commercial Mixed Use. The Solano County General Plan (Solano County 2008) designates the proposed Development Area for Urban Commercial and Urban Industrial land uses. The proposed development would include relatively large floor area buildings on flat pads, with parking areas, truck maneuvering areas and loading docks, landscaping, fencing, and stormwater treatment/retention basins. Changes to existing site elevations, which are nearly flat, would be minimal. Existing grassy vegetation would be removed and replaced with buildings, paved surfaces, detention basins, and landscaping in the Development Area. No trees would be removed. Trash enclosures and permanent outdoor materials storage would be screened by solid walls constructed of masonry or concrete. Such walls may be incorporated in the structure of the primary building, or may be stand-alone structures separate from the building. All stormwater detention basins would be fenced around the perimeter. In addition, masonry wall or metal fencing would be installed around the perimeter of future building areas.

The Project applicant has prepared a Planned Unit Development (PUD), for City approval, to establish the land use, zoning, development standards, and regulations for development of the Project Site (David Babcock & Associates 2023). Chapter 5 of the PUD includes design guidelines for the Project Site, which are intended to guide development of the Project by establishing criteria for development character, site planning, architecture, detailing, and landscape themes for the Commercial Services and Fabricating (CSF) and Open Space (OS) zoning districts. The design guidelines are to be used in conjunction with the Development Standards in PUD Chapter 4,

which provide the standards for setbacks, building height, intensity of development, and the permitted and conditionally permitted uses. The PUD focuses on three design elements to create a framework for development: On-Site Landscape Theme and Design, Freeway and Street Frontage Corridors, and Building Architecture Theme and Design, as described below.

a. **On-Site Landscape Theme and Design.** Landscaping will be a key element that will tie the Project together. Consistent use of landscape design concepts and planting palette throughout the Project will create a visual appearance that will complement the building design.

b. **Freeway and Street Frontage Corridors.** The State Route 12 frontage has no site access, but is an important gateway to the city and as such, shall receive special attention as a Project design feature. An opportunity exists to create a gateway to the City at State Route 12 that is consistent with the City General Plan. The design and elements to be included in the gateway design have been developed in concept and are to be constructed when the adjacent phase is completed. State Route 12 and Pennsylvania Avenue are the main points of access to the Project [site]. The building architecture facing the street frontages and landscape design establish the visual appearance for the perimeter of the Project.

a. **Building Architecture Theme and Design.** Building architectural design, detailing, and materials will be important in creating a cohesive warehouse and distribution development and sense of place… Materials and colors are to be consistent between all … buildings to provide a consistent design theme for the Project.

Design guidelines for the Project as established in the PUD address site planning and building orientation, pedestrian circulation, screening and utilities, parking and circulation, walls and fences for screening and security, and lighting. Building design guidelines for CFS zoning district include the following elements, among others:

- Buildings should be designed with a consistent use of materials, design elements and detailing, and architectural design theme to create a unified look for the project.
- Building facades shall be articulated to add visual variety and distinctiveness by adding breaks in long building facades in the form of score lines, varying roof heights, and/or color variations.
- Building entries shall be designed with the human scale in mind by concentrating windows and enhanced colors and materials at the office uses.
- Decorative features, textural changes, or relief techniques should be used to break up large building elevations. Glass, or other surface and design treatments should be incorporated into the office portions of each building.
- Include landscape planting areas to reduce the visibility of the loading docks, truck trailer parking, and service doors from public streets.
- Vehicle parking located adjacent to streets shall be screened from view by the siting of buildings and through the use of landscaping, berming, screen walls, or any combination of these methods to the extent possible.

- Parking areas for truck trailer parking are allowed to face public streets with the use of screening to include landscaping, berming, screen walls, or any combination of these methods to the extent possible.
- Utilitarian portions of buildings, such as vents, gutters, downspouts, flashing, electrical conduit, and other wall-mounted utilities shall be painted to match the color of the adjacent surface or otherwise designed in harmony with the building exterior.
- All buildings shall be designed to screen any roof-mounted equipment, including, but not limited to, HVAC units, vents, fans, antennas, sky lights and satellite dishes from view from public rights-of-way only.

An architectural rendering illustrating a conceptual example of the visual appearance of the exterior of the proposed buildings is provided in Exhibit 4.1-3.

Source: David Babcock & Associates 2023, Adapted by AECOM in 2023

Exhibit 4.1-3. Conceptual Architectural Rendering of Logistics Center Building

A Community Gateway sign is proposed along SR 12, and four monument signs are proposed within the Project Site along Pennsylvania Avenue. The PUD specifies that structures which accommodate several tenants must use a single monument sign that identifies the overall Project name and individual tenants. Color palettes must match the materials and colors shown in the PUD for the various signage types to achieve Project consistency. The proposed Community Gateway sign would be 45 feet tall with a 12-foot-wide base. Monument signage may not exceed 10 feet in height and width (excluding the base). Conceptual renderings of the Community Gateway signage along SR 12 and the internal monument signage are shown Exhibit 4.1-4 and Exhibit 4.1-5.

Source: David Babcock & Associates 2023

Exhibit 4.1-4. Conceptual Architectural Rendering of Community Gateway Signage and Landscaping

Source: David Babcock & Associates 2023

Exhibit 4.1-5. Conceptual Architectural Rendering of Monument Signage and Landscaping

The PUD design guidelines also include landscape guidelines, and a preliminary landscape plan (see Exhibit 4.1-6) with a suggested plant list, with the goal of creating a framework that visually unifies signage, hardscape, and the landscape planting palette. Native and climate-adapted plantings are proposed, along with natural materials in simple designs to create a modern character. The landscape design guidelines include the following elements, among others:

- Vehicle parking and loading docks, when fronting public streets shall be screened by landscaping, walls and berming, or any combination of these methods.

- Fast-growing trees closely spaced in groupings to create visual mass are encouraged in the developed area frontage along State Route 12.
- Planting areas should be provided between parking and roads to provide visual relief in large expanses of hardscape.
- Landscape Design should include simple plant palettes, masses of native and climate adapted grasses and clustered tree plantings. There should be a consistency of landscape design throughout the project area.
- Portions of the Project not devoted to buildings, structures, parking, outdoor storage or paving should be landscaped, to the extent feasible. Landscapes should be designed to reach a reasonable level of maturity within five years.
- Trees shall be installed at a minimum size of 15 gallon, with larger 24-inch box trees at key design features.
- Shrub planting shall consist of 1- and 5-gallon container sizes.
- Trees may be clustered to define circulation routes, frame site views, and reinforce State Highway 12 edge planting. Large scale, high branching shade trees should be used in all visitor/employee parking areas.
- Enhanced building entries and other special landscape features are encouraged and should feature bold foliage, spreading shade trees and seating elements. Accent lighting is also encouraged.
- Vegetated bioswales are encouraged in parking lot planting islands to treat on-site stormwater and provide visual relief within the hardscape.
- Property owners are responsible for installing and maintaining the landscape within each of their properties. Covenants, Conditions & Restrictions (CC&Rs) and landscape maintenance agreements will ensure for proper maintenance and planting replacement.
- Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the use of fertilizers and pesticides that can contribute to storm water pollution.
- Plantings for bioretention areas will be selected to be appropriate to anticipated soil and moisture conditions.
- Plants will be selected appropriate to site soils, slopes, climates, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.
- Turf should be minimized. The use of turf for solely decorative purposes is strongly discouraged.
- Stormwater Best Management Practices such as bioswales should be incorporated into the landscape to maximize on-site infiltration of stormwater, to the extent possible.
- Site furnishings [such as benches] should be high quality and contemporary in design and compatible with the overall building and landscape design.
- Large scale trees and shrubs appropriate to the scale of the architecture should be emphasized to minimize visual dominance of large architecture [see, for example, Exhibit 4.1-7].

Source: David Babcock & Associates 2023, Adapted by AECOM in 2023

Exhibit 4.1-6. Conceptual Landscape Plan

Source: David Babcock & Associates 2023

Exhibit 4.1-7. Conceptual Architectural Rendering of Buildings and Landscape Trees

Within the approximately 93-acre Development Area, approximately 31.5 percent would consist of buildings, approximately 45.4 percent would consist of hardscapes such as parking areas and drive isles, and approximately 27.5 percent would consist of landscaping or stormwater retention basins. The proposed on- and off-site water and sewer lines would be buried underground and not visible after construction. The proposed off-site roadway improvements would result in a similar appearance as compared to existing conditions.

The 2035 Suisun City General Plan (City of Suisun City 2015) contains policies that require high-quality design for new development. For example, Policy CCD-1.1 states that the City will review and condition new developments, as necessary, to ensure that development is consistent with the desired future character of the City. This review will take into consideration the size, location, orientation, and height of buildings, as well as proposed signs, fences, drainage, walls, landscaping, and lighting. Policy CCD-1.6 requires proposed buildings of more than 20,000 square feet in gross floor area to use balconies, bay windows or other window treatments, pitched roofs, arcades, or other architectural features to provide visual interest. Policy CCD-1.17 requires trash bins, heating, ventilation and air conditioning(HVAC) equipment, and other required mechanical equipment to be located in areas that are accessible for their intended use and screened from view along public rights-of-way. Policy CCD-1.18 requires that commercial signage must be restrained in size and height and may not involve any more than one square foot of building signage for each linear foot of building frontage facing a public street. Policy CCD-4.4 requires visually attractive streetscapes with street trees, planting strips, attractive transit shelters, benches, pedestrian-scale streetlights in appropriate locations, and landscaping along fences and low walls, if present. Policy CCD-4.5 requires new developments to provide for trees at an average frequency of one every 20 feet on center along City streets. Policy CCD-4.8 requires all new utilities to be installed underground. Policy CCD-4.9 requires benches, trash receptacles, drinking fountains, bus shelters, signage, and other improvements to be located along sidewalks and designed to enhance the visual environment and provide a welcoming place for pedestrians. Policy CCD-4.10 states that the City will work with Caltrans to install aesthetic and functional improvements along the SR 12 corridor, including landscaping, trees, pedestrian, and bicycle pathways separated from the travelway, and noise attenuation improvements.

In addition, the *Development Guidelines for Architecture and Site Planning* (City of Suisun City 1989) contains a combination of specific standards and general guidelines that are intended to guide development in the city in accordance with the General Plan. The Guidelines encourage the planting of urban street trees, and the scale and character of new buildings should relate to the existing surrounding development. Site design specifications for commercial development include building orientation, fencing, landscaping, open space, height limits, vehicular access, parking, screening of utilities, design of primary access points, outdoor storage, lighting, and pedestrian and bicycle circulation. Specific building design guidelines include requirements to provide for architecturally interesting and creative designs, and to avoid block-style, repetitious structures. The use of visually interesting and appropriate color schemes as well as a variety of building materials are encouraged. Mechanical and utility equipment must be screened from view. Commercial development should reflect "human-scale design" with abundant use of landscaping, entries, courtyards, and parking plazas. On-site lighting must be shielded and may not be visible from off-site viewpoints. Landscape buffers are required between commercial and residential land uses.

The Suisun City's Water Efficient Landscaping Ordinance (Title 20 of the Suisun City Municipal Code) establishes a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction. The ordinance requires submittal of a landscape design package to the City Planning Department for review, which must include the total landscape area, water supplier, hydrozone information, water budget calculations, soil management report, landscape design plan, irrigation design plan, and grading design plan.

The Suisun City Zoning Code (Suisun City Municipal Code Title 18) provides development standards that address building mass, setbacks, landscaping, fences, lighting, and signage to achieve an aesthetically-pleasing appearance. Section 18.76 requires submittal of site plans and an architectural review by the Suisun City Planning Department.

The proposed development on 93 acres of the Project Site would substantially alter the existing visual character from agricultural (grazing land) to urban development. There are no outstanding examples of visual character at the Project Site, which consists of flat, rural (non-urbanized) land used for cattle grazing. As stated in Suisun City General Plan Policy CCD-6.4, the City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis. The proposed development at the Project Site would be consistent with City General Plan policies, the City Municipal Code, and the City Design Guidelines. Furthermore, detailed site-specific architectural and landscaping design must comply with the standards in the PUD, which the City has required to be consistent with the City's design guidelines and Municipal Code development standards. Future development within the Project site will be reviewed and conditioned, as necessary, to implement the design guidance provided in the PUD.

As discussed in detail in the Environmental Setting (see the heading entitled "Visual Quality of the Project Site"), the Project Site exhibits a high degree of visual quality. The Project Site also includes three designated Key Community Gateways (Exhibit 4.1-2). Furthermore, as discussed in Impact 4.1-1, the Project Site affords scenic views from several public locations, and the proposed installation of commercial and industrial buildings would alter the scenic quality of the viewshed. Aesthetics impacts are inherently subjective, and reasonable people can disagree as to the relative aesthetic merits of urban land uses versus agricultural land. Based on the design and landscape guidelines contained in the Project's PUD, against which future development within the Project site will be reviewed and conditioned to comply, and consistent with Suisun City General Plan Policy CCD-6.4, the

change in visual character resulting from proposed urban development on 93 acres of the Project Site is a **less-than-significant** impact.

Mitigation Measures

No mitigation measures are required.

Impact 4.1-3 Substantial New Light and Glare and Skyglow Effects. *Project implementation would result in new urban development on approximately 93 acres of the Project Site. The Development Area would require security lighting and other types of lighting during operation. This could inadvertently cause increased light and glare, potentially obscuring views of stars and other features of the nighttime sky. In addition, nighttime lighting or the presence of reflective surfaces on buildings could result in glare shining on motorists traveling along SR 12, Pennsylvania Avenue, and Cordelia Road. This impact is considered* ***significant.***

Skyglow is artificial lighting from urbanized uses that alters the rural landscape and, in sufficient quantity, lights up the nighttime sky, and thus reducing the darkness of the night sky and the visibility of the stars. Under current conditions, there are no sources of light that are generated on the Project Site. However, the Kings of Auto and NorCal Concrete commercial areas, located at the intersection of Pennsylvania Avenue and Cordelia Road, emit minimal nighttime lighting for security purposes. In addition, SR 12 along the northern Project Site boundary contains high-mast light standards. Nighttime lighting is also present west, north, and east of the Project Site from commercial, light industrial, and residential development in the cities of Fairfield and Suisun City.

Glare is intense light that shines directly, or is reflected from a surface into a person's eyes. Daytime glare can be caused by reflective surfaces such as unpainted metal roofs, windows, and white or glossy finish paints; nighttime glare can be caused by lighting. Daytime and nighttime glare generated by urban development are present to the west, north, and east of the Project Site, in addition to the Kings of Auto and NorCal Concrete commercial areas located at the intersection of Pennsylvania Avenue and Cordelia Road.

Proposed urban land uses in the 93-acre Development Area would introduce new street lighting, parking lot lighting, pedestrian way lighting, interior lighted building signage, interior and front-lighted landmark and directory signage, interior lighted (light emitting diode [LED]) security lighting, and architectural lighting, during the Project's operational stage. These lights would be visible during nighttime hours and would represent a source of light and glare surrounding developed areas and roadways. Windows, particularly large areas of glass in commercial structures, large buildings that employ white or other light-colored paint colors, along with polished surfaces such as metal roofs, could also create substantial daytime glare. Thus, the proposed Project could represent a substantial new source of light and glare.

As described previously, the Project applicant has prepared a PUD, for City approval, to establish the land use, zoning, development standards, and regulations for development of the Project Site (David Babcock & Associates 2023). As acknowledged in Section 4.8 of the PUD, Project lighting must be developed per the standards established by the City Municipal Code Chapter 18.42.040. Chapter 5 of the PUD includes the following lighting guidelines for the proposed Project:

- Provide adequate lighting for pedestrian safety.
- Site lighting should be consistent with the overall character of the building design.
- Site lighting should highlight building entries, walkways, and architectural features.

- Pedestrian scale lighting should be used for pedestrian walkways throughout the parking areas.
- Lighting for pedestrian circulation should be architecturally compatible with the building and site design, and shall have a 15-foot maximum height for a freestanding light pole. Lighting should be low profile and in scale with the setting and may include post lights and light bollards.
- Parking areas shall have lighting which provides adequate illumination for safety and security. Parking lot lighting fixtures shall avoid conflict with tree planting locations so they do not displace intended tree plantings.
- All lighting fixtures shall be fully shielded with cut-off fixtures so that there is no glare emitted onto adjacent properties or above the lowest part of the fixture.
- Accent lighting shall be used to enhance the appearance of a structure, draw attention to points of interest, and define open spaces and pathways. Accent lighting will only be permitted when it does not impact adjacent development, roadways, or residences.
- Accent lighting [related to signage] should be concealed behind the text or located flush with grade to be used as signage up-lighting.

The Suisun City 2035 General Plan includes policies that are designed to avoid light spillage and reduce light and glare effects. For example, Policy CCD-8.1 and Program 8.1 require the City to review and condition new development, as necessary, to ensure that low, pedestrian-scaled, ornamental lighting is emphasized in order to avoid adverse effects on adjacent uses. New developments proposed within the City are required to use attractive lighting that is complementary to the design of proposed structures (Policies CCD-1.1, CCD-3.6, and CCD-8.2). Light fixtures are required to aim light sources downward and provide shielding to prevent glare and reflection (Policy CCD-8.3). The City will not allow permanent lighting that will blink, flash, or be of unusually high intensity or brightness (Policy CCD-8.5). Lighting standards are required to avoid the use of harsh mercury vapor, low-pressure sodium, or fluorescent bulbs for lighting of public areas or for lighting within residential neighborhoods and the transition to LED streetlights would further reduce nighttime light and glare (Policy CCD-8.5). In addition, Policy CCD-8.6 prohibits reflective surfaces that could cast glare toward pedestrians, bicyclists, or motorists, and requires that bare metallic surfaces such as pipes, vents, and light fixtures must be painted to minimize reflectance.

These policies are implemented through the City's process of reviewing and conditioning new development, including an architectural review by the Suisun City Planning Department, to avoid the introduction of light and glare that would adversely affect motorists, bicyclists, and pedestrians using public travelways. New developments have several design options that can be used, as appropriate, to avoid substantial adverse light and glare effects, including: carefully planning the location and orientation of on-site lighting, use of darker colored, earth-toned, non-reflective paint and building materials, use of vegetation screening or shielding of light at the source, use of directional or lower-intensity lighting, use of timing devices or sound/motion-controlled lighting, or other techniques.

Land use changes in the proposed 93-acre Development Area would substantially increase the amount of nighttime light and glare, as well as daytime glare from reflective surfaces, when compared to existing conditions, even with the lighting standards included in the PUD. This could obscure views of stars and other features of the

nighttime sky, as well as create a nuisance for motorists and others at public viewpoints. Suisun City 2035 General Plan policies would reduce impacts that could result from daytime glare and nighttime lighting sources in association with the proposed Project. However, nighttime lighting or glare from commercial and light industrial buildings, parking lots, and streets could still be created and result in adverse effects on nearby public areas. Therefore, this impact is considered **significant**.

Mitigation Measures

Mitigation Measure 4.1-3: Prepare an Exterior Lighting Plan Including an Off-Site Photometric Analysis.

The Project applicant or contractor(s) shall prepare and submit to the City Planning Division for review and approval, an Exterior Lighting Plan, which shall present the size, orientation, location, height, and appearance of proposed fixtures (Suisun City Municipal Code Title 18, Chapter 18.76.030). Before issuing any occupancy permit, the City will review each site-specific lighting plan to ensure that it includes the following standards:

- Shield or screen all exterior lighting fixtures to direct the light downward and prevent light spill on adjacent properties.
- Place and shield or screen flood and area lighting needed for security so as not to disturb adjacent properties or passing motorists.
- Light fixtures that are of unusually high intensity or brightness (e.g., harsh mercury vapor, low-pressure sodium, or fluorescent bulbs) or that blink or flash, shall not be used. Light-emitting diode (LED) lighting shall be used where feasible.
- Motion-controlled exterior nighttime lighting, rather than lighting that is always on, shall be used where feasible.
- Based on an off-site photometric analysis, proposed on-site lighting fixtures shall be demonstrated to avoid spillage onto any property other than the boundaries for which lighting is intended.

Significance after Mitigation

Implementation of Mitigation Measure 4.1-3 would reduce potentially significant impacts from daytime and nighttime glare, and nighttime skyglow effects, to the maximum extent feasible because an exterior lighting plan with measures specifically designed to reduce nighttime light spillover, glare, and skyglow effects would be prepared and implemented. However, even with implementation of this mitigation measure, the proposed commercial and light industrial development on 93 acres of the Project Site would contribute to regional nighttime skyglow effects. No additional feasible mitigation measures are available. Therefore, this impact is considered **significant and unavoidable.**

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4.2 AIR QUALITY

4.2.1 ENVIRONMENTAL SETTING

TOPOGRAPHY, METEOROLOGY, AND CLIMATE

Regional

The Project site is in unincorporated Solano County, California, west of the city of Suisun City and south of the city of Fairfield. The Project site is in the San Francisco Bay Area Air Basin (SFBAAB), which consists of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties; the western portion of Solano County; and the southern portion of Sonoma County.

The SFBAAB is characterized by complex terrain consisting of coastal mountain ranges, inland valleys, and bays, which distort normal wind flow patterns. The Coast Range is not continuous, with a western coast gap, Golden Gate, and an eastern coast gap, Carquinez Strait, which allow air to flow in and out of the SFBAAB and the Central Valley. The climate is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell. During the 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 because of the northwesterly flow produces a band of cold water off the California coast. The cool and moisture-laden air approaching the coast from the Pacific Ocean is further cooled by the presence of the cold-water band resulting in condensation and the presence of fog and stratus clouds along the northern California coast. In the winter, the Pacific high-pressure cell weakens and shifts southward resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms.

Local

The Carquinez Strait Region is the only sea-level gap between the Bay and the Central Valley. The region includes the lowlands bordering the strait to the north and south, and includes the area adjoining Suisun Bay and the western part of the Sacramento-San Joaquin Delta as part east as Bethel Island. The region also extends from Rodeo in the southwest and Vallejo in the northwest to Fairfield on the northeast and Brentwood on the southeast.

The prevailing wind direction is from the west across the Carquinez Strait. Strongest winds typically occur in the afternoon with wind speeds upwards of 15 to 20 miles per hour throughout the strait region. Annual average wind speeds are generally between 8 and 10 miles per hour. Under certain atmospheric conditions, winds will shift and flow from the east. East winds usually contain more pollutants than the cleaner marine air from the west. The occasional east winds can cause elevated pollutant levels to move into the strait region, particularly during the summer and fall seasons.

Summer temperatures in the area of the City of Suisun City can reach about 90 degrees Fahrenheit with minimum temperatures in the winter in the high 30s (WWRC 2023). Temperature extremes are especially pronounced in sheltered areas farther from the moderating effects of the strait itself (e.g., Suisun City).

AIR POLLUTANTS OF CONCERN

Criteria Air Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. The United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) have identified six air pollutants that can cause harm to human health and the environment: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to and less than 10 microns in diameter (PM_{10}) and particulate matter equal to and less than 2.5 microns in diameter ($PM_{2.5}$), and lead. Because the ambient air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants." Reactive organic gases (ROG) and oxides of nitrogen (NO_X) are criteria pollutant precursors that form ozone through chemical and photochemical reactions in the atmosphere.

Health-based air quality standards have been established for these pollutants by EPA at the national level and by ARB at the state level. These standards are referred to as the national ambient air quality standards (NAAQS) and the California ambient air quality standards (CAAQS), respectively. The NAAQS and CAAQS were established to protect the public with a margin of safety from adverse health impacts caused by exposure to air pollution. Ambient air concentrations are monitored throughout the SFBAAB to designate the Basin's attainment status with respect to the NAAQS and CAAQS for criteria air pollutants. The purpose of these designations is to identify areas with air quality problems and thereby initiate planning efforts for improvement. Both EPA and ARB designate areas of California as "attainment," "nonattainment," "maintenance," or "unclassified" for the various pollutant standards according to the federal Clean Air Act and the California Clean Air Act, respectively. The "unclassified" status is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. Table 4.2-3 in the Regulatory Framework section below lists the CAAQS and NAAQS values for each pollutant. Table 4.2-1 presents the recent attainment designations for the SFBAAB. With respect to the NAAQS, the SFBAAB is designated as a nonattainment area for ozone and $PM_{2.5}$, and as an attainment or unclassified area for all other pollutants. With respect to the CAAQS, the SFBAAB is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, and as an attainment area for all other pollutants.

Within the SFBAAB, the Bay Area Air Quality Management District (BAAQMD) is responsible for ensuring that emission standards are not violated. The BAAQMD maintains multiple air quality monitoring stations that continually measure the ambient concentrations of major air pollutants throughout the SFBAAB. Table 4.2-2 summarizes published monitoring data for 2019 through 2021. The nearest monitoring station to the Project Site is the Fairfield monitoring station, approximately 1 mile southwest from the Project site. This station monitors ozone. Data for NO_2 and $PM_{2.5}$ were obtained from the Vallejo monitoring station approximately 14 miles southwest from the Project site. Data for PM_{10} was obtained from the Vacaville Merchant Street monitoring station approximately 8 miles to the north-northeast of the Project site. In general, the ambient air quality measurements from this station are representative of the air quality in the Project vicinity.

Table 4.2-1. San Francisco Bay Area Basin Attainment Status

Pollutant	State Attainment Status	Federal Attainment Status
CO (1 hour and 8 hour)	Attainment	Unclassified/Attainment
Ozone (1 hour)	Nonattainment	--
Ozone (8 hour)	Nonattainment	Nonattainment
NO_2 (1 hour)	Attainment	Attainment/Unclassified
NO_2 (Annual)	Attainment	Unclassified
PM_{10} (24hour)	Nonattainment	Unclassified
PM_{10} (Annual)	Nonattainment	--
$PM_{2.5}$ (24 hour)	--	Nonattainment [1]
$PM_{2.5}$ (Annual)	Nonattainment	Unclassified/Attainment
SO_2 (1 hour and 24 hour)	Attainment	Unclassified/Attainment [2]
Lead (30 Day)	Attainment	--
Lead (Quarter)	--	Unclassified/Attainment
Lead (3month)	--	--
H_2S (1 hour)	Unclassified	--
Vinyl Chloride	No information available	--
Visibility Reducing Particles	Unclassified	--

Source: BAAQMD 2023

Notes:

CO = carbon monoxide, H_2S = hydrogen sulfide; NO_2 = nitrogen dioxide; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ -= particulate matter with aerodynamic diameter less than 2.5 microns; SO_2 = sulfur dioxide.

[1] On January 9, 2013, U.S. EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard. Despite this action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour $PM_{2.5}$ standard until such time as the BAAQMD submits a "redesignation request" and a "maintenance plan" to U.S. EPA, and U.S. EPA approves the proposed redesignation.

[2] On June 2, 2010, the U.S. EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS, however, must continue to be used until 1 year following U.S. EPA initial designations of the new 1-hour SO_2 NAAQS.

Table 4.2-2. Local Air Quality Monitoring Summary

Pollutant and Averaging Period	Item	2019	2020	2021
Ozone 1 Hour[1]	Max 1 Hour (ppm)	0.080	0.098	0.093
Ozone 1 Hour[1]	Days > State Standard (0.09 ppm)	0	1	0
Ozone 8 Hour[1]	Max 8 Hour (ppm)	0.068	0.082	0.079
Ozone 8 Hour[1]	Days > State Standard (0.070 ppm)	0	3	2
Ozone 8 Hour[1]	Days > National Standard (0.070 ppm)	0	3	2
NO_2 Annual[2]	Annual Average (ppm)	0.007	0.007	0.006
NO_2 1 Hour[2]	Max 1 Hour (ppm)	0.05	0.05	0.04
NO_2 1 Hour[2]	Days > State Standard (0.18 ppm)	0	0	0
PM_{10} Annual[3]	Annual Average ($\mu g/m^3$)	11.7	36.7	14.6
PM_{10} 24 hour[3]	Max 24 Hour ($\mu g/m^3$)	72.2	319.2	49.6
PM_{10} 24 hour[3]	Days > State Standard (50 $\mu g/m^3$)	-	-	-
PM_{10} 24 hour[3]	Days > National Standard (150 $\mu g/m^3$)	-	-	0
$PM_{2.5}$ Annual[2]	Annual Average ($\mu g/m^3$)	8.8	12.0	8.7
$PM_{2.5}$ 24 hour[2]	Max 24 Hour ($\mu g/m^3$)	30.5	152.7	32.0
$PM_{2.5}$ 24 hour[2]	Days > National Standard (35 $\mu g/m^3$)	0	12.0	0

Source: ARB 2022

Notes:

- = insufficient data; $\mu g/m^3$ = micrograms per cubic meter; NO_2 = nitrogen dioxide; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ -= particulate matter with aerodynamic diameter less than 2.5 microns; ppm = parts per million.

The anomalous value for maximum PM_{10} 24-concentration in 2020 was likely due to the LNU Lightning Complex wildfire that affected Napa, Solano, Lake, Sonoma, and Yolo counties in August of 2020.

[1] Fairfield monitoring site

[2] Vallejo monitoring site

[3] Vacaville monitoring site

The following provides a brief description of criteria air pollutants and health effects of exposure.

- **Ozone (O^3)** is a colorless gas that is odorless at ambient levels. Ozone is the primary component of urban smog. It is not emitted directly into the air but is formed through a series of reactions involving ROG and NO_X in the presence of sunlight. ROG and NO_X are referred to as "ozone precursors." Because ozone is not directly emitted, air quality regulations focus on reducing the ozone precursors of ROG and NO_X. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for formation. As a result, summer is generally the peak ozone season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas.

  Individuals exercising outdoors, children, and people with lung disease, such as asthma and chronic pulmonary lung disease, are the most susceptible subgroups for ozone effects. Short-term ozone exposure (lasting for a few hours) can result in changes in breathing patterns, reductions in breathing capacity, increased susceptibility to infections, inflammation of lung tissue, and some immunological changes. A correlation has also been reported between elevated ambient ozone levels and increases in daily hospital admission rates and mortality (EPA 2022a). An increased risk of asthma has been found in children who participate in multiple sports and live within communities with high ozone levels.

  Emissions of the ozone precursors ROG and NO_X have decreased in the past several years. According to the most recently published edition of ARB *California Almanac of Emissions and Air Quality*, NO_X, and ROG emissions levels are projected to continue to decrease through 2035, largely because of more stringent motor vehicle standards and cleaner burning fuels, as well as rules for controlling ROG emissions from industrial coating and solvent operations (ARB 2013).

- **Carbon Monoxide (CO)** is a colorless and odorless gas that, in the urban environment, is produced primarily by the incomplete burning of carbon in fuels; primarily, from mobile (transportation) sources. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicular traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors adjacent to the intersections. 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, drastically reducing the amount of oxygen available to the cells. Adverse health effects from exposure to high CO concentrations, which typically can occur only indoors or within similarly enclosed spaces, include dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (U.S. EPA 2022b).

- **Nitrogen Dioxide (NO_2)** is one of a group of highly reactive gases known as oxides of nitrogen, or NO_X. NO_2 is formed when ozone reacts with nitric oxide (i.e., NO) in the atmosphere, and is listed as a criteria pollutant because NO_2 is more toxic than nitric oxide. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Inhalation is the most common route of exposure to NO_2. Breathing air with a high concentration of NO_2 can

lead to respiratory illness. Short-term exposure can aggravate respiratory diseases, particularly asthma, resulting in respiratory symptoms (such as coughing, wheezing, or difficulty breathing), hospital admissions, and visits to emergency rooms. Longer exposures to elevated concentrations of NO_2 may contribute to the development of asthma, and potentially increase susceptibility to respiratory infections (U.S. EPA 2022c).

- **Sulfur Dioxide (SO_2)** is one component of the larger group of gaseous oxides of sulfur (SO_X). SO_2 is used as the indicator for the larger group of SO_X because it is the component of greatest concern and found in the atmosphere at much higher concentrations than other gaseous SO_X. SO_2 is typically produced by such stationary sources as coal and oil combustion facilities, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, a direct irritant. Concentration rather than duration of exposure is an important determinant of respiratory effects. Children, the elderly, and those who suffer from asthma are particularly sensitive to effects of SO_2 (U.S. EPA 2022d).

  SO_2 also reacts with water, oxygen, and other chemicals to form sulfuric acids, contributing to the formation of acid rain. SO_2 emissions that lead to high concentrations of SO_2 in the air generally also lead to the formation of other SO_X, which can react with other compounds in the atmosphere to form small particles, contributing to particulate matter pollution, which can have health effects of its own.

- **Particulate Matter (PM_{10} and $PM_{2.5}$)** is a complex mixture of extremely small particles and liquid droplets made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. Natural sources of particulates include windblown dust and ocean spray. The major areawide sources of $PM_{2.5}$ and PM_{10} are fugitive dust, especially from roadways, agricultural operations, and construction and demolition. Other sources of PM_{10} include crushing or grinding operations. $PM_{2.5}$ sources also include all types of combustion, including motor vehicles, power plants, residential wood burning, forest fires, agricultural burning, and some industrial processes. Exhaust emissions from mobile sources contribute only a very small portion of directly emitted $PM_{2.5}$ and PM_{10} emissions; however, they are a major source of ROGs and NO_X, which undergo reactions in the atmosphere to form PM, known as secondary particles. These secondary particles make up the majority of PM pollution. Effects from short- and long-term exposure to elevated concentrations of PM_{10} include respiratory symptoms, aggravation of respiratory and cardiovascular diseases, and cancer (World Health Organization 2021). $PM_{2.5}$ poses an increased health risk because these very small particles can be inhaled deep in the lungs and may contain substances that are particularly harmful to human health.

- **Lead** is a highly toxic metal that may cause a range of human health effects. Lead is found naturally in the environment and is used in manufactured products. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere. 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. Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose “hot spot” problems in some areas. Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotients. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death (U.S. EPA 2022e).

- **Reactive Organic Gases (ROGs)/Volatile Organic Compounds** are compounds composed primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of ROGs. Other sources of ROGs include evaporative emissions from paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROGs, but rather by reactions of ROGs to form secondary pollutants such as O_3. There are no ambient air quality standards (AAQS) established for ROGs. However, because they contribute to the formation of O_3, the BAAQMD has established a significance threshold for this pollutant.

Toxic Air Contaminants

In addition to criteria air pollutants, concentrations of toxic air contaminants are also used as indicators of air quality conditions that can harm human health. Air pollutant human exposure standards are identified for many toxic air contaminants including the following common toxic air contaminants relevant to development projects: particulate matter, fugitive dust, lead, and asbestos. These air pollutants are termed toxic air contaminants because they are air pollutants that may cause or contribute to an increase in mortality or in serious illness or that may pose a hazard to human health. Toxic air contaminants are usually present in minute quantities in the ambient air; however, their high toxicity or health impact may pose a threat to public health even at low concentrations. Toxic air contaminants can cause long-term health effects (such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage) or short-term acute affects (such as eye watering, respiratory irritation, runny nose, throat pain, or headaches).

Toxic air contaminants are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to a particular toxic air contaminant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. Cancer risk is typically expressed as excess cancer cases per million exposed individuals, typically over a lifetime exposure or other prolonged duration. For noncarcinogenic substances, there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels may vary depending on the specific pollutant. Acute and chronic exposure to noncarcinogens is expressed as a hazard index (HI), which is the ratio of expected exposure levels to acceptable reference exposure levels.

The majority of the estimated health risks from toxic air contaminants can be attributed to relatively few compounds, the most important being diesel particulate matter (DPM) from diesel-fueled engines. Other toxic air contaminants (TACs) for which data are available that currently pose the greatest ambient risk in California are benzene, formaldehyde, hexavalent chromium, 1,3-butadiene and acetaldehyde.

In 1998, ARB identified diesel particulate matter as a toxic air contaminant based on evidence of a relationship between diesel exhaust exposure and lung cancer and other adverse health effects. Almost all diesel exhaust particles are 2.5 microns or less in diameter. Because of their extremely small size, these particles can be inhaled, and eventually trapped in the bronchial and alveolar regions of the lungs. DPM differs from other TACs because it is not a single substance, but a complex mixture of hundreds of substances. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, type of lubricating oil, and presence or absence of an emission control system. Unlike the other TACs, no ambient monitoring data are available for DPM because no routine measurement method currently exists. However, emissions of DPM are forecasted to decline; it is estimated that emissions of

DPM in 2035 will be less than half those in 2010, further reducing statewide cancer risk and non-cancer health effects (ARB 2013).

Existing Emissions Sources

There are no existing on-site stationary sources on the Project Site. On-road mobile source emissions are associated with vehicles traveling primarily along Pennsylvania Avenue, Cordelia Road, and State Highway 12 (SR 12). There are also mobile source emissions associated with locomotives traveling along the railroad line that is east of the Project Site.

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and populations with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases such as asthma and chronic obstructive pulmonary disease. The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects. As described in the BAAQMD CEQA Air Quality Guidelines, land uses or facilities most likely to support sensitive receptors include schools and schoolyards, parks and playgrounds, daycare centers and preschools, hospices, dormitories, prisons, nursing homes, hospitals, and residential communities (BAAQMD 2023). Such land uses are considered to be sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress.

Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions. Off-site workers may not always be considered sensitive receptors because all employers must follow regulations set forth by the Occupational Safety and Health Administration to ensure the health and well-being of their employees. However, for the purposes of this EIR, off-site workers (workers near the Project Site) are conservatively considered sensitive receptors in this analysis.

The city of Fairfield's southern city limit is on the opposite side of SR 12, north of the Project Site. Existing uses in this portion of Fairfield include single-family residences, offices, and light industrial uses. The nearest sensitive uses receptors the north of the Project Site are residences located approximately 500 feet (north of SR 12) from the northern Project boundary. East of the Union Pacific Railroad tracks that are adjacent to the eastern perimeter of the Project Site is Downtown Suisun City and the Suisun City waterfront, which is developed with a variety of commercial, residential, assembly, repair, and retail land uses. The nearest sensitive receptor east of the Project Site are residences located approximately 200 feet east of the eastern Project boundary. West of the Project Site, across Ledgewood Creek, are industrial warehouse and office uses. The nearest sensitive receptor (the industrial warehouse and office buildings) to the west of the Project Site are approximately 300 feet from the western Project boundary. There are also two commercial uses, an auto repair shop and U-Haul rental shop on one parcel and a concrete contractor on another, somewhat central to the Project parcels but not within the Project Site, adjacent to the west side of Pennsylvania Avenue at the intersection of Pennsylvania Avenue and Cordelia Street.

4.2.2 REGULATORY FRAMEWORK

FEDERAL

Clean Air Act

The U.S. EPA's air quality mandates are drawn primarily from the federal Clean Air Act, which was enacted in 1970 and amended in 1977 and 1990 (Clean Air Act Amendments). The Clean Air Act requires the U.S. EPA to establish the NAAQS, as shown in Table 4.2-3 (note that this table also provides the CAAQS, as further described under the State regulatory section below). NAAQS have been established for the six major air pollutants described in the Environmental Setting above: ozone, CO, NO_2, SO_2, lead, PM_{10} and $PM_{2.5}$. The Clean Air

Table 4.2-3. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[1]	NAAQS[2,3] - Primary	NAAQS[2,3] - Secondary
CO	1 Hour		35 ppm (40 mg/m^3)	NA
CO	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	NA
NO_2	1 hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	NA
NO_2	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary
Ozone	1 hour	0.09 ppm (180 µg/m^3)	NA[5]	NA
Ozone	8 hour	0.070 ppm (137 µg/m^3)[8]	0.070 ppm (137 µg/m^3)[4]	Same as Primary
PM_{10}	24 hour	50 µg/m^3	150 µg/m^3	Same as Primary
PM_{10}	Annual Arithmetic Mean	20 µg/m^3 [6]	NA	NA
$PM_{2.5}$	24 hour	NA	35 µg/m^3	Same as Primary
$PM_{2.5}$	Annual Arithmetic Mean	12 µg/m^3 [6]	12 µg/m^3 [10]	15.0 µg/m^3
SO_2	1hour	0.25 ppm (655 µg/m^3)	0.075 ppm (196 µg/m^3)	NA
SO_2	24 hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	NA
SO_2	Annual Arithmetic Mean	NA	0.030 ppm (80 µg/m^3)	NA
Sulfates	24 hour	25 µg/m^3	NA	NA
H_2S	1 hour	0.03 ppm (42 µg/m^3)	NA	NA
Lead	30-day Average	1.5 µg/m^3	NA	NA
Lead	Calendar quarter	NA	1.5 µg/m^3	Same as Primary
Lead	Rolling 3-month Average	NA	0.15 µg/m^3 [9]	
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m^3)	NA	NA
Visibility-Reducing Particles	8 hour	See Note 7	NA	NA

Source: ARB 2016

Notes: µg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standard; CO = carbon monoxide; H_2S = carbon monoxide; mg/m^3 = milligrams per cubic meter; NA = not applicable; NAAQS = national ambient air quality standards; NO_2 = nitrogen dioxide; PM_{10} = particulate matter with aerodynamic diameter less than 10 microns; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide.

[1] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equalled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average.

[2] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m^3. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

[3] National standards are set by the U.S. EPA at levels determined to be protective of public health with an adequate margin of safety.

[4] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. U.S. EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

[5] The national 1-hour ozone standard was revoked by the U.S. EPA on June 15, 2005.

[6] In June 2002, ARB established new annual standards for $PM_{2.5}$ and PM_{10}.

[7] Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

[8] The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.

[9] National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.

[10] In December 2012, U.S. EPA strengthened the annual $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS) from 15.0 to 12.0 micrograms per cubic meter ($\mu g/m^3$). In December 2014, U.S. EPA issued final area designations for the 2012 primary annual $PM_{2.5}$ NAAQS. Areas designated "unclassifiable/attainment" must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Act identifies two types of NAAQS. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

The Clean Air Act requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan, detailing how these standards are to be met in each local area. The State Implementation Plan is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analyses. The State Implementation Plan is not a single document, but a compilation of new and previously submitted attainment plans, emissions reduction programs, air district rules, state regulations, and federal controls.

Nonroad Sources and Emission Standards

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, the U.S. EPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. This rule was issued under the U.S. EPA's authority in Section 213 of the Clean Air Act. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by the U.S. EPA, as well as by ARB. Tier 1 emission standards became effective in 1996. The more stringent Tier 2 and Tier 3 emission standards became effective between 2001 and 2008, with the effective date dependent on engine horsepower. Tier 4 interim standards became effective between 2008 and 2012, and Tier 4 final standards became effective in 2014 and 2015. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards (U.S. EPA 2021e).

Regulations for On-road Vehicles and Engines

The U.S. EPA also has certain regulations for on-road vehicles and engines, including passenger vehicles, commercial trucks and buses, and motorcycles (U.S. EPA 2020). In 2001, the U.S. EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. This rule was issued under the U.S. EPA's authority in Section 202 of the Clean Air Act. Passenger cars and trucks are regulated by the U.S. EPA under "light-duty" vehicle programs. The U.S. EPA regulates passenger vehicles to reduce the amount of harmful emissions. There are regulations for multiple aspects of passenger vehicles, including: standards for exhaust and

evaporative emissions; control of hazardous air pollutants and air toxics; National Low Emission Vehicle Program; Compliance Assurance Program 2000; onboard refueling vapor recovery; and inspection and maintenance.

On March 31, 2022, the National Highway Traffic Safety Agency (NHTSA) finalized Corporate Average Fuel Economy Standards for model years 2024 through 2026. The final rule established standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025, and 10 percent annually for model year 2026 (NHTSA 2022).

Safer Affordable Fuel-Efficient Vehicle Rule

In September 2019, the NHTSA and the U.S. EPA published the Safer Affordable Fuel Efficient (SAFE) Vehicle Rule Part One: One National Program. The SAFE Part One Rule revoked California's authority and vehicle waiver to set its own emissions standards and set zero emission vehicle mandates in California for passenger cars and light duty trucks and establish new standards, covering model years 2021 through 2026. In April 2020, the U.S. EPA and NHTSA issued the second part of the proposed SAFE Vehicles Rule, which addressed the stringency of federal vehicle emission standards and fuel economy regulations for passenger cars and light duty trucks by requiring a 1.5 percent increase in fuel economy each year from model years 2021 to 2026. This final rule was made effective on June 29, 2020. However, on December 21, 2021, the NHTSA finalized the Corporate Average Fuel Economy Preemption rulemaking to withdraw its portions of the SAFE Part One Rule (NHTSA 2021) and with this action, California's authority under the Clean Air Act to implement its own emission standards and zero emission vehicle sales mandate is restored. On March 31, 2022, the NHTSA finalized the Corporate Average Fuel Economy Standards for model years 2024 through 2026 which included higher stringency than the SAFE Vehicles Rule, Part Two.

STATE

ARB is the lead agency responsible for developing the State Implementation Plan in California. Local air districts and other agencies prepare air quality attainment plans or air quality management plans, and submit them to ARB for review, approval, and incorporation into the applicable State Implementation Plan.

California Clean Air Act

ARB is also responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act. The California Clean Air Act was adopted in 1988 and requires ARB to establish CAAQS, the current of which are shown in Table 4.2-3.

Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with state and federal laws; approving local air quality plans; submitting State Implementation Plans to the U.S. EPA; monitoring air quality; determining and updating area designations and maps; and setting emission standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. ARB maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by ARB to classify air basins as being in attainment or nonattainment with respect to each pollutant and to monitor progress in attaining air quality standards.

California Health and Safety Code Section 40914

The California Clean Air Act requires that each area exceeding the CAAQS for ozone, CO, SO_2, and NO_2 develop a plan aimed at achieving those standards. California Health and Safety Code Section 40914 requires air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the local air districts have to develop and implement air pollution reduction measures, which are described in their air quality attainment plans, and outline strategies for achieving the CAAQS for any criteria pollutants for which the region is classified as nonattainment.

In-Use Off-Road Diesel Vehicle Regulation, On-Road Light-Duty Certification, and California Reformulated Gasoline Program

ARB has established emission standards for vehicles sold in California and for various types of equipment. California gasoline specifications are governed by both state and federal agencies. During the past decade, federal and state agencies have imposed numerous requirements on the production and sale of gasoline in California. ARB has also adopted control measures for diesel PM and more stringent emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

Idling of Commercial Heavy-Duty Trucks

This Airborne Toxic Control Measure (ATCM) was adopted to control emissions from idling trucks. It prohibits idling for more than 5 minutes for all commercial trucks with a gross vehicle weight rating over 10,000 pounds. The ATCM contains an exception that allows trucks to idle while queuing or involved in operational activities.

Tanner Air Toxics Act and the Air Toxics Hot Spots Information and Assessment Act

In addition to criteria pollutants, both federal and state air quality regulations also focus on toxic air contaminants. Toxic air contaminants in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act (Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for ARB to designate substances as toxic air contaminants. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a toxic air contaminant. The Air Toxics Hot Spots Information and Assessment Act requires that toxic air contaminant emissions from stationary sources be quantified and compiled into an inventory according to criteria and guidelines developed by ARB, and if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

ARB has adopted a Diesel Risk Reduction Plan, which recommends control measures to achieve a diesel PM reduction of 85 percent by 2020 from year 2000 levels. Recent regulations and programs include the low-sulfur diesel fuel requirement and more stringent emission standards for heavy-duty diesel trucks and off-road in-use diesel equipment. As emissions are reduced, it is expected that the risks associated with exposure to the emissions will also be reduced.

Transportation Refrigeration Unit Airborne Toxic Control Measure

ARB adopted the transportation refrigeration unit (TRU) airborne toxic control measure in 2004 and amended it in 2010, 2011, and 2022 to reduce DPM emissions and associated health risk from diesel-powered TRUs. The

2022 amendments include a lower PM emissions standard of no greater than 0.02 gram per brake horsepower-hour, which aligns with the U.S. EPA standard for Tier 4 final off-road PM emissions for 25 to 50 hp engines. This standard applies to all model year 2023 and newer trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator set engines. Beginning in 2023, the 2022 airborne toxic control measure requires TRU owners to turn over at least 15 percent of their truck TRU fleet operating in California to zero-emission technology each year for seven years, along with several additional reporting requirements to demonstrate compliance. The 2022 airborne toxic control measure anticipates all truck TRUs operating in California to be zero-emission by the end of the year 2029.

Airborne Toxic Control Measures for Emergency Generators

ARB's Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines regulates the use of stationary emergency standby engines to provide electrical power during a power loss. ARB's ATCM for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower or Greater regulates the use of emergency backup generators, subject to the terms and conditions of the applicable air district permit.

Air Quality and Land Use Guidance

ARB developed the Air Quality and Land Use Handbook: A Community Health Perspective to provide guidance on land use compatibility with sources of toxic air contaminants (ARB 2005). These sources include freeways and high-traffic roads, commercial distribution centers, rail yards, refineries, dry cleaners, gasoline stations, and industrial facilities. The handbook is not a law or adopted policy, but offers advisory recommendations for the siting of sensitive receptors near uses associated with toxic air contaminants. The handbook acknowledges that land use agencies must balance health risks with other considerations, including housing and transportation needs, economic development priorities, and quality of life issues. The recommendations include avoidance of siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.

In response to new research demonstrating benefits of compact, infill development along transportation corridors, ARB released a technical supplement, Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways (Technical Advisory; ARB 2017), to the 2005 Air Quality and Land Use Handbook. This Technical Advisory was developed to identify strategies that can be implemented to reduce exposure at specific developments or as recommendations for policy and planning documents. It is important to note that the Technical Advisory is not intended as guidance for a specific project and does not discuss the feasibility of mitigation measures for the purposes of compliance with the CEQA. Some of the strategies identified in the Technical Advisory include implementation of speed reduction mechanisms, including roundabouts, traffic signal management, and speed limit reductions; design that promotes air flow and pollutant dispersion along street corridors, such as solid barriers and vegetation for pollutant dispersion; and indoor high efficiency filtration (ARB 2017).

LOCAL

BAAQMD is the agency responsible for protecting public health and welfare in the San Francisco Bay Area Air Basin through the administration of federal and state air quality laws and policies. Included in BAAQMD's tasks are monitoring of air pollution, preparation of air quality plans, and promulgation of rules and regulations.

BAAQMD 2017 Bay Area Clean Air Plan

BAAQMD adopted the Bay Area Clean Air Plan: Spare the Air, Cool the Climate (Bay Area Clean Air Plan) on April 19, 2017, to provide a regional strategy to improve Bay Area air quality and meet public health goals (BAAQMD 2017b). The control strategy described in the Bay Area Clean Air Plan includes a wide range of control measures designed to reduce emissions and decrease ambient concentrations of harmful pollutants in the region, safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, and reduce greenhouse gas (GHG) emissions to protect the climate. To protect public health, the Bay Area Clean Air Plan describes how BAAQMD will continue progress toward attaining all state and federal air quality standards in the region and eliminating health risk disparities from exposure to air pollution among Bay Area communities.

The Bay Area Clean Air Plan addresses four categories of pollutants: (1) ground-level ozone and its key precursors, ROGs and NO_X; (2) PM, primarily $PM_{2.5}$, and precursors to secondary $PM_{2.5}$; (3) air toxics; and (4) GHGs. The control measures are categorized based upon the economic sector framework including stationary sources, transportation, energy, buildings, agriculture, natural and working lands, waste management, and water measures (BAAQMD 2017b).

BAAQMD Particulate Matter Plan

To fulfill federal air quality planning requirements, BAAQMD adopted a $PM_{2.5}$ emissions inventory for year 2010 at a public hearing on November 7, 2012. The Bay Area 2017 Clean Air Plan also included several measures for reducing PM emissions from stationary sources and wood burning. On January 9, 2013, the U.S. EPA issued a final rule determining that the San Francisco Bay Area has attained the 24-hour $PM_{2.5}$ NAAQS, suspending federal State Implementation Plan planning requirements for the SFBAAB. Despite this U.S. EPA action, the SFBAAB will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until such time as BAAQMD submits a redesignation request and a maintenance plan to the U.S. EPA, and the U.S. EPA approves the proposed redesignation.

BAAQMD Regulation 6, Rule 6

BAAQMD Regulation 6, Rule 6 (adopted August 1, 2018) limits the quantity of particulate matter in the atmosphere through control of trackout of solid materials onto paved public roads outside the boundaries of sites, including but not limited to large construction sites and landfills.

BAAQMD Regulation 8, Rule 3

BAAQMD Regulation 8, Rule 3 (adopted March 1, 1978 and amended 2009) limits the quantity of volatile organic compounds in architectural coatings supplied, sold, offered for sale, applied, or manufactured for use within the BAAQMD.

BAAQMD Regulation 11, Rule 2

BAAQMD Regulation 11, Rule 2 (adopted December 15, 1976 and amended 1998) regulates hazardous pollutants from asbestos demolition, renovation, and manufacturing activities. The purpose of the rule is to control emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establish appropriate waste disposal procedures.

SOLANO COUNTY GENERAL PLAN

The Solano County General Plan (Solano County 2008) included the following goals, policies, and implementation programs related to air quality.

- **Goal HS.G-2:** Improve air quality in Solano County, and by doing so, contribute to improved air quality in the region.
- **Goal HS.G-4:** Protect important agricultural, commercial, and industrial uses in Solano County from encroachment by land uses sensitive to noise and air quality impacts.
    - **Policy HS.P-43**: Support land use, transportation management, infrastructure and environmental planning programs that reduce vehicle emissions and improve air quality.
    - **Policy HS.P-44:** Minimize health impacts from sources of toxic air contaminants, both stationary (e.g., refineries, manufacturing plants) as well as mobile sources (e.g., freeways, rail yards, commercial trucking operations).
    - **Policy HS.P-45:** Promote consistency and cooperation in air quality planning efforts.
        - **Implementation Program HS.I-54:** Require that when development proposals introduce new significant sources of toxic air pollutants, they prepare a health risk assessment as required under the Air Toxics "Hot Spots" Act (AB 2588, 1987) and, based on the results of the assessment, establish appropriate land use buffer zones around those areas posing substantial health risks.
    - **Policy HS.P-38:** Integrate public health concerns into land use planning and decision making.
        - **Implementation Program HS.I-42:** Promote the use of health building materials such as low toxicity paint and nontoxic carpeting.
- **Goal TC.G-3:** Encourage land use patterns that maximize access and mobility options for commuting and other types of trips, and minimize traffic congestion, vehicle miles traveled (VMT), and greenhouse gas emissions.
    - **Policy TC.P-3:** Establish land use patterns that facilitate shorter travel distances and non-auto modes of travel, and limit the extent of additional transportation improvements and maintenance that may be needed with a more dispersed land use pattern.
    - **Policy TC.P-6:** Participate in transportation programs that promote technical solutions resulting in more efficient use of energy, reduced greenhouse gas emissions and noise levels, and improved air quality.

CITY OF SUISUN CITY GENERAL PLAN

Suisun City adopted the 2035 General Plan in 2015 (City of Suisun City 2015), which includes the following goal and policies related to air quality contained in Volume 1 (Policy Document).

- **Goal T-3:** Manage travel demand in order to reduce up-front and ongoing cost of transportation infrastructure, enhance local mobility, improve air quality, and improve the local quality of life.

  - **Policy T-3.1:** The City will collaborate with other local, regional, and state agencies, as well as employers to encourage carpooling, carpool parking, flexible work schedules, ridesharing, and other strategies to reduce commute period travel demand.

  - **Policy T-3.6:** New developments that would accommodate 100 full- or part-time employees or more are required to incorporate feasible travel demand management strategies, such as contributions to transit/bike/pedestrian improvements; flextime and telecommuting; a carpool program; parking management, cash out, and pricing; or other measures, as appropriate, to reduce travel demand.

- **Goal PHS-3:** Minimize Exposure to Air Pollutants

  - **Policy PHS-3.1:** The City will ensure that new industrial, manufacturing, and processing facilities that may produce toxic or hazardous air pollutants are located at an adequate distance from residential areas and other sensitive receptors, considering weather patterns, the quantity and toxicity of pollutants emitted, and other relevant parameters.

  - **Policy PHS-3.2:** The City will communicate with the Bay Area Air Quality Management District to identify sources of toxic air contaminants and determine the need for health risk assessments prior to approval of new developments.

  - **Policy PHS-3.3:** The City will require projects that could result in significant air pollutant emissions impacts to reduce operational emissions from vehicles, heating and cooling, lighting, equipment use, and other proposed new sources.

  - **Policy PHS-3.4:** The City will require implementation of applicable emission control measures recommended by the Bay Area Air Quality Management District for construction, grading, excavation, and demolition.

    - **Program PHS-3.1: Health Risk Analyses.** When development involving sensitive receptors, such as residential development, is proposed in areas within 134 feet of SR 12 or when uses are proposed that may produce hazardous air contaminants, the City will require screening level analysis, and if necessary, more detailed health risk analysis to analyze and mitigate potential impacts. For projects proposing sensitive uses within 134 feet of SR 12, the City will require either ventilation that demonstrates the ability to remove more than 80% of ambient $PM_{2.5}$ prepared by a licensed design professional or site-specific analysis to determine whether health risks would exceed the applicable BAAQMD-recommended threshold and alternative mitigation demonstrated to achieve the BAAQMD threshold. Site-specific analysis may include dispersion modeling, a health risk assessment, or screening analysis. For proposed sources of toxic air contaminants, the City will consult with the BAAQMD on analytical methods, mitigation strategies, and significance criteria to use within the context of California Environmental Quality Act documents, with the objective of avoiding or mitigating significant impacts.

- **Program PHS-3.2: Construction Mitigation.** The City will require new developments to incorporate applicable construction mitigation measures maintained by the BAAQMD to reduce potentially significant impacts. Basic Control Measures are designed to minimize fugitive PM dust and exhaust emissions from construction activities. Additional Control Measures may be required when impacts would be significant after application of Basic Control Measures.

- **Program PHS-3.3: Construction Mitigation for Health Risk.** Construction equipment over 50 brake horsepower (bhp) used in locations within 300 feet of an existing sensitive receptor shall meet Tier 4 engine emission standards. Alternatively, a project applicant may prepare a site-specific estimate of diesel PM emissions associated with total construction activities and evaluate for health risk impact on existing sensitive receptors in order to demonstrate that applicable BAAQMD-recommended thresholds for toxic air contaminants would not be exceeded or that applicable thresholds would not be exceeded with the application of alternative mitigation techniques approved by BAAQMD.

4.2.3 Environmental Impacts and Mitigation Measures

Methodology

Potential air quality impacts associated with short-term construction and long-term operations were evaluated in accordance with BAAQMD-recommended and ARB-approved methodologies and data sources. Construction and operational emissions of criteria air pollutants were compared with the applicable thresholds of significance (described below) to determine potential impacts. Please see Appendix B of the EIR for model details, assumptions, inputs, and outputs.

Construction-related emissions associated with both on-site and off-site construction were modeled using the California Emissions Estimator Model (CalEEMod) based on Project-specific inputs.[1] Project construction is assumed to occur over approximately 2.5 years, with 3 phases, starting no sooner than 2024; actual buildout is subject to market conditions. The construction of wetlands within the Managed Space Area and off-site improvements were modeled to be constructed in their entirety in the initial year of construction. The duration of each construction phase was scaled proportionally from the CalEEMod defaults to align with the total anticipated construction duration based on similar projects. Import of fill material was included based upon project-specific grading study; there is no anticipated material export, as material would be used onsite. Modeled construction-related emissions are compared to the applicable thresholds (described below) to determine significance.

Operations would result in increased vehicle travel, including use of TRUs on trucks visiting the site, once the buildings are occupied; energy use in the form of electricity and natural gas; new area sources of emissions (i.e., landscape maintenance equipment, periodic architectural coating, and consumer products); and stationary sources in the form of backup diesel generators that would provide emergency power and emergency fire pumps. To provide a conservative estimate of building operational requirements and TRU use, the emissions modeling assumed a 100 percent cold storage scenario (i.e., refrigerated warehouse land use in CalEEMod), which, due to

[1] Because CalEEMod emissions outputs were did not accurately account for exhaust emissions from construction worker trips (such emissions were zero in the CalEEMod output files), these emissions were calculated separately using the number of construction worker trips per day and distance per trip provided in the CalEEMod output file for each subphase of construction, multiplied by the weighted average PM10 and PM2.5 exhaust emissions factors, respectively, from ARB's EMFAC 2021 emissions inventory for LDA, LDT1, and LDT2 vehicle categories for the earliest possible year of construction (2024).

Suisun City's location is very unlikely. As a result of this assumption, the EIR may be overestimating actual operational emissions, both onsite and related to in-transit TRU use for the transport of goods.

Operational area- and energy-source air pollutant emissions were modeled in CalEEMod based on the Project-specific acreages and building square footage. Onsite material handling equipment may also be required for some or all of the buildings. Based on industry standards, yard trucks used internal to the buildings would be all electric. However, outside forklifts may also be required and three diesel-powered forklifts per building, with the exception of Building B/C, which would have 12 forklifts due to the larger building size. These forklift emissions were modeled in CalEEMod using CalEEMod defaults. Diesel-powered backup generators and fire water pumps for each building (a total of 6 each) were modeled in CalEEMod, assuming up to 4 hours per day and 100 hours per year of use per unit.

Operational mobile source emissions were calculated using emissions factors from ARB's EMFAC 2021 for travel to and from the site be onsite workers and visiting trucks, onsite travel from the Project Site driveway entrance locations to the respective building parking and truck bays, and on-site idling of visiting trucks. Onsite worker trip rate was based upon the fiscal impact analysis and related worker estimate for the proposed Project, while onsite worker travel distance was based upon the traffic analysis conducted for the proposed Project. The visiting truck trip rate was based on the ITE trip rate of 1.181 trips per day applied to the traffic study for the proposed Project, and 32.5 percent of such trips being visiting trucks, consistent with the traffic analysis for the proposed Project. Visiting truck travel distance was based on the average travel distance between the Project site and surrounding major ports, which came to approximately 52 miles one-way. This is considered a conservative estimate, a large portion of the truck trips would be moving goods from the Project Site to surrounding consumer locations, and not likely travelling as far as those trucks bring goods to the Project Site. Resuspended roadway dust and tire and brake wear from on-road vehicle travel were also estimated using methodology consistent with U.S. EPA AP-42 methodology. Every visiting truck was assumed to require a TRU, in alignment with up to 100 percent of the land use serving cold storage use. Emissions associated with TRU use for trucks were estimated using emissions factors from OFFROAD 2021 for travel to and from the Project Site and up to 4 hours of on-site idling for operations.

A health risk assessment (HRA) was conducted to provide quantitative estimates of $PM_{2.5}$ concentration exposure and health risks from exposures to TACs. Impacts were evaluated for receptors within 1,000 feet of the Project Site. The HRA was conducted consistent with BAAQMD (BAAQMD 2023) and OEHHA (OEHHA 2015) guidance. Consistent with BAAQMD recommendations for HRAs, the U.S. EPA's regulatory dispersion model AERMOD was used to estimate pollutant concentrations at receptors. For cancer and non-cancer chronic and acute risks, pollutant concentrations files from AERMOD were supplied as inputs to ARB's Hot Spots Analysis and Reporting Program (HARP2), along with corresponding Project-related TAC emissions (emissions estimating methodology summarized above), to estimate the health risk impacts associated with the construction and operation phases of the proposed Project.

For construction, the HRA modeling assumed a 2.6-year construction duration.[2] Construction activity was modeled to occur five days per week for 10 hours per day (7 a.m. to 5 p.m.).

2 Modeled duration for health risk is slightly longer than then the actual 29-month schedule. This is due to the available exposure durations a user can select in HARP. Therefore, for Phase 1, a modeled duration of 0.8-year (compared 0.75-year actual), for Phases 2 and 3 a modeled duration of 0.9-year (compared to 0.83-year actual).

Both off-road and on-road sources of TACs associated with the proposed Project's construction and operation phases were included in the HRA. For construction, off-road sources of emissions were modeled as adjacent volume and area (fugitive dust) sources spanning the footprint of the proposed Project Site. On-road emissions were modeled as adjacent volume sources along construction vehicle routes. The HRA considered two operational phases of the proposed Project. The first operational phase ("interim operations") includes the occupancy and operation of buildings A and B/C. The second operations phase ("full buildout operations") occurs after all construction is completed with occupancy in all 6 buildings (A through G). The HRA included emissions from emergency generators (one for each building for a total of six for the full buildout operations), fire water pumps (one for each building for a total of six for the full buildout operations), on site forklifts (a total of 27 for the full buildout operations), idling of TRUs, and on-road vehicles, both traveling to and from the site and operating on site. For the purposes of the HRA, the portion of total on-road vehicle (worker and visiting truck) and TRU emissions that would occur within 1,000 feet of the proposed Project Site and proposed traffic routes were estimated based on the longest trip distance within 1,000 feet of the Project Site for the respective vehicle categories. Emergency generators, fire water pumps, and idling TRUs were modeled as point sources, and on-road vehicles were represented by adjacent volume sources along traffic routes and onsite ramps. Forklifts operating onsite were modeled as volume sources located at the bay doors for each of the proposed project buildings. Model input parameters are consistent with recently released BAAQMD CEQA guidance (BAAQMD 2023). Additional details on the model input parameters, source locations, and receptors are provided in Appendix B of this EIR.

After conducting dispersion modeling, annual averaged concentrations of $PM_{2.5}$ are presented where the proposed Project would have the greatest impact on receptors. Annual averaged $PM_{2.5}$ concentrations impacts were assessed for each phase of construction (3 phases), interim and full buildout operations. In addition, TAC concentrations were evaluated to determine the potential cancer risk from the proposed Project. Three exposure scenarios were evaluated to assess long-term cancer risk for residential, worker, student, and childcare exposures. These included:

- Residential Exposure Scenario 1: This scenario evaluates the cancer risk that construction activities and full buildout operations would pose to residential receptors over a 30.6-year period. This scenario includes an initial 1.7-year period of construction activities followed by a 0.9-year period of Phase 3 construction and interim operation activity. The remaining 28 years include emissions from full buildout operation activity.

- Residential Exposure Scenario 2: This scenario evaluates the cancer risk that the full buildout operational-only TAC emissions of the proposed project would pose to residential receptors over a 30-year period.

- Worker Exposure Scenario 1: This scenario evaluates the cancer risk that construction activities and full buildout operations would pose to residential receptors over a 25.6-year period. This scenario includes an initial 1.7-year period of construction activities followed by a 0.9-year period of Phase 3 construction and interim operation activity. The remaining 23 years include emissions from full buildout operation activity.

- Worker Exposure Scenario 2: This scenario evaluates the cancer risk that the full buildout operational-only TAC emissions of the proposed project would pose to residential receptors over a 25-year period.

- Student Exposure Scenario 1: This scenario evaluates the cancer risk that construction activities and full buildout operations would pose to residential receptors over a 13.6-year period. This scenario includes an

initial 1.7-year period of construction activities followed by a 0.9-year period of Phase 3 construction and interim operation activity. The remaining 12 years include emissions from full buildout operation activity.

- Student Exposure Scenario 2: This scenario evaluates the cancer risk that the full buildout operational-only TAC emissions of the proposed project would pose to residential receptors over a 13-year period.
- Child Exposure Scenario 1: This scenario evaluates the cancer risk that construction activities and full buildout operations would pose to residential receptors over a 5.6-year period. This scenario includes an initial 1.7-year period of construction activities followed by a 0.9-year period of Phase 3 construction and interim operation activity. The remaining 3 years include emissions from full buildout operation activity.
- Child Exposure Scenario 2: This scenario evaluates the cancer risk that the full buildout operational-only TAC emissions of the proposed project or expanded streetscape variant would pose to residential receptors over a 5-year period.

The purpose of analyzing multiple health risk exposure scenarios is to ensure analysis and disclosure of the most impactful scenario. The approximately 30-year residential exposure, 25-year off-site worker exposure scenarios, 13-year student, and 5-year childcare are consistent with BAAQMD 2022 CEQA Air Quality Guidelines (2023). Detailed methodology pertaining to the HRA and dispersion modeling is provided in Appendix B.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to air quality resources if it would:

- conflict with or obstruct implementation of the applicable air quality plan;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard;
- expose sensitive receptors to substantial pollutant concentrations; or
- result in other emissions (such as those leading to odors) adversely affecting a substantial number or people.

Where available, the significance thresholds established by the applicable air quality management or air pollution control district may be relied upon to make the significance determinations. While the final determination of whether or not a project is significant is within the purview of the lead agency pursuant to CEQA Guidelines Section 15064(b), BAAQMD recommends that its quantitative and qualitative air pollution thresholds be used to determine the significance of project-related emissions (BAAQMD 2023). The City, in its discretion and based on scientific evidence supporting the use thereof, has determined it is appropriate to use BAAQMD's recommended thresholds for purposes of identifying the Project's potential air quality impacts.

Consistency with the Applicable Air Quality Plan

The applicable air quality plan is BAAQMD's 2017 Bay Area Clean Air Plan (BAAQMD 2017b). The Project would be consistent with the Bay Area Clean Air Plan if it would support the plan's goals, include applicable control measures from the Bay Area Clean Air Plan, and would not disrupt or hinder implementation of any

control measures from the plan. Consistency with this plan is the basis for determining whether the proposed Project would conflict with or obstruct implementation of an applicable air quality plan.

Criteria Air Pollutants

BAAQMD has developed recommended thresholds of significance, as presented in the BAAQMD CEQA Air Quality Guidelines, and supported by Appendix D of the BAAQMD CEQA Air Quality Guidelines, "Threshold of Significance Justification," by which a lead agency may evaluate the potential air quality impacts of a project. The BAAQMD's project-level thresholds are summarized in Table 4.2-4. According to BAAQMD, projects with emissions less than the thresholds presented would be expected to have a less-than-significant impact on air quality of the SFBAAB because exceedance of these thresholds may otherwise contribute to exceedances of CAAQS and NAAQS.

Table 4.2-4. BAAQMD Regional (Mass Emissions) Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Phase Average Daily Emissions (pounds per day)	Operational Average Daily Emissions (pounds per day)	Operational Maximum Annual Emissions (tons per year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
PM_{10} and $PM_{2.5}$ Fugitive Dust	BMPs	Included with Above PM Thresholds	Included with Above PM Thresholds

Note:

BMPs = Best Management Practices; NO_X = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

Source: BAAQMD 2023, Table 3-3.

Regional Health Risks Associated with Criteria Air Pollutant and Precursor Emissions

The California Supreme Court provided guidance on analysis of air quality impacts on human health in *Sierra Club v. County of Fresno* (2108) 6 Cal. 5th 502. The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch project is a 942-acre master-plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for the ozone and $PM_{2.5}$ NAAQS and CAAQS. The Court found that the air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The Court's decision clarifies that the agencies authoring environmental documents must make reasonable efforts to connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

All criteria pollutants are associated with some form of health risk. Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and lead (Pb) are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. The primary criteria pollutants of concern generated by the proposed Project are ozone precursors (ROG and NOX) and PM (including Diesel PM).

If a project were to exceed the emissions in Table 4.2-4, emissions could cumulatively contribute to the nonattainment status of the region for ozone and PM and contribute increased health effects associated with these air quality conditions.

The BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of emissions in the SFBAAB, and at present, does not have a methodology that would correlate the expected air quality emissions of a project to the likely specific health consequences of such emissions. Moreover, there are also no tools currently available to correlate the expected air quality emissions of projects to the likely specific health consequences of the increased emissions. Reducing emissions would contribute to reducing possible health effects related to criteria air pollutants. However, for projects that exceed the emissions thresholds shown in Table 4.2-4, it is speculative to determine how exceeding regional thresholds would affect the number of days the region is in nonattainment—as mass emissions are not linearly correlated with concentrations of emissions—or how many additional individuals in the region would be affected by the health effects cited above.

The analysis of health impacts due to individual projects resulting from emissions of criteria air pollutants has long been focused on a regional or air basin-wide level, typically evaluated through regional air quality planning efforts, such as under Air Quality Attainment Plans and the SIP. This is because the complex reactions and conditions that lead to the formation of ozone and PM in the atmosphere can result in the transport of pollutants over wide aeras and result in health impacts from criteria air pollutants being experienced on a regional scale such as the SFBAAB. The potential for criteria air pollutant emissions to be transported over wide areas means that the emissions of ozone precursor pollutants, such as ROG and NO_X, from a project site such as that of the proposed Project does not necessarily translate directly into a specific concentration of ozone or a specific health risk in that same area. To achieve the health-based standards established by ARB and the EPA, the air districts prepare air quality management plans that detail regional programs to attain the CAAQS and NAAQS. In addition, air quality attainment plans take into account anticipated growth and ongoing development within the region, and the thresholds of significance established by BAAQMD account for such growth while serving to identify projects that would generate a level of emissions that could contribute to exceedances of CAAQS and NAAQS. If a project within the BAAQMD exceeds the regional significance thresholds, the proposed project could contribute to an increase in health effects in the basin until the attainment standards are met in the SFBAAB.

TAC Health Risks

The thresholds of significance used to evaluate health risks from new sources of TACs associated with construction and operation of the proposed Project are based on the potential for the proposed Project to substantially affect the geography or severity of the air pollutant exposure zone at sensitive receptor and off-site worker locations. If a sensitive receptor or worker location meets the air pollutant exposure zone criteria with the proposed Project but would not meet the air pollutant exposure zone criteria without it, a substantial health risk contribution threshold is defined as an annual average $PM_{2.5}$ concentration at or above 0.3 μg/m3 or an excess cancer risk at or greater than 10.0 per 1 million. The 0.3 $\mu g/m^3$ annual average $PM_{2.5}$ concentration and the excess cancer risk of 10.0 per 1 million persons exposed are the Project-level health risk levels identified by BAAQMD; they are the levels below which the BAAQMD considers new sources not to make a considerable contribution to cumulative health risks. Projects that result in a cancer risk or annual average $PM_{2.5}$ concentration below these levels at sensitive or worker receptors would not expose sensitive or worker receptors to substantial pollutant

concentrations. The chronic hazard index (HI) resulting from the proposed Project is also disclosed and compared with the BAAQMD's chronic HI threshold of 1.0.

Community Risk and Hazards – Cumulative

Cumulative sources represent the combined total risk values of each of the individual sources within the 1,000-foot evaluation zone. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source or location of a receptor, plus the contribution from the project, exceeds the following (BAAQMD 2023, Appendix B):

- Non-compliance with a qualified Community Risk Reduction Plan; or
- An excess cancer risk levels of more than 100 in one million or a chronic non-cancer hazard index (from all local sources) greater than 10.0; or
- 0.8 $\mu g/m^3$ annual average $PM_{2.5}$.

Carbon Monoxide

CO is a colorless and odorless gas that, in the urban environment, is primarily produced by the incomplete burning of carbon in fuels, primarily from mobile (transportation) sources. Relatively high concentrations may be found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle congestion, particularly at major signalized intersections, can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors proximate to the area of congestion.

The significance criteria for CO hotspots are based on the CAAQS for CO, which is 9.0 ppm (8-hour average) and 20.0 ppm (1-hour average). However, with the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology, the SFBAAB is in attainment of the CAAQS and NAAQS for CO, and CO concentrations in the SFBAAB have steadily declined over time. Because CO concentrations have improved, BAAQMD does not require a CO hotspot analysis and the proposed project would be considered to result in a less-than-significant impact related to local CO concentrations if the following criteria are met (BAAQMD 2023, Chapter 4):

- The Project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- The Project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The Project would not increase traffic volumes at affected intersection to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

Odors

BAAQMD does not have recommended thresholds related to odors associated with construction-related emissions. To address long-term operational emissions leading to odors, BAAQMD recommends a qualitative approach, noting that a project that would result in the siting of a new odor source should consider the BAAQMD CEQA Air Quality Guidelines' odor screening distances also provided in Table 4.2-5 for reference, and the complaint history of the odor source(s). The land uses for which BAAQMD has developed odor screening distances are those that typically have the potential to generate substantial odor complaints, including wastewater treatment plants, landfills or transfer stations, composting facilities, confined animal facilities, food manufacturing, and chemical plants. Odors are also regulated under BAAQMD's Regulation 7, Odorous Substances, and Regulation 1, Rule 1-301, Public Nuisance. Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. Regulation 1, Rule 1-301 states that no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property. Under BAAQMD's Rule 1-301, a facility that receives three or more violation notices within a 30-day period can be declared a public nuisance.

Based on the BAAQMD-recommended thresholds, projects that would site a new odor source farther than the applicable screening distance shown in Table 4.2-5 from an existing receptor, would not likely result in a significant odor impact. Alternatively, a type of odor source with five (5) or more confirmed complaints in the new source are per year, averaged over three years, is considered to have a significant impact on receptors within the screening distance shown in Table 4.2-5.

Table 4.2-5. BAAQMD Odor Screening Distances

Land Use / Type of Operation	Project Screening Distance (miles)
Wastewater Treatment Plant	2
Wastewater Pumping Facilities	1
Sanitary Landfill	2
Transfer Station	1
Composting Facility	1
Petroleum Refinery	2
Asphalt Batch Plant	2
Chemical Manufacturing	2
Fiberglass Manufacturing	1
Painting/Coating Operations	1
Rendering Plant	2
Coffee Roaster	1
Food Processing Facility	1
Confined Animal Facility/Feed Lot/Dairy	1
Green Waste and Recycling Operations	1
Metal Smelting Plants	2

Source: BAAQMD 2023.

Note: BAAQMD = Bay Area Air Quality Management District

In summary, pursuant to the BAAQMD recommended thresholds for evaluating project-related air quality impacts, implementation of the proposed Project would be considered significant if it would (BAAQMD 2023b):

- conflict with the BAAQMD's 2017 Clean Air Plan;
- exceed the BAAQMD screening level criteria or generate construction-related criteria air pollutant or precursor emissions that exceed the BAAQMD-recommended thresholds of average daily emissions of 54 pounds per day of ROG, 54 pounds per day of NO_X, 82 pounds per day of exhaust PM_{10}, 54 pounds per day of exhaust $PM_{2.5}$, or result in a violation of the CO CAAQS;
- exceed the BAAQMD screening level criteria or generate long-term regional criteria air pollutant or precursor emissions that exceed the BAAQMD-recommended thresholds of average daily emissions of 54 pounds per day of ROG, 54 pounds per day of NO_X, 82 pounds per day of exhaust PM_{10}, 54 pounds per day of exhaust $PM_{2.5}$; maximum annual emissions of 10 tons per year of ROG, 10 tons per year of NO_X, 15 tons per year of PM_{10}, or 10 tons per year of $PM_{2.5}$; or result in a violation of the CO CAAQS;
- expose the maximally exposed individual to TAC emissions that result in an incremental increase in cancer risk of more than 10 in one million, a Hazard Index equal to or greater than 1.0, and/or a concentration of $PM_{2.5}$ emissions greater than or equal to 0.3 micrograms per meter cubed; or
- include an odor source with five or more confirmed complaints per year overaged over three years.

In developing thresholds of significance for air pollutants, the BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions.

IMPACT ANALYSIS

Impact 4.2-1. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. *This impact would be potentially significant.*

A project that would conflict with or obstruct the goals would be considered inconsistent with the 2017 Bay Area Clean Air Plan. Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the BAAQMD 2017 Bay Area Clean Air Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan goals. This impact would be **significant**.

The BAAQMD 2017 Bay Area Clean Air Plan is the applicable air quality plan that comprehensively addresses control strategies for the reduction of ozone (through the reduction of ozone precursors), $PM_{2.5}$, TACs, and GHG emissions. The two primary goals of the 2017 Bay Area Clean Air Plan are to protect public health and protect the climate. Any project that would conflict with or obstruct these goals would be considered inconsistent with the 2017 Bay Area Clean Air Plan. Large projects that exceed regional employment, population, and housing planning projections have the potential to be inconsistent with the regional inventory compiled as part of the BAAQMD 2017 Bay Area Clean Air Plan. On an individual project basis, consistency with BAAQMD quantitative thresholds is interpreted as demonstrating support for the 2017 Clean Air Plan goals.

The 2017 Clean Air Plan control strategy encompasses 85 individual control measures that describe specific actions to reduce emissions under the following sectors: stationary (industrial) sources, transportation, energy,

buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants. Many of these measures are industry-specific and would not be applicable to the proposed land uses or target larger-scale planning efforts such as transit funding and utility energy programs, and would not directly apply to the proposed Project. The control measures identified in the 2017 Bay Area Clean Air Plan that are most applicable to the proposed Project are associated with transportation sector, building sector, energy sector, natural and working lands sector, waste sector, and water sector control measures.

Project construction activities would involve the temporary use of off-road equipment, haul trucks, and worker commute trips. Consistent with Stationary Source Control Measures SS36 (PM from Trackout) and SS38 (Fugitive Dust) of the 2017 Clean Air Plan, the Project would implement BAAQMD's Basic Construction Mitigation Measures, which would reduce fugitive dust emissions during construction. Project construction activities would also be consistent with 2017 Clean Air Plan Measure WA4, Recycling and Waste Reduction, which calls for the recycling of construction materials. A minimum of 75 percent of the solid waste generated would be diverted from landfill disposal as required by the California Green Building Standards Code.

Projects that are consistent with the assumptions used in development of the air quality plan and relevant emissions reduction measures are considered to not conflict with or obstruct the attainment of the air quality plan. Assumptions for emission estimates are based on population, employment, and land use projections taken from local and regional planning documents. As the proposed Project involves development of warehousing and logistics uses, it would not result in the increase of population or housing that was not foreseen in City or regional planning efforts. Although the proposed Project would require a General Plan amendment to adjust on-site General Plan land use designations, the area has been designated for non-residential development in the current and previous Suisun City General Plans. The Project Site is in a Priority Production Area, which identify clusters of industrial business and are prioritized for economic development investments and protection from competing land uses; these areas are already well-served by the region's goods movement network. Priority Production Areas are approved by the Associated of Bay Area Governments (ABAG) and are a key piece of the Bay Area's regional growth framework for coordinated housing, transportation, and other types of land use planning. Therefore, it would not have the potential to substantially affect housing, employment, and population projections within the region, which is the basis of the 2017 Bay Area Clean Air Plan projections.

Furthermore, operation of the Project would also support the goals of the 2017 Clean Air Plan. The Clean Air Plan includes stationary source control measures, most of which are not applicable to the proposed project as they target major stationary sources associated with facilities such as heavy industrial facilities and oil and gas production and refineries. However, the proposed Project would include stationary sources such as emergency generators and fire water pumps. Stationary sources are regulated directly by the BAAQMD, which routinely adopts/revises rules or regulations to implement the Stationary Source (SS) control measures to reduce stationary source emissions. Therefore, any new stationary sources associated with the proposed Project would be required to comply with BAAQMD's regulations. Building Control Measures, BL1: Green Buildings and BL2: Decarbonize Buildings, which prioritize energy efficiency, renewable energy sources, and replacement of fossil fuel-based space and water heating systems (e.g., natural gas) in residential and commercial buildings. BL1, "Green Buildings," calls for identifying barriers to effective local implementation of the CALGreen (Title 24) statewide building energy code, and developing solutions to improve implementation and enforcement. The proposed Project would be subject to the provisions of the City of Suisun City Building Code, and therefore would comply with Title 24. Energy control measure EN2, "Decarbonize Buildings," plans to increase renewable energy production and consumption in bay area buildings. Compliance with Title 24 would also result in the

Project's implementation of energy efficient design features and incorporation of electric infrastructure to support current and future adoption of electric vehicles. The control measures for the Natural and Working Lands (NW) sector focus on increasing carbon sequestration on rangelands and wetlands. The proposed Project would include the establishment of wetlands and bring additional funding and management oversight to 393 acres of the Suisun Marsh and adjacent uplands as the proposed Managed Open Space. The Waste Management (WA) control measures include strategies to increase waste diversion rates through efforts to reduce, reuse, and recycle. The proposed project would comply with Assembly Bill (AB) 341, which requires mandatory commercial recycling for businesses that generate four cubic yards or more of commercial solid waste per week. The Water Control Measures, WR2: Support Water Conservation, encourages reducing water consumption. The proposed Project would include water-efficient indoor fixtures consistent with the requirements of CALGreen and water-efficient and drought-tolerant landscaping outdoors.

The proposed Project does not contain features that would conflict with or obstruct implementation of any 2017 Clean Air Plan control measures. Therefore, the proposed Project would conform to this determination of consistency for the 2017 Clean Air Plan.

However, as detailed under Impact 4.2-2 below, the proposed Project would exceed the BAAQMD-recommended threshold of significance for construction-related average daily NOx emissions and for operational annual and maximum daily ROG and NO_X emissions. These thresholds are established to identify projects that have the potential to generate a level of emissions that would be cumulatively considerable, potentially resulting in significant adverse air quality impacts to the region's existing air quality conditions. Furthermore, the BAAQMD does not have quantitative mass emissions thresholds for fugitive PM_{10} and $PM_{2.5}$ fugitive dust. Instead, the BAAQMD recommends that all projects, regardless of the level of average daily emissions, implement applicable best management practices (BMPs), including those listed as Basic Best Management Practices for Construction-Related Fugitive Dust Emissions in the BAAQMD CEQA Air Quality Guidelines (BAAQMD 2023) in order to minimize fugitive dust in alignment with the regional plans for PM reduction. Fugitive dust emissions are considered to be significant unless the project implements the BAAQMD's BMPs for fugitive dust control during construction. Because the Project would exceed the construction threshold of significance for NO_X, operational thresholds of significance for ROG and NO_X, and without implementation of the BMPs for dust management, the proposed Project could result in a level of emissions that would result in a cumulatively considerable contribution to the existing air quality conditions of the SFBAAB. Therefore, the proposed Project could conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan and this impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 4.2-1a: Implement BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions

The Project applicant shall require all construction contractors to implement the basic construction best management practices recommended by BAAQMD for construction-related fugitive dust. Emission reduction measures shall include, at a minimum, the following measures. Additional measures may be identified by BAAQMD or contractor as appropriate. The Project applicant shall demonstrate to the City the inclusion of these measures through applicable provisions of construction contracts requiring the use of the BAAQMD basic construction best management practices for fugitive dust prior to the issuance of a grading permit.

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt trackout onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

- All vehicle speeds on unpaved roads shall be limited to 15 mph.

- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

- Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

- Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 4.2-1b: Implement Construction Exhaust Emissions Control Measures

The Project applicant shall require that the construction contractor(s) comply with the following heavy-duty construction equipment exhaust emissions control measures. Prior to the issuance of grading permits for the Project, the Project applicant shall include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities. The Project applicant shall demonstrate to the City the inclusion of these measures through applicable provisions of construction contracts prior to the issuance of a grading permit.

- Use Tier 4 final certified engines for all on-site, diesel-powered construction equipment rated at equal to or greater than 50 horsepower.

- Prohibit the idling of construction equipment and trucks, if diesel-fueled, for more than two minutes. The Project applicant or construction contractor(s) shall provide appropriate signage onsite communicating this requirement to on-site equipment operators.

- Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible.

- Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites.

- Use battery-powered equipment for all off-road construction equipment with a power rating below 19kW (e.g., plate compactors, pressure washers) during construction.

Mitigation Measure 4.2-1c: Omit the Inclusion of Natural Gas Infrastructure

The City shall require the Project applicant to omit the inclusion of natural gas infrastructure in the design and construction of the proposed Project. The final design drawings must demonstrate the omission of natural gas connections to the Project Site and be provided to and approved by the City prior to the issuance of grading permits.

Mitigation Measure 4.2-1d: Implement Mitigation Measure 4.12-1, Transportation Demand Management (TDM) Plan

Mitigation Measure 4.2-1e: Incorporate CALGreen Tier 2 Standards for Electric Vehicle Infrastructure into Project Design

The City shall require the Project applicant to include electric vehicle (EV) capable parking at the rate consistent with the California Green Building Standards Code (CALGreen) Tier 2 standards for the proposed Project land use. The EV capable parking shall include the installation of the enclosed conduit that forms the physical pathway for electrical wiring and adequate panel capacity to accommodate future installation of a dedicated branch and charging stations(s). The total EV capable parking to be provided shall be based on the proposed size and scale of development and the most current CALGreen Tier 2 standards at the time of the application for a building permit.

Mitigation Measure 4.2-1f: Electrification of Yard Equipment

The Project applicant shall stipulate in tenant lease agreements that all yard equipment and similar on-site off-road equipment, such as forklifts, be electric. Prior to the issuance of an occupancy permit, the Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating that the building occupant shall only use on-site off-road equipment that is electric-powered.

Mitigation Measure 4.2-1g: Electrification of Transportation Refrigeration Units

The Project applicant shall require that all transportation refrigeration units operating on the Project Site be electric or alternative zero-emissions technology, including hydrogen fuel cell transport refrigeration and cryogenic transport refrigeration, to reduce emissions of NO_X without substantially increasing other emissions. The Project design shall also include necessary infrastructure; for example, requiring all dock doors serving transportation refrigeration units to be equipped with charging infrastructure to accommodate the necessary plug-in requirements for electric transportation refrigeration units while docked or otherwise idling, as well as the electrical capacity to support the on-site power demand associated with electric transportation refrigeration unit charging requirements.

Mitigation Measure 4.2-1h: Prohibition of Truck Idling for More than Two Minutes

The Project applicant shall require that onsite idling of all visiting gasoline- or diesel-powered trucks not exceed two minutes, and that appropriate signage and training for on-site workers and truck drivers be provided to support effective implementation of this limit.

Mitigation Measure 4.2-1i: Limitation of Model Year of Visiting Trucks

The Project applicant shall require that lease agreements stipulate that any gasoline- or diesel-powered vehicle, whether owned by tenant(s), that enters or operates on the Project Site and has a gross vehicle weight rating greater than 14,000 pounds, have a model year dated no older than model year 2014.

Mitigation Measure 4.2-1j: Diesel Backup Generator and Fire Pump Specifications

The Project applicant shall ensure that the diesel backup generators and fire pumps meet or exceed the air board's Tier 4 emission standards. Additionally, once operational, the diesel backup generators and fire pumps shall be maintained in good working order for the life of the equipment, and any future replacement of the equipment shall be required to be consistent with these emissions specifications. To ensure compliance with this measure, the Project applicant shall ensure that records of the testing schedule for the diesel backup generators and fire pumps are maintained for the life of the equipment and make these records available to the City upon request.

Significance after Mitigation

Implementation of Mitigation Measure 4.2-1a would ensure that proposed Project construction would incorporate measures to minimize fugitive dust from construction activities. As detailed in Impact 4.2-2, Mitigation Measure 4.2-1b would reduce exhaust emissions, including NO_X, from heavy duty construction equipment use to less than the BAAQMD thresholds of significance. Implementation of Mitigation Measures 4.2-1a and 4.2-1b together would ensure that Project construction would not conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan.

Implementation of Mitigation Measures 4.2-1c through 4.2-1j would reduce energy, area, and mobile source operational emissions associated with the proposed Project. As detailed in Impact 4.2-2, these mitigation measures would reduce operational emissions of NO_X to below the BAAQMD thresholds. However, ROG emissions would still exceed the BAAQMD thresholds of significance and Project operations could conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan. There is no additional feasible mitigation. Therefore, this impact would be **significant and unavoidable**.

Impact 4.3-2. Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable federal or state ambient air quality standard. *Emissions of criteria air pollutants and ozone precursors could exceed an ambient air quality standard or contribute substantially to an existing or predicted air quality exceedance. Therefore, this impact would be significant.*

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the SFBAAB, and this regional impact is cumulative rather than being attributable to any one source. A project's emissions may be individually limited, but cumulatively considerable when taken in combination with past, present, and future development Projects.

The SFBAAB is classified as nonattainment for NAAQS for ozone and $PM_{2.5}$ and for CAAQS for ozone, $PM_{2.5}$, and PM_{10}. The nonattainment status of regional pollutants results from past and present development within the Air Basin, and this regional impact is a cumulative impact. No single project would be sufficient in size, by itself, to result in nonattainment of regional air quality standards. Instead, a project's emissions may be individually limited, but cumulatively considerable when evaluated in combination with past, present, and future development projects. The BAAQMD thresholds of significance for construction and operational phases of a project are established to identify projects that have the potential to generate a level of emissions that would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Construction and operational emissions are discussed separately below.

Construction

Construction emissions are described as "short-term" or temporary; however, they have the potential to represent a significant impact with respect to regional and localized air quality. Construction-related activities would result in temporary emissions of criteria air pollutants and ozone precursors from fugitive dust generation associated with ground disturbing activities (e.g., excavation, grading, and clearing); exhaust emissions from use of off-road equipment and construction vehicle trips associated with import or export of fill, material delivery, and construction worker commutes; and off-gassing of ROG emissions during asphalt paving and application of architectural coatings. Ozone precursor emissions of ROG and NO_X are associated primarily with construction equipment exhaust and the application of architectural coatings. PM emissions are associated primarily with fugitive dust generated during site preparation and grading, and vary depending on the soil silt content, soil moisture, wind speed, acreage of disturbance, vehicle travel to and from the construction site, and other factors. PM emissions are also generated by equipment exhaust and re-entrained road dust from vehicle travel.

As shown in Table 4.2-6, construction-related emissions associated with the Project would exceed the average daily thresholds of significance for NOx emissions in the initial year of construction (2024). Furthermore, the BAAQMD does not have quantitative mass emissions thresholds for fugitive PM_{10} and $PM_{2.5}$ fugitive dust. Instead, the BAAQMD recommends that all projects, regardless of the level of average daily emissions, implement applicable best management practices (BMPs), including those listed as Basic Best Management Practices for Construction-Related Fugitive Dust Emissions in the BAAQMD CEQA Air Quality Guidelines (BAAQMD 2023) in order to minimize fugitive dust in alignment with the regional plans for PM reduction. Fugitive dust emissions are considered to be significant unless the project implements the BAAQMD's BMPs for fugitive dust control during construction. Because construction-related exhaust emissions would exceed the significance threshold for NO_X and without implementation of the BAAQMD Basic Construction Measures, the Project could result in a cumulatively considerable net increase of criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard. Construction-related impacts from the proposed Project would therefore be **potentially significant**.

Table 4.2-6. Annual and Average Daily and Annual Criteria Air Pollutant Construction Emissions

Year/Description	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2024 Total Emissions (tons)	0.80	7.30	0.51	0.29
2024 Average Daily Emissions (pounds per day)[1]	6.10	55.73	3.91	2.21
2025 Total Emissions (tons)	4.96	1.87	0.51	0.06
2025 Average Daily Emissions (pounds per day)[1]	38.02	14.33	3.91	0.47
2026 Total Emissions (tons)	2.34	0.56	0.13	0.02
2026 Average Daily Emissions (pounds per day)[1]	17.95	4.29	0.98	0.14

Year/Description	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	No	**Yes (in 2024)**	No	No

Source: Modeled by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NOx = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates calculated based on the approximate construction workdays in 2024, 2025, and 2026, which is assumed to be 262 days, 261 days, and 106 days, respectively.

Operation

After construction, long-term emissions of criteria air pollutants would be generated from energy, area, stationary, and mobile sources during operation of the Project. Area sources would include emissions from use of consumer products, periodic architectural coatings, and landscape equipment. Energy sources would include natural gas for water or space heating. Mobile sources would involve vehicle trips associated with employee commute trips and visiting trucks, including TRUs associated with visiting trucks. Stationary source emissions would be associated with the emergency generator and fire pumps at each building. Emergency generators were assumed to operate 100 hours per year based on the maintenance and testing limits per BAAQMD regulations. Additional modeling details are provided in Appendix B.

As shown in Table 4.2-7, the total and net increase in operational emissions generated by the Project would exceed the BAAQMD daily and annual thresholds for ROG and NO_X.

Table 4.2-7. Annual and Average Daily Criteria Air Pollutant Operational Emissions

Description	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions (tons)	**35.62**	**52.61**	5.37	2.30
Threshold of Significance (tons/year)	10	10	15	10
Exceeds Threshold?	Yes	Yes	No	No
Average Daily Emissions (pounds per day)[1]	**195.20**	**288.25**	29.43	12.62
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

Source: Estimated by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates are based on the annual operational emissions divided by 365 days.

Because operational emissions from the Project would exceed the BAAQMD daily and annual thresholds, the Project could not result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is in nonattainment under an applicable federal or state ambient air quality standards. Therefore, operational activities associated with the Project would be **potentially significant**.

Mitigation Measures

Construction:

Implement Mitigation Measures 4.2-1a and 4.2-1b.

Operations:

Implement Mitigation Measures 4.2-1c through 4.2-1j.

Significance after Mitigation

Implementation of Mitigation Measure 4.2-1a would ensure that proposed Project construction would incorporate measures to minimize fugitive dust from construction activities. As shown in Table 4.2-8, Mitigation Measure 4.2-1b would reduce exhaust emissions, including NO_X, from heavy duty construction equipment use to less than the BAAQMD thresholds of significance. Implementation of Mitigation Measures 4.2-1a and 4.2-1b together would ensure that Project construction would not result in a cumulatively considerable net increase of criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.

Table 4.2-8. Mitigated Annual and Average Daily and Annual Criteria Air Pollutant Construction Emissions

Year/Description	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2024 Total Emissions (tons)	0.21	1.31	0.23	0.04
2024 Average Daily Emissions (pounds per day)[1]	1.62	10.02	1.79	0.27
2025 Total Emissions (tons)	2.29	0.91	0.47	0.02
2025 Average Daily Emissions (pounds per day)[1]	17.58	6.96	3.58	0.18
2026 Total Emissions (tons)	0.05	0.26	0.12	0.01
2026 Average Daily Emissions (pounds per day)[1]	0.36	1.97	0.89	0.05
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NOx = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates calculated based on the approximate construction workdays in 2024, 2025, and 2026, which is assumed to be 262 days, 261 days, and 106 days, respectively.

Implementation of Mitigation Measures 4.2-1c through 4.2-1j would reduce energy, area, and mobile source operational emissions associated with the proposed Project. As shown in Table 4.2-9, these mitigation measures would reduce operational emissions of NO_X to below the BAAQMD thresholds. However, ROG emissions would still exceed the BAAQMD thresholds of significance and Project operations could result in a cumulatively considerable net increase of criteria pollutants for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.

Table 4.2-9. Mitigated Annual and Average Daily Criteria Air Pollutant Operational Emissions

Description	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions (tons)	**13.05**	7.19	2.81	0.82
Threshold of Significance (tons/year)	10	10	15	10
Exceeds Threshold?	Yes	No	No	No

Average Daily Emissions (pounds per day)[1]	**71.49**	39.37	15.39	4.48
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

Source: Estimated by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates are based on the annual operational emissions divided by 365 days.

There is no additional feasible mitigation. Therefore, this impact would be **significant and unavoidable**.

Impact 4.3-3. Expose sensitive receptors to substantial pollutant concentrations. *This impact would be potentially significant.*

As discussed in the Environmental Setting section above, the nearest sensitive receptors include residents on the north side of SR 12 approximately 500 feet from the northern border of the Project Site and two commercial uses, an auto repair shop and U-Haul rental shop on one parcel and a concrete contractor on another, somewhat central to the Project parcels but not within the Project Site, adjacent to the west side of Pennsylvania Avenue at the intersection of Pennsylvania Avenue and Cordelia Street. Residences are also located east of the Union Pacific Railroad tracks, more than 1,500 feet from the easternmost border of the Development Area and 200 feet from the eastern border of the Project Site.

Incremental Increase in Regional Criteria Air Pollutants and Related Health Effects

As described in Section 4.2.1, under "Air Pollutants of Concern," and Section 4.2.3, under "Thresholds of Significance," receptor exposure to elevated concentrations of criteria air pollutants is capable of causing adverse health effects, particularly to sensitive populations. In the amicus brief filed by the South Coast Air Quality Management District (SCAQMD) on the California Supreme Court's decision in *Sierra Club v. County of Fresno*, the SCAQMD noted that, "[it] takes a large amount of additional precursor emissions [e.g., NOx] to cause a modeled increase in ambient ozone levels… a project emitting only 10 tons per year of NOx or ROG is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models used to determine ozone levels…" (SCAQMD 2015). Although this information was submitted by the SCAQMD, it would generally apply to the SFBAAB as well since both the South Coast Air Basin and the SFBAAB are designated as nonattainment areas for state and national ozone standards the South Coast Air Basin is designated as severe non-attainment, while the SFBAAB is designated as marginal non-attainment.

Although implementation of the proposed Project would incrementally increase criteria air pollutant emissions within the SFBAAB, any analysis linking potential adverse health risks to corresponding pollutant concentrations would be speculative for several reasons. First, while not quantified, it is recognized that the majority of mass emissions associated with land use development such as the proposed Project would be a result of vehicle activity, such as visitor, employee, and residential trips to and from the Project Site, which would occur primarily not at the Project Site and be subject to varying meteorological and topographical influences. These emissions would be subject to small-scale air patterns, such as those formed as wind passes between buildings and other anthropogenic features (e.g., cars), creating eddies and other turbulence that affect pollutant transport. Second, as mentioned previously, the SCAQMD has stated: "For the so-called criteria pollutants, such as ozone, it may be more difficult to quantify health impacts… It takes time and the influence of meteorological conditions for these reactions to occur, so ozone may be formed at a distance downwind from the sources… Scientifically, health

effects from ozone are correlated with increases in the ambient level of ozone in the air a person breathes… However, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire region. For example, the SCAQMD's 2012 AQMP [Air Quality Management Plan] showed that reducing NO_X by 432 tons per day (157,680 tons per year) and reducing ROG by 187 tons per day (68,255 tons per year) would reduce ozone levels at the SCAQMD's monitor site with the highest levels by only 9 parts per billion. SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NO_X or ROG emissions from relatively small projects" (SCAQMD 2015, pgs. 10-11).

The proposed Project would not generate emissions anywhere near the levels cited by the SCAQMD in its amicus brief on the California Supreme Court's decision in Sierra Club v. County of Fresno (i.e., 432 tons per day of NOx and 187 tons per day of ROG). Furthermore, adverse health effects associated with receptor exposure to regional criteria air pollutant concentrations is cumulative in nature. In other words, such health effects are the result of regional air quality conditions and the nonattainment status of a region that results from past, present, and future emissions sources in the region, which are accounted for in the BAAQMDs planning efforts of the regional air quality attainment plans.

The BAAQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of emissions in the SFBAAB. At present, the BAAQMD has not provided any methodology to assist local governments in reasonably and accurately assessing the specific connection between mass emissions of ozone precursors (e.g., ROG and NO_X) and other pollutants of concern on a regional basis and any specific effects on public health or regional air quality concentrations that might result from such mass emissions. The City has therefore concluded that it is not feasible to predict how mass emissions of pollutants of regional concern from the proposed Project could lead to specific public health consequences, changes in pollutant concentrations, or changes in the number of days for which the SFBAAB will be in nonattainment for regional pollutants.

Ozone concentrations, for instance, depend upon various complex factors, including the presence of sunlight and precursor pollutants, natural topography, nearby structures that cause building downwash, atmospheric stability, and wind patterns. Because of the complexities of predicting ground level ozone concentrations related to the NAAQS and CAAQS, it is not possible to link health risks to the magnitude of emissions exceeding the significance thresholds. Therefore, the nature of criteria pollutants is such that the emissions from an individual project such as the proposed Project cannot be directly identified as responsible for health impacts within any specific geographic location. As a result, attributing health risks at any specific geographic location to the proposed Project is not feasible, and this information and consideration is presented for informational purposes only.

Carbon Monoxide Hot Spots

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.

As noted above, BAAQMD has developed a screening threshold 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 this methodology, projects would have the potential to generate a CO hotspot if it did not contribute a substantial volume of vehicle trips to an intersection that exceeded 44,000 vehicles per hour. For intersections located in areas where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway), the screening threshold is 24,000 vehicles per hour.

There are no affected intersections at which vertical and/or horizontal mixing is substantially limited. As detailed in the Level of Service Analysis for the proposed Project, peak-hour volumes of existing plus Project traffic and cumulative plus Project at study intersections would not exceed 7,500 vehicles at any given intersection (Fehr & Peers 2022). This is substantially below the BAAQMD-recommended screening level of 44,000 vehicles per hour at an affected intersection. Therefore, the proposed Project would not result in individually or cumulatively significant impacts from CO emission. This impact pertaining to CO emissions would be **less than significant**.

Toxic Air Contaminants

Construction

Sources evaluated in the health risk assessment include construction-related emissions from the Project to existing sensitive receptors (off-site residents, workers, childcare facilities, and schools) located within 1,000 feet of the proposed Project footprint and 500 feet of off-site construction traffic. The analysis utilized the EPA's AERMOD air dispersion model and the latest health risk assessment guidance from the Office of Environmental Health Hazard Assessment (OEHHA) to estimate excess lifetime cancer risks and annual averaged $PM_{2.5}$ concentrations. Consistent with BAAQMD and OEHHA guidance, for off-site residential receptors, the probability of contracting cancer risk from the proposed Project's emission sources was evaluated over the construction duration beginning at the age of the 3rd trimester in the womb. For off-site worker receptors, the probability of contracting cancer risk from the proposed Project's emission sources was evaluated over the construction duration beginning at a possible exposure age of 16 years. For off-site student and child (i.e., childcare facilities), the probability of contracting cancer risk from the proposed Project's emission sources was evaluated over the construction duration beginning at a possible exposure age of 4 years (assumes youngest students are in Kindergarten) and 0 years, respectively. Excess cancer risk exposure was also evaluated for operational-only proposed Project emission sources using the same starting ages as described above for construction. Additional modeling details and assumptions are provided in Appendix B. Although studies indicate that vegetation has the potential to reduce pollutant transport and dispersion[3], the model assumptions do not account for potential screening effects from existing or future vegetation on the proposed Project site.

Table 4.2-10, Table 4.2-11, Table 4.2-12, Table 4.2-13 summarize maximum $PM_{2.5}$ annual concentrations, excess cancer risk, chronic non-cancer risk, and acute risk, respectively, associated with Project construction emissions.

Table 4.2-10. Unmitigated Project Construction Emissions Maximum Annual $PM_{2.5}$ Concentrations

Receptor Type	2024 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2025 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2026 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	BAAQMD Threshold ($\mu g/m^3$)	Exceeds Threshold?
Residential[1]	0.144	0.009	0.004	0.3	No

3 Vegetation, including plants and trees, has been studied as a means of improving air quality by assisting in the dispersion of near-roadway pollution (CARB 2017).

Receptor Type	2024 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2025 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2026 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	BAAQMD Threshold ($\mu g/m^3$)	Exceeds Threshold?
Worker[2]	**0.630**	0.013	0.031	0.3	Yes
Student[3]	0.084	0.006	0.003	0.3	No
Child[4]	0.054	0.004	0.002	0.3	No

Source: Modeled by AECOM in 2022. See Appendix B for additional details.
Notes: **bold** values denote exceedance of Bay Area Air Quality Management District threshold;
$\mu g/m^3$ = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District: $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; UTM = Universal Transverse Mercator.
[1] Receptor location: X (UTM) = 582,642, Y (UTM) = 4,233,108.
[2] Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.
[3] Receptor location: X (UTM) = 582,142, Y (UTM) = 4,233,068.
[4] Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

Table 4.2-11. Unmitigated Project Construction Emissions Maximum Modeled Excess Cancer Risk

Year	Duration	Cancer Risk – Residential (in a million)[1,5]	Cancer Risk – Worker (in a million)[2,6]	Cancer Risk – Student (in a million)[3,7]	Cancer Risk – Child (in a million)[4,8]
2024	1 year	1.29	0.26	0.13	0.53
2025	0.7 year	0.13	0.01	0.01	0.05
2026	0.9 year	0.11	0.06	0.01	0.06
Total Excess Cancer Risk	2.6 years	1.53	0.33	0.15	0.64
Threshold	-	10	10	10	10
Exceeds Threshold?	-	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.
Notes: UTM = Universal Transverse Mercator
1 Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.
2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.
3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,070.
4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.
5 Starting age for residences: 3rd trimester (2024), 0 year (2025), 0 year (2026).
6 Starting age for workers: 16 years (2024), 17 years (2025), 17 years (2026).
7 Starting age for students (Kindergarten): 4 years (2024), 5 years (2025), 5 years (2026).
8 Starting age for child: 0 year (2024), 1 year (2025), 1 year (2026).

Table 4.2-12. Unmitigated Project Construction Emissions Maximum Modeled Excess Chronic Non-Cancer Risk

Year	Chronic Non-Cancer Risk – Residential HI	Chronic Non-Cancer Risk – Worker HI	Chronic Non-Cancer Risk – Student HI	Chronic Non-Cancer Risk – Child HI
2024	1.46E-03[1]	4.78E-03[3]	9.20E-04[4]	6.42E-04[5]
2025	2.32E-04[1]	2.48E-04[3]	1.41E-04[4]	8.84E-05[5]
2026	1.45E-04[2]	1.33E-03[3]	9.81E-05[4]	8.29E-05[5]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.
Notes: HI = Hazard Index; UTM = Universal Transverse Mercator
1 Receptor location: X (UTM) = 582,662, Y (UTM) = 4,233,108.
2 Receptor location: X (UTM) = 582,742, Y (UTM) = 4,232,128.
3 Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.
4 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,068.
5 Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

Table 4.2-13. Unmitigated Project Construction Emissions Maximum Modeled Excess Acute Risk

Year	Acute Risk – Residential HI	Acute Risk – Worker HI	Acute Risk – Student HI	Acute Risk – Child HI
2024	2.14E-04[1]	1.80E-04[2]	6.76E-05[3]	7.87E-05[4]
2025	3.19E-04[1]	2.68E-04[2]	1.01E-04[3]	1.17E-04[4]
2026	2.00E-04[1]	1.68E-04[2]	6.33E-05[3]	7.37E-05[4]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: HI = Hazard Index; UTM = Universal Transverse Mercator.

1 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,288.

2 Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.

3 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,068.

4 Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

As shown in Table 4.2-11, Table 4.2-12, Table 4.2-13, Project construction activities would not exceed the BAAQMD threshold of significance for excess cancer, chronic non-cancer, or acute risk. As shown in Table 4.2-10, the maximum annual $PM_{2.5}$ concentrations would result in exceedances of the threshold for 2024 construction activities at the maximum worker receptor. Thus, this impact would be **potentially significant**.

Operation

Sources evaluated in the health risk assessment include operation-related emissions from the proposed Project to existing sensitive receptors (off-site residents, worker, schools, and childcare facilities) located within 1,000 feet of the proposed Project footprint and 500 feet of off-site traffic routes. Consistent with BAAQMD and OEHHA guidance, operational exposure for off-site sensitive receptors were assessed for 30-year, 25-year, 13-year and 5-year periods for residential, worker, student, and child, respectively. Starting ages for each receptor type were third trimester, 16 years of age, 4 years of age, and 0 year of age for residential, worker, student, and child, respectively.

Table 4.2-14, Table 4.2-15, Table 4.2-16, and Table 4.2-17 summarize maximum $PM_{2.5}$ annual concentrations, excess cancer risk, chronic non-cancer risks, and acute risks, respectively, associated with proposed Project operational unmitigated emissions. The HRA also assessed cancer risk from proposed Project construction and operational activities together (i.e., construction for 2.6 years followed by operations for the remaining exposure duration). Details on this analysis are provided in Appendix B. Annual averaged $PM_{2.5}$ concentrations, non-cancer chronic and non-cancer acute are presented in Table 4.2-14, Table 4.2-16, and Table 4.2-17 for both the interim and full buildout operational scenarios of the proposed Project, respectively. The anticipated duration for interim operations 0.9 years and would include fewer sources of emissions compared to the full buildout operational scenario. For these reasons, cancer risk is presented for the controlling scenario (i.e., highest cancer risk scenario), which is the full buildout in Table 4.2-15.

Table 4.2-14. Unmitigated Project Operational Emissions Maximum Annual $PM_{2.5}$ Concentrations

Receptor Type	Interim Operations Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	Full Buildout Operations Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	BAAQMD Threshold ($\mu g/m^3$)	Exceeds Threshold?
Residential[1]	**0.321**	**0.362**	0.3	Yes
Worker[2]	**0.673**	**1.164**	0.3	Yes
Student[3]	0.177	0.185	0.3	No
Child[4]	0.137	0.164	0.3	No

Source: Modeled by AECOM in 2022. See Appendix B for additional details.
Notes: bold values denote exceedance of BAAQMD threshold; $\mu g/m^3$ = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District; UTM = Universal Transverse Mercator.
[1] Receptor location: X (UTM) = 582,642, Y (UTM) = 4,233,108.
[2] Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.
[3] Receptor location: X (UTM) = 582,142, Y (UTM) = 4,233,068.
[4] Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

Table 4.2-15. Unmitigated Project Operational Emissions Maximum Modeled Excess Cancer Risk

Receptor Type	Duration	Full Buildout Operations Maximum Cancer Risk (in a million)	BAAQMD Threshold (in a million)	Exceeds Threshold?
Residential[1,5]	30 years	**117.26**	10	Yes
Worker[2,6]	25 years	**133.27**	10	Yes
Student[3,7]	13 years	**27.00**	10	Yes
Child[4,8]	5 years	**31.15**	10	Yes

Source: Modeled by AECOM in 2023. See Appendix B for additional details.
Notes: bold values denote exceedance of BAAQMD threshold; BAAQMD = Bay Area Air Quality Management District; UTM = Universal Transverse Mercator
1 Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.
2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.
3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,070.
4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.
5 Starting age for residences: 3rd trimester
6 Starting age for workers: 16 years
7 Starting age for students (Kindergarten): 4 years
8 Starting age for child (daycare): 0 year

Table 4.2-16. Unmitigated Project Operational Emissions Maximum Modeled Excess Chronic Non-Cancer Risk

Operational Phase	Chronic Non-Cancer Risk – Residential HI	Chronic Non-Cancer Risk – Worker HI	Chronic Non-Cancer Risk – Student HI	Chronic Non-Cancer Risk – Child HI
Interim Operation	2.74E-02[1]	5.92E-02[2]	1.45E-02[3]	1.25E-02[4]
Full Buildout Operation	3.24E-02[1]	1.05E-01[2]	1.78E-02[3]	1.55E-02[4]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.
Notes: HI = Hazard Index; UTM = Universal Transverse Mercator.
1 Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.
2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.
3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,232,070.
4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

Table 4.2-17. Unmitigated Project Operational Emissions Maximum Modeled Excess Acute Risk

Year	Acute Risk – Residential HI	Acute Risk – Worker HI	Acute Risk – Student HI	Acute Risk – Child HI
Interim Operation	8.62E-03[1]	9.40E-03[2]	3.84E-03[4]	3.76E-03[5]
Full Buildout Operation	1.20E-02[1]	1.32E-02[3]	5.18E-03[4]	4.70E-03[5]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: HI = Hazard Index; UTM = Universal Transverse Mercator.

1 Receptor location: X (UTM) = 582,292, Y (UTM) = 4,233,310.

2 Receptor location: X (UTM) = 582,252, Y (UTM) = 4,232,190

3 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.

4 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,232,070.

5 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

As shown in Table 4.2-16 and Table 4.2-17, chronic non-cancer and acute impacts from the proposed Project are below the BAAQMD thresholds for operational activities, respectively. As shown in Table 4.2-14 and Table 4.2-15, Project operational activities would expose sensitive receptors to substantial pollutant concentrations for annual $PM_{2.5}$ and excess cancer risk exposure, respectively. Thus, the operational impact would be **potentially significant**.

Mitigation Measures

Construction:

Implement Mitigation Measure 4.2-1a and 4.2-1b.

Operations:

Implement Mitigation Measures 4.2-1c through 4.2-1j.

Significance after Mitigation

Construction:

Table 4.2-18, Table 4.2-19, Table 4.2-20, Table 4.2-21, summarize maximum $PM_{2.5}$ annual concentrations, excess cancer risk, chronic non-cancer risk, and acute risk, respectively, associated with Project construction with the implementation Mitigation Measures 4.2-1a, reducing fugitive dust $PM_{2.5}$, and 4.2-1b, reduced exhaust emissions of ROG and DPM.

Table 4.2-18. Mitigated Project Construction Emissions Maximum Annual $PM_{2.5}$ Concentrations

Receptor Type	2024 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2025 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	2026 Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	BAAQMD Threshold ($\mu g/m^3$)	Exceeds Threshold?
Residential[1]	0.048	0.004	0.002	0.3	No
Worker[2]	0.223	0.009	0.010	0.3	No
Student[3]	0.028	0.003	0.001	0.3	No
Child[4]	0.017	0.002	0.001	0.3	No

Source: Modeled by AECOM in 2022. See Appendix B for additional details.

Notes: bold values denote exceedance of BAAQMD threshold; $\mu g/m^3$ = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District; $PM_{2.5}$ = particulate matter with aerodynamic diameter less than 2.5 microns; UTM = Universal Transverse Mercator.

[1] Receptor location: X (UTM) = 582,642, Y (UTM) = 4,233,108.

[2] Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.

[3] Receptor location: X (UTM) = 582,142, Y (UTM) = 4,233,068.

[4] Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

Table 4.2-19. Mitigated Project Construction Emissions Maximum Modeled Excess Cancer Risk

Year	Duration	Cancer Risk – Residential (in a million)[1,5]	Cancer Risk – Worker (in a million)[2,6]	Cancer Risk – Student (in a million)[3,7]	Cancer Risk – Child (in a million)[4,8]
2024	1 year	0.09	0.03	0.01	0.06
2025	0.7 year	0.03	<0.01	<0.01	0.02
2026	0.9 year	0.03	0.02	<0.01	0.02
Total Excess Cancer Risk	2.6 years	0.15	0.05	0.01	0.10
Threshold	-	10	10	10	10
Exceeds Threshold?	-	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: UTM = Universal Transverse Mercator

1 Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.

2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.

3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,070.

4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

5 Starting age for residences: 3rd trimester (2024), 0 year (2025), 0 year (2026).

6 Starting age for workers: 16 years (2024), 17 years (2025), 17 years (2026).

7 Starting age for students (Kindergarten): 4 years (2024), 5 years (2025), 5 years (2026).

8 Starting age for child: 0 year (2024), 1 year (2025), 1 year (2026).

Table 4.2-20. Mitigated Project Construction Maximum Modeled Excess Chronic Non-Cancer Risk

Year	Chronic Non-Cancer Risk – Residential HI	Chronic Non-Cancer Risk – Worker HI	Chronic Non-Cancer Risk – Student HI	Chronic Non-Cancer Risk – Child HI
2024	1.59E-04[1]	5.15E-04[3]	1.02E-04[4]	7.15E-05[5]
2025	6.92E-04[1]	9.20E-05[3]	4.49E-05[4]	2.81E-05[5]
2026	4.20E-05[2]	3.50E-04[3]	2.98E-05[4]	2.40E-05[5]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: UTM = Universal Transverse Mercator; HI = Hazard Index

1 Receptor location: X (UTM) = 582,662, Y (UTM) = 4,233,108.

2 Receptor location: X (UTM) = 582,742, Y (UTM) = 4,232,128.

3 Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.

4 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,068.

5 Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

Table 4.2-21. Mitigated Project Construction Maximum Modeled Excess Acute Risk

Year	Acute Risk – Residential HI	Acute Risk – Worker HI	Acute Risk – Student HI	Acute Risk – Child HI
2024	2.14E-04[1]	1.80E-04[2]	6.76E-05[3]	7.87E-05[4]
2025	3.19E-04[1]	2.68E-04[2]	1.01E-04[3]	1.17E-04[4]
2026	2.00E-04[1]	1.68E-04[2]	6.33E-05[3]	7.37E-05[4]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: HI = Hazard Index; UTM = Universal Transverse Mercator.

1 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,288.

2 Receptor location: X (UTM) = 582,802, Y (UTM) = 4,232,488.

3 Receptor location: X (UTM) = 582,162, Y (UTM) = 4,233,068.
4 Receptor location: X (UTM) = 582,842, Y (UTM) = 4,233,448.

As shown in Table 4.2-17 through Table 4.2-21, with implementation of Mitigation Measures 4.2-1a and 4.2-1b, the maximum annual $PM_{2.5}$ concentrations, cancer risk, chronic non-cancer and acute risks would be reduced below their respective recommended threshold of significance.

Operations:

Table 4.2-22, Table 4.2-23, Table 4.2-24, and Table 4.2-25 summarize maximum $PM_{2.5}$ annual concentrations, excess cancer risk, chronic non-cancer risks, and acute risks, respectively, associated with proposed Project operational mitigated emissions.

Table 4.2-22. Mitigated Project Operational Emissions Maximum Annual $PM_{2.5}$ Concentrations

Receptor Type	Interim Operations Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	Full Buildout Operations Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	BAAQMD Threshold ($\mu g/m^3$)	Exceeds Threshold?
Residential[1]	0.041	0.047	0.3	No
Worker[2]	0.049	0.050	0.3	No
Student[3]	0.016	0.014	0.3	No
Child[4]	0.014	0.016	0.3	No

Source: Modeled by AECOM in 2022. See Appendix B for additional details.
Notes: $\mu g/m^3$ = micrograms per cubic meter; BAAQMD = Bay Area Air Quality Management District; UTM = Universal Transverse Mercator.
[1] Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.
[2] Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.
[3] Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,070.
[4] Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

Table 4.2-23. Mitigated Project Operational Emissions Maximum Modeled Excess Cancer Risk

Receptor Type	Duration	Full Buildout Operations Maximum Cancer Risk (in a million)	BAAQMD Threshold (in a million)	Exceeds Threshold?
Residential[1,5]	30 years	5.46	10	No
Worker[2,6]	25 years	4.22	10	No
Student[3,7]	13 years	1.13	10	No
Child[4,8]	5 years	1.27	10	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.
Notes: BAAQMD = Bay Area Air Quality Management District; UTM = Universal Transverse Mercator
1 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,290.
2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.
3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,233,070.
4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.
5 Starting age for residences: 3rd trimester
6 Starting age for workers: 16 years
7 Starting age for students (Kindergarten): 4 years
8 Starting age for child (daycare): 0 year

Table 4.2-24. Mitigated Project Operational Emissions Maximum Modeled Excess Chronic Non-Cancer Risk

Operational Phase	Chronic Non-Cancer Risk – Residential HI	Chronic Non-Cancer Risk – Worker HI	Chronic Non-Cancer Risk – Student HI	Chronic Non-Cancer Risk – Child HI
Interim Operation	1.67E-03[1]	2.42E-03[2]	9.26E-04[3]	7.24E-04[4]
Full Buildout Operation	2.38E-03[1]	5.31E-03[2]	1.23E-03[3]	1.01E-03[4]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: HI = Hazard Index; UTM = Universal Transverse Mercator

1 Receptor location: X (UTM) = 582,652, Y (UTM) = 4,233,110.

2 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.

3 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,232,070.

4 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

Table 4.2-25. Mitigated Project Operational Emissions Maximum Modeled Excess Acute Risk

Year	Acute Risk – Residential HI	Acute Risk – Worker HI	Acute Risk – Student HI	Acute Risk – Child HI
Interim Operation	7.82E-03[1]	9.40E-03[2]	4.32E-03[4]	4.16E-03[5]
Full Buildout Operation	1.10E-02[1]	1.43E-02[3]	5.81E-03[4]	5.25E-03[5]
Threshold	1.0	1.0	1.0	1.0
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for additional details.

Notes: HI = Hazard Index; UTM = Universal Transverse Mercator

1 Receptor location: X (UTM) = 582,292, Y (UTM) = 4,233,310.

2 Receptor location: X (UTM) = 582,252, Y (UTM) = 4,232,190

3 Receptor location: X (UTM) = 582,792, Y (UTM) = 4,232,490.

4 Receptor location: X (UTM) = 582,152, Y (UTM) = 4,232,070.

5 Receptor location: X (UTM) = 582,832, Y (UTM) = 4,233,450.

As shown in Table 4.2-22 through Table 4.2-25, with implementation of Mitigation Measures 4.2-1c through 4.2-1j, the maximum annual $PM_{2.5}$ concentrations, cancer risk, chronic non-cancer and acute risks would be reduced below their respective recommended threshold of significance.

Therefore, with implementation of Mitigation Measures 4.2-1a through 4.2-1j, proposed Project construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations with implementation and this impact would be **less than significant with mitigation**.

Impact 4.2-4. Result in other emissions (such as those leading to odors) that would adversely affect a substantial number of people. *The impact is less than significant.*

Construction

During Project-related construction activities, construction equipment exhaust, application of asphalt, and architectural coatings may temporarily generate odors. The Project would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. The BAAQMD does not identify construction sites as containing activities that would generate objectionable odors. Additionally, odors would be confined to the immediate vicinity of the construction equipment and construction activities that would generate

other emissions, such as those leading to odors, would be intermittent in nature (i.e., the duration of these activities would not be continuous for an extended period of time). In addition, odor concentrations in the air decline with increasing distance. Furthermore, nuisance odors are regulated under the BAAQMD's Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. Regulation 7 places general limitations on odorous substances, and specific emission limitations on certain odorous compounds. Therefore, Project construction would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people and impacts during construction would be **less than significant**.

Operation

The proposed Project would add new logistics and warehousing uses on the Project site, including the use of diesel-powered trucks, TRUs, and onsite equipment. The type of facilities that are considered to result in other emissions such as those leading to objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food processing facilities (BAAQMD 2017a). Thus, the Project's proposed land uses are not typical odor-generating facilities. Therefore, the Project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. This impact would be **less than significant**.

Mitigation Measure

No mitigation is required.

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4.3 BIOLOGICAL RESOURCES

The information contained in this analysis is primarily based on the *Biological Resources Report, Highway 12 Logistics Center, Suisun City, Solano County, California* and the *Permittee-Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Mitigation Management Plan for the Highway 12 Logistics Center, Solano County, California* both prepared by the Huffman-Broadway Group (HBG). Additional details on plant and wildlife species presence are based upon field surveys performed by Vollmar Consulting, Helm Biological Consulting, and Area West Environmental. Full species lists and habitat mapping, as well as survey results, are provided in Appendix C.

Issues identified in response to the NOP were considered in preparing this analysis. Comments received on the NOP related to biological resources included recommendations for baseline habitat assessments of special status species, wetland creation/preservation and associated acreages, and sensitive plant and wildlife species presence on the Project Site. The City has incorporated applicable suggestions from NOP responses into this section.

4.3.1 ENVIRONMENTAL SETTING

REGIONAL SETTING

The Project Site is in southwestern Solano County within the Sacramento Valley geographic sub region of the Great Central Valley. The Central Valley is a north-south oriented valley that extends approximately 430 miles from southern Tehama County to south-central Kern County in southern California. Elevations range from approximately sea level to 400 feet above mean sea level (msl). Now predominantly agricultural, the central valley once supported grassland (California Prairie), marshes, extensive riparian woodlands, and valley-oak savanna. The Sacramento Valley is the smaller, wetter, northern sub-region of the Central Valley, extending from Red Bluff in Tehama County to the salt marshes of the Suisun Marsh in southwestern Solano County.

The proposed Project Development Area is adjacent to the Suisun Marsh, while portions of the Open Space Management Area are located within the Marsh itself. The Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America. It is a critical migratory stop for birds using the Pacific Flyway and a critical part of the San Francisco Bay-Delta estuary ecosystem. Encompassing 116,000 acres, the Suisun Marsh includes vernal pools, managed wetlands, upland grasslands, tidal wetlands, bays, and sloughs. It is home to public and private waterfowl hunting areas, supports the state's commercial salmon fishery by providing important tidal rearing areas for juvenile fish, and provides important habitat for many rare plant and animal species indigenous to California. Additionally, the Marsh has 230 miles of levees that provide critical protection of the drinking water for 22 million people by preventing saltwater intrusion into the Delta.

PROJECT SITE OVERVIEW

The Project Site consists of the proposed Development Area (Planning Areas 1, 2, and 3) and the Managed Open Space area (see Chapter 3, Project Description, of this EIR).

Suisun Marsh is south of the Project Site, and marshland associated with Suisun Marsh occurs in southern portions of the Project Site. The Managed Open Space area south of Cordelia Road and Cordelia Street is bordered on the west by Orehr Road, on the east by the UPRR, and on the south by the upper Suisun Marsh. The UPRR tracks along the eastern boundary of this portion of the Project Site separate the area south of Cordelia

Road and Cordelia Street from the Peytonia Slough Ecological Reserve, a California Department of Fish and Wildlife ecological reserve.

Proposed Development Area of the Project Site (Planning Areas 1, 2, and 3)

Planning Area 1 (PA-1) and Planning Area 2 (PA-2) are west of Pennsylvania Avenue and north of Cordelia Road and consist of nearly level grazed upland annual grasslands, seasonally saturated annual grasslands, vernal pool, and alkali seasonal wetland. The upland annual grasslands and seasonally saturated annual grasslands are dominated by introduced annual grass species. Within Planning Area 1, there is one vernal pool that covers approximately 8 acres. The vernal pool appears to have formed or was enhanced due to the construction of a berm along Pennsylvania Avenue and partially blocked culverts. The alkali seasonal wetlands are dominated by halophytes such as brass buttons (C*otula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed *(Salicornia pacifica*). Elevation within the site ranges from 5 to 10 feet msl.

Planning Area 3 (PA-3), the approximately 10.7-acre portion of the Development Area east of Pennsylvania Avenue, is bordered by Pennsylvania Avenue Creek along the eastern perimeter of the Planning Area and consists of upland annual grasslands, alkali seasonal wetlands, one vernal pool that covers approximately 6 acres, and a perennial brackish marsh. Planning Area 3 is grazed and supports annual grasslands dominated by introduced annual grass species. The vernal pool appears to have been formed or enhanced by the construction of a berm along the channelized perennial brackish marsh abutting the eastern boundary and an elevated landfill abutting the northern boundary. The alkali seasonal wetlands and vernal pool are dominated by halophytes such as brass buttons (C*otula coronopifolia*), alkali heath (*Frankenia salina*) and pickleweed *(Salicornia pacifica*).

Managed Open Space Area

As part of the proposed Project, 393.2 acres would be Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. This area comprises 57 acres of the proposed Annexation Area that would not be developed, a 4.5-acre parcel in the northeastern corner of the proposed Project Site that is currently within the City's municipal boundary, and 331.7 acres southeast of Cordelia Road and south of the California Northern Railroad line. The *Biological Resources Report, Highway 12 Logistics Center, Suisun City, Solano County, California, provided as Appendix C to this EIR,* (Appendix C) describes the proposed Managed Open Space. Managed Open Space would be required to be managed consistent with the Suisun Marsh Protection Plan and in accordance with permit conditions required by applicable regulatory agencies, including the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife and the San Francisco Bay Conservation and Development Commission.

As shown in Exhibit 3-3 of the Project Description of this EIR, the portion of the Project Site east of Pennsylvania Avenue and north of the California Northern Railroad line to be Managed Open Space is adjacent to, but outside of, the management areas identified under the Suisun Marsh Protection Plan per the Suisun Marsh Preservation Act, as further detailed below under the "Regulatory Framework" below. This area is dominated by a mix of wetland and upland habitats. A perennial brackish marsh drainage channel (which is a tributary to Pennsylvania Avenue Creek) runs north to south through the western portion of this portion of the site. This ditch carries stormwater runoff from the city of Fairfield and may also convey runoff from natural drainages north of Fairfield. It flows directly to a slough feeding into Suisun Bay (i.e., Peytonia Slough) and is subject to tidal fluctuation. West of the drainage channel are several medium to large seasonal wetlands, including both vernal pools and alkali seasonal wetlands. These aquatic features are not tidally influenced. The property east of the drainage

channel supports perennial brackish marsh with dense stands of cattail (*Typha* sp.), California bulrush (S*choenoplectus californicus*), and pickleweed. These wetlands receive tidal flow from the perennial brackish marsh drainage channels, which are open to this portion of the site. The limited upland areas on the site support introduced annual grassland.

The entire 331.7-acre portion of the Project Site south of Cordelia Road and Cordelia Street is proposed for Managed Open Space and is within the management areas identified in the Suisun Marsh Protection Plan. The majority this area is located within the Primary Management Area prescribed by the Suisun Marsh Protection Plan, with a portion in the southeastern corner of the Project Site being within the Secondary Management Area. This portion of the Project Site consists of nearly level terrain with a gentle slope trending south-southeast toward Peytonia Slough Ecological Reserve. Elevation ranges from approximately 10 feet msl to sea level. The higher areas in the northern portions of the property support introduced, nearly level, grazed, upland annual grasslands with interspersed seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands. Lower areas in the southern portion are dominated by muted tidal perennial brackish marsh.

Peytonia Slough and several smaller unnamed sloughs cut through the perennial brackish marsh habitat. These sloughs are subject to muted tidal fluctuations and are hydrologically connected to Suisun Slough via a culvert under the railroad tracks. Ledgewood Creek, which originates in the Gordon Valley several miles to the northwest, bisects this area north to south discharging freshwater into Peytonia Slough. There is one wetland drainage channel that traverses the property from north to south. This perennial brackish marsh drainage channel is muted tidal, conveys stormwater runoff from the City of Fairfield and is hydrologically connected to Peytonia Slough. This lower portion of Ledgewood Creek and the perennial brackish marsh drainage channel are subject to muted tidal fluctuations and support bankside stands of perennial brackish marsh vegetation. The perennial brackish marsh drainage channel has an inoperative flap gate a few hundred yards south of Cordelia Road that prevented tidal backflow when it was operating.

The topographic relief on most of the site is flat with slopes ranging from two to three percent. Elevations range on the majority of the Project Site from 15 feet to 0 feet msl (HBG 2006). A review of the Natural Resources Conservation Service (NRCS) Soil Survey maps for Solano County (USDA 2022) shows five soil types occurring within the Project Site. A soils map of the Project Site is shown in Exhibit 4.5-3 in DEIR Section 4.5, “Geology, Soils, Minerals, and Paleontological Resources.” Field investigations confirmed that the NRCS soils mapping is reasonably accurate throughout the Project Site.

The Hydrologic Unit Code (HUC) watershed boundaries encompassing the Project Site are shown for the HUC 8, HUC 10, and HUC 12 watershed boundaries in Figures 8, 9, and 10 in Appendix C, respectively. According to the USGS National Hydrography Dataset, the Project Site is in HUC 8 Suisun Bay subbasin and within the HUC 10 Suisun Bay watershed with a portion in the HUC 10 Wooden Valley Creek-Frontal Suisun Bay Estuaries watershed.

The source of inundation of the perennial brackish marsh is the muted tide which enters through Peytonia Slough by way of a culvert under the UPRR. The culvert under UPRR appears to be undersized, which likely restricts flows causing a “muted” tidal cycle. The ebb and flow of the tide enters Peytonia Slough from the Suisun Slough which receives tidal waters from Grizzly Bay.

The primary source of inundation of the seasonally saturated annual grasslands, vernal pools, and alkali seasonal wetlands is direct precipitation. Pooling surface water and saturation below the soil surface is driven by direct precipitation during the winter months. During heavy storm events, the pooling water may overflow into the adjacent perennial brackish marsh. Once precipitation for the winter or spring ends, surface water and soil saturation remain until the water has evaporated. The hydrology within these wetlands is not driven by the influence of tides, snow melt, or seasonal groundwater.

Federal Emergency Management Agency rate map shows that the Project Site is in Zone A, which has 0.1 percent annual chance of flooding.

Table 4.3-1. Pertinent Characteristics of Soils Mapped within the Project Site

Map Unit Symbol and Unit Name	Landform / Landform Position	Depth to Restrictive Feature	Slope	Drainage Class	Depth to Water Table	Frequency of Flooding/Ponding
St – Sycamore silty clay loam, saline	Alluvial Fans	36 inches	0-2%	Somewhat poorly drained	36 to 60 inches	None / None
Pc – Pescadero silty clay loam, 0 percent slopes, MLRA 17	Basin Floors	4 inches	0%	Somewhat poorly drained	4 to 85 inches	None-Rare / Frequent
An – Alviso silty clay loam	Tidal Flats	80+ inches	0-2%	Poorly drained	24 to 36 inches	Rare / None
Ja – Joice muck, MLRA 16	Tidal Flats	80+ inches	0-2%	Very poorly drained	24 to 36 inches	Frequent to None / Frequent
Ma – Made Land[1]	Toeslopes	80+ inches	N/A	Well drained	80+ inches	None / None

Notes: N/A = not available.

[1] "Made land" consists of land that has been substantially modified by human activity and may partially consist of artificial fill.

Source: USDA 2022

VEGETATION COMMUNITIES

Vegetation communities are assemblages of plant species growing in an area of similar biological and environmental factors. Table 4.3-2 summarizes the vegetation communities identified on various portions of the Project Site during field investigations.

Table 4.3-2. Plant Communities Observed on the Project Site

Plant Community	Project Development Area (acres)	Managed Open Space—Outside Project Development Area (acres)	Total within Project Site (acres)
Upland Habitat			
Upland Annual Grasslands	54.2	98.2	152.4
Seasonal Wetlands			
Seasonally Saturated Annual Grassland	16.3	62.6	78.9
Vernal Pool	14.1	5.7	19.8
Akali Seasonal Wetland	7.4	39.0	46.4

Plant Community	Project Development Area (acres)	Managed Open Space—Outside Project Development Area (acres)	Total within Project Site (acres)
Perennial Wetlands			
Perennial Brackish Marsh	<0.01	176.3	176.3

The following is a summary of these vegetation communities within the Project Site. Additional information, including an inventory of plant species found on the Project Site during biological studies and a vegetation communities map, is available in Appendix C.

Upland Annual Grasslands (152.4 acres). Upland portions of the Project Site within all three planning areas support introduced upland annual grassland. A variety of native and non-native herbs also occur within the grasslands. In low-lying areas and areas bordering wetlands, species composition shifts to include some marginal wetland indicator species such as Italian ryegrass (*Festuca perenne*) and Mediterranean barley (*Hordeum marinum var. gussoneanum*). In general, there is a very low occurrence of noxious weeds within the grasslands such as yellow star-thistle (*Centaurea solstitialis*) and medusa head (*Elymus caput-medusae*) (3 CCR § 4500 Noxious Weed Species).

Vernal Pools (19.8 acres). Vernal pools are seasonally flooded basins underlain by a restrictive soil layer (claypan, hardpan, or bedrock) that prevents downward percolation of rainwater from the pool basins. They are inundated throughout the winter and gradually dry during the spring and summer though evaporation and plant transpiration. The vernal pools then remain dry and desiccated through the summer and fall, filling again with the coming of the next rainy season. Vernal pools may support a unique assemblage of plants and animals specifically adapted to their unique hydrologic regime and soil chemistry. They are distinguished from other seasonal wetland types by having a predominance of certain plant species considered to be vernal pool indicator species.

The vernal pools are concentrated in the north central portion of the Project Site, including the eastern portion of the Planning Area 1 and northeastern portion of Planning Area 3; no vernal pools are present in Planning Area 2. Many of the pools appear to have formed or were enhanced due to the construction of berms, unmaintained roadside ditches, and partially blocked culverts on the site. The partially blocked culverts and berms and ditches may collect and block the flow of water across the landscape. This is especially true in the northern portion of the Project Site within the proposed Annexation Area. The large vernal pool within Planning Area 1 may be the result of, or enhanced by, the adjacent berm that runs parallel to Pennsylvania Avenue and the unmaintained and partially blocked culvert along Pennsylvania Avenue.

Alkali Seasonal Wetland (46.4 acres). The alkali seasonal wetlands form in low-lying basins and clay flats. They become seasonally inundated or saturated during the rainy season and gradually dry through the spring and early summer. The salinity comes from residual salts concentrated in a buried silty clay loam soil horizon within the predominant soil type (Sycamore silty clay, saline).

Alkali seasonal wetlands are scattered throughout the Project Site, including in the northeastern portion of the Planning Area 1 and western portion of Planning Area 3. The alkali seasonal marsh generally lacks vernal pool indicator species.

Seasonally Saturated Annual Grasslands (78.9 acres). Given the very flat topography across the overall Project area, there are broad transitional wetland areas between the low-lying seasonal wetlands (vernal pools and alkali

seasonal wetlands) and the surrounding upland annual grasslands. These transitional areas have prolonged periods of surface and subsurface saturation but are rarely inundated. The dominant plants include a mix of facultative wetland species associated with both the annual grasslands and alkali seasonal marsh. Seasonally saturated annual grasslands are generally located adjacent to alkali seasonal marsh and perennial brackish marsh throughout the Project Site, including in Planning Areas 1 and 2; this vegetation community is not present in Planning Area 3.

Perennial Brackish Marsh (176.3 acres). Perennial brackish marsh occurs throughout the southern and southeastern portions of the area south of Cordelia Road and Cordelia Street and dominates the eastern portion of the proposed Annexation Area. Within the proposed Development Area, perennial brackish marsh is only present in the eastern portion of Planning Area 3. This habitat occurs in estuarine environments where there is a mixing of fresh and salt waters such as occurs in the Delta region. The soils are perennially inundated or saturated and are generally subject to some level of tidal fluctuation. The perennial brackish marsh habitat found in the Project area is subject to tidal fluctuations that extend from Suisun Bay, up tidal sloughs, and into drainage ditches that traverse the properties. The ditch within the eastern portion of the annexation area has one branch that extends northeast and provides water to the marsh habitat. In addition, water levels become elevated during the rainy season and gradually lower during the spring through evaporation, transpiration, and drainage. This is especially true for the northern portion of the marsh. The majority of alkalinity within the marsh habitat comes from residual salts in the silty clay soils in addition to salts carried through tidal fluctuations.

Dominant plant species within perennial brackish marsh in the area south of Cordelia Road and Cordelia Street include a broad range of perennial emergent monocots, and herbaceous and woody dicots, often occurring in a mosaic dependent on local soil conditions, hydrologic regime, and micro-elevation. Low-lying areas and the lower banks of sloughs are dominated by tall, dense emergent monocots. Upper slough banks are dominated by a mix of woody dicots. The special status plants delta tule pea (*Lathyrus jepsonii ssp. Jepsonii*) and Suisun Marsh aster (*Symphyotrichum lentum*) occur in scattered locations along the upper slough banks (see "Special Status Species" section below). Open areas along some of the smaller slough channels support native herbs. There are also dense stands of pickleweed and saltgrass in some low-lying areas away from the slough channels.

WILDLIFE POPULATIONS

The Project Site provides habitat for wildlife species, mostly those adapted to open grassland and wetland habitat areas, pasturelands, and somewhat disturbed environments. Both upland and wetland grasses and herbaceous plants within the Project Site provide nesting and roosting sites for birds, and cover and foraging habitat for species of birds, mammals, reptiles, and amphibians. The complex of habitats includes the presence of standing water, on a seasonal basis, which can accommodate wildlife adapted to aquatic areas. Seasonal wetlands provide wildlife with a seasonal water source that supports various animal species during the winter and spring months and sometimes into the early summer. Amphibians will lay their eggs in seasonal wetland habitats and complete much of their life cycle in the wetlands. Tidal wetlands in the southern portion of the Project Site provide aquatic habitat for wildlife on regular tidal cycles. Significant riparian habitat is found within the portion of Ledgewood Creek that is adjacent to and just west of the Project Site. This portion of Ledgewood Creek, just beyond the western boundary of the Project Site, is considered a wildlife corridor. Ledgewood Creek was channelized by the U.S. Army Corps of Engineers for flood control and is currently managed by the Fairfield-Suisun Sewer District for flood control purposes.

A list of wildlife species observed on-site or expected to use the site was obtained through habitat reconnaissance, field observation, and literature sources. A complete listing of the references from which information was compiled on the flora and fauna inhabiting the region is contained in Chapter 8, "References," of this EIR. Wildlife observations were also made during site reconnaissance visits conducted by HBG both during preparation of the 2006 Biological Assessment and during more recent evaluations conducted in 2020, 2021 and early 2022. Table 4.3-4 provides species lists based on these reconnaissance level observations for reptiles, amphibians, birds, and mammals. The table lists wildlife species observed or expected to occur within the Project Site. The table includes the scientific names of all species mentioned in the text.

Several wildlife species were observed on the site during the site reconnaissance conducted by HBG's wildlife biologist in the summer of 2005 (during preparation of the 2006 Biological Assessment) and during the summer of 2022. All species are common to abundant in the region and would be expected in the combination of grassland and wetland habitats present at the site. Some of the species observed at the site could nest on-site or in the vicinity.

Raptors (birds of prey) observed foraging over the on-site grasslands and wetlands included red-tailed hawk, northern harrier, and American kestrel. Additional birds documented within on-site grasslands included Canada goose, American white pelican, killdeer, rock pigeon, mourning dove, Anna's hummingbird, European starling, American crow, northern mockingbird, black phoebe, western kingbird, loggerhead shrike, savannah sparrow, western meadowlark, Brewer's blackbird, brown-headed cowbird, house finch, and house sparrow. Both cliff swallows and barn swallows were observed nesting underneath bridge structures over the creeks and various drainages and foraging over the Project Site grasslands. Additional avian species that were observed flying over the site during the surveys included turkey vulture and white-throated swift. Observed within areas of seasonal and perennial marsh were great blue heron, green heron, great egret, snowy egret, marsh wren, common yellowthroat, Suisun song sparrow, and red-winged blackbird. Several water birds and shorebirds were found only in the northeastern portion of the Project area, including American bittern, black-necked stilt, and long-billed curlew.

Patches of riparian habitat at the site could support additional species such as northern flicker, California towhee, and lesser goldfinch, and wintering species such as ruby-crowned kinglet, yellow-rumped warbler, and golden-crowned and white-crowned sparrows. More extensive offsite riparian habitats of Ledgewood Creek could support migratory breeding species such as Pacific-slope flycatcher, warbling vireo, black-headed grosbeak, and Bullock's oriole.

Special status bird species observed during on-site surveys conducted by HBG biologists included the northern harrier (state species of special concern for nesting), long-billed curlew (state watch list for nesting and USFWS bird species of conservation concern), loggerhead shrike (state species of special concern and USFWS bird species of conservation concern), and Suisun song sparrow (state species of special concern and USFWS bird species of conservation concern). Suisun song sparrows were observed during the summer months and may nest within the wetlands in the eastern portion of the proposed Annexation Area. Northern harrier and loggerhead shrike were also observed during the summer and may nest in the Project area, though nesting habitat for loggerhead shrike does not occur on the Project Site. These species are discussed below in the Special Status Species section, along with a number of other special status species known to occur in the Project area. The long-billed curlew is not known to nest in the Project area. The curlew individuals observed during the summer were

likely non-breeding individuals that are often known to linger in appropriate Central Valley habitats (like those on the Project Site) during the nesting season.

Western fence lizards were documented during the survey, and additional species of reptiles and amphibians found at the site would be expected to include common species such as Pacific chorus frog, Pacific gopher snake, western kingsnake and common garter snake. The site would be expected to support common mammal species such as Virginia opossum, black-tailed jackrabbit, Botta's pocket gopher, California ground squirrel, deer mouse, California vole, striped skunk, raccoon, and mule deer.

AQUATIC RESOURCES

History of Jurisdictional Delineations and USACE Determinations

Vollmar Consulting conducted an aquatic resource delineation on the parcels north of Cordelia Road, which was subsequently verified by the USACE on March 5, 2003, and May 16, 2003, under USACE file No. 26613N, and the parcel south of Cordelia Road, which was verified by the USACE on January 27, 2004, under USACE file No. 27207N. Since the verified wetland delineations did not include the rights-of-way for Cordelia Road and Pennsylvania Avenue, HBG conducted a delineation to include these areas and to re-verify the January 27, 2004, verification. This re-verification was verified by the USACE on July 2, 2008, under USACE file No. 2005-29818N.

HBG conducted an aquatic resource reverification delineation in the summer of 2020 and winter and spring of 2021, which was verified as a Preliminary Jurisdictional Determination on February 1, 2022, under USACE file No. SPN-2005-298180.

2021 Aquatic Resource Delineation

Overview

An aquatic resources delineation was conducted by HBG Senior Wetland Scientist, Robert Perrera, during 2020 and 2021 following the methodology described in the Corps of Engineers' (Corps) 1987 Wetlands Delineation Manual; the Corps' 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0); and supporting Corps and U.S. EPA guidance documents. Robert Perrera also followed the State Water Resources Control Board (SWRCB) April 2, 2019, State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board, 2019) and current CDFW guidance regarding identification and delineation of lake and streambed boundaries to determine if the aquatic resources identified may also be subject to regulation by these two agencies.

The aquatic resource delineation was conducted within most of the Project Site and areas abutting the Project Site which included a portion of Ledgewood Creek, Cordelia Road and Pennsylvania Avenue, and an area between Cordelia Road and Union Pacific Railroad. HBG conducted field work for a re-verification in the summer of 2020. Based on the vegetation observed, and lack of hydrologic indicators, it appeared a significant vegetation shift has occurred over the past 15 years. Based on this observation, HBG conducted additional field work in 2021 to record direct observations of ponding and soil saturation in the winter, and additional sample points recording vegetation, soils, and hydrology taken in the spring during the peak growing season. As part of the spring field work HBG requested cattle grazing on Planning Area 1 be delayed until after the field work was completed.

Due to the below average rainfall, hydrology conditions were considered "naturally problematic" and the "Difficult Wetland Situations in the Arid West" procedures for wetlands that periodically lack indicators of wetland hydrology was used. In accordance with these procedures, if wetland hydrology indicators appear to be absent on a site that has hydrophytic vegetation and hydric soils, no evidence of hydrologic manipulation (e.g., no drainage ditches, dams, levees, water diversions, etc.), and the region has been affected by drought, then the area should be identified as a wetland. HBG followed this procedure and included areas that met the hydrophytic vegetation and hydric soil indicators, but lacked wetland hydrology indicators, as "wetlands."

Rainfall Analysis

An antecedent precipitation analysis was also conducted for the Project Site. The rainfall analysis followed the USACE guidance[1] that was required by the USACE in 2020.

In addition to the antecedent precipitation analysis, HBG acquired USDA NRCS historical precipitation data for the Project Site using the WETS Tables station for Fairfield. HBG reviewed the rainfall mean total precipitation data from 1990-2020 and compared rainfall data from 2011-2020 to the rainfall data from 2001-2010. The purpose of this review was to determine what may be causing the vegetation shift observed within the Project area.

In summary, a significant decrease in precipitation over the last 30 years has driven a shift in vegetation from facultative or greater rated plants to more upland and facultative upland rated plants. This decrease in precipitation has resulted in a decrease in the extent of seasonally saturated annual grasslands. HBG has conducted various plant surveys and wetland delineations from 2005 to the present and has noticed an observable, and measurable change over this time. The mean annual rainfall per year from 1991 to 2020 is 24.67 inches. When compared with yearly mean rainfall data every 10 years over the last 30 years, the average annual rainfall totals have consistently decreased.

This decrease in precipitation is a long-term trend which is likely driven by climate change. If climate change continues as predicted, HBG anticipates the extent of shallow aquatic resources driven by direct precipitation will likely decrease further within the foreseeable future. Refer to Figure 12 of Appendix C for the USACE verified preliminary jurisdictional delineation map and Attachment 3 of Appendix C for a copy of the USACE preliminary jurisdictional determination verification letter.

Results

Refer to Figure 11 of Appendix C for the USACE verified preliminary jurisdictional delineation map and Attachment 3 of Appendix C for a copy of the USACE preliminary jurisdictional determination verification letter.

SPECIAL STATUS SPECIES

Special status species to be evaluated in reviews pursuant to CEQA include those species listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by the federal Endangered Species Act of 1973 as amended, the California Native Plant Protection Act of 1977, and the California Endangered Species Act of 1970. CEQA provides additional protection for unlisted species that meet the "rare" or "endangered" criteria defined in Title 14, California Code of

[1] United States Army Corps guidance available at https://github.com/jDeters-USACE/Antecedent-Precipitation-Tool.

Regulations Section 15380. Special status species also include those species listed by CDFW as Species of Special Concern (species that face extirpation in California if current population and habitat trends continue), those listed as Fully Protected by CDFW (a designation that provides additional protection to those animals that were rare or faced possible extinction), and bird species designated as Bird Species of Conservation Concern by the USFWS. Special status species included in CEQA review also include bat species protected by the California Fish and Game Code and that have been designated with conservation priority by the Western Bat Working Group. CEQA also requires evaluation of impacts to plant species on California Rare Plant Rank Lists 1 and 2.

The CDFW maintains records for the distribution and known occurrences of special status species in the California Natural Diversity Database (CNDDB). The database gives further detailed information on each occurrence, including specific location of the individual, population, or habitat (if possible) and the presumed current state of the population or habitat. The Project Site is located on the Fairfield North and Fairfield South USGS 7.5-minute quadrangle maps.

Tables 4.3-3 and 4.3-4 present a list of special status plants and animals, respectively, reported by the CNDDB within a 10-mile radius of the Project Site. An evaluation of the potential for all sensitive species to occur at the site is included in Tables 4.3-3 and 4.3-4.

TABLE 4.3-3. Special Status Plants Known to Occur Within a 10-Mile Radius of the Project Site

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Ferris' milk-vetch (*Astragalus tener* var. *ferrisae*)	--/--/1B.1	Inhabits subalkaline flats on overflow land within meadows and valley and foothill grassland, usually on dry, adobe soil. Extirpated from Solano Co. 5-75m.	**Not present.** Some suitable habitat is present, but the species is extirpated from Solano County.
Alkali milk-vetch *(Astragalus tener* var. *tener*)	--/--/1B.2	Inhabits low ground, alkali flats and flooded land in valley and foothill grasslands or in playas or vernal pools. 1-170m.	**Present.** Special status plant surveys in 2021 and 2022 and prior years indicated this species is present in central areas of the proposed Development Area of the Project Site, as well as in the area south of Cordelia Road.
Heartscale (*Atriplex cordulata* var. *cordulata*)	--/--/1B.2	Inhabits alkaline flats and scalds with sandy soils. 0-560m.	**Unlikely**. Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Brittlescale (*Atriplex depressa*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in alkali scalds in alkaline clay soils. Rarely in riparian marshes or vernal pools. 1-320m.	**Possible.** A CNDDB element was mapped on the Project Site in 2002, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Vernal pool smallscale (*Atriplex persistens*)	--/--/1B.2	Inhabits alkali vernal pools; known from scattered locations in the Delta and Central Valley basin. 10-115m.	**Unlikely.** Alkaline habitat is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Big-scale balsamroot (*Balsamorhiza macrolepis*)	--/--/1B.2	Chaparral, cismontane woodland, valley, and foothill grassland, sometimes on serpentinite. 90-1555m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Narrow-anthered brodiaea (*Brodiaea leptandra*)	--/--/1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest, valley, and foothill grassland. 110-915m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Mt. Diablo fairy-lantern *(Calochortus pulchellus)*	--/--/1B.2	Found on wooded and brushy slopes within chaparral, cismontane woodland, riparian woodland, and valley and foothill grassland. 30-915 m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Lyngbye's sedge (*Carex lyngbyei*)	-/-/2B.2	Marshes and swamps (brackish or freshwater) at sea level.	**Unlikely.** Suitable habitat present but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Tiburon paintbrush (*Castilleja affinis* var. *neglecta*)	FE/ST/1B.2	Rocky serpentine sites within valley and foothill grassland. 75-400m.	**Not present.** Suitable habitat is not found at the site.
Holly-leaved ceanothus (*Ceanothus purpureus)*	--/--/1B.2	Rocky volcanic slopes in chaparral. 120-640m.	**Not present.** Suitable habitat is not found at the Project Site.
Congdon's tarplant (*Centromadia parryi* ssp. *Congdonii*)	--/--/1B.1	Found in alkaline soils in valley and foothill grasslands. 1-230m.	**Unlikely.** Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Pappose tarplant (*Centromadia parryi ssp. Parryi*)	--/--/1B.2	Found in mesic and often alkaline sites in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands. 2-420m	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Hispid salty bird's-beak (*Chloropyron 4.3-12ons* ssp. *Hispidum*)	--/--/1B.1	Found in meadows and seeps, playas, and valley and foothill grasslands. Alkaline soils in alkaline meadows and alkali sinks with *Distichlis*. 1-155m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Soft bird's-beak (*Chloropyron 4.3-12ons* ssp. *4.3-12ons*)	FE/SR/1B.2	Coastal salt marsh with *Distichlis, Salicornia, Frankenia*, etc. 0-3m.	**Unlikely.** According to the CNDDB, this species was collected in 1904 along the railroad near Suisun. Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Bolander's water-hemlock (*Cicuta 4.3-12onserva* var. *bolanderi*)	--/--/2B.1	Found in fresh or brackish water. 0-200m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*)	FE/--/1B.1	Found with *Scirpus* and *Distichlis* near small watercourses within salt marsh 0-1m; only two known locations (Grizzly Island and lower Peytonia Slough), both in Solano, Co.	**Unlikely.** Designated Critical Habitat occurs in the southern portion of the site. Although potential habitats are found on site, the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Recurved larkspur (*Delphinium recurvatum*)	--/--/1B.2	On alkaline soils in chenopod scrub, cismontane woodland and valley and foothill grassland.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Western leatherwood (*Dirca occidentalis*)	--/--/1B.2	On brushy slopes and mesic sites mostly in mixed evergreen and foothill woodland communities. 30-550m.	**Not present.** Suitable habitat is not found on site.
Dwarf downingia (*Downingia pusilla*)	--/--/2B.2	Inhabits vernal pools and vernal lake margins. 1-445m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Greene's narrow-leaved daisy (*Erigeron greenei*)	--/--/1B.2	Serpentine and volcanic substrates in chaparral. 75-1060m.	**Not present.** Suitable habitat not found at the site.
Mt. Diablo buckwheat (*Eriogonum truncatum*)	--/--/1B.1	On dry, exposed clay or sandy substrates in chaparral, coastal scrub and valley and foothill grasslands. 3-350m.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Jepson's coyote-thistle *(Eryngium jepsonii)*	--/--/1B.2	On clay soils in vernal pools and valley and foothill grassland. 3-305 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
San Joaquin spearscale (*Etriplex joaquiniana*)	--/--/1B.2	Chenopod scrub, meadows, playas, valley and foothill grassland and vernal pools. Usually in seasonal alkali wetlands or alkali sink scrub with *Distichlis*, *Frankenia*, etc. 1-835m.	**Unlikely.** Alkaline habitat and foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Fragrant fritillary (*Fritillaria liliaceas*)	--/--/1B.2	Coastal scrub, coastal prairie and valley and foothill grasslands, often on serpentine but usually in clay. 3-410m.	**Not present.** Suitable habitat is not found at the Project Site.
Adobe-lily (*Fritillaria pluriflora*)	--/--/1B.2	Clay soils in valley and foothill grasslands, chaparral or cismontane woodland. 60-705m.	**Not present.** Suitable habitat is not found at the Project Site.
Bogg's Lake hedge hyssop (*Gratiola heterosepala*)	--/SE/1B.2	Inhabits vernal pools and margins of vernal lakes. 10-2375m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005.
Diablo helianthella (*Helianthella castanea*)	--/--/1B.2	Broadleaved upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 25-1150m.	**Not present.** Suitable habitat is not found at the site.
Brewer's western flax (*Hesperolinon breweri*)	--/--/1B.2	Chaparral, cismontane woodland and valley and foothill grassland; often found in rocky serpentine soil in serpentine chaparral and serpentine grassland at 30-885 meters.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Sharsmith's western flax (*Hesperolinon sharsmithiae*)	--/--/1B.2	Serpentine substrates in chaparral. 180-670 m.	**Not present.** Suitable habitat not found at the site.
Woolly rose-mallow (*Hibiscus lasiocarpos* var. *occidentalis*)	--/--/1B.2	Freshwater marshes and swamps. Found on freshwater-soaked riverbanks and low peat islands in sloughs. 0-120m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Carquinez goldenbush (*Isocoma arguta*)	--/--/1B.1	Found in valley and foothill grasslands on alkaline soils, on low benches near drainages and on the tops and sides of mounds in swale areas. 1-20m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Contra Costa goldfields (*Lasthenia conjugens*)	FE/--/1B.1	Inhabits vernal pools, swales and low depressions in open grassy areas. Most remaining occurrences restricted to the Fairfield region. 1-470m.	**Present.** Designated Critical Habitat occurs on the Project Site. Populations of this species were observed on-site in special status species surveys conducted in 2021 and 2022 and in prior surveys conducted in 2000, 2001, 2002, and 2005.
Coulter's goldfields *(Lasthenia glabrata* ssp. *Coulteri*)	--/--/1B.1	Coastal salt marsh, playas, and vernal pools. Usually found on alkaline soils in in playas, sinks, and grasslands. 1-1375m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)	--/--/1B.2	Freshwater and brackish marshes with *Typha*, *Rosa*, *Juncus*, *Scirpus* etc. Usually on the marsh the slough edges.	**Present.** Observed on-site in the southern portion of the property during special status plant surveys conducted in 2005 and again in 2021 and 2022. There are numerous known occurrences south of the property on Suisun Slough, Peytonia Slough, and Suisun Marsh.
Legenere (*Legenere limosa*)	--/--/1B.1	Inhabits the beds of vernal pools. 1-880m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Heckard's pepper-grass (*Lepidium latipes var. heckardii*)	--/--/1B.2	Valley and foothill grassland. In grassland or vernal pool edges on alkaline soils. 2-200 m.	**Present.** Although not observed during special status plant surveys conducted in 2000, 2001, 2002, 2005, or 2021, this species was found on the Project Site in surveys conducted in 2022.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Jepson's leptosiphon (*Leptosiphon jepsonii*)	--/--/1B.2	Found on volcanics or the periphery of serpentine substrates in chaparral, cismontane woodland, and open to partially shaded grassy slopes. 55-855 m.	**Not present.** Suitable habitat not found at the site.
Mason's lilaeopsis (*Lilaeopsis masonii*)	--/SR/1B.1	Found in the tidal zone in muddy or silty soils with freshwater and brackish marshes and riparian scrub. 1-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Delta mudwort (*Limosella australis*)	--/--/2B.1	Found in riparian scrub and in freshwater and brackish marshes. On mud banks in marsh and riparian associations. Often with Mason's lilaeopsis. 0-3m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Marsh microseris (*Microseris paludosa*)	--/--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 5-300m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Baker's navarretia (*Navarretia leucocephala ssp. Bakeri*)	--/--/1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales; adobe or alkaline soils at 5-1740m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Few-flowered navarretia (*Navarretia leucocephala ssp. Pauciflora*)	FE/ST/1B.1	Inhabits volcanic ash flows and volcanic substrates in vernal pools. 400-855m.	**Not present.** Suitable habitat not found at the site.
Colusa grass (*Neostapfia colusana*)	FT/SE/1B.1	Inhabits pool bottoms in adobe soils in large vernal pools and vernal lakes. 5-200m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
San Joaquin Valley Orcutt grass (*Orcuttia inaequalis*)	FT/SE/1B.1	Vernal pools 15-660 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
Bearded popcorn flower (*Plagiobothrys hystriculus*)	--/--/1B.1	Vernal pools, valley and foothill grassland in wet sites. 0-275m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002 and 2005.
Marin knotweed (*Polygonum marinense*)	--/--/3.1	Coastal salt marshes and brackish marshes. 0-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
California alkali grass *(Puccinellia simplex)*	--/--/1B.2	Found in meadows and seeps, chenopod scrub, and vernal pools in foothill grasslands. Found in alkaline, vernally mesic sinks, flats, and lake margins. 1-915 m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
California beaked-rush (*Rhynchospora californica*)	--/--/1B.1	Freshwater seeps and open marshy areas in bogs, fens, marshes and swamps and lower montane coniferous forest. 45-1000m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Chaparral ragwort *(Senecio aphanactis)*	--/--/2B.2	Known from foothill woodland and chaparral habitats.	**Not present.** Suitable habitat is not found at the site.
Keck's checkerbloom (*Sidalcea keckii*)	FE/--/1B.1	Found on grassy slopes in blue oak woodland. 75-650m.	**Not present.** Suitable habitat is not found at the Project Site.
Long-styled sand-spurrey *(Spergularia macrotheca* var. *longistyla)*	--/--/1B.2	Found in alkaline marshes and swamps, meadows and seeps. 0-220 m.	**Present.** Observed in previous surveys but not mapped as it had no listing status at the time. Observed in one location north of Cordelia Road and west of Pennsylvania Avenue during 2022 surveys.
Northern slender pondweed (*Stuckenia filiformis* ssp. *Alpina*)	--/--/2B.2	Found in marshes and swamps, in shallow, clear water of lakes and drainage channels. 300-2150m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Suisun Marsh aster (*Symphyotrichum lentum*)	--/--/1B.2	Found in freshwater and brackish marshes and swamps, often along sloughs with *Phragmites*, *Scirpus*, *Typha*, etc. 0-3m.	**Present.** Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002 and 2005. Surveys found this species in the southern portion of the Project Site and in the eastern portion of the proposed Annexation Area adjacent to the perennial brackish marsh ditch.
Napa bluecurls (*Trichostema ruygtii*)	--/--/1B.2	Open sunny areas in cismontane woodland, chaparral, valley and foothill grassland, vernal pools and lower	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.

Species Name	Status[2] (Federal/State/CRPR)	Habitat/Range	Potential to Occur
		montane coniferous forest. 30-590 m.	
Two-fork clover (*Trifolium amoenum*)	FE/--/1B.1	Open, sunny sites and swales, sometimes on serpentine soil, within valley and foothill grassland and coastal buff scrub. Recently found on an eroding cliff face on a roadside. 5-415m.	**Unlikely.** Foothill grassland is present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Saline clover (*Trifolium hydrophilum*)	--/--/1B.2	Marshes and swamps, mesic alkaline sites, vernal pools in valley and foothill grassland. 0-300m.	**Present.** Observed during special status plant surveys conducted in 2021 and 2022 and in prior surveys in 2000, 2001, 2002, and 2005. Surveys found this species in within proposed Development Area, as well as the eastern portion of the Annexation Area, and the area south of Cordelia Road.
Crampton's tuctoria (*Tuctoria 4.3-17onservat*)	FE/SE/1B.1	Clay bottoms of drying vernal pools and lakes in valley grassland. 5-10m.	**Unlikely.** Suitable habitats are present, but the species was not observed during special status plant surveys conducted in 2021 and 2022 or in prior surveys in 2000, 2001, 2002, and 2005.
Oval-leaved viburnum (*Viburnum ellipticum*)	--/--/2B.3	Chaparral, cismontane woodland and lower montane coniferous forest. 215-1400m.	**Not present.** Suitable habitat not found at the site.

1 Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Map and surrounding areas, information dated March 2023.

4 Status Codes:

FE Federally listed Endangered

F Federally listed Threatened

FPE Federally Proposed Endangered

FPT Federally Proposed Threatened

SE California State-listed Endangered

ST California State-listed Threatened

SR California State Listed as Rare

California Rare Plant Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.

California Rare Plant Rank 1B: Plants rare, threatened, or endangered in California and elsewhere.

California Rare Plant Rank 2A: Plants presumed extirpated in California, but more common elsewhere.

California Rare Plant Rank 2B: Plants rare, threatened, or endangered in California, but more numerous elsewhere.

California Rare Plant Rank 3: Plants about which more information is needed – a review list.

California Rare Plant Rank 4: Plants of limited distribution – a watch list.

CNPS Threat Ranks

0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

0.3-Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Table 4.3-4. Special Status Animal Species Known to Occur Within a 10-Mile Radius of the Project Site

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Invertebrates			
Conservancy fairy shrimp (*Branchinecta 4.3-18onservation*)	FE/--	Inhabits large vernal pools, often with turbid water; known from fewer than 15 occurrences in the Delta (Jepson Prairie) and Central Valley.	**Not present.** Nearest known occurrence several miles to the east (Jepson Prairie). Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm. Results were negative.
Longhorn fairy shrimp (*Branchinecta longiantenna*)	FE/--	Inhabits vernal pools; known from fewer than 15 occurrences along western edge of the mid Central Valley (including Contra Costa, Alameda Counties)	**Not present.** Nearest known occurrence approximately 50 miles to the south (west of Tracy) in pools on sandstone outcrops. Protocol level wet season (2000 and 2020) and dry season (2002, 2005, and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Vernal Pool fairy shrimp (*Branchinecta lynchi*)	FT/--	Inhabits vernal pools; occurs throughout the Delta and Central Valley.	**Not present.** Known from sites miles to the north and east of the property. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Midvalley fairy shrimp (*Branchinecta mesovallensis*)	--/--	Vernal pools, swales, and ephemeral freshwater habitat.	**Not present.** Protocol level wet season (2000 and 2020) and dry season (2002, 2005, and 2021) sampling for vernal pool large Brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
Vernal Pool tadpole shrimp (*Lepidurus packardi*)	FE/--	Inhabits vernal pools; known from scattered locations in the Delta and Central Valley.	**Not present.** Known CNDDB records miles to the east of at Potrero Hill landfill and along Highway 12. Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
			negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
California Linderiella (*Linderiella occidentalis*)	--/--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions.	**Not present.** Protocol level wet season (2000 and 2020) and dry season (2002, 2005 and 2021) sampling for vernal pool large brachiopods was conducted by Brent Helm; results were negative. Species not found during additional dry and wet season sampling in 2006 by Area West Environmental. While survey results were negative, 38 acres of unoccupied suitable habitat is present within the Project Site.
California freshwater shrimp (*Syncaris pacifica*)	FE/SE	Found in low-elevation (less than 53-foot) and low gradient (generally less than 1%) streams.	**Not present.** Suitable habitat is not present at the site. Brackish waters in the lower portion of Ledgewood Creek that occurs within areas proposed as Managed Open Space as part of the Project would not be considered suitable habitat for California freshwater shrimp.
Wilbur Springs shore bug (*Saldula usingeri)*	--/--	Found only on wet substrate of spring outflows. Requires springs/creeks with high concentrations of sodium, chlorine and lithium.	**Not present.** Suitable habitat not found at the site.
Hairy water flea (*Dumontia oregonensis*)	--/--	Vernal pools. In California, known only from Mather Field.	**Not present.** Outside the range of the species.
Western bumble bee *(Bombus occidentalis)*	--/SCE	This species was once common and widespread, but the species has declined precipitously from Central California to Southern British Columbia, perhaps from disease. Nests and overwinters underground (e.g., rodent burrows), forages on pollen and nectar of a variety of plants.	**Not present.** This widespread and once common species is included in the CNDDB due to a general decline in bee populations in recent years. CNDDB records, primarily from the 1950s through 1970s are scattered throughout the north Bay Area; the nearest record of this species (from 1950) is located approximately 1 mile to the southeast from the Project Site. Currently, this species is largely confined to high elevation sites and a small number of records on the northern California coast. Perennially flooded portions of the Project Site (within Managed Open Space) are not suitable as nesting or overwintering sites.
Crotch bumble bee (*Bombus crotchii*)	--/SCE	Found in coastal California east to the Sierra-Cascade Crest and south into Mexico. Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia* and *Eriogonum*. Nests and overwinters underground	**Unlikely.** This species occurs primarily in California with relatively few contemporary records in the northern California area vicinity of the Project Site and is included in the CNDDB due to sharp declines over the last decade. The nearest record of this species (from 2014) is approximately 4 miles to the northwest from the Project Site. Perennially flooded portions of the Project

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		(e.g., rodent burrows), forages on pollen and nectar of a variety of plants.	Site (within Managed Open Space) are not suitable as nesting or overwintering sites.
Valley Elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	FT/--	Inhabits blue elderberry bushes (host plant); restricted to the Central Valley and adjacent foothills.	**Not present.** CNDDB records of elderberry bushes with exit holes along creeks northwest of Fairfield. However, no blue elderberry bushes were observed on the site, therefore no potential habitat exists for this species on-site.
Delta Green ground beetle (*Elaphrus viridis*)	FT/--	Inhabits the drying edges of large vernal pools; presently only known from Jepson Prairie area. They prefer barren areas with an abundance of their favored prey, springtails.	**Not present.** CNDDB records at Jepson Prairie. Unlikely to occur due to a lack of suitable habitat. Project Site is not within designated critical habitat.
Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*)	--/--	Aquatic beetle that lives in weedy shallow, open water associated freshwater seeps, springs, farm ponds, vernal pools (playa type pools) and slow-moving stream habitats. Occurs in Jepson Prairie preserve in Solano County.	**Not present.** May Consulting Services conduct dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative.
Curved-foot hygrotus diving beetle (*Hygrotis curvipes*)	--/--	Inhabits small seasonal water bodies, mostly alkaline.	**Not present.** No CNDDB records in the vicinity. May Consulting Services conduct dip-net surveys for this species concurrently with surveys for large brachiopods. Survey results were negative.
Monarch butterfly (*Danaus plexippus*) (wintering sites)	FC/--	Winter roost sites located in wind-protected tree groves (eucalyptus, Monterey pine, cypress) with nectar and water sources nearby.	**Not present.** Suitable habitat for winter roosting sites is not present on-site.
Callippe silverspot butterfly (*Speyeria callippe callippe*)	FE/--	Habitat for this species is grassland, often with a significant component of native grasses including the host plant (*Viola pedunculata*) and characterized by shallow rocky soils and numerous rock outcrops.	**Not present.** Suitable habitat consisting of grassland with shallow rocky soils and the larvae host plant is not present on-site.
Fish			

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Western River lamprey (*Lampetra ayresii*)	--/SSC	Adult lampreys spawn in gravel bottomed streams, at the upstream end of riffle habitat, typically above suitable ammocoete habitat. River lampreys are associated with large river systems such as the Fraser, Columbia, Klamath, Eel, and Sacramento Rivers.	**Not present.** Suitable habitat is not present on-site. Ledgewood Creek, including portions adjacent to the Project Site within areas proposed as Managed Open Space as part of the Project, is not characteristic of the large river systems with which River Lampreys are associated.
Pacific lamprey (*Lampetra tridentata*)	--/SSC	Spawning takes place in low gradient sections of water, with gravel and sandy bottoms. Pacific lampreys have been historically or recently documented in many streams of the San Francisco Bay area.	**Not present.** Suitable habitat is not present on-site.
Green sturgeon, Southern DPS (*Acipenser medirostris*)	FT/--	Green Sturgeon rely on streams, rivers, and estuarine habitat as well as marine waters during their lifecycle. They prefer to spawn in lower reaches of large rivers with swift currents and large cobble. They are found spawning in the Sacramento, Klamath and Rogue Rivers.	**Not present.** Suitable habitat is not present on-site. Ledgewood Creek, including portions adjacent to the Project Site within areas proposed as Managed Open Space as part of the project, is not characteristic of the large river systems Green Sturgeon are associated with.
Coho Salmon-Central California Coast ESU (*Oncorhynchus kisutch*)	FE/SE	Coho Salmon spawn in streams that are narrow, shallow, clear, and cold with a strong upwelling of water through the gravel. This ESU encompasses the area from Punta Gorda in northern California south to and including tributaries to San Francisco Bay, excluding the Sacramento-San Joaquin river system.	**Not present.** This ESU is not known to occur east of Carquinez Strait.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Steelhead-Central California Coastal DPS (*Oncorhynchus mykiss irideus*)	FT/--	Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the San Pablo Bay/Napa River watersheds.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek south of Cordelia Road, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat.
Steelhead-Central Valley DPS (*Oncorhynchus mykiss irideus*)	FT/--	Steelhead spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Suisun Bay/Sacramento River Delta watersheds. Waterways currently known to support breeding/rearing habitat for steelhead in Solano County include Green Valley, Suisun Valley and American Canyon Creeks.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek south of Cordelia Road, within the area proposed as Managed Open Space as part of the project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun Slough and Steelhead could migrate upstream in search of suitable breeding habitat.
Chinook Salmon-Central Valley fall/late fall-run ESU (*Oncorhynchus tshawytscha*)	--/SSC	Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes all naturally spawned populations of fall-run Chinook salmon in the Sacramento and San Joaquin River Basins and their tributaries, east of Carquinez Strait.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat.
Chinook Salmon Central Valley spring-run ESU (*Oncorhynchus tshawytscha*).	FT/ST	Chinook salmon choose to spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU encompasses the Sacramento River and its tributaries.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the Project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Chinook Salmon Sacramento River winter-run ESU (*Oncorhynchus tshawytscha)*	FE/SE	Chinook Salmon spawn in streams that are shallow, clear, and cold with a strong upwelling of water through the gravel. The ESU includes populations of winter-run Chinook Salmon in the Sacramento River and its tributaries.	**Unlikely.** There is the potential for this species to occur within Ledgewood Creek in the southern portion of the Project Site, within the area proposed as Managed Open Space as part of the project. Ledgewood Creek is not currently known to support breeding/rearing habitat for this ESU. However, it is accessible from Suisun slough and Chinook salmon could migrate upstream in search of suitable breeding habitat
Delta smelt (*Hypomesus transpacificus*)	FT/SE	During spawning they migrate upstream into shallow fresh or slightly brackish tidally-influenced backwater sloughs and channel edges. In Solano County, Delta Smelt are found in Suisun Bay/Suisun Marsh sloughs upstream through the delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed Annexation Area (not the proposed Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the Project) and a slough that runs through the eastern portions of the Project Site are hydrologically connected to Suisun Slough and may provide suitable spawning habitat.
Longfin smelt (*Spirinchus thaleichthys*)	FC/ST	In California, Longfin Smelt have been commonly collected from San Francisco Bay, Eel River, Humboldt Bay and Klamath River. As they mature in the fall, adults found throughout San Francisco Bay migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning probably takes place in freshwater.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed annexation area (not the Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the project) and a slough that runs through the eastern portions of the Project Site are hydrologically connected to Suisun slough and may provide suitable spawning habitat.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Sacramento splittail (*Pogonichthys macrolepidotus*)	--/SSC	Adult Sacramento Splittail migrate upstream from brackish areas to spawn in freshwater areas subject to flooding, such as the lower reaches of rivers, dead end sloughs, and in larger sloughs such as Montezuma Slough. Within Solano County, splittail are year-round residents of Suisun Marsh, concentrating in the dead-end sloughs that typically have small streams feeding into them.	**Unlikely.** There is the potential for this species to occur in the southern portion of the Project Site or the eastern portion of the proposed Annexation Area (not the proposed Development Area of the Project Site). The lower reach of Ledgewood Creek (within the area proposed as Managed Open Space as part of the project) and a slough that runs through the eastern portions of the project Site are hydrologically connected to Suisun slough and may provide suitable spawning habitat.
Amphibians			
California tiger salamander, Central California DPS *(Ambystoma californiense)*	FT/ST,WL	Found in annual grasslands and grassy understory of valley-foothill hardwood habitats in central and northern California. Needs underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water source for breeding.	**Not present.** Previous dip-netting surveys have all been negative for CTS. Lack of turbid water in deeper pools not conducive to breeding and lack of suitable small mammal burrows not conducive to use as upland habitat. Pools in the southern portion of the project area were too shallow to support breeding. Significant barriers to migration occur between the Project area and known CTS occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies. Also, the proposed Annexation Area is within the 100-year floodplain as is 95 percent of the area south of Cordelia Road.
Western spadefoot toad (*Spea hammondii*)	--/SSC	Breeds in vernal pools/seasonal stock ponds in the Central Valley and southern coast.	**Not present.** CNDDB records in vicinity of the property. Nearest recorded occurrences more than 20 miles to the east and south. Dip-net surveys for other species did not turn up this species.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
California red-legged frog *(Rana draytonii)*	FT/SSC	Mostly found in lowlands and foothills in/near permanent sources of deep water but will disperse far during and after rain. Prefers shorelines with extensive vegetation. Requires 11-20 weeks of permanent water for larval development and requires access to aestivation habitat.	**Not present.** The Project Site is considered to be outside of the current range of this species. Additionally, non-tidal wetlands on-site are seasonal and do not provide the perennial waters typically required for California red-legged frog.
Foothill yellow-legged frog- North Coast DPS *(Rana boylii)*	--/SSC	Partly shaded shallow streams with riffles, with a rocky substrate in a variety of habitats; needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Frogs are usually found on stream banks, especially near riffles.	**Not present.** No suitable habitat on-site. The brackish marsh habitat within Ledgewood Creek (within areas proposed as Managed Open Space as part of the Project) is not considered suitable habitat for Foothill Yellow-legged Frog.
Reptiles			
Western pond turtle *Emys marmorata)*	--/SSC	Inhabits freshwater ponds and sluggish streams; occurs from WA to Baja, mostly west of the Sierra crest.	**Not present.** No CNDDB records in the vicinity of the property. Unlikely to occur due to a lack of perennial freshwater.
Giant garter snake *(Thamnophis gigas)*	FT/ST	Utilizes marshes, sloughs, small lakes, low gradient streams, ponds, agricultural wetlands (irrigation and drainage canals) and adjacent uplands.	**Not present.** Not known to occur in Project area.
Birds			
Great egret (*Ardea alba*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Snowy Egret (*Egretta thula*) [Rookery]	--/--	Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-	**Rookery not present.** Suitable habitat for a rookery is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		flats, streams, wet meadows, and borders of lakes.	
Black-crowned night-heron *(Nycticorax nycticorax)* [Nesting]	--/--	Colonial nester, usually in trees but occasionally in tule patches. Rookery sites are located adjacent to foraging areas including lake margins, mud-bordered bays and marshy spots.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Great blue heron (*Ardea 4.3-26onserva*) (Rookery)	--/--	Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	**Rookery not present.** Suitable habitat for a rookery is not found at the site.
Golden eagle (*Aquila chrysaetos*) [nesting and wintering]	--/FP, WL	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	**Not present.** Suitable habitat is not found at the site.
Ferruginous hawk *(Buteo reglais)* (wintering)	--/WL	Inhabits open country. Winters in small numbers along California coast and inland valleys.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
Swainson's hawk (nesting) *(Buteo swainsoni)*	--/ST	Nests in trees and riparian stands; summer migrant to Central Valley. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands.	**Not present.** No suitable nest trees occur at the site. CNDDB records nesting by this species as close as 1.4 miles from the Project Site. Use of the site for foraging is possible.
Northern harrier *(Circus hudsonius)* (nesting)	BCC/SSC	Forages and nests in grasslands, marshes, and agricultural fields; occurs throughout California, concentrated in the Central Valley and coastal valleys.	**Nesting possible.** Observed on-site during the nesting season by HBG and Vollmar Consulting. Suitable nesting habitat may occur. Expected to use the site as a foraging area in winter.
White-tailed kite *(Elanus leucurus)* (nesting)	--/FP	Nests in dense oaks, willows, other trees; occurs in the Central Valley and adjacent low foothills.	**Not present.** No suitable nest trees occur at the site. No CNDDB records in vicinity but likely to be observed foraging over the property.
Bald eagle *(Haliaeetus leucocephalus)*	--/SE,FP	In winter, may be found throughout most of California at lakes,	**Not present.** Suitable habitat not present on-site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
(nesting and wintering)		reservoirs, rivers and some rangelands and coastal wetlands. California's breeding habitats are mainly located in mountains and foothill forests near permanent water sources.	
Peregrine falcon (*Falco peregrinus*)	--/FP	Nests in woodland, forest and coastal habitats, on cliffs or banks, and usually near wetlands, lakes, rivers, sometimes on human-made structure. In non-breeding seasons found in riparian areas and coastal and inland wetlands.	**Not present.** Occurs in the area but suitable nesting habitat is not found at the site.
Prairie falcon (*Falco mexicanus*)(Nesting)	--/WL	Associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Permanent resident and migrant along inner coast and ranges. Nests on cliffs.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
Merlin (*Falco columbarius*) [wintering]	-/WL	Breeds in Canada, winters in a variety of California habitats, including grasslands, savannahs, wetlands, etc.	**Possible in winter.** The species may occasionally utilize the site as a winter foraging habitat.
California black rail *(Laterallus jamaicensis coturninculus)*	--/ST,FP	Inhabits tidal salt and brackish marsh bordering sloughs and large bays.	**Not present.** No suitable habitat at the proposed Development Area of the Project Site. CNDDB records for sloughs along edge of Suisun Bay, and may occur in the portions of the site nearest to Suisun Bay and within areas proposed as a Managed Open Space as part of the Project.
California Ridgway's rail *(Rallus obsoletus obsoletus)*	FE/SE,FP	Inhabits tidal salt marsh along larger sloughs and bays in the SF Bay and lower Delta.	**Not present.** CNDDB records south and east of the Project Site. No nesting habitat for the species found at the site; the species may occasionally utilize perennial marsh in the southern portions of the site nearest to Suisun Bay as a winter foraging habitat. Generally occurs closer to edge of Suisun Bay.
Yellow rail (*Coturnicops noveboracensis*)	BCC/SSC	Found in freshwater marshes. Summer resident in the eastern Sierra and Modoc County.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
Western snowy plover *(Charadrius 4.3-28onservation nivosus)* (nesting) (coastal population)	FT/SSC	In the San Francisco Estuary, salt pond levees and exposed salt pond beds (playa-like habitat), San Francisco Bay; rare in San Pablo Bay. Typical coastal habitat is on wide, sandy beaches with scattered debris.	**Not present.** Suitable habitat is not found at the site.
Mountain plover *(Charadrius montanus)* (wintering)	BCC/SSC	Winters in shortgrass plains, plowed fields, arid plains, alkali sink scrub, valley sink scrub, alkali playa, burned and annual grasslands, and open sagebrush areas that are barren or have sparse vegetation. Wintering plovers found in variable elevations but generally in valley bottoms below 300 meters.	**Not present.** Although Mountain Plovers winter in Solano County (e.g. area around Flannery and Robinson Roads) this species has not been reported as wintering in Project Area. Habitat conditions at the site are not likely to support wintering populations of Mountain Plover.
Long-billed curlew *(Numenius americanus)* (nesting)	--/WL	An uncommon to fairly common breeder from April to September in wet meadow habitat in northeastern California. Uncommon to locally very common as a winter visitant along the California coast, and in the Central and Imperial Valleys. Preferred winter habitats include large coastal estuaries, upland herbaceous areas, and croplands. Large numbers remain in some localities in the Central Valley in winter.	**Nesting unlikely.** The Project area is not within the nesting range of the species. Long-billed curlews observed in the proposed Managed Open Space area were likely non-breeders lingering through the summer months.
Black skimmer *(Rynchops niger)* (nesting colony)	BCC/SSC	Nests at Salton Sea and San Diego Bay and recently at San Francisco Bay. Nests primarily on gravel bars, low islets, and sandy beaches in unvegetated sites.	**Not present.** Suitable habitat is not found at the site.
California least tern *(Sterna antillarum browni)* (nesting colony)	FE/SE,FP	Nests on coastal, sandy, open areas usually around bays, estuaries, and creek and river mouths. Forages in shallow estuaries and lagoons, diving head	**Not present.** Suitable habitat for a nesting colony is not present on-site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
		first into the water after a wide variety of small fish.	
Short-eared owl (nest site) *(Asio flammeus)*	BCC/SSC	Forages and nests in perennial marsh and grassland habitat; occurs in the Central Valley, coast, and east Sierra regions.	**Nesting possible.** CNDDB nest site records at Grizzly Island Wildlife Area. This species was not observed on-site, however, the perennial brackish marsh and grasslands on the eastern portion of the Project Site provides potential foraging and nesting habitat for the species.
Burrowing owl *(Athene cunicularia)* (burrow sites)	BCC/SSC	Nests in mammal burrows, rock cavities in grassland and scrub; occurs throughout much of mid and lower California.	**Possible.** Numerous CNDDB records in vicinity including one just southwest of the property next to the Cordelia Road. This species was not observed onsite, however, nesting burrows may occur on the property along levee banks and other raised areas that do not become saturated during the winter and spring.
Loggerhead shrike *(Lanius ludovicianus)* (nesting)	--/SSC	Habitat includes open areas such as desert, grasslands, and savannah. Nests in thickly foliaged trees or tall shrubs. Forages in open habitat which contains trees, fence posts, utility poles and other perches.	**Possible.** Observed on-site by HBG and Vollmar Consulting during the nesting season. Loggerhead shrikes use the site for foraging and perching. It is unlikely this species nests onsite due to a general lack of suitable habitat, but some nest sites are available in limited on-site riparian habitat.
Bank swallow *(Riparia riparia)* (nesting)	--/ST	A migrant found primarily in riparian and other lowland habitats in California west of the deserts. In summer, restricted to riparian areas with vertical cliffs and banks with fine-textured or sandy soil, into which it digs its nesting holes.	**Not present.** Suitable habitat is not found at the site.
Saltmarsh common yellowthroat *(Geothylpis trichas sinuosa)*	BCC/SSC	Forages and nests in dense fresh and saltwater marsh habitat in the San Francisco Bay and lower Delta.	**Not present.** Common yellowthroats observed on the property are most likely not of the subspecies that is designated as a species of concern. Salt marsh common yellowthroat range does not extend east of Carquinez Strait.
Grasshopper sparrow (*Ammodramus savannarum*)	--/SSC	Found in dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches.	**Possible.** Non-native grasslands may provide suitable nesting habitat.
Suisun song sparrow	--/SSC	Forages and nests in dense marsh and scrub	**Present.** Observed on site by HBG and Vollmar Consulting foraging in the dense perennial marsh habitat on the eastern

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
(Melospiza melodia maxillaris)		habitat along the margins of Suisun Bay.	portions of the site (not the Development Area of the Project Site) during the nesting season. CNDDB records south of the property along edge of Suisun Bay. May also use the site for nesting.
San Pablo song sparrow *(Melospiza melodia samuelis)*	BCC/SSC	Tidal, brackish or salt marshes, San Pablo Bay.	**Not present.** Site is outside the limited range of this species.
Tri-colored blackbird (*Agelaius tricolor*) [Nesting colony]	BCC/ST,SSC	Breeds near freshwater, usually in tall emergent vegetation. Requires open water with protected nesting substrate. Colonies prefer heavy growth of cattails and tules. Uses grasslands and agricultural lands for foraging.	**Possible.** Historic CNDDB records several miles east of the Project Site. This species was not observed on-site, however, perennial marsh on the property could provide suitable habitat for a nesting colony.
Mammals			
Suisun shrew *(Sorex ornatus sinuosus)*	--/SSC	Inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays.	**Likely.** CNDDB record immediately east of the southern portion of the property south of Cordelia Road. Likely to occur on-site within perennial marsh in the southern and eastern portions of the property proposed to be included in a Managed Open Space.
Townsend's big-eared bat *(Corynorhinus townsendii)*	--/SSC	Found in desert scrub and coniferous forests. Roost in caves or abandoned mines and occasionally are found to roost in buildings.	**Not present.** Suitable habitat is not found at the Project Site.
Hoary bat (*Lasuirus cinereus*)	--/--	Prefers open habitats with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees.	**Not present.** Suitable habitat is not found at the site.
Western red bat *(Lasiurus blossevillii)*	--/SSC	Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands.	**Not present.** Suitable habitat is not found at the site.

Species Name	Status[2] (Federal/State)	Habitat/Range	Potential to Occur
San Joaquin pocket mouse *(Perognathus inornatus)*	--/--	Occurs in dry, open grasslands or scrub areas on fine-textured soils between 350 and 600 meters in the Central and Salinas Valleys. Occurs in shrubby ridge tops and hillsides, characterized as being open, sandy areas with grasses and forbs. Digs burrows for cover.	**Not present.** Suitable habitat is not found at the Project Site.
Salt Marsh harvest mouse *(Reithrodontomys raviventris)*	FE/SE,FP	Inhabits pickleweed salt marsh flats in the San Francisco Bay and lower Delta.	**Likely.** CNDDB records an occurrence of the species in the perennial marsh habitat on eastern edge of the proposed Annexation Area (not the Development Area of the Project Site). Species may occur in the southern portion of the property nearest to Suisun Bay.

1 Source: California Natural Diversity Data Base, Natural Heritage Division, California Department of Fish and Wildlife for the Fairfield North and Fairfield South 7.5 Minute Quadrangle Maps and surrounding areas, information dated March 2023.

4 Status Codes:

FE Federally Endangered

FT Federally Threatened

FC Federal Candidate Species

BCC USFWS Bird Species of Conservation Concern

SE California State-listed Endangered

ST California State-listed Threatened

FP California Fully Protected

SSC CDFW Species of Special Concern

WL CDFW Watch Lis

4 Definitions

Present- Species has been recorded on the Project Site.

Possible-Species has not been observed on the Project Site but there is suitable habitat, and the species is highly mobile and could utilize the site.

Unlikely-There may be suitable habitat, but the species has not been observed during biological surveys, is not known to occur on or near the Project Site or it is outside of the range of a species, or the Project Site is not accessible to a specific species.

Not Present- Suitable habitat is not found at the Project Site, species is assumed to be extirpated from Solano County, and/or surveys were conducted, and the species was not found.

Special Status Plant Species

A list of special status plants with potential to occur on the Project Site was developed from the CNDDB. A complete list of special status plant species occurring in the vicinity of the property is included in Attachment 2 (Table 1) of Appendix C. Attachment 2 (Table 1) of Appendix C includes all species of flora mentioned in the CNDDB within approximately 10 miles of the site.

Based on the information obtained through the CNDDB and the results of past surveys and protocol rare plant surveys conducted on the Project Site (the methodology and results of which are detailed in Appendix C), seven special status plant species are known to occur on the site and several additional special status species are known to occur in the vicinity of the Project Site. These species are discussed below.

Rare plant surveys were conducted within the Project Site in 2000, 2001, 2002, 2005, 2021 and 2022. Special status plant surveys conducted in 2000 (spring and summer), 2001 (spring), 2002 (spring), and 2005 (spring and summer) were conducted in spring and summer throughout the entire Project Site, including the proposed Development Area and Managed Open Space. Detailed results of the 2005 surveys and summaries of the 2000, 2001, and 2002 survey findings are reported in Gentry, Tooby and Barnfield Properties-Special status Plant Survey Report 2000 – 2002 and 2005 Field Seasons (Vollmar Consulting, June 23, 2005), included in Attachment 4 of Appendix C.

Special status plant surveys performed in 2021 (spring and summer) and 2022 (spring, summer, and fall) were in accordance with state and federal plant survey protocols (CDFW 2018 and USFWS 2005). The methodology specifically followed the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* prepared by the CDFW dated March 20, 2018. Surveys were conducted during the flowering periods of target special status species when they would be identifiable. Prior to conducting the field surveys in 2021 and 2022, the CNDDB, the USFWS Endangered Species Program Species List, and Calflora were consulted to develop a target list of sensitive plant species and sensitive natural communities potentially present within the Project Site. Previous special status plant surveys conducted on the Project Site (described above) were also reviewed. Reference sites were visited to confirm that target species were identifiable at the time of the botanical surveys. The Jepson herbarium collection was also consulted. Detailed results of the 2021 and 2022 surveys are described in survey reports included in Attachment 4 of Appendix C.

Seven special status plant species have been observed within the Project Site during the six years of protocol surveys conducted since 2000. Each of these species and their occurrence on-site is described below. The location of each of these species within the Project Site is shown on Figure 12 of Appendix C. Table 4.3-5 summarizes special status species observations within the proposed Development Area and Managed Open Space recorded during special status plant surveys conducted in 2000 to 2005 and 2021 to 2022.

Table 4.3-5. Summary of Special Status Plant Survey Results, 2000-2005 and 2021-2022, within the Proposed Development Area and Managed Open Space.

Species Name	Proposed Development Area (2000-2005) Occurrences	Proposed Development Area (2000-2005) Plant Count/Acres	Managed Open Space (2000-2005) Occurrences	Managed Open Space (2000-2005) Plant Count/Acres	Proposed Development Area (2021-2022) Occurrences	Proposed Development Area (2021-2022) Plant Count	Managed Open Space (2021-2022) Occurrences	Managed Open Space (2021-2022) Plant Count
Alkali milk-vetch[1]	7	12 (0.016 acres)	2	250 (0.007 acres)	0	0	1[2]	300
Contra Costa goldfields[1]	8	183-231 (0.030 acres)	23-31	8 million (18.33 acres)	2	71	Similar general locations as in 2000-2005	115,000[3]
Delta tule pea	0	0	1	400	0	0	6[4]	1,350
Saline clover[1]	17	465 (1.398 acres)	42	6,335 (19.048 acres)	0	0	Found only south of Cordelia Road/Street in similar	22,000

Species Name	Proposed Development Area (2000-2005) Occurrences	Proposed Development Area (2000-2005) Plant Count/Acres	Managed Open Space (2000-2005) Occurrences	Managed Open Space (2000-2005) Plant Count/Acres	Proposed Development Area (2021-2022) Occurrences	Proposed Development Area (2021-2022) Plant Count	Managed Open Space (2021-2022) Occurrences	Managed Open Space (2021-2022) Plant Count
							locations as occurrences in 2000-2005	
Suisun Marsh aster	0	0	10	4,200	0	0	2 occurrences with same location as in 2000-2005; plus additional extensive occurrences	23,000
Heckard's pepper-grass[1]	0	0	0	0	0	0	2	280
Long-styled sand-spurrey[3]	-	-	-	-	1	A few plants	0	0

[1] Recorded occurrences and counts of these annual species may differ from the locations and counts at the time that impacts occur.

4 Occurrence in same location as both occurrences recorded in 2000-2005.

[3]Total estimated plant count for the entire Project Site, including proposed Development Area and Managed Open Space

[4] One occurrence is in same location as occurrences recorded in 2000-2005.

[5]Species reportedly observed during surveys in 2000 to 2005, but occurrences were not mapped because this species was not identified as a special-status species at the time.

Alkali Milk-vetch (*Astragalus tener var. tener*)**.** Alkali milk-vetch is considered to be rare and endangered (List 1B.2) by CNPS. It is associated with seasonally saturated grasslands with alkaline soils, as well as the upper margins of alkaline vernal pools.

Seven occurrences of alkali milk-vetch, totaling an estimated 12 individual plants, were detected within the proposed Development Area. No alkali milk vetch were observed during plant surveys in Planning Area 3 of the proposed Development Area. Two additional occurrences of this species, with an estimated total of 250-300 individuals, were observed in the Managed Open Space area south of Cordelia Road/Street. Observations of this species were reported in seasonally saturated annual grassland and weedy (ruderal pasture) annual grassland.

Contra Costa Goldfields *(Lasthenia conjugens*)**.** Contra Costa goldfields is federally listed as endangered and is considered rare and endangered (List 1B.1) by CNPS. It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands. Currently, 23 historic occurrences (records separated by 0.25-mile or more) are presumed to be extant across this species' range, the majority (11) of which are within Solano County. Two of these occurrences in Solano County are within the Suisun Marsh Core Area (Unit 5); subunit 5B of this Core Area overlaps the Project Site (USFWS 2013). Recognized threats to this species include: development, habitat alteration, hydrological alterations, overgrazing, and non-native plants (CNPS 2023).

Eight occurrences of Contra Costa goldfields, totaling an estimated 183-231 individuals, were observed within the proposed Development Area during 2000 to 2005 surveys. Of these eight occurrences, one occurrence each in Planning Area 1 and Planning Area 3 were found again during 2021 to 2022 surveys, but consisted of an overall reduced number of individuals compared to the 2000 to 2005 survey. Contra Costa goldfields within the proposed Development Area were observed within or along the edge of seasonally saturated annual grasslands and within large vernal pools.

During 2000 to 2005 plant surveys, 23 to 31 occurrences of this species were observed within the Managed Open Space area: seven occurrences were north of Cordelia Street and Cordelia Road (estimated total of 267 individuals) and remaining occurrences were south of Cordelia Street and Cordelia Road (estimated total of 8 million individuals). South of Cordelia Street and Cordelia Road, the population was composed primarily of 3 relatively large occurrences, one surrounding 5 small shallow vernal pools west of Ledgewood Creek, a second along a low gradient slope with seasonally saturated annual grassland above seasonal alkali marsh in the northwest corner, and the third within a broad area of undulating mound/basin topography along the western edge (occurrences ranging from 3,000 to 7.7 million individuals). Remaining occurrences south of Cordelia Street and Cordelia Road were relatively much smaller (from 1 individual to 10,000 individuals). During the 2021 to 2022 surveys, none of the seven occurrences north of Cordelia Street were relocated; however, south of Cordelia Street, Contra Costa goldfields were observed in generally similar locations as reported in 2000 to 2005 surveys, albeit in markedly reduced numbers (total of approximately 115, 000 versus 8 million individuals).

Although the aquatic resources within the proposed Development Area (i.e. Planning Areas 1-3) appear to provide suitable habitat for Contra Costa goldfields, the population within the proposed Development Area is limited to approximately 183 individual plants within a 0.03-acre area, as estimated during the 2000 to 2005 surveys, and has not expanded over the last 20 years. The proposed Development Area includes a broad range of pool types, thatch is minimized by cattle grazing, does not support dense populations of annual grasses within the wetlands, includes bare ground areas where Contra Costa goldfields could easily compete, and soils are clearly alkaline as is evident from the population of pickleweed and alkali heath observed there. However, the population has not expanded over time. Although Contra Costa goldfields are adapted to alkaline soils, the soil type within the proposed Development Area, Sycamore silty clay loam saline, may be less suitable for Contra Costa goldfields compared to other soil types, which may explain why the population has not expanded. The vast majority of the Contra Costa goldfields population on-site occurs within the westernmost portion of the Managed Open Space area south of Cordelia Road. This area covers approximately 18 acres (approximately 8 million plants estimated during the 2000 to 2005 plant survey), within which the soil type is Pescadero silty clay loam. Plant occurrences recorded in this area appear to abruptly end where the soil type changes to the Sycamore silty clay loam saline. Refer to Figure 15 of Appendix C for the Contra Costa goldfields locations overlaid onto the NRCS soils type map.

Delta Tule Pea (*Lathyrus jepsonii ssp. Jepsonii*)**.** Delta tule pea is considered rare and endangered (List 1B.2) by the CNPS. It occurs in marsh habitat along the margins of brackish water (and occasionally freshwater) bays and sloughs.

Delta tule pea was not observed within the proposed Development Area but six occurrences were observed within the Managed Open Space area south of Cordelia Street, with an estimated total of 1,350 individuals. One of these six occurrences was observed during both 2000 to 2005 and 2021 to 2022 plant surveys; located in a localized area south of Cordelia Road and UPRR at the south end of the area within perennial brackish marsh along the

eastern bank of Peytonia Slough. The remaining five occurrences were composed of small populations found only in 2022, located in the southernmost portions of the Managed Open Space area south of Cordelia Street, and all associated with thickets of California rose bordering slough edges. Some Delta tule pea occurrences were hard to access, in particular those between major slough channels; therefore, occupancy of the Managed Open Space area south of Cordelia Street may be underestimated.

Saline Clover (*Trifolium depauperatum var. hydrophilum*)*.* Saline clover is considered to be rare and endangered (List 1B.2) by CNPS. It occurs in mesic grasslands and around vernal pools, typically in areas with subalkaline soils.

Seventeen occurrences of saline clover were observed within the proposed Development Area, with an estimated total of 465 individuals. This included seven occurrences around the upper margins of a single large vernal pool and seven occurrences in or on the edge of seasonally saturated annual grassland habitat within Planning Area 1, two occurrences in weedy (ruderal pasture) annual grassland habitat within Planning Area 2, and one occurrence within a large vernal pool in Planning Area 3.

Forty-two occurrences of saline clover were observed in the Managed Open Space area during plant surveys, two of which were north of Cordelia Street and the remaining were south of Cordelia Street. Most of these occurrences south of Cordelia Street were from seasonally saturated annual grasslands, some were in nearby upland annual grasslands and a few occurrences were located in the shallow vernal pools. The two occurrences north of Cordelia Street were located in small vernal pools. A total of 6,335 individuals were estimated during 2000 to 2005 surveys across all 42 occurrences within the Managed Open Space area.

The extent of area occupied by saline clover during 2021 to 2022 plant surveys within the Managed Open Space area south of Cordelia Street (approximately 40 occurrences) was much reduced compared to 2000 to 2005 surveys presumably due to several years of drought; however, total plant counts were much greater (Table 4.3-5). An estimated total of 22,000 individuals were estimated in the Managed Open Space area south of Cordelia Street in the 2021 to 2022 survey compared to 6,300 in the 2000 to 2005 survey.

Suisun Marsh Aster (*Symphyotrichum lentum*)**.** Suisun Marsh aster is considered rare and endangered (List 1B.2f) by the California Native Plant Society (CNPS). It occurs along the margins of bays and the banks of slough channels with brackish waters.

Suisun Marsh aster was not observed within the proposed Development Area.

More than 10 occurrences of Suisun Marsh aster were observed within the Managed Open Space area. Two of the occurrences in the Managed Open Space area were located north of Cordelia Street and were detected only during 2000 to 2005 surveys in scattered locations along the southern portion of the drainage ditch immediately to the east of Planning Area 3. Eight of the occurrences in the Managed Open Space area were located south of Cordelia Street, two of which were observed during both 2000 to 2005 surveys and 2021 to 2022 surveys. An additional unquantified number of extensive occurrences were reported in the Managed Open Space area south of Cordelia Street during 2021 to 2022 surveys. All occurrences of this species in the Managed Open Space area south of Cordelia Street were in perennial brackish marsh bordering slough banks.

Total population size of all colonies in the Managed Open Space area was estimated at approximately 4,200 plants during 2000 to 2005 surveys; an estimated population of 23,000 Suisun Marsh aster plants was observed

during 2022. Grazing pressure may have played a role in the marked changes in distribution and population count estimates between the 2 rare plant survey periods; slough banks that were closely grazed at the time of 2021 to 2022 survey period appeared to be absent of occurrences found during the 2000 to 2005 survey period, while the relocated and new populations found during the 2021 to 2022 survey period were primarily located in areas across deep tidal channels that were inaccessible to cattle.

As with Delta tule pea, some occurrences of Suisun Marsh aster were hard to access as a result of thick vegetation and deep tidal channels; therefore, occupancy of the Managed Open Space area by this species may be underestimated.

Heckard's Pepper-Grass (*Lepidium latipes* var. *herckardii)*. Heckard's pepper-grass is no longer recognized as a distinct variety in the latest edition of the Jepson Manual (Baldwin et. Al., 2012), but the species is ranked 1B.2 in the CNPS Rare Plant Inventory. This species grows in grasslands and alkaline flats in the Centra Valley.

Heckard's pepper-grass was not observed within the Project Site (proposed Development Area or Managed Open Space area) during plant surveys conducted in 2000 to 2005. Two occurrences of this species with a total estimated population of 280 plants were observed in the Managed Open Space area south of Cordelia Road during surveys conducted in 2022, within annual grassland west of Ledgewood Creek.

Long-styled sand-spurrey *(Spergularia macrotheca* var. *longistyla).* Long-styled sand spurrey grows in alkaline seeps and meadows and is ranked 1B.2 in the CNPS Rare Plant Inventory.

The species was recorded as being observed on the Project Site during 2000 to 2005 surveys, but was not mapped because it had no listing status at the time. Long-styled sand spurrey was recorded at a single occurrence within the proposed Development Area during surveys conducted in 2022; a few plants were observed growing in the seasonally saturated annual grassland north of Cordelia Road and west of Pennsylvania Avenue, within Planning Area 1.

Other Special Status Plant Species. No other special status plants were observed within the Project Site during surveys conducted in six years since 2000. Special status vernal pool species included in Table 4.3-3, such as dwarf downingia (*Downingia pusilla*), Bogg's Lake hedge-hyssop (*Gratiola heterosepala*), and legenere (*Legenere limosa*) were searched for during rare plant surveys and none of these species were observed during field surveys. Other vernal pool species listed in Table 4.3-3, including two Orcutt grasses, Colusa grass (*Neostapfia colusana*), and Crampton's tuctoria (*Tuctoria onservat*), were also considered target species during surveys. These two grasses typically occupy large and/or deep vernal pools that remain inundated into the summer during an average rain year. The large pool within the proposed Development Area can be considered possible habitat for Colusa grass and Crampton's tuctoria. However, surveys over the entire site over several years (2000 to 2005 and 2021 to 2022) yielded negative results for these species. The perennial brackish marsh in the southeastern area near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over the entire site over six years yielded negative results for this species.

The alkali seasonal wetlands on the site provide potential habitat for several of the special status plant species listed in Table 4.3-3, such as San Joaquin spearscale (*Atriplex joaquiniana*) and other species of saltbush (*Atriplex* spp.). San Joaquin spearscale is known from Travis Air Force Base (a few miles northeast of the Project Site) in habitat similar to that observed on the property. However, none of the special status plant species associated with

alkali seasonal wetlands was observed during plant surveys conducted within the Project Site during 2000 to 2005 or 2021 to 2022.

Several of the species in Table 4.3-3 are associated with marsh habitat along brackish sloughs and bay margins including Suisun thistle (*Cirsium hydrophilum* var. *hydrophilum*), soft bird's-beak (*Chloropyron mollis* ssp. *Mollis*), and Mason's lilaeopsis (*Lilaeopsis masonii*). Suisun thistle is known from only two historic locations, including one along lower Peytonia Slough. There is potential habitat for this species along the slough channels in the southern portion of the property south of Cordelia Road and the UPRR, but surveys over the entire site over six years yielded negative results for these species. Mason's lilaeopsis and soft bird's beak are more likely to occur south of the Project Site and closer to Grizzly Bay, though there is low potential for them to occur along sloughs in the southernmost portions of the Project Site, within the Managed Open Space area. As with Suisun thistle, there is the possibility these species could be present but were not seen during plant surveys conducted over six years due to the difficulty of accessing this area. However, it should be noted that this area is not proposed for development.

It is noteworthy that the three large, mapped occurrences of Contra Costa goldfields within the Managed Open Space area south of Cordelia Road and Cordelia Street are included within an area that contains a high cover of wildflower species associated with seasonally saturated grasslands and vernal pools. These fields are notable for their lack of introduced annual grasses.

Special Status Wildlife Species

A number of special status animal species with habitat requirements similar to habitats present at the Project Site are noted in the CNDDB as occurring either on portions of the Project Site or in the immediate vicinity of the Project Site, or have been observed on the site by HBG biologists during field surveys. Animal species noted in the CNDDB as occurring within a 10-mile radius of the Project Site, or that are known to occur in the vicinity based on the knowledge of HBG biologists, are presented in Table 4.3-4. Species documented from the site during HBG surveys or that are known from the CNDDB to occur in close proximity include vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardi*), California linderiella *(Linderiella occidentalis*), northern harrier (*Circus hudsonius*), Swainson's hawk (*Buteo swainsoni*), California black rail (*Laterallus jamaicensis coturniculus*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludvicianus*), Suisun song sparrow (*Melospiza melodia maxillaries*), Suisun shrew (*Sorex ornatus sinuosus*), and salt marsh harvest mouse (*Reithrodontomys raviventris*).

Additional special status species with occurrence records farther from the Project Site could also find suitable habitat conditions within the Project Site. These species include Conservancy fairy shrimp (*Branchinecta conservation*), longhorn fairy shrimp (*Branchinecta longiantenna*), Western pond turtle (*Emmys marmorata*), Delta green ground beetle (*Elaphrus viridis*), California tiger salamander (*Ambystoma californiense*), western spadefoot toad (*Scaphiopus hammondi*i), short-eared owl (*Asio flammeus*), grasshopper sparrow (*Ammodramus savannarum*), and tricolored blackbird (*Aegelaius tricolor*). All species known or suspected of occurring within 10 miles of the Project Site are evaluated in Table 4.3-4, including species such as ferruginous hawk (*Buteo regalis*), white-tailed kite (*Elanus leucurus*), prairie falcon (*Falco mexicanus*), and merlin (*Falco columbarius*), which would be expected to occasionally use the site as a foraging habitat in the winter.

Based on the habitat requirements of species listed in the table and on field review of habitats present at the site and the immediate vicinity, and through an evaluation of the suitability of on-site habitats to support these species,

it was determined that none of the other animal species discussed in the table have the potential to occur on the site (HBG 2023).

A variety of special status species surveys and assessments have taken place on the Project Site over the last 20 years. Protocol-level wet season surveys were conducted by May Consulting Services in the winter and spring of 2000 for federally listed vernal pool branchiopods, which were also appropriate for detection of non-listed special-status branchiopods. These surveys also served to check for the presence of California tiger salamanders (*Ambystoma californiense*), Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*), and curved-foot hygrotus diving beetle (*Hygrotus curvipes*). Protocol-level dry-season sampling for federally listed vernal pool brachiopods was conducted in summer of 2002 by Helm Biological Consulting and in the fall of 2005 by Area West Environmental. Recent protocol surveys for vernal pool large brachiopods included dry-season sampling in 2020 and wet-season surveys in 2021 conducted by Helm Biological Consulting. Vollmar Consulting (2006 and 2007) reviewed habitat conditions pertaining to potential presence of California tiger salamander and conducted seining for CTS larvae. Reconnaissance-level surveys were conducted during the period 2000 to 2003, 2005, and 2020, 2021, and 2022 to check for potential habitat for other special status invertebrates, amphibians, mammals and birds. The results of the species-specific site assessments, reconnaissance surveys, and habitat assessments are summarized in the following sections.

Invertebrates

Vernal Pool Brachiopods

Vernal Pool Fairy Shrimp. Vernal pool fairy shrimp (*Branchinecta lynchi*) was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical Habitat for this species was originally designated on August 6, 2003 (Federal Register 68: 46683-46867), and the designation was revised on August 11, 2005. Critical Habitat Unit Designations by individual fairy shrimp species were published on February 10, 2006 (Federal Register 71:7117). The Project Site is approximately 1.25 miles northwest of designated Critical Habitat.

Conservancy Fairy Shrimp. The Conservancy fairy shrimp (*Branchinecta conservation*) was listed as federally endangered in September 1994 (59 FR 48153). The Project Site is approximately 3.25 miles west of designated Critical Habitat.

Longhorn Fairy Shrimp. The longhorn fairy shrimp (*Branchinecta longiantenna*), a federally listed endangered species, inhabits clear to turbid grass-bottomed, vernal pools in grasslands and clear-water pools in sandstone depressions. There is no critical habitat designated within Solano County for longhorn fairy shrimp.

Vernal Pool Tadpole Shrimp. The vernal pool tadpole shrimp (*Lepidurus packardi*) was designated as threatened in its entire range on September 19, 1994 (*Federal Register* 59:48136-48153). Vernal pool tadpole shrimp is a federally listed threatened species. The Project Site is approximately 1.25 miles northwest of designated Critical Habitat.

California Linderiella. The California linderiella (*Linderiella occidentalis*), also known as the California fairy shrimp, is not listed by the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) but is listed by the International Union for the Conservation of Nature (IUCN) as a species threatened with extinction.

Both historical and recent dry-season and wet-season protocol surveys were negative for presence of federally listed large brachiopods on the Project Site. Vernal pool fairy shrimp and vernal pool tadpole shrimp do not occur on the Project Site. Refer to Attachment 5 of Appendix C for a copy of the Helm Biological Consulting 2020 and 2021 dry and wet season survey reports.

Other Invertebrates

Delta Green Ground Beetle. Delta green ground beetle (*Elaphrus viridis*) was designated as a threatened species in its entire range in 1980 (*Federal Register* 45:52807-52809). The Delta green ground beetle is known to occur only at two sites south of Dixon, and at the Jepson Prairie Preserve in Solano County, California. At the present time, the beetle is protected at the Jepson Prairie Preserve south of Dixon.

Vollmar Consulting assessed the habitat within the Project Site[2] for the presence of potential habitat of the Delta green ground beetle during studies conducted in 2003. Based on discussions of preferred habitat characteristics with Larry Sherpa, a species expert with the Nature Conservancy, Vollmar Consulting assessed the vernal pools within the proposed Development Area of the Project Site and the annexation area as not appearing to provide suitable habitat for this species since the vernal pools on-site are mostly small and shallow, and lack barren areas (Vollmar Consulting, November 2003). Vollmar Consulting indicated that the large vernal pools in the southern portion of the property appear to provide only marginally suitable foraging habitat for this species. This, along with the fact that the pools are manmade or enhanced, makes it very unlikely the beetles would occur on the site (Vollmar Consulting, January 2003). HBG wildlife biologists reviewed these findings during field reviews conducted in 2020, 2021, and 2022, and find that the only area of the Project Site providing marginally suitable habitat are areas within the southern portion of the preserved Managed Open Space closest to Suisun Marsh.

Fish

The Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run, and the spring run Chinook salmon, and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough and these fish could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur in the marshes within the eastern portion of the Annexation Area and within the portion of the site south of Cordelia Road. The lower reach of Ledgewood Creek adjacent to the southern portions of the Project Site, and a slough that runs through the eastern portion of the Annexation Area to the southern portion of the Project area, are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species.

Amphibians

California Tiger Salamander

Background. California tiger salamander (*Ambystoma californiense*) from the Central Valley Distinct Population Segment (includes Solano County) is listed as a threatened species under the federal Endangered Species Act. The species is also state listed as threatened under the California Endangered Species Act.

[2] The 5-acre landfill site was not included in this assessment.

Historically, the California tiger salamander inhabited low elevation grassland and oak savanna plant communities of the Central Valley and adjacent foothills, and the inner Coast Ranges in California. The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills. Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

Although the larvae of California tiger salamanders develop in vernal pools and ponds in which they were born, they are otherwise terrestrial salamanders and spend most of their post-metamorphic lives in widely dispersed underground retreats. Subadult and adult California tiger salamanders spend the dry summer and fall months of the year in upland refugia such as the burrows of small mammals like California ground squirrels and Botta's pocket gopher, or other landscape features such as leaf litter or desiccation cracks in the soil. The upland burrows inhabited by California tiger salamanders have often been referred to as "aestivation'' sites or as "upland habitat."

Once fall or winter rains begin, the salamanders emerge from the upland sites on rainy nights to feed and to migrate to the breeding ponds. Adult salamanders mate in the breeding ponds, after which the females lay their eggs in the water. Historically, California tiger salamanders utilized vernal pools, but the animals also currently breed in livestock stock ponds. After breeding, adults leave the pool and return to the small mammal burrows, although they may continue to come out nightly for approximately the next two weeks to feed. In drought years, the seasonal pools may not form, and the adults cannot breed.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) inter-pond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. California tiger salamanders are known to travel large distances from breeding sites into upland habitats. Sweet (1998) found California tiger salamander individuals dispersing up to 1.3 miles in Santa Barbara County, and Orloff (2011) found a similar result for California tiger salamander in Contra Costa County. Searcy and Shaffer (2011) identified 1.5 miles as the potential physiological capacity for dispersal of this species in Solano County, on the Jepson Prairie. In addition to traveling long distances during migration to, or dispersal from ponds, California tiger salamanders may reside in burrows that are far from ponds. Although California tiger salamanders can travel far, typically they stay closer to breeding ponds, and evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adults.

Occurrence in the Project Area. Vollmar Consulting (2006) reported that the closest CTS occurrence to the Project Site was a 2001 report of thousands of larvae observed at a location approximately 5 miles southeast in the Potrero Hills, with the next nearest occurrence reported from approximately six miles northeast of the Project Site (about 1.5 miles northwest of Travis Field). Five additional occurrences were reported from 10-20 miles northeast of the Project Site. A recent data search with the CNDDB (CDFW 2023) shows that the situation with respect to California tiger salamander in this part of Solano County remains fairly unchanged. There are a total of 24 total occurrences of California tiger salamander within 10 miles of the Project Site, 6 found in the Potrero Hills between 5 to 6 miles southeast of the Project Site and an additional 18 found between 6 to 10 miles northeast of the site. The nearest breeding pond is located about 5 miles southeast of the Project Site near the Potrero Hills Landfill, where evidence of breeding has been documented as recently as 2017.

For their 2006 study, Vollmar Consulting followed federal survey protocols and conducted a regional and local California tiger salamander habitat assessment, as well as three rounds of seining for larvae. May Consulting Services also have conducted dip-net surveys for this species at the site in 2000. No CTS were observed during the seine surveys conducted by either May Consulting Services in 2000 or by Vollmar Consulting in 2006. In addition, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect California tiger salamander.

Vollmar Consulting concluded that suitable California tiger salamander breeding habitat occurred within some pools in the northern portion of the site as some pools remained inundated for periods that could support California tiger salamander breeding, but the water in these pools was clear to moderately clear, which is not consistent with California tiger salamander preference for turbid waters. All of the pools in the southern portion of the Project Site were too shallow to support breeding by California tiger salamander. Vollmar Consulting (2006) also found suitable upland California tiger salamander habitat in the non-native annual grasslands surrounding some pools in the northern portion of the site, but they found no ground squirrel burrows in the Project Site (mainly due to seasonal surface and subsurface soil saturation) which decreases the potential suitability of the uplands for California tiger salamander aestivation habitat. Use of upland areas of the site by California tiger salamander would not be likely as the nearest known breeding pond is 5 miles away, well beyond the 1.3-mile maximum observed dispersal distance of the species. In addition, significant barriers to migration occur between the Project area and known California tiger salamander occurrences which include roadways, residential, commercial, and industrial development and large tidal water bodies and floodplains. In 2007 Vollmar conducted a CTS upland habitat assessment and concluded that, due to the distance from known occurrences, the presence of significant migration barriers, and lack of surrounding breeding habitat, it was highly improbable that adult California tiger salamander could access and use the Project Site as upland habitat. Perhaps just as significantly, the entirety of the proposed Development Area of the Project Site is within the 100-year floodplain, as is 95 percent of the area south of Cordelia Road, which is an additional factor not conducive to presence of California tiger salamander. Refer to Attachment 6 of Appendix C for a copy of the 2006 and 2007 Vollmar Consulting California tiger salamander reports.

Western Spadefoot Toad

Background. The western spadefoot toad (*Scaphiopus hammondii*) is a state designated species of special concern that is known from the Central Valley and adjacent foothills, and from the interior coast ranges south of San Francisco Bay to Baja California. Western spadefoot toads require presence of an aquatic habitat for breeding and a terrestrial habitat for feeding and aestivation. Western spadefoot toads are mostly terrestrial, using upland habitats to feed and burrow in for their long dry-season dormancy. The species primarily occurs in grasslands habitat, typically near extensive areas of friable soils (but usually not sandy), but can occur in valley-foothill woodlands, coastal scrub, and chaparral communities below 3,000 feet in elevation.

The western spadefoot toad requires seasonally inundated wetlands for reproduction and metamorphosis, but have been known to utilize slow-moving waters and pools within washes, river floodplains, alluvial fans, alkali lakes and playas. They mate during the rainy season (generally from January to March), usually after heavy rains. Potential western spadefoot toad breeding habitat includes any seasonally to semi-permanently inundated depression, which occurs in the known range of the species, that on average ponds water at a sufficient depth and duration for a toad to complete its lifecycle (eggs to metamorphosis). Habitats that swiftly flow water (e.g.,

creeks, streams, and ephemeral drainages) or support populations of predators (e.g., bullfrogs, fish, crayfish) are generally not considered suitable habitat for western spadefoot toad larvae.

Occurrence in the Project Area. There are no CNDDB records in the vicinity of the property. The nearest recorded occurrences are more than 20 miles to the east and south. In addition, May Consulting Services conducted dip-net surveys for this species concurrently with surveys for large brachiopods. Dip net surveys included checking for larvae and egg masses. Dip-net surveys also corresponded with the rainy period when breeding toads are most likely to be observed migrating to breeding sites. Survey results were negative.

Birds

Northern Harrier

Background. The northern harrier (*Circus hudsonius*) is a medium-sized raptor that is a USFWS bird species of conservation concern and a state designated species of special concern. The females are brown with a white tail patch while the males are gray and white. It is a state species of special concern with respect to nesting. Northern harriers build grass-lined nests on the ground within dense, low-lying vegetation in a variety of habitats, though they are typically found nesting in grassland or marsh habitats. They usually nest on level to near level ground. The species forages over open habitats and annual croplands. This species is particularly vulnerable to ground predators such as coyotes (*Canis latrans*), red fox (*Vulpes vulpes*), and various snake species. Ground nesting birds in general are also subject to disturbance by agricultural practices.

Occurrence in the Project Area. The Project Site provides suitable foraging habitat for northern harrier both for wintering individuals and for individuals that may find suitable nesting sites in the open grasslands and wetlands over the Project Site. The nearest report in the CNDDB of northern harrier nesting is from 2004 at a location over two miles southeast of the Project Site within the area of Suisun Marsh. Northern harriers have been observed by HBG wildlife biologists foraging over the Project Site during the nesting season, suggesting that the species may nest somewhere in the project vicinity. Vollmar Consulting also observed individuals foraging over the perennial marsh and grassland habitats in the portion of the site south of Cordelia Road when conducting studies for the 2006 Biological Assessment. Northern harriers use the grasslands and wetlands within the Project Site as a foraging habitat, and there is a high probability that individuals of this species nest in the southern portion of the Project Site.

Swainson's Hawk

Background. The Swainson's hawk (*Buteo swainsoni*) is a medium-sized hawk that is state listed in California under CESA as a threatened species. This hawk is also designated by the USFWS as a Bird Species of Conservation Concern. Most Swainson's hawk territories in the Central Valley are in riparian systems adjacent to suitable foraging habitats. Valley oak, Fremont cottonwood, walnut, and large willows with an average height of about 58 feet, and ranging from 41 to 82 feet, are the most commonly used nest trees in the Central Valley (CDFW 2007), but eucalyptus is also commonly used. Swainson's hawks often nest peripherally to riparian systems of the valley as well as utilizing lone trees or groves of trees in agricultural fields. Suitable foraging areas include grasslands, pastures, alfalfa and other hay crops, and certain grain and row croplands. In the Central Valley, Swainson's hawks find suitable foraging habitat in such agricultural areas near suitable nest sites; however, nesting habitat is in decline due primarily to flood control projects, agricultural practices, and urban development.

The number of breeding pairs of Swainson's hawk in California has grown rapidly in recent years. Bloom (1980) estimated that as many as 17,136 pairs of Swainson's hawks historically nested in California and in the same report, based on a 1979 survey, estimated that only 375 (±50) breeding pairs remained in California. This demonstration of a 90 percent decline in the population prompted the listing of Swainson's hawk as a state threatened species in 1983. Estep (1989) estimated 430 breeding pairs in the Central Valley and 550 breeding pairs Statewide in 1988, and an estimate published by CDFW a decade later (CDFW 2007) showed a modest increase with an estimated number of breeding pairs statewide at 1,893 in 2005 and in the Central Valley at 2,251 in 2006. In a recent study published by CDFW researchers in early 2022, Furnas et al (2022) concluded that California's Swainson's hawk summering population grew between 2005 and 2018 at the rapid rate of 13.9 percent per year and estimated the total Statewide population at 18,810 breeding pairs in 2018, which is within the range of the historical baseline that Dr. Bloom estimated in 1979. According to the Five Year Status Review for Swainson's Hawk published by CDFW in 2016, habitat loss continues to be the primary threat to Swainson's hawk populations in California.

Occurrence in the Project Area. There are no large trees located on the Project Site, and few large trees capable of supporting nesting by Swainson's hawk in the immediate Project vicinity, therefore it is unlikely that Swainson's hawk nest in the immediate vicinity of the Project Site. Trees adjacent to the site include trees within the offsite riparian habitat of Ledgewood Creek, but these trees are mostly willows not of a size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within ½ mile of the site could support nesting by the species. The non-native grasslands, seasonal and brackish/tidal wetlands, and swales found on the property provide suitable foraging habitat for Swainson's hawk that may nest away from the Project Site in areas nearby. There are 20 records of Swainson's hawk in the CNDDB within 10 miles of the Project Site, including 5 that are within 3 miles. The closest record of nesting Swainson's hawk to the Project Site is of a nest discovered in the summer of 2022 by an HBG wildlife biologist near Chadbourne Road and Courage Drive, a location that is approximately 1.4 miles west of the Project Site. (CNDDB 2022).

California Black Rail

Background. The California black rail (*Laterallus jamaicensis coturniculus*) is a state listed threatened species and a California Fully Protected Species. The California black rail most commonly occurs in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrush in association with pickleweed. In freshwater marsh, they are usually found in bulrush, cattails, and saltgrass. These rails typically occur in the high wetland zones near the upper limit of tidal influence. In California, the species occurs in San Francisco Bay, the Sacramento-San Joaquin Delta, Morro Bay, the Salton Sea, and the lower Colorado River. Loss of upper marsh zone around San Francisco Bay has reduced numbers considerably.

Occurrence in the Project Area. No California black rails were seen or heard on the Project area, during a large number of field visits to the site over the last 20 years, though no formal vocalization surveys were conducted. The CNDDB records California black rail occurrences south of the site in marsh habitat bordering Suisun Bay and associated sloughs. The perennial marsh habitat on the eastern portion of the annexation area provides low to medium quality foraging and nesting habitat for this species. Though not detected during informal surveys, it is possible the species is present along slough channels with dense perennial marsh habitat in the southern portion of the Managed Open Space area closest to Suisun Marsh.

Short-eared Owl

Background. Short-eared owl (*Asio flammeus*) is a widespread species, with populations occurring on several continents. In California, short-eared owl is considered a species of special concern for its nesting habitat due to threats related to habitat loss, grazing, invasive plants, water management projects and disease. The species is also considered a USFWS bird species of conservation concern. Short-eared owls are found in the open country of grasslands, freshwater and saltwater marshes, lowland meadows, and irrigated alfalfa fields, inhabiting areas where small mammals, especially voles, are plentiful. Tule patches or heavily-grassed areas are needed for nesting and daytime seclusion. These owls nest on dry ground in depressions concealed in vegetation. In winter, short-eared owls forage in open habitats in grassland and marshes with a plentiful source of prey.

Occurrence in the Project Area. No short-eared owls were observed on the site during multiple site visits over the last 20 years. The CNDDB records numerous nesting occurrences at the Grizzly Island Wildlife Area in both perennial marsh and grassland habitat. The perennial brackish marsh along the eastern portion of the study site provides potential foraging and nesting habitat for the species. The annual grassland and wetland habitats on the rest of the site are generally too short to provide suitable habitat, but nesting by short-eared owl in the southern portion of the site cannot be ruled out.

Western Burrowing Owl

Background. Burrowing owls (*Athene cunicularia*) are small terrestrial owls commonly found in open grassland ranging from western Canada to portions of South America. Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. In California, burrowing owls most commonly use burrows of California ground squirrel, but they also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Burrowing owls may use a site for breeding, wintering, foraging, and/or stopovers during migration. While foraging, owls will perch on raised burrow mounds or other topographic relief such as rocks, tall plants, fence posts, and debris piles to attain better visibility. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, presence of "decoration" at or near a burrow entrance which can include molted feathers, cast pellets, prey remains, eggshell fragments, or excrement.

The burrowing owl is a USFWS bird species of conservation concern and a CDFW species of special concern. CDFW adopted survey protocol and mitigation guidelines for burrowing owls as described in a March 7, 2012, Staff Report (CDFG 2012).

Occurrence in the Project Area. No burrowing owls or their burrows were observed on the site by HBG wildlife biologists, although a formal survey was not completed. No burrowing owls were reported at the site by other biologists who have studied the site over the last 20 years, including biologists conducting branchiopod surveys (May Consulting Services, Area West Environmental, Helm Biological Consulting), rare plant surveys (Vollmar Consulting, HBG), and numerous site reconnaissance surveys by HBG wildlife biologists. The nearest record of burrowing owl in the CNDDB is a 2004 report of an occupied burrow off the site adjacent to Cordelia Road.

Vollmar Consulting (2006) reported that they found no ground squirrels burrows on the Project Site, presumably mainly due to seasonal surface and subsurface soil saturation, which limits the potential for burrowing owl to inhabit the site. HBG biologists conducting field surveys at the site for nearly 20 years report few ground squirrels on the Project Site, which decreases the potential suitability of the uplands as burrowing owl habitat. Some areas

of non-native grassland are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present. The species could also occur along levee banks and other raised areas that do not become saturated during the winter and spring. Burrowing owls do not currently occur on the Project Site, but future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels.

Loggerhead Shrike

Background. Loggerhead shrike (*Lanius ludovicianus*) is a California-designated species of special concern. Loggerhead shrikes are resident and winter visitors in lowlands and foothills throughout California and are rare along the coast in winter north to Mendocino County. Preferred habitat includes open areas such as desert, grasslands, and savannah. Loggerhead shrikes nest in thickly foliaged trees or tall shrubs and forage in open habitats which contain trees, fence posts, utility poles, and other perches. Loggerhead shrikes are usually solitary birds. They feed on insects, reptiles, and small mammals, which they frequently impale on thorns and barbed wire after capturing.

Occurrence in the Project Area. This species was observed on-site by HBG in June 2005 and in the area south of Cordelia Road in July of 2021. Biologists from Vollmar Consulting also observed a single loggerhead shrike perched on the fence line along the eastern edge of the proposed Development Area of the Project Site in May 2000. Loggerhead shrikes utilize the site for foraging and perching but it is unlikely to nest on the site due to a general lack of suitable habitat.

Salt Marsh Common Yellowthroat

Background. The salt marsh common yellowthroat (*Geothlypis trichas sinuosa*), a type of warbler, is a subspecies of the widespread common yellowthroat and is a USFWS bird species of conservation concern and is designated as a California species of special concern. The breeding range of salt marsh common yellowthroat extends from Tomales Bay in the north, Carquinez Strait to the east, and Santa Cruz County to the south. This year-round resident is found in freshwater marshes, coastal swales, riparian thickets, brackish marshes, and saltwater marshes. The species occupies the ecotone between moist and upland situations (Shuford and Gardali 2008), but requires thick, continuous cover such as tall grasses, tule patches, or riparian vegetation down to the water surface for foraging and prefers willows for nesting.

Occurrence in the Project Area. Common yellowthroats have been observed by both HBG and Vollmar Consulting in the dense perennial brackish marsh habitat in the southern portion of the site south of Cordelia Road. However, a review of the breeding range map for the salt marsh common yellowthroat subspecies that is a state designated species of special concern shows that the breeding range of the subspecies of concern extends to the east only as far as about Carquinez Strait and does not include the marsh area near Suisun Bay. Although yellowthroats are present in the southern portion of the Project Site, they are not likely to be the salt marsh common yellowthroat that is a species of special concern.

Grasshopper Sparrow

Background. Grasshopper sparrow (*Ammodramus savannarum*) occurs in grasslands across North America and ranges from southern Canada to as far south as Ecuador. Grasshopper sparrows are common only in the Great Plains, but numbers are in decline due to loss of habitat, conversion of pasture to row crops, and fire suppression.

Grasshopper sparrows in California prefer moderately open, short to middle-height grassland habitats with scattered shrubs (Shuford and Gardali 2008). In California, agricultural and urban development has fragmented habitats within the range of the species, and Grasshopper sparrow has been designated in the state as a species of special concern.

Occurrence in the Project Area. Grasshopper sparrows were not observed during field surveys of the Project Site, but non-native annual grasslands on the property may provide suitable nesting and foraging habitat for the species.

Suisun Song Sparrow

Background. The Suisun song sparrow (*Melospiza melodia maxillaries*) is a state species of special concern endemic to Suisun Bay. Intermixed stands of bulrush (*Schoenoplectus* spp.), cattail (*Typha* spp.) and other emergent vegetation provide suitable habitat. Suisun song sparrows forage on the bare surface of tidally exposed mud among the tules and along slough margins in the brackish marshes of Suisun Bay during low tides (Shuford and Gardali 2008). This species' nests are strung along the edges of sloughs and bays in linear fashion. Each territory must have enough area for nesting and foraging, including tidally exposed mud, water, and vegetation suitable for nesting and cover while foraging. The vegetation must also harbor food and include permanent water or moisture in the form of tidal ebb and flow. Suisun song sparrows are physiologically and behaviorally adapted to naturally occurring brackish water conditions of Suisun Marsh. They are one of the few passerine birds that are adapted to allow direct consumption of saline water. This species prefers to consume water of the average salinity range that naturally occurs within its habitat. Previously, the literature suggested that these birds are confined to undiked tidal marshes. Recent field surveys have noted Suisun song sparrows along ditches, permanent ponds, and other areas in diked wetlands of Suisun Marsh where required plant assemblages and brackish water conditions exist.

Occurrence in the Project Area. Individuals of this species were observed by HBG in June 2005 foraging in the dense perennial marsh habitat both in the eastern portion of the annexation area and in the portion of the site south of Cordelia Road. This species was also observed by Vollmar Consulting biologists in the spring of 2000, foraging in the dense perennial marsh habitat along the eastern portion of the annexation area. The species uses the perennial marsh habitat on the site for foraging and may use the site for nesting.

Tricolored Blackbird

Background. The tricolored blackbird (*Agelaius tricolor*) is a medium-sized songbird similar in appearance to the more common red-winged blackbird but with three colors on its wing patches: red, yellow, and white. Tricolored blackbird is listed as threatened under the California Endangered Species Act and is a USFWS bird species of conservation concern. Tricolored blackbird is a highly colonial nesting species that breeds near freshwater, preferably in emergent wetlands with tall, dense growth of cattails or tules. Even when the preferred nesting substrates are available, other vegetation may be used for nesting including sedges, nettles, willows, thistles, mustard, blackberry, wild rose, foxtail grass or barley. Since the 1970s with declines in populations, nesting in cereal crops and dairy silage has been documented. Tricolored blackbird foraging areas include rangeland, fields of alfalfa or cut hay, or irrigated pastures with an abundance of insects.

Occurrence in the Project Area. No tricolored blackbirds were observed on the site and there are no current CNDDB records for the species in the vicinity. However, the perennial marsh habitat along the eastern portion of the annexation area provides suitable nesting habitat for the species.

Mammals

Suisun Shrew

Background. Suisun shrew (*Sorex ornatus sinuosus*) typically inhabit tidal marshes characterized in order of decreasing tolerance to inundation, by California cordgrass (*Spartina foliosa)*, perennial glasswort (*Salicornia ambigua)*, and hairy gumweed (*Grindelia cuneifolia)*, and brackish marshes dominated by giant bulrush (*Schoenoplectus californicus)* and broadleaf cattail (*Typha latifolia)*. It inhabits tidal marshes along the northern shores of San Pablo and Suisun Bays. It is a state species of special concern. They require dense, low-lying cover where invertebrates are abundant.

Occurrence in the Project Area. The CNDDB records an occurrence of Suisun shrew immediately east of the southern portion of the Project Site. Given the close proximity of this occurrence and the presence of suitable habitat, it is likely the Suisun shrew occurs within the perennial marsh habitat on the southern portion of the Project Site. Suisun Shrew is also likely to occur within the perennial marsh habitat along the eastern portion of the Annexation Area, as well. It is unlikely to occur elsewhere on the site, including the proposed Development Area of the Project Site, due to a lack of suitable habitat.

Salt Marsh Harvest Mouse

Background. The salt marsh harvest mouse was federally listed as endangered in its entire range in 1970 (*Federal Register* 35:16047). It is also state listed as endangered and a California Fully Protected species. The salt marsh harvest mouse is a small native rodent. There are two subspecies: the northern (*R. r. halicoetes*) and the southern (*R. r. raviventris*). The northern subspecies lives in the marshes of the San Pablo and Suisun bays, the southern subspecies resides in the marshes of Corte Madera, Richmond and South San Francisco Bay. Salt marsh harvest mice are critically dependent on dense cover and their preferred habitat is dominated by pickleweed. In marshes with an upper zone of peripheral halophytes (salt tolerant plants), mice use the vegetation to escape the higher tides, and may even spend a considerable portion of their lives there. Mice also move into the adjoining grasslands during the highest winter tides. Salt marsh harvest mice probably live on leaves, seeds, and stems of plants. The northern subspecies of the salt marsh harvest mouse can drink sea water for extended periods but prefers fresh water.

Occurrence in the Project Area. The CNDDB records an occurrence of the species in the perennial marsh habitat along the eastern portion of the proposed annexation area. This record was of a salt marsh harvest mouse trapped as part of trapping surveys conducted in the perennial brackish marsh at the east end of the annexation area in 1986. This area supports localized, homogeneous stands of pickleweed. It is assumed the species is still present in this location. There are a couple of small pickleweed stands within the portion of the site south of Cordelia Road near the railroad tracks along the southeastern property line. Given the occurrence of salt marsh harvest mice in similar habitat nearby, it is likely the species also occurs within the perennial marsh habitat on the southern portion of the property. The species is unlikely to occur on the rest of the site, including the proposed Development Area of the Project Site, due to lack of suitable habitat.

Sensitive Natural Communities

CDFW designates sensitive natural communities which are either considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW as those communities that provide special functions or values. CDFW identifies sensitive plant communities on their List of California Natural Communities and records their mapped presence as part of the information documented within the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

The area of the Project Site is documented within the CNDDB as supporting two communities designated on CDFW's list of sensitive natural communities: Northern clay pan vernal pools and Coastal brackish marsh. The mapped information in the CNDDB, shown on Figure 20 of Attachment C, provides a general location of these wetland habitat types within the Project area. Both of these natural communities were mapped in greater detail by HBG during field work conducted in 2021 as part of an Aquatic Resources Delineation pursuant to federal Clean Water Act and state Porter-Cologne Act criteria. The Aquatic Resources Delineation of the Project Site, which has been verified by the U.S. Army Corps of Engineers, is broken down by natural community type in Figure 13 of Attachment C. Areas noted in Figure 13 as perennial brackish marsh are a more detailed representation of the Coastal brackish marsh generally mapped in the CNDDB. Northern clay pan vernal pools are mapped as vernal pool communities in Figure 13 of Attachment C, but the verified aquatic resources delineation also includes additional wetland areas that would be classified as seasonally saturated annual grasslands, alkali seasonal wetlands, and riparian wetlands.

Some of the vernal pool habitats on site could be classified as a *Downingia pulchella – Cressa truxillensis* association, under the *Lasthenia fremontii – Distichlis spicata* alliance. Others fit better in the *Lasthenia glaberrima –Pleuropogon californicus* association or the *Lasthenia glaberrima Trifolium variegatum* association, both under the *Lasthenia glaberrima* alliance (Sawyer *et al.* 2009). Both the *Lasthenia fremontii – Distichlis spicata* alliance and the *Lasthenia glaberrima* alliance have a global and state rarity ranking of 2 (G2 and S2) and therefore are considered sensitive natural communities regardless of their wetland status.

CRITICAL HABITAT AND RECOVERY PLANS

Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants

The USFWS final designation of Critical Habitat for Four Vernal Pool Crustaceans and Eleven Vernal Pool Plants in California and Southern Oregon included designation of Critical Habitat for Contra Costa goldfields. The entire Project Site is included in the Contra Costa goldfields Critical Habitat designation "Subunit 5B"; no Critical Habitat for other species covered under this ruling is present within the Project Site, including vernal pool crustaceans. The Project Site encompasses approximately 487 acres, which is approximately 66 percent of the 737-acre Critical Habitat Subunit 5B. The proposed Development Area includes 93.4 acres (13 percent) of the 737-acre Critical Habitat Subunit 5B; this represents the entirety of the proposed Development Area. An additional 254.3 acres (35 percent) of Critical Habitat Subunit 5B is located within the Managed Open Space area, of which 38 acres (5 percent) overlap the area proposed for establishment of wetlands. The physical and biological features necessary for (i.e., primary constituent elements of) critical habitat for Contra Costa goldfields are the habitat components that provide: (1) Topographic features characterized by isolated mound and intermound complex within a matrix of surrounding uplands that result in continuously, or intermittently, flowing

surface water in the depressional features including swales connecting the pools described as the next primary constituent element, providing for dispersal and promoting hydroperiods of adequate length in the pools; (2) Depressional features including isolated vernal pools with underlying restrictive soil layers that become inundated during winter rains and that continuously hold water or whose soils are saturated for a period long enough to promote germination, flowering, and seed production of predominantly annual native wetland species and typically exclude both native and nonnative upland plant species in all but the driest years. As these features are inundated on a seasonal basis, they do not promote the development of obligate wetland vegetation habitats typical of permanently flooded emergent wetlands.

Designation of Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the Project Site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed Development Area and proposed Managed Open Space area of the Project Site are not located on Critical Habitat Unit 2 for the Suisun thistle and surveys have not detected any occurrences of the Suisun thistle.

Designation of Critical Habitat for the California Tiger Salamander, Central Population

The USFWS final designation of Critical Habitat for the California Tiger Salamander, Central Population includes the Project Site. The Project Site is within the 5,699-acre Critical Habitat designated as Jepson Prairie Unit. The Jepson Prairie Unit represents the northwestern portion of the species' distribution and the southern end of the Solano-Colusa vernal pool region in Solano County. The proposed Development Area includes 93.4 acres (1.6 percent) of the 5,699-acre Jepson Prairie Unit. An additional 393.2 acres (7 percent) of the Jepson Prairie Unit is located within the Managed Open Space, of which 38 acres (less than one percent) are within the area proposed for wetland establishment. However, the portion of the Jepson Prairie Unit that overlaps the proposed Project Development Area does not support the physical and biological features necessary for the conservation of the species (see additional discussion under "Issues Not Discussed Further").

Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

The USFWS developed the "Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon" dated December 15, 2005. The recovery plan covers 33 species of plants and animals that occur exclusively or primarily within a vernal pool ecosystem in California and southern Oregon. The recovery plan goals include protecting and conserving intact vernal pools and vernal pool complexes within the recovery planning area to maintain viable populations of listed species and species of concern and prevent additional threats from emerging over time. The recovery plan includes designated "core" areas that are specific sites necessary to recover these endangered or threatened species or to conserve the species of concern addressed in the recovery plan. The Project Site is within the "*Suisun Marsh Core Area*" and the extent and location is similar to the Contra Costa goldfields Critical Habitat designation Subunit 5B. For the purpose of this analysis the area of the *Suisun Marsh Core Area* is considered the same or similar to Subunit 5B of the Contra Costa goldfields Critical Habitat.

4.3.2 REGULATORY FRAMEWORK

FEDERAL REGULATIONS

Clean Water Act-Section 404

The U.S. Army Corps of Engineers (USACE or Corps) regulates discharges of dredged or fill material into Waters of the United States under Section 404 of the Clean Water Act (CWA). "Discharge of fill material" is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2(f)). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

The USACE and the U.S. Environmental Protection Agency (US EPA) are responsible for implementing the Section 404 program. Section 404(a) authorizes the Corps to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into Waters of the United States (WOTUS). Section 404(b) requires that the Corps issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b) (1) guidelines require that the Corps only authorize the "least environmentally damaging practicable alternative" (LEDPA) and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Waters of the U.S. include both wetlands and "other waters of the U.S." Wetlands and other waters of the U.S. are described by US EPA and Corps regulations (40 CFR § 230.3(s) and 33 CFR § 328.3(a), respectively). US EPA and the Corps define wetlands as "…those areas that are inundated or saturated by surface 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" (US EPA regulations at 40 CFR § 230.3(t); Corps' regulations at 33 CFR § 328.3(b)). Both natural and manmade wetlands and other waters (not vegetated by a dominance of rooted emergent vegetation) are subject to regulation. Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows.

The geographic extent of wetlands is defined by the collective presence of a dominance of wetland vegetation, wetland hydrology conditions, and wetland soil conditions as determined following the Corps' 1987 Wetlands Delineation Manual (1987 Manual); the Corps' 2008 Regional Supplement to Corps of Engineers Wetland Delineation Manual: Arid West, Version 2.0 (Arid West Regional Supplement); and supporting guidance documents. The geographic extent of other waters of the U.S. is defined by an ordinary high-water mark (OHWM) in non-tidal waters (33 CFR. §328.3(e)) and by the High Tide Line within tidal waters (33 CFR. §328.3(d)). The OHWM is defined by the Corps as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 C.F.R. §328.3(e)). Tidal waters are also under the jurisdiction of the Corps. The landward limits of jurisdiction in tidal waters extend to the

high tide line…"or, when adjacent non-tidal waters of the United States are present, to the limits of jurisdiction for such non-tidal waters" (33 C.F.R.§328.4(b)) High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 C.F.R.§328.3(d)).

Solid Waste Agency of Northern Cook County and Rapanos

In the U.S. Supreme Court decision *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers (SWANCC), No. 99-1178 (2001),* some isolated wetlands may be excluded from the Corps' Section 404 jurisdiction because they are (1) non-tidal, (2) non-navigable, (3) not hydrologically connected to navigable waters or adjacent to such waters, and (4) not subject to foreign or interstate commerce. Subsequent to SWANCC, the U.S. Supreme Court decided on *Rapanos v. United States* and *Carabell v. United States*, 126 U.S. 2208 (2006) (herein referred to as Rapanos). In 2007, guidance was given to US EPA regions and Corps districts to implement the Supreme Court's decision which addresses the jurisdiction over waters of the U.S. under the Clean Water Act. The Rapanos guidance requires the Corps to conduct detailed analysis of the functions and values of wetlands and other waters of the U.S. potentially on-site and in some cases offsite, to determine if there is a nexus to traditional navigable waters and to evaluate the significance of the nexus to the traditional navigable water. Neither the Court nor the recently-issued guidance draw a clear line with respect to the geographic reach of jurisdiction, particularly in drainages where flows are ephemeral and where wetlands are adjacent to but not directly abutting relatively permanent water.

Navigable Waters Protection Rule

In 2020, the Trump Administration obtained approval of the Navigable Waters Protection Rule (NWPR) that altered the reach of the nation's Clean Water Act. The NWPR has four categories of jurisdictional waters and twelve categories of excluded waters/features. There is no standalone interstate waters category and no case-specific significant nexus analysis. Key changes were made for defining tributary, adjacent wetland, ditches, lakes, ponds, and impoundments. New definitions for defining typical year versus normal, perennial, intermittent, ephemeral, snowpack, and ditches. No change was made to the definition of wetlands or the methodology for defining wetlands. Under the NWPR, WOTUS includes (1) territorial seas and traditional navigable waters; (2) tributaries; (3) lakes and ponds, and impoundments of jurisdictional waters; and (4) adjacent wetlands.

A ruling in the U.S. District Court for the District of Arizona on August 30, 2021, in the case of *Pascua Yaqui Tribe v. U.S. Environmental Protection Agency*, may result in the Final NWPR being overturned permanently. The Environmental Protection Agency (USEPA) and USACE are reviewing the U.S. District Court's order vacating and remanding the NWPR, have halted implementation of the Navigable Waters Protection Rule, and are currently interpreting "waters of the United States" consistent with the pre-2015 WOTUS definition and USEPA and USACE regulatory policies and guidance regime until further notice.

2023 Rule, Revised Definition of "Waters of the United States"

The final "Revised Definition of 'Waters of the United States" (2023 Rule) was published in the Federal Register on January 18, 2023 and the 2023 Rule took effect on March 20, 2023. This 2023 Rule rescinded the definition adopted in 2020 by the Trump Administration (2020 NWPR), and re-established federal Clean Water Act regulation of a number of types of water features left out of the 2020 NWPR. The new 2023 Rule cuts to the limits expressed in the 2006 *Rapanos* decision and reestablishes the "significant nexus test". This test establishes federal jurisdiction over waters that either alone or in combination with similarly situated waters significantly

affect the chemical, physical, or biological integrity of waters. Adjacent wetlands and non-navigable tributaries are regulated under this 2023 Rule if they satisfy either test. The 2023 Rule made no changes to the definition of the "tidal waters", "high tide line (HTL)" or ''ordinary high water mark'' (''OHWM'') contained in the 1986 regulations (and in the 2020 NWPR, which made no changes to the 1986 regulation).

Since the 2023 Rule was published the Supreme Court of the United States decided *Sackett v. EPA*. In Sackett, the Supreme Court unanimously rejected the significant nexus test, and decided only those wetlands with a continuous surface connection to other regulated waters such that the two are indistinguishable are subject to Clean Water Act authority. The result of the *Sackett* decision for the 2023 Rule will not be entirely clear until EPA releases guidance, but it appears at a minimum the portion of the 2023 Rule that regulates wetlands solely on the basis of the significant nexus test would be invalid and the decades old definition of "adjacent," also appears to be invalid.

Clean Water Act - National Pollution Discharge Elimination System Requirements

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollution Discharge Elimination System (NPDES) permit. The 1987 amendments established a framework for regulating municipal, industrial, and construction-related storm water discharges under the NPDES Program. On November 16, 1990, the US EPA published final regulations that establish storm water permit application requirements for specified categories of industries. The regulations provide that discharges of storm water from construction projects that encompass one or more acres of soil disturbance are effectively prohibited unless the discharge is in compliance with an NPDES Permit.

The California State Water Resource Control Board has developed a general construction storm water permit to implement the requirements for the federal NPDES permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan that specifies Best Management Practices (BMPs) that will prevent construction pollutants from entering storm water and keep products of erosion from migrating off-site into downstream receiving waters. The Construction General Permit includes post-construction requirements that the site design provide no increase in overall site runoff or the concentration of drainage pollutants and requires implementation of Low Impact Development ("LID") design features. The Construction General Permit is implemented and enforced by California's nine Regional Water Quality Control Boards.

The State Regional Water Quality Control Boards (RWQCBs) have also adopted requirements for NPDES storm water permits for medium and large municipalities, and the State Water Resources Control Board has adopted a General Permit for the discharge of storm water from small municipal storm sewer systems. This General Permit requires projects to develop and implement a post-construction Storm Water Management Plan to reduce the discharge of pollutants to the maximum extent practicable.

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. The FESA establishes an official listing process for plants and animals considered to

be in danger of extinction, requires development of specific plans of action for the recovery of listed species, and restricts activities perceived to harm or kill listed species or affect Critical Habitat (16 USC 1532, 1536).

The FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term "harm" in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Therefore, the ESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision.

In the event that listed species are involved and a Corps permit is required for impacts to jurisdictional waters, the Corps must initiate consultation with US Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service, (NMFS) pursuant to Section 7 of the ESA (16 USC 1536; 40 CFR § 402). Section 7 of the FESA requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify Critical Habitat (16 USC 1536). In the regulations found at 50 CFR 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of Critical Habitat for both the survival and recovery of a listed species." Critical Habitat is defined in FESA Section 3(5)(A) as specific areas within the geographical range occupied by a species where physical or biological features "essential to the conservation of the species" are found and that "may require special management considerations or protection." Critical Habitat may also include areas outside the current geographical area occupied by the species that are nonetheless "essential for the conservation of the species." Critical Habitat designations identify, with the best available knowledge, those biological and physical features (primary constituent elements) which provide for the life history processes essential to the conservation of the species.

If formal consultation is required, USFWS or NMFS will issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

For discretionary permit actions by non-federal entities, Section 10 of the ESA provides a mechanism for obtaining take authorization through submittal and approval of a Habitat Conservation Plan that details species impacts, measures to minimize or mitigate such impacts, and funding mechanisms to implement mitigation requirements.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFA) conserves and manages the fishery resources found off the coasts of the United States, the anadromous species, and the Continental Shelf fishery resources of the United States, including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSFA and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSFA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regard to the overall productivity and sustainability of U.S. marine fisheries (Public Law 104-267). The revised MSFA mandates the identification and protection of Essential Fish Habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect

such habitat. Federal agencies are required to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSFA 305.b.2).

Under the MSFA, NMFS identifies, conserves, and enhances EFH for those species regulated under a federal fisheries management plan (FMP). EFH is defined as those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity and includes all associated physical, chemical, and biological properties of aquatic habitat that are used by fish. Projects that have the potential to adversely affect EFH must initiate consultation with NMFS. Adverse effects are any impacts that reduce the quality and/or quantity of EFH and can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). There are four FMPs in California, Oregon, and Washington that identify EFH for groundfish, coastal pelagic species, Pacific salmon, and Pacific highly migratory fisheries.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties devised to protect migratory birds and any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. The regulations governing migratory bird permits are in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

On December 22, 2017, the U.S. Department of Interior's Office of the Solicitor issued Memorandum M-37050, which states an interpretation that the Migratory Bird Treaty Act does not prohibit the accidental or "incidental" taking or killing of migratory birds. In response to the Trump Administration's attempted changes to the MBTA, eight states, including California, filed suit in September of 2018, arguing that the new interpretation inappropriately narrows the MBTA and should be vacated. On August 11, 2020, the Southern District of New York ruled in favor of the long-standing interpretation of the MBTA to protect migratory birds, reinstating the historical ban on incidental take. Just days before leaving office, the Trump Administration finalized its pullback of MBTA regulations, despite the ruling of the federal court, and the elimination of protections pursuant to the MBTA went into effect in January of 2021. On his first day in office, new President Joe Biden placed the Trump Administration's changes to the MBTA on hold, pending further review. The Biden Administration announced the repeal of the January 2021 changes and the reinstatement of protection for migratory birds in December of 2021.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (California Department of Fish and Wildlife, CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the Corps about potential environmental impacts.

State Regulations

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Control Act

Pursuant to section 401 of the federal Clean Water Act, projects that require a Corps permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with state water quality standards before the Corps permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and its nine Regional Water Quality Control Boards (RWQCBs). A water quality certification from a RWQCB must be consistent with not only the Clean Water Act, but with the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the SWRCB's requirement to protect beneficial uses of waters of the State.

The State also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Water Quality Control Act. Waters of the State are defined more broadly than "waters of the US" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code section 13050(e)). Examples include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked baylands, seasonal wetlands, and riparian woodlands. Waters of the State include all waters within the state's boundaries, whether private or public, including waters in both natural and artificial channels. They include all "waters of the United States;" all surface waters that are not "waters of the United States, e.g., non-jurisdictional wetlands; groundwater; and the territorial seas.

The State Water Resources Control Board's State Wetland Definition and Procedures for Discharges of Dredge of Fill Material to Waters of the State adopted April 2, 2019 (the Procedures) along with the Implementation Guidance for the Procedures dated April 2020 (the Implementation Guidance) defines a wetland as an area that under normal circumstances, (1) has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation. The Procedures, along with the Implementation Guidance, state that the permitting authority (e.g., RWQCB) shall rely on any wetland area delineation from a final aquatic resource report verified by the Corps. If the Corps does not require an aquatic resource delineation report, an applicant must submit a delineation of all waters, but these delineations will be verified by the RWQCB staff during application review. Similarly, if the Corps does not require a delineation, but similar information is prepared for CDFW, the applicant submit that information to the RWQCB, who will determine if it is sufficient for the Water Board's purposes. In addition, as a matter of policy, the SWQCB/RWQCBs consider wetlands and waters determined to be non-jurisdictional by the Corps/USEPA under SWANCC or Rapanos guidance or the NWPR to remain jurisdictional as waters of the State subject to SWQCB/RWQCB jurisdiction.

The Procedures along with the Interim Guidance also include procedures for the submission, review, and approval of applications for activities that could result in the discharge of dredged or fill material to any Waters of the State and include elements of the Clean Water Act Section 404(b)(1) Alternatives Analysis Guidelines, thereby bringing uniformity to SWCQB's regulation of discharges of dredged or fill material to all waters of the state. Typically, the Corps requires a Clean Water Act 404(b)(1) Alternatives Analysis for wetland impacts greater than 0.50 acres. The Procedures require an alternatives analysis to be completed in accordance with a three tier system. The level of effort required for an alternatives analysis within each of the three tiers shall be commensurate with the significance of the impacts resulting from the discharge.

The California State Water Resource Control Board has also developed a general construction storm water permit to implement the requirements of the federal National Pollution Discharge Elimination System (NPDES) permit. Projects approved by a RWQCB must, therefore, include the preconstruction requirement for a Stormwater Pollution Prevention Plan and the post-construction requirement for a Stormwater Management Plan.

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) has permit jurisdiction over San Francisco Bay. There are two types of BCDC jurisdiction within the Bay Area:

a. Bay Jurisdiction: San Francisco Bay jurisdiction, being all areas that are subject to tidal action from the south end of the bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended north easterly to the mouth of Marshall Cut), including all sloughs, and specifically, the marshlands lying between mean high tide and five feet above mean sea level; tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).

b. Shoreline Band Jurisdiction: A shoreline band consisting of all territory located between the shoreline of San Francisco Bay as defined above in item (a) and a line 100 feet landward of and parallel with that line; provided that the commission may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the Bay.

BCDC is authorized to issue or deny permits for any filling of the Bay. Section 66605 of the McAteer-Petris Act allows the Commission to authorize Bay fill only for water-oriented uses, and minor fill to improve shoreline appearance or public access. Furthermore, the McAteer-Petris Act requires that the fill only should be authorized if there is no feasible upland location, the fill is the minimum amount necessary, the fill minimizes harmful effects to the Bay, and the public benefits clearly exceed its detriments.

The extent of BCDC jurisdiction over the Project Site is discussed in the section regarding the Suisun Marsh Protection Plan in Section 3.3.

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. The CESA is similar to the FESA but pertains to state listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents. The CESA generally prohibits the taking of state listed endangered or threatened plant and wildlife species, however, for projects resulting in impacts to state listed species, CDFW may authorize take through issuance of an Incidental Take Permit (ITP) pursuant to Section 2081 of the California Fish and Game Code. Section 2081 requires preparation of mitigation plans in accordance with published guidelines that require, among other things, measures to fully mitigate impacts to State listed species. CDFW exercises authority over mitigation projects involving state listed species, including those resulting from CEQA mitigation requirements. No authorization of take under Section 2081 is permitted for species listed in state statutes as Fully Protected Species. Where Fully Protected Species are involved, projects must be designed to avoid all take of the species. CDFW cannot issue an ITP until CEQA compliance has been achieved, usually through the CEQA Lead Agency providing documentation by preparing a negative declaration or EIR.

California Department of Fish and Wildlife - Lake and Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that will divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. Based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration. CDFW cannot issue a Streambed Alteration Agreement until the CEQA Lead Agency has provided documentation in the form of a Notice of Determination that the project has complied with CEQA.

CDFW's regulations implementing the Fish and Game Code define the relevant rivers, streams, and lakes over which the agency has jurisdiction to constitute "all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which have intermittent flows of water." (Title 14 *California Code of Regulations* [CCR] § 720). The CDFW takes jurisdiction under its Lake and Streambed Alteration Agreement Program for any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW does not have a methodology for the identification and delineation of the jurisdictional limits of streams except for the general guidance provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607 California Fish and Game Code* (CDFG 1994). In making jurisdictional determinations, CDFW staff typically rely on field observation of physical features that provide evidence of water flow through a bed and channel such as observed flowing water, sediment deposits and drift deposits and that the stream supports fish or other aquatic life. Riparian habitat is not specifically mentioned in the Fish and Game Code provisions governing Lake and Streambed Alteration Agreement, but CDFW often asserts jurisdiction over areas within the flood plain of a body of water where the vegetation (grass, sedges, rushes, forbs, shrubs, and trees) is supported by the surface or subsurface flow.

California Department of Fish and Wildlife - Fish and Game Code Section 3503, 3503.5 and 3513

The State of California also incorporates the protection of nongame birds and birds of prey, including their nests, in Sections 3503, 3503.5, and 3513 of the California Fish and Game Code. Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs. In December of 2018, California issued new guidance specifying that state law includes "a prohibition on incidental take of migratory birds, notwithstanding any federal reinterpretation of the Migratory Bird Treaty Act" by the Department of Interior.

California Department of Fish and Wildlife - Sensitive Plant Communities

CDFW has designated special status natural communities which are considered rare in the region, rank as threatened or very threatened, support special status species, or otherwise receive some form of regulatory protection. Sensitive plant communities are those natural plant communities identified in local or regional plans, policies, ordinances, regulations, or by the CDFW which provide special functions or values. Documentation pertaining to these communities, as well as special status species (including species of special concern), is kept by CDFW as part of the CNDDB. All known occurrences of sensitive habitats are mapped onto 7.5minute US Geological Survey (USGS) topographic quadrangle maps maintained by the CNDDB. Sensitive plant

communities are also identified by CDFW on their List of California Natural Communities Recognized by the CNDDB. Impacts to sensitive natural communities must be considered and evaluated under CEQA.

California Department of Fish and Wildlife - Species of Special Concern

CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Species that may be considered for review are included on a list of "Species of Special Concern" developed by the CDFW. Even though these species may not be formally listed under FESA or CESA, such plant and wildlife species must be evaluated during the CEQA review of development projects, and mitigation should be developed to prevent significant impacts to such species.

California Department of Fish and Wildlife - Fully Protected Animal Species

The classification of Fully Protected was an effort by the California Legislature in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Protection of Fully Protected species is described in four sections of the Fish & Game Code that lists fully protected species (Fish &Game Code §§ 3511, 4700, 5050, and 5515). These statutes prohibit take or possession of fully protected species at any time. CDFW is unable to authorize incidental take of Fully Protected species when activities are proposed in areas inhabited by these species, except pursuant to an approved Natural Community Conservation Plan. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Permits may be issued for the take of Fully Protected bird species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

LOCAL POLICIES AND REGULATIONS

City of Suisun City General Plan

In addition to federal and state laws and regulations, the Open Space and Conservation Element of the City of Suisun City General Plan (May 2015) includes the following goals, objectives, policies, and programs to provide for a variety of open spaces and resource conservation, and relevant to the proposed Project (additional detail for each of the City's General Plan Programs listed below is available within the City of Suisun City General Plan (May 2015).

- Goal OSC-1 Protect wildlife habitat and movement corridors through the preservation of open space.
  - Objective OSC-1 Increase the number of new developments that preserve and integrate drainages and other wildlife movement into site plans.
    - Policy OSC-1.1 The City will require biological resources investigations for proposed developments that could adversely affect potential wildlife movement corridors to determine the value and importance of such corridors to daily and/or seasonal movement and dispersal of local wildlife and identify measures to minimize and avoid adverse effects on wildlife movement. Wildlife movement corridors include marshlands, waterways, and other types of corridors that provide for movement and dispersal.

- Policy OSC-1.2 New developments in areas with waterways, riparian habitats, and stands of mature trees shall preserve and incorporate those features into project site planning and design, to the greatest extent feasible.

- Policy OSC-1.3 New developments shall be designed to protect and preserve natural watercourses and drainage channels to the maximum extent feasible.

- Policy OSC-1.4 New development shall preserve and incorporate into site planning natural drainages that could support riparian habitat.

- Policy OSC-1.5 New developments shall avoid placing any temporary or permanent barriers within wildlife movement corridors, if they are determined to exist on-site.

- Policy OSC-1.6 New developments shall be designed to avoid fragmentation or disruption of the Jepson Prairie-Suisun Marsh corridor and the City will ensure that land use change in areas near this corridor does not interrupt natural wildlife movement or migration through this area.

- Policy OSC-1.7 New developments shall be designed to preserve fish and wildlife habitats along Suisun Slough and tributary watercourses to the maximum extent feasible.

- Policy OSC-1.8 Roads, water lines, sewer lines, drainage facilities, and other public facilities constructed to serve development shall be located and designed to avoid substantial impacts to stream courses, associated riparian areas, and wetlands, to the greatest practical extent.

- Policy OSC-1.9 The City will support cooperative restoration, development, and promotion of natural resources with other public agencies with an interest in Suisun City's water and wildlife assets.

    - Program OSC-1.1 Preservation through Site Planning and Design
    - Program OSC-1.2 Wetlands and Riparian Buffers
    - Program OSC-1.3 Biological Resources Review for New Developments
    - Program OSC-1.4 Habitat Conservation Areas
    - Program OSC-1.5 Riparian Habitat Management Plan
    - Program OSC-1.6 Wetlands Delineation and Permit Requirements

- Goal OSC-2 Ensure consistency with Solano Multispecies Habitat Conservation Plan.

    - Objective OSC-2 New development in the Planning Area supports the conservation objectives of the Solano Multispecies HCP.

        - Policy OSC-2.1 The City will coordinate environmental review and mitigation requirements with the Solano Multispecies HCP.

        - Policy OSC-2.2 The City will support the use of mitigation fees from the Solano Multispecies HCP to fund preservation and restoration elements of the City's conservation and open space strategy.

- Policy OSC-2.3 The City will require that new developments comply with relevant conservation measures detailed within the Conservation Strategy chapter of the Solano Multi-Species HCP, as applicable.

- Goal OSC-3: Protect and improve the qualities and amenities of the Suisun Marsh as a natural habitat.

  - Objective OSC-2 Enhance and not detract from the habitat values provided in the Suisun March. .

    - Policy OSC-3.1 The City will support efforts to preserve lands within the Primary Management Area of the Suisun Marsh Protection Plan as open space for appropriate agriculture, wildlife habitat, and limited outdoor recreation compatible with the objectives of the Suisun Marsh Protection Plan.

    - Policy OSC-3.4 New developments shall control debris, sediment, and the rate and dispersal of runoff before drainage into watercourses and Suisun Marsh through the incorporation of erosion control measures.

    - Policy OSC-3.5 New developments adjacent to watercourses, Suisun Slough, and Suisun Marsh shall include buffer areas, as needed, to avoid flood hazards, protect water quality, and preserve habitat for wildlife.

Solano County General Plan

The proposed Managed Open Space area of the Project Site that is south of the California Northern Railroad and Cordelia Road, is within unincorporated Solano County and not proposed for annexation. Therefore, Solano County policies are summarized below for context.

The Resources chapter of the Solano County General Plan identifies goals, policies, and implementation measures that will be used by the County in day-to-day decision making to protect natural, cultural, and open space resources. The Biological Resources section of the Resources chapter addresses biological resources and the actions that the County can take to maintain, protect, and preserve the County's biological resources that include a wide range of species and natural communities. Priority habitat areas are mapped in the Solano County General Plan, and these were used to create the Resource Conservation Overlay. The Overlay indicates general locations of priority habitat, provides both opportunities and restrictions regarding the use of the underlying properties, and identifies these areas as high priority targets for future management of biological resources. The proposed Managed Open Space area of the Project Site is within the Resource Conservation Overlay Area.

The following includes the Solano County General Plan policies regarding biological resources that may be relevant to the proposed Project.

- RS.P-1: Protect and enhance the county's natural habitats and diverse plant and animal communities, particularly occurrences of special-status species, wetlands, sensitive natural communities, and habitat connections.

- RS.P-2: Manage the habitat found in natural areas and ensure its ecological health and ability to sustain diverse flora and fauna.

- RS.P-3: Focus conservation and protection efforts on high-priority habitat areas depicted in Figure RS-1 [of the Solano County General Plan (2008)].

- RS.P-4: Together with property owners and federal and state agencies, identify feasible and economically viable methods of protecting and enhancing natural habitats and biological resources.

- RS.P-5: Protect and enhance wildlife movement corridors to ensure the health and long-term survival of local animal and plant populations. Preserve contiguous habitat areas to increase habitat value and to lower land management costs.

- RS.P-6: Protect oak woodlands and heritage trees and encourage the planting of native tree species in new developments and along road rights-of-way.

Suisun Marsh Protection Plan

Development and use of the Suisun Marsh is regulated under State law. In 1976, the California legislature passed the Suisun Marsh Preservation Act because of the need to protect the marsh from potential residential, commercial, and industrial developments and the need to preserve the marsh for future generations. The Act directs BCDC and CDFW to prepare the Suisun Marsh Protection Plan to "preserve the integrity and assure continued wildlife use" of the Suisun Marsh.

The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh aquatic and wildlife habitats and to assure retention of upland areas adjacent to the Marsh in uses compatible with its protection. Policies of the Suisun Marsh Protection Plan include activities that may conflict with their own stated objectives, but are seen as important as long as they are managed, such as increased public recreational uses, agriculture, and duck hunting.

The Suisun Marsh Protection Plan divides Suisun Marsh into two zones: the Primary Management Area and the Secondary Management Area. The Primary Management Area encompasses 89,000 acres of tidal marsh, managed wetlands, adjacent grasslands and waterways over most of which BCDC has jurisdiction. The Secondary Management Area encompasses approximately 22,500 acres of buffer. Solano County administers the local protection program while BCDC represents the State's interest and also serves as the land use permitting agency for major projects in the Primary Management Area. Figure 6 of Appendix C shows the Suisun Marsh Protection Plan Primary and Secondary Management Areas within the Project Site boundary.

Details regarding habitat protections required within both the Primary and Secondary Suisun Marsh Management Areas are described in the sections below.

Suisun Marsh Primary Management Area. In the Primary Management Area, the protection of environmental values and existing uses is the primary consideration. Urban development is precluded and other uses such as oil and gas exploration and construction and operations of utilities and other facilities are highly regulated by BCDC. Nevertheless, these activities are not permitted if they conflict with the protection of the Suisun Marsh's values, and other practicable alternatives are available.

Within the Primary Management Area "… land and water areas should be managed so as to achieve the following objectives:

- Preservation and enhancement of Marsh habitat.
- Provision of habitat attractive to waterfowl.
- Improvement of water distribution and levee systems.
- Encouragement of agricultural and grazing practices consistent with wildlife use, waterfowl hunting, and elimination of mosquito breeding.
- Restoration of historic wetlands."

BCDC has jurisdiction over most of the Primary Management Area and serves as the land-use permitting agency for major projects in the Primary Management Area.

Suisun Marsh Secondary Management Area. The Secondary Management Area encompasses approximately 22,500 acres of "significant buffer lands", including upland grasslands and agricultural lands, surrounding the Primary Management Area of the Suisun Marsh. Activities within the Secondary Management Area are also severely restricted to activities that will not adversely impact the Marsh. The function of the Secondary Management Area is to act as a buffer area protecting the Marsh habitats within the Primary Management Area from adverse impacts of urban development. The Secondary Management Area also serves as a transitional zone that is used by Suisun Marsh wildlife particularly when the wetlands are flooded and during periods of high hunting pressure in the Suisun Marsh. Goals of the Secondary Management Area include:

- Returning historical marshes that have been converted for urban land use practices back to their original wetland status.
- Maintaining and enhancing Marsh-related wildlife habitats in the Secondary Management Area by planting or encouraging valuable wildlife food or cover plant species.
- Supporting existing agricultural land uses consistent with the protection of the Suisun Marsh, such as grazing and grain production.
- Establishing local runoff, erosion, and sediment control ordinances over the watershed of the Suisun Marsh to prevent or minimize earth disturbance, erosion, water pollution, and hazards to public safety.

The Secondary Management Area's function as a buffer and transitional zone to protect the Marsh is the prime consideration in building and land-use restrictions over the area. The Suisun Marsh Protection Plan disfavors urban development and encourages protection of existing grazing and agricultural practices. It also tolerates existing commercial ventures, provided they do not cause adverse impacts on Suisun Marsh. These potential impacts, whether from an existing or proposed use, include direct, quantifiable effects such as degradation of water quality, to less quantifiable impacts such as the intrusion of domestic pets.

Solano County, which has jurisdiction over the Secondary Management Area, assesses compatibility of a proposed land use according to the policies defined in the Suisun Marsh Protection Plan and further detailed in Solano County's Local Protection Program. New commercial ventures in the Secondary Management Area are not prohibited, but it is required that such ventures be compatible with the Local Protection Program. Solano

County authorizes land use and development through a rigorous permitting process. When considering a permit, there are three principal concerns:

- That the construction should not be disruptive to the ecosystem.
- That the new development should not "have lasting effects on wildlife by forming barriers and obstacles to their movements and flight patterns."
- That the process or development itself should not "stimulate urban development by providing services that are a prerequisite for such development."

Any development within the Secondary Management Area must be authorized through the Marsh Development Permit process. Application for a Marsh Development Permit must be obtained by and filed with the Solano County Planning Department. In order for the Zoning Administrator or Planning Commission to grant a Marsh Development Permit, it must be demonstrated in the application that the proposed development shall be consistent with the policies defined in the Suisun Marsh Local Protection Program, which outlines Solano County's strategies for following policies defined in the Suisun Marsh Protection Plan for the Secondary Management Area.

Suisun Marsh Agency Responsibilities. Rather than give one agency responsibility over the Suisun Marsh, the Suisun Marsh Protection Plan allows for control by multiple agencies that must maintain practices compatible with the policies of the Suisun Marsh Protection Plan. Local government agencies with jurisdiction over an area of the Marsh retain administrative control, including permit authority, and shoulder responsibility for day-to-day implementation of the Suisun Marsh Protection Plan. For guidance, those agencies reference a "local protection program" that outlines how that area should conform to the Suisun Marsh Protection Plan.

Besides administrating its own lands in the Marsh, the State maintains an oversight role, which is carried out by BCDC. The State's principal oversight duties are twofold: 1) "to ensure to the maximum extent feasible that existing uses of the Marsh continue," and 2) to ensure "that further development in the watershed does not adversely affect water quality." The means of oversight include a permit system for development in the Primary Management Area, appellate review over local decisions that "significantly affect the Marsh," and certification of the Local Protection Program.

Solano County is responsible for preparing and administering Solano County's Local Protection Program and also has permit authority in the Secondary Management Area. Solano County refers to a regulatory document called the "Solano County Policies and Regulations Governing the Suisun Marsh" for guidelines and policies concerning land use activities in the Secondary Management Area. Solano County also refers to the County General Plan to determine marsh protection policies and land use designations.

Suisun City, Fairfield, and Benicia have permit authority in the region of the Secondary Management Area that falls within the cities' boundaries. They reference their local protection programs and general plans to determine policies concerning land designations and land use activities within the Secondary Management Area.

The Fish and Game Commission and CDFW maintain ultimate authority and responsibility for management of the fish and wildlife resources of the Marsh. CDFW manages lands acquired with State funds that are intended for wildlife habitat and recreational use. Because of the daily presence of its employees in the Marsh, and the ground-

level understanding that comes from this presence, CDFW also has significant influence and responsibility over the general management of the Marsh. This includes review of the Local Protection Program, consultation on wildlife and water management and appeals, the development of Marsh programs, and the authority to inspect and report on the Marsh.

The Suisun Resource Conservation District (District) is empowered to regulate water management practices of private lands in the Marsh. Local agencies retain the responsibilities of day-to-day water management, and those agencies retain the power to enter into agreements with landowners. In instances where the District is unable to regulate water-management practices, then the appropriate State or special purpose district assumes those responsibilities. The State Water Resources Control Board sets salinity standards for water in the Marsh, while the Department of Water Resources administers any alternative freshwater source necessary to the Marsh.

The State Lands Commission advises the BCDC on State land title and ownership questions and resolves ownership disputes. It also carries out Suisun Marsh Protection Plan management recommendations on lands under its stewardship.

The State is also authorized to acquire fee interests where appropriate, and to offer advice, data, and staff support to local agencies to help with implementation of the Suisun Marsh Protection Plan. It also is encouraged to collaborate with non-profit corporations such as the Trust for Public Lands to make timely land purchases for inclusion in the Suisun Marsh public lands.

The Suisun Marsh Protection Plan requires the continuation and expansion of research investigating how to better manage the Marsh. Federal and State agencies and the Solano County Mosquito Abatement District have the responsibility for conducting this research.

BCDC, which has jurisdiction over the Primary Management Area, determines acceptance of permit applications based on whether the proposed land and water uses will be compatible with the maintenance and improvement of wildlife habitat and water quality in the Suisun Marsh. BCDC generally cannot authorize urban uses, such as houses, industries, roads, businesses, and offices within the Primary Management Area. It is necessary to obtain authorization from BCDC before undertaking any of the following activities within the Commission's jurisdiction:

- Placing solid material, pilings, floating structures, boat docks, or other fill.
- Dredging or other extraction of material.
- Making a substantial change in use of a structure or an area.
- Undertaking most types of development including some subdivisions of property.

In addition to having permit authority over potential development projects in the Primary Management Area, BCDC also regulates currently existing agricultural practices. This type of land use is supported provided it is compatible with management goals. Intensive agricultural activities involving removal or persistent plowing of natural vegetation and maintenance of fallow land during part of the year is not permitted.

Suisun Marsh Management Area Designations within the Project Site. Cordelia Avenue defines the northern boundary of the area regulated by the Suisun Marsh Protection Plan. All areas north of Cordelia Road on the west and east sides of Pennsylvania Avenue are located outside (north of) the jurisdictional area and not subject to the land use regulations of the Suisun Marsh Protection Plan.

The entire area south of Cordelia Road and the California Northern Railroad is situated within the jurisdictional area of the Suisun Marsh Protection Plan, with the majority of this area located within the Primary Management Area. A small area in the western portion of this area is located within the Secondary Management Area. Areas south of Cordelia Road are therefore subject to the regulations and land use restrictions of the Suisun Marsh Protection Plan. The portion of the Project Site within the Primary Management Area is under the jurisdiction and permitting authority of BCDC. Permitted development projects are typically restricted to the construction or maintenance of duck hunting club or wildlife viewing facilities, maintenance of levees, existing railways, roads, utilities, and buildings, gas and oil exploration, and construction and operation of natural gas wells. Residential or commercial development projects are generally not permitted in this area.

The small area located within the Secondary management area is under the jurisdiction and permitting authority of Solano County. This area is zoned by the County as MP (Marsh Preservation District). A single primary residence is an allowed use on MP zoned lands. Other limited developments such as certain types of agricultural operations, hunting clubs or preserves, gas and oil exploration, and construction and operation of natural gas wells can also be permitted. Any proposed development project is authorized through the Marsh Development Permit and must conform to Solano County's General Plan and Suisun Marsh Local Protection Program.

Solano Habitat Conservation Plan Volume I (Public Draft – Dated 2012)

In March 1999, the USFWS, in accordance with Section 7 of the federal Endangered Species Act of 1973 (as amended), issued a Biological Opinion regarding the Solano Project Water Service Contract Renewal between the Bureau of Reclamation and the Solano County Water Agency (SCWA). The contract provides for continued delivery of Solano Project water throughout the SCWA contract service area. SCWA delivers Solano Project water in accordance with its eight Member Agency contracts, which includes the City of Suisun City. The Bureau of Reclamation, SCWA, and the member agencies have agreed to implement conservation measures to ensure the protection of threatened and endangered species and their habitat within the SCWA contract service area. As a condition of the Biological Opinion, SCWA and its member agencies are required to prepare a Habitat Conservation Plan, per Section 10(a)1(B) of the Federal Endangered Species Act, in order to obtain authorization for incidental take of listed species that may be impacted by activities associated with future water use in the Solano Project contract service area. The Solano Multispecies Habitat Conservation Plan (SMHCP) was drafted in 2002; it SMHCP has not yet been adopted and currently there are no proposals to update and adopt this conservation plan in the foreseeable future.

The SMHCP establishes a framework for complying with State and Federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. It will account for all activities undertaken by or under the permitting authority and control of the SMHCP participants within Solano County, of which Suisun City is a plan participant.

Thirty-six species are proposed to be covered under the SMHCP. The purpose of the SMHCP is to promote conservation of biological diversity consistent with the recognition of private property rights, providing for a healthy economic environment for the citizens, agriculture, and industries, and on-going maintenance and operation of public and private facilities in Solano County.

The Solano HCP includes the proposed Development Area of the Project Site, in Zone 1 "Urban Zone." This zone is defined as the existing and identified potential urban Development Areas within the member agency cities of

Vacaville, Fairfield, Suisun City, Rio Vista, Dixon and Vallejo. The remainder of the Project Site is within Zone 3. Covered activities within this zone are primarily related to implementation of the SMHCP conservation measures (i.e., management, enhancement, habitat restoration/construction, monitoring, scientific collection, and associated compatible activities on designated reserves, mitigation sites/banks, and open space lands and adjacent lands) and non-agricultural activities carried out under the authority of or participation by the SMHCP Participants on lands outside of the designated urban boundaries (communication towers, water supply reservoirs, recreational facilities management).

The Solano HCP has been in draft form since approximately 2002 and has gone through several iterations, most recently revised in 2012. However, the SMHCP is still not approved for use, and there is no indication it will be approved in the foreseeable future. If the SMHCP does get approved prior to all permits and approvals for the Highway 12 Logistics Center, the project applicant would consider the use of the SMHCP and/or incorporating mitigation measures suggested in the SMHCP.

4.3.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

This section analyzes potential direct and indirect, temporary and permanent, and cumulative impacts to biological resources that have the potential to be affected by implementation of the proposed Project.

Direct impacts are caused by the Project and occur at the same time and place. Direct permanent impacts refer to the permanent physical loss of a biological resource typically due to clearing and grading associated with project implementation (e.g., permanent loss of vegetation/wildlife habitat, injury/mortality of individual plants or wildlife, permanent interference with wildlife movement or habitat connectivity). Temporary impacts refer to a temporary loss of biological resources that would generally occur for a short period (e.g., up to approximately 1 year) and would normally be reversible (e.g., temporary removal of vegetation after which revegetation would occur).

Indirect impacts are reasonably foreseeable Project effects on adjacent biological resources outside the direct disturbance zone that may occur typically during construction, such as from dust, noise, vibration, increased human activity, and pollutants. Indirect impacts also include project-related effects that could occur later in time, such as changes to hydrology, introduction of invasive species, operations-related dust and noise that persist after construction is complete.

Cumulative impacts result from the combined effect of several projects; it is evaluated as the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

Potential impacts on biological resources resulting from implementation of the proposed Project were determined through use of the data obtained through habitat reconnaissance, field observation, and literature sources, as detailed above in the “Environmental Setting,” as well as consideration of the rules, regulations, and plans in place for the purposes of environmental protections, as detailed in the “Regulatory Framework” section above.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by 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

The "Impact Analysis" section will not further analyze the proposed Project against thresholds of significance for which no significant impacts have been identified based on technical studies conducted within and in the vicinity of the proposed Project Site (HBG 2006; HBG 2021; Vollmar 2006; Helm 2021; AWE 2006). Therefore, the following issues are not discussed further in the impact analysis.

Monarch Butterfly

No trees are present on the Project Site so there is no possibility for the presence of a monarch butterfly overwintering site at the Project Site. Several biologists, including most recently HBG, have studied the site or portions of the site, and none have reported the presence of milkweed plants of the genus Asclepias that serve as the larval host plant for monarchs. No suitable habitat for monarch butterflies is found on the Project Site. Therefore, **no impacts** to monarch butterflies would result from construction of the proposed Project and no mitigation is warranted.

Delta Green Ground Beetle

This species may occasionally be found in association with nearby smaller vernal pools, hog wallows, or grassy swales, particularly during wet years. However, it is believed that the beetle is probably only transient at these

smaller pools, as it disperses between the larger playa lakes, rather than a resident breeder. During dry or drought years, annual grasses and other weedy plants increase in numbers at the small vernal pools, thereby rendering habitat conditions unsuitable for the beetle. Due to the (1) lack of suitable habitat on the Project Site; (2) the distance between the Project Site and the nearest known occurrence of delta green ground beetle within playa lake complexes at the Jepson Prairie, and (3) that the Project Site is not located within designated Critical Habitat, construction of the proposed Project would have **no impact** to the delta green ground beetle and no mitigation is warranted.

Western Bumble Bee

Currently, this species is largely confined to high elevation sites and a small number of records on the northern California coast. No CNDDB records from within nearly the last 50 years are located within 5 miles from the Project Site. This species is not expected to occur in the vicinity of the project in Solano County; therefore, **no impacts** to western bumble bee are anticipated from construction of the proposed Project and no mitigation is warranted.

California Tiger Salamander & Critical Habitat, Central Population

The entire Project Site, which includes the 93.4-acre Development Area, is within the 5,699-acre Critical Habitat designated as the Jepson Prairie Unit. The Jepson Prairie Unit represents the northwestern portion of the species' distribution and represents the southern end of Solano-Colusa vernal pool region in Solano County. According to the final rule, this unit contains all three of the primary constituent elements and four extant occurrences of the species in one aggregation. The primary constituent elements required for the Central population of CTS are: (1) standing bodies of fresh water (including natural and manmade (e.g., stock)) ponds, vernal pools, and other ephemeral or permanent water bodies which typically support inundation during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall; (2) upland habitats adjacent and accessible to and from breeding ponds that contain small mammal burrows or other underground habitat that CTS depend upon for food, shelter, and protection from the elements and predation; and (3) accessible upland dispersal habitat between occupied locations that allow for movement between such sites.

Although within Critical Habitat designated as the Jepson Prairie Unit, the Project Site does not contain all the physical or biological features (i.e., primary constituent elements) essential to conservation of the species. The Project Site supports only one of the three primary constituent elements required for habitat to be considered critical habitat for California tiger salamander. The Project Site does support vernal pools that become inundated during winter rains and hold water for a minimum of 12 weeks in a year of average rainfall. However, the Project Site does not have upland habitats that are adjacent to or accessible from breeding ponds as there are no breeding ponds onsite or within the dispersal distance of the species; and uplands onsite lack necessary underground refugia. Furthermore, the site is not accessible to California tiger salamander from more distant breeding sites due to barriers to movement of individuals. Further discussion and rationale is provided below.

In 2006 Vollmar Consulting conducted a California tiger salamander site assessment and aquatic survey. The site assessment and aquatic surveys followed the guidelines described in the CDFW and USFWS Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. Aquatic survey results were negative, and the site assessment concluded the closest California tiger salamander occurrence to the project area is located approximately 5 miles southeast, in the Potrero Hills area, well beyond the 1.3-mile observed maximum dispersal distance known for the species. It also concluded

significant barriers to migration occurred between the Project Site and known California tiger salamander occurrences which include roadways, residential, commercial, and industrial development, and large tidal channels. Additionally, the majority of the Project Site is within the 100-year floodplain and no mammal burrows were observed on-site. Furthermore, dip-net surveys conducted for vernal pool fairy shrimp in 2006 by Area West Environmental and 2021 by Helm Biological did not detect CTS.

It is clear that the Project Site does not support California tiger salamander based upon (1) the 2006 Vollmar Consulting California tiger salamander site assessment accompanied by aquatic surveys with negative results for California tiger salamander, (2) the aquatic surveys conducted by May Consulting in 2000 and Helm Biological in 2021 which did not detect California tiger salamander, (3) the water in vernal pools in the northern portion of the site was clear to moderately clear which is not consistent with California tiger salamander preference for turbid waters, and all of the pools in the southern portion of the project area were too shallow to support breeding by California tiger salamander, (4) the Project Site is surrounded by significant barriers to known California tiger salamander breeding ponds that are nearly 5 miles from the Project Site, making the Project Site inaccessible to California tiger salamander from known occurrences, and (5) the Project Site lies within the 100-year floodplain that is not conducive to presence of California tiger salamander. Because the site does not support California tiger salamander breeding, foraging or dispersal habitat and lacks the required primary constituent elements of critical habitat for reasons described above, **no impacts** to California tiger salamander or designated critical habitat for this species would result from construction of the proposed Project and no mitigation is warranted.

Western Spadefoot Toad

The nearest recorded occurrences of this species to the Project Site are more than 20 miles away to the east and south. Dip-net surveys conducted for California tiger salamander by Vollmar Consulting in 2006 and dip-net surveys conducted for vernal pool fairy shrimp 2006 by Area West Environmental and 2021 by Helm Biological did not detect western spadefoot toads. Based on the nearest recorded occurrence being over 20 miles from the Project Site, and dip-net surveys for other species did not turn up this species, the proposed Project would have no impacts to the western spadefoot toad. Therefore, **no impacts** to western spadefoot toad would result from construction of the proposed Project and no mitigation is warranted.

Special Status Vernal Pool Crustaceans

As described in Section 4.8.2.1 of this Draft EIR, Hydrology and Water Quality, one wet and two dry season surveys were conducted for special status vernal pool crustaceans (vernal pool tadpole shrimp, vernal pool fairy shrimp) between 2000 and 2005. The wet season survey was conducted in 2000 and the dry season surveys were conducted in the late fall of 2002 and late fall of 2005. The results of all three surveys were negative for federally-listed large branchiopods and for non-listed special-status branchiopods.

In 2006, Area West Environmental conducted dry and wet season sampling for federally-listed large branchiopods (e.g., vernal pool fairy shrimp [*Branchinecta lynchi*] and vernal pool tadpole shrimp [L*epidurus packardi*]) vernal pool. Surveys generally followed USFWS Interim Survey Guidelines to Permittees for Recovery Permits under Section 10 (a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods. Survey results were negative for federally-listed large branchiopods for non-listed special-status branchiopods. Also noted in the report were negative findings for California tiger salamander and California red-legged frog.

New surveys were conducted by Helm Biological Consulting that included dry season surveys in 2020 and wet season surveys in 2021. These surveys, which followed USFWS's (2017) Survey Guidelines for Listed Large Branchiopods, were also negative for the presence of federally-listed large vernal pool brachiopods for non-listed special-status branchiopods. According to Helm Biological Consulting's report for the 2021 wet season surveys, "the majority of potential listed large branchiopod habitat found on-site was marginal and largely consisted of palustrine emergent wetlands hydrologically connected with estuarine intertidal wetlands located along the southern and eastern boundaries of the Project Site. Fish (e.g., smelt [Osmeridae]) were observed within one of the sampled habitats (W-54) and likely occur in more habitats during higher rainfall years. Additionally, portions of one habitat (W-19) receive agricultural runoff. Therefore, the sampled habitats would not historically or presently be considered ideal habitat for listed large branchiopods."

Despite the lack of vernal pool crustaceans on the Project Site as demonstrated by multiple protocol surveys conducted between 2000 and 2021, the seasonal wetlands within the Project Site provide suitable (albeit marginal) habitat conditions for these vernal pool crustaceans. Approximately 38 acres of unoccupied suitable habitats for vernal pool crustaceans would be impacted (filled) as a result of project construction, but overall habitat conditions suitable for vernal pools crustaceans throughout the Project Site would remain because mitigation for wetland losses (see Impact 4.3-15 and Mitigation Measures 4.3-15 below) includes creation of 38 acres of wetlands (including vernal pools) to achieve no net loss of these habitats. In addition, approximately 107.2 acres of seasonal wetlands (including vernal pools) will be preserved within the Managed Open Space area.

Critical Habitat for Suisun Thistle

The perennial brackish marsh in the southeastern area of the Project Site near Peytonia Slough is designated as Critical Habitat Unit 2 for the Suisun thistle, however surveys over several years yielded negative results for this species. The proposed Development Area and area of proposed wetland establishment within the Managed Open Space area are located outside of Critical Habitat Unit 2 for the Suisun thistle. The nearest point of the proposed Development Area is approximately 1,300 feet from, and the nearest created/established wetland is proposed approximately 300 feet from Critical Habitat Unit 2. Furthermore, surveys have not detected any occurrences of the Suisun thistle within the Development Area or Managed Open Space area. Therefore, **no impacts** to Critical Habitat for Suisun thistle would result from construction of the proposed Project and no mitigation is warranted.

IMPACT ANALYSIS

Special Status Plant Species

Construction of the proposed Development Area would result in direct impacts to federally listed endangered and CNPS List 1B.1 Contra Costa goldfields, and three CNPS List 1B.2 species: alkali milk-vetch, saline clover, and Suisun Marsh aster. Additional impacts to 38 acres of marginal habitat for Contra Costa goldfields could result from grading for wetland creation in the proposed Managed Open Space area of the Project Site.

Impact 4.3-1 Contra Costa Goldfields & Critical Habitat. *Development of the proposed Project would directly impact an estimated 183 to 231 individual Contra Costa goldfields plants over an approximately 0.03-acre area of occupied habitat for Contra Costa goldfields, would directly impact 38.0 acres of marginal habitat for Contra Costa goldfields, and may indirectly impact occupied Contra Costa goldfields habitat in proposed Managed Open Space area as a result of mitigation wetland grading. The proposed Project also would impact 93.4 acres of Critical Habitat Subunit 5G. These impacts would be potentially significant.*

Based on special status plant surveys conducted for the Project in 2000 to 2005 and 2021 to 2022, more than 8 million individual Contra Costa goldfields, over an 18.4-acre area, may be present within the Project Site. Within the proposed Development Area of the Project Site, an approximately 0.03-acre area occupied by an estimated 183 to 231 individual Contra Costa goldfields would be directly impacted by the proposed Project. This total impact represents less than 0.1 percent of both the known population of Contra Costa goldfields and known occupied area estimated within the entirety of Project Site. Because this is an annual species for which the population numbers fluctuate in any given year, the actual direct impact to individuals may differ at the time of project construction; however, because we estimated the potential impact to be the maximum number of individuals observed throughout the six years of plant surveys since 2000, including one very wet survey year in 2005, it is likely that the true impact will be similar or less than identified herein. Appendix C, Figure 12 shows the location of the four special-status plant species subject to direct construction impacts.

Additional impacts to Contra Costa goldfields could result from the placement of fill material within 38 acres of unoccupied potential habitat for Contra Costa goldfields within the Managed Open Space area south of Cordelia Road and Cordelia Street for the creation of mitigation wetlands. These 38 acres are composed of seasonally saturated annual grassland, alkali seasonal wetland, and vernal pool vegetation. This 38-acre area is currently unoccupied by Contra Costa goldfields, and plant surveys conducted in six of the past 20 years have not detected this species in this area. As discussed in Section 4.3.1 under "Contra Costa Goldfields" under "Special Status Plant Species," above, the Sycamore silty clay loam saline soil type present within these 38 acres of unoccupied wetland habitat may have a reduced potential to support Contra Costa goldfields compared to Pescadero silty clay loam soils, where the vast majority of the Contra Costa goldfields population occurs within the Project Site. Therefore, the loss of 38 acres of unoccupied wetland habitats suitable for Contra Costa goldfields within the Managed Open Space area of the Project Site would represent a loss of relatively lower quality habitat for this species.

The portion of the population of Contra Costa goldfields on the Project Site where the vast majority of individuals have been documented, on Pescadero silty clay loam soils, is located outside the proposed Development Area and would not be directly impacted by the proposed Project. However, implementation of the proposed Managed Open Space area of the Project would require grading near this area of occupied Contra Costa goldfields habitat in the southwestern portion of the Project Site to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Therefore, creation/establishment of 38 acres of wetlands within Managed Open Space has potential to alter the hydrology within adjacent occupied Contra Costa goldfields habitat, potentially rendering it unsuitable for Contra Costa goldfields occupancy. Vehicles or pedestrians entering occupied Contra Costa goldfields habitat during construction could also adversely affect Contra Costa goldfields habitat. Construction activities could also harm Contra Costa goldfields populations by spreading non-native invasive plant species already present in the Project area or introducing new species via unwashed construction vehicles and equipment. The proposed Project would result in the development of 93.4 acres of designated critical habitat for Contra Costa goldfields (i.e., the entire proposed Development Area), of which an estimated 0.03 acre are occupied by the species; this represents approximately 13 percent of the 737-acre Critical Habitat Subunit 5B. The majority of the proposed Development Area is nearly level grazed natural lands and largely lacks the surface micro topography to support the physical and biological features necessary for critical habitat for this species. However, 254.3 acres of designated Critical Habitat for this species (5 percent of Subunit 5G) is located within proposed Managed Open Space area, proposed for preservation, and which includes an approximately 8.5-acre broad terrace with undulating mound/basin topography that characterizes the key elements of critical habitat for this species.

Direct impacts to an estimated 0.03-acre area occupied by approximately 183 to 231 individual Contra Costa goldfields, loss of 38 acres of unoccupied presumed lower quality Contra Costa goldfields habitat, and potential indirect impacts associated with wetland grading in the proposed Managed Open Space area of the Project Site would be **potentially significant.**

Mitigation Measure 4.3-1a: Establish New Contra Costa goldfields Habitat and Populations

The Project applicant shall establish/create a minimum of 0.03 acre (1:1 ratio) of Contra Costa goldfields habitat with the performance standard of supporting a minimum of 183 individual Contra Costa goldfields plants at least 2 out of the 10 years of the monitoring period. Establishing new populations of Contra Costa goldfields shall be done in consultation with USFWS and CDFW and with approval from these agencies and may be accomplished by collecting seed from extant populations and salvaging seed and topsoil from occupied Contra Costa goldfields habitat within the proposed Development Area. As described in the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C), the new Contra Costa goldfields populations would be established in the 38-acre wetland creation/establishment area within the proposed Managed Open Space area of the Project Site, adjacent to the existing large population within the Pescadero silty clay loam soil type. A plan for collecting seed and establishing new populations shall be coordinated with the USFWS during the ESA Section 7 consultation process, as described in the Mitigation and Monitoring Plan.

Mitigation Measure 4.3-1b: Establish and Manage 38 Acres of Wetland Habitat

To ensure a no-net-loss of potential Contra Costa goldfields habitat the Project applicant shall establish/create 38 acres of in-kind, or higher quality, wetland habitat that is suitable for Contra Costa Goldfields within the proposed Managed Open Space area of the Project Site, prior to or concurrent with project construction. The established/created wetlands shall be implemented, and performance standards shall be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space area (Attachment 7 to Appendix C). Management actions to be implemented to manage, protect, and enhance wetlands and associated rare plant populations shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created wetlands shall continue in perpetuity as described in the Mitigation and Monitoring Plan. Prior to site mobilization the project applicant shall secure approval of detailed construction plans for wetland mitigation in the Managed Open Space area from USFWS, CDFW, RWQCB, and BCDC.

If additional wetland mitigation is required by the USFWS, CDFW, RWQCB, or BCDC to compensate for impacts on unoccupied habitat for Contra Costa Goldfields or if success criteria for created wetlands cannot be fully attained with onsite wetland mitigation, the Project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the Project Site and which supports existing populations of Contra Costa goldfields. The North Suisun Mitigation Bank and Goldfields Conservation Bank currently service the proposed Project Site. Purchase of preservation credits may be used to accomplish this compensation; the ratio of credits purchased to habitat impacted shall be approved by USFWS and CDFW. If no mitigation banks that service the proposed Development Area are available, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-

Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 4.3-1c: Preserve and Manage Contra Costa goldfields Habitat

The Project applicant shall preserve and manage the Contra Costa goldfields occupied habitat in the proposed Managed Open Space area as described in the Mitigation and Monitoring Plan. The Managed Open Space area contains an approximately 17-acre area in the southwestern area of the Project Site that currently supports from 8,000 to 7.7 million individual Contra Costa goldfields plants within the Pescadero silty clay loam soil, a 2.4-acre area of occupied habitat currently supporting 267 individual plants in the northern area east of Pennsylvania Road, approximately 107.2 acres of existing unoccupied seasonal wetlands similar to the 38-acres of unoccupied wetland habitat that would be impacted, and 38 acres of the wetland creation/establishment area, all of which will be preserved within the Managed Open Space area. To ensure a no-net-loss of CCG Critical Habitat, a minimum of 93.4 acres CCG Critical Habitat Subunit 5G shall be preserved and managed within proposed Managed Open Space area. Management actions to be implemented to manage, protect, and enhance Contra Costa goldfields occupied habitat shall include but not be limited to managing grazing practices, invasive plant inspections and maintenance, maintaining fencing and signage, and annual reporting on inspections and maintenance practices to authorizing agencies. Protection and management of the created Contra Costa goldfields habitat shall continue in perpetuity as described in the Mitigation and Monitoring Plan (Attachment 7 to Appendix C).

Mitigation Measure 4.3-1d: Install Construction Fencing

To avoid direct or indirect impacts to occupied Contra Costa goldfields habitat during grading activities within the proposed Managed Open Space area of the Project Site, orange construction fencing delineating a non-disturbance buffer from the boundary of occupied Contra Costa goldfields habitat shall be installed before construction activities begin. The size of the non-disturbance buffer shall be established in consultation with the appropriate permitting agencies and shall be of sufficient size to protect the Contra Costa goldfields populations from direct and indirect impacts. The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measures 4.3-1e Limit Introduction and Spread of Invasive Species

To reduce and limit the spread of invasive nonnative plant species on the Project Site from invasive or noxious weeds, construction vehicles and equipment shall be cleaned inside and out before arrival at the Project Site; debris will be properly disposed of. Exterior cleaning shall consist of pressure washing vehicles and equipment, with close attention paid to the tracks, feet, and/or tires and on all elements of the undercarriage. Vehicle cabs shall be swept out, and refuse shall be disposed at an approved off-site location. If vehicles are driven in areas of invasive or noxious weeds already present in portions of the Project Site, vehicles shall be cleaned before moving from infested areas to areas that are weed-free.

Significance after Mitigation

Implementation of these mitigation measures would offset permanent impacts to occupied Contra Costa goldfields habitat and would ensure that Contra Costa goldfields occupied habitat, which supports 99 percent of the Contra Costa goldfields within the Project Site, is preserved and managed for Contra Costa goldfields in perpetuity. The measures described above would ensure no-net loss of potential Contra Costa goldfields habitat area, Contra Costa goldfields Critical Habitat, or threat to the recovery of Contra Costa goldfields. This mitigation will reduce potential impacts to Contra Costa goldfields to a **less-than-significant** level.

Impact 4.3-2 Alkali Milk-Vetch. *Development of the proposed Project would directly impact and estimated 12 individual alkali milk-vetch plants over an approximately 0.02-acre area, and 16.3 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch and may indirectly affect occupied alkali milk-vetch habitat in the proposed Managed Open Space area as a result of mitigation wetland grading. Therefore, this impact would be* ***potentially significant.***

Based on special status plant surveys conducted for the Project in 2000 to 2005 and 2021 to 2022, this species was found in seven occurrence areas within the proposed Development Area and two occurrences (approximately 250-300 individuals over approximately 0.01 acre) within Managed Open Space area south of Cordelia Street. An estimated 12 individual alkali milk-vetch plants would be directly impacted over a 0.02-acre area by the proposed Development Area (in Planning Areas 1 and 2). In addition, the proposed Development Area would impact 16.3 acres of seasonally saturated annual grassland habitat constituting suitable habitat for alkali milk-vetch.

Implementation of the proposed Managed Open Space area of the Project Site would require grading to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Grading to establish wetlands within close proximity to occupied alkali milk-vetch habitat could result alter the hydrology supporting the wetlands and adversely affect wetland habitat that supports alkali milk-vetch. In addition, vehicles or pedestrians could enter habitat supporting this species, resulting in direct and indirect impacts. Construction activities could also harm alkali milk-vetch populations by spreading non-native invasive plant species already present in the project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-2a: Preserve and Establish Alkali Milk-Vetch Habitat

Within the proposed Managed Open Space area of the Project Site, the Project applicant shall (1) preserve the 0.01 acre of seasonally saturated annual grassland habitat occupied with approximately 250 alkali milk-vetch plants, and (2) establish/create the equivalent of 16.3 acres of seasonally saturated annual grassland habitat. Topsoil from occupied alkali milk-vetch habitat within the proposed Development Area shall be collected and used to inoculate the established/created seasonally saturated annual grassland.

Mitigation Measure 4.3-2b: Install Construction Fencing

To ensure no impacts to occupied alkali milk-vetch habitat occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, a non-disturbance buffer delineated by orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied alkali milk-vetch habitat. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect alkali milk-vetch populations from direct and indirect impacts. The contractor, in consultation with the

qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-2a and 4.3-2b would avoid and offset permanent impacts to occupied alkali milk-vetch habitat and ensure there is no-net loss of potential alkali milk-vetch habitat area. Implementation of Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to alkali milk-vetch to a **less-than-significant** level.

Impact 4.3-3 Saline Clover. *Development of the proposed Project would directly impact an estimated 465 individual saline clover plants over a 1.4-acre area, would directly impact 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support saline clover, and may indirectly affect occupied saline clover habitat in proposed Managed Open Space area as a result of mitigation wetland grading. These impacts would be* ***potentially significant.***

Based on special status plant surveys in 2000 to 2005 and 2021 to 2022, saline clover was observed at a total of 17 occurrences within the proposed Development Area, including sites within two large vernal pools within the proposed Development Area and in several areas of seasonally saturated annual grassland. An additional 42 occurrences (an estimated 6,335 individuals over 19,05 acres) of this species are present within the Managed Open Space area. An estimated 465 individual saline clover plants over a 1.4-acre area associated with the above-mentioned 17 occurrences would be direct impacted by construction of the proposed Project. In addition, the proposed Project would impact 14.1 acres of vernal pools and 16.3 acres of seasonally saturated annual grassland habitat suitable to support saline clover.

Implementation of the Mitigation and Monitoring Plan for the proposed Managed Open Space area of the Project Site would require grading to establish 38 acres of created wetlands as mitigation for wetland impacts within the proposed Development Area. Grading to establish wetlands within close proximity to occupied saline clover habitat could result in impacts from vehicles or pedestrians entering the habitat. Construction activities could also harm saline clover populations by spreading non-native invasive plant species already present in the Project area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-3a: Preserve and Establish Saline Clover Habitat

Within the proposed Managed Open Space portion of the Project Site, the Project applicant shall (1) preserve 19.1 acres of saline clover habitat occupied with an estimated 6,335individual plants; and (2) establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat. The preservation and establishment/creation of vernal pool and seasonally saturated annual grassland habitat within the proposed Managed Open Space area of the Project Site as mitigation for the loss of potential habitat for the Contra Costa goldfields will also serve as mitigation for the loss of potential saline clover habitat. Topsoil from occupied saline clover habitat within the proposed

Development Area of the Project Site shall be collected and used to inoculate the established/created vernal pools and seasonally saturated annual grassland.

Mitigation Measure 4.3-3b: Install Construction Fencing

To ensure no impact to occupied saline clover occurs during grading activities to establish wetlands in the proposed Managed Open Space area of the Project Site, orange construction fencing shall be installed prior to the start of construction to demarcate the boundary of adjacent occupied saline clover habitat. The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall clearly demarcate the boundaries of the non-disturbance buffer. The size of the non-disturbance buffer shall be a minimum of 5 feet and established by an on-site qualified biologist to be of sufficient size to protect saline clover populations from direct and indirect impacts. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when Project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-3a and 4.3-3b would offset and avoid permanent impacts to occupied saline clover habitat and ensure there is no-net loss of potential saline clover habitat area. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would therefor reduce potential impacts to saline clover to **less than significant**.

Impact 4.3-4 Suisun Marsh Aster. *Development of the proposed Project could directly impact a few individual plants of Suisun Marsh aster if they occur at the location of the proposed stormwater culvert. This impact would be potentially significant.*

No Suisun Marsh aster were observed within the proposed Development Area during special status plant surveys conducted in 2000 to 2005 and 2021 to 2022. Suisun Marsh aster was observed in more than 10 scattered locations throughout the Managed Open Space area, including along the perennial brackish marsh bordering the drainage ditch that traverses the northeastern portion of the Project Site and perennial brackish marsh habitat bordering slough banks south of Cordelia Street. Based on the current proposed Development Area footprint, a stormwater culvert would be constructed on the western bank of the slough channel covering approximately 0.002-acre area. Construction of the culvert could potentially impact the Suisun Marsh aster at the culvert's location.

Construction of a stormwater culvert could potentially impact a few individual Suisun Marsh aster plants within the impact footprint and adjacent areas. This impact would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-4a: Conduct Preconstruction Plant Survey and Implement Avoidance Measures

Plant surveys shall be conducted prior to the design of the stormwater culvert outfall to determine the location of Suisun Marsh aster plants in relation to the proposed outfall. If individual plants occur in the proposed location of the stormwater outfall culvert or in an area where impacts could occur to the plants, the location shall be modified to avoid directly or indirectly affecting the plants.

Mitigation Measure 4.3-4b: Mitigate for Impacts on Suisun Marsh Aster

If impacts to individual plants are unavoidable, even with modifications to the Project design, the Project applicant shall establish/create a minimum of 0.002 acres (1:1 ratio) of Suisun Marsh aster habitat in the proposed Managed Open Space portion of the Project site. The performance standard for this mitigation shall be supporting the same or greater number of plants impacted for at least 2 out of the 10 years of the monitoring period. This mitigation measure for establishing new Suisun Marsh aster plants shall be incorporated into the Preliminary Mitigation and Monitoring Plan provided in Appendix C, Attachment 7.

Significance after Mitigation

Implementation of these Mitigation Measures 4.3-4a would avoid and minimize impacts to Suisun Marsh aster. If impacts to individual plants are unavoidable, Mitigation Measure 4.3-4b would offset permanent impacts to occupied Suisun Marsh aster by establishing new populations at a 1:1 ratio in proposed Managed Open Space area of the Project Site. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These measures would ensure no-net loss of occupied or potential Suisun Marsh aster habitat area, thus reducing potential impacts to a **less-than-significant** level.

Impact 4.3-5: Long-styled sand-spurrey plants. *Development of the proposed Project would directly impact long-styled sand-spurrey plants and would remove 14.1 acres of vernal pool and 16.3 acres of seasonally saturated annual grassland habitat suitable to support the species. This impact would be potentially significant.*

Several plants of long-styled sand-spurrey were observed growing in the seasonally saturated annual grassland north of Cordelia road and west of Pennsylvania Avenue in the proposed Development Area. Construction of the Project would eliminate these several plants and 14.09 acres of vernal pool and 16.32 acres of seasonally saturated annual grassland habitat suitable to support the species. This impact would be **potentially significant.**

Implement Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species (see above)

Mitigation Measure 4.3-5a: Preserve and Establish Long-Styled Sand-Spurrey Habitat

Within the proposed Managed Open Space area of the Project Site, the Project applicant shall establish the equivalent of 14.1 acres of vernal pool habitat and 16.3 acres of seasonally saturated annual grassland habitat within the proposed Managed Open Space area as part of the Mitigation and Monitoring Plan to mitigate for elimination of long-styled sand-spurrey habitat. Collection of topsoil within the proposed Development Area within occupied habitat for alkali milk-vetch and saline clover and use of the soil to inoculate established/created seasonally saturated grassland (Mitigation Measures 4.3-2a and 4.3-3a) shall be accomplished such that soil will also contain seeds for long-styled sand-spurrey.

Mitigation Measure 4.3-5b: Install Construction Fencing

The contractor, in consultation with a qualified biologist and in accordance with the Project plans, shall install construction fencing to clearly demarcate the boundaries of a non-disturbance buffer to protect Contra Costa goldfields, alkali milk-vetch, and saline clover populations, if found in the Managed Open Space area within 100 feet from the Project disturbance footprint.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-5a and 4.3-5b would offset and avoid permanent impacts to occupied long-styled sand-spurrey habitat and would ensure there is no-net loss of potential habitat for the species. Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would therefore reduce potential impacts to long-styled sand-spurrey to **less than significant**.

SPECIAL STATUS WILDLIFE SPECIES

Impact 4.3-6 Crotch Bumble Bee. *Project construction could result in direct impacts to underground nest or queen overwintering sites and removal of 92.0 acres of upland and seasonal wetland habitat that could serve as potential foraging habitat for the Crotch bumble bee, if present onsite during construction. Therefore, this impact would be potentially significant.*

Crotch Bumble Bee

While several plant species that could provide suitable nectar and pollen sources for the Crotch bumble bee are present within the Project Site, this species was not observed in the Project Site during a focused habitat survey of burrows and nectar resources conducted during spring 2023. The nearest CNDDB occurrence for this species (from 2014) is approximately 4 miles northwest from the Project Site. Furthermore, seasonal surface and subsurface soil saturation throughout much of the Project Site limits the potential for burrowing rodents on the Project Site which provide potential near surface underground nest and overwintering sites for bumble bees. Therefore, this species is unlikely to occur in the Project Site; however, it is unknown whether the species could establish nests or overwintering sites in upland areas before project implementation.

Ground disturbing construction resulting from the Project (including for construction of mitigation wetlands and enhanced upland refugia as mitigation within the Managed Open Space) could destroy nesting colonies or overwintering queens, if present in rodent burrows or in other ground surface features in upland areas of the Project Site. Permanent loss of upland annual grassland and seasonal aquatic resources from the Project Site could reduce available floral food resources for this species within the Project Site.

The potential destruction of nests sites or queen overwintering sites and loss of adjacent foraging habitat could reduce local populations of this rare bumble bee species and would be considered a **potentially significant** impact.

Mitigation Measure 4.3-6a: Avoid, Minimize, and Mitigate for Impacts on Crotch Bumble Bee

Prior to construction, a qualified biologist shall conduct focused surveys for the Crotch bumble bee in potential habitat within the Project Site during the Crotch bumble bee worker flight period (March-September, preferably near the peak in July). Surveys shall follow the *USFWS-approved Survey Protocols for the Rusty Patched Bumble Bee (Bombus affinis)* (USFWS 2019). During the survey, the qualified biologist shall flag inactive small mammal burrows and other potential nest or overwintering sites. If the Crotch bumble bee is detected, a site-specific Crotch's Bumble Bee Avoidance and Minimization Plan shall be prepared in coordination with CDFW and implemented. The Plan shall include a description of onsite habitat, potential nest and overwintering sites present, recommendations for avoidance and minimization (such as unoccupied burrow avoidance buffers), potential identification of methods to evaluate potential nest sites for use (e.g., burrow scoping or emergence surveys), and compensatory mitigation for the loss of potential nest sites, such as incorporation of appropriate native

flower resources that would support this species throughout the flight period and promote development of queens (i.e., perennial plants) into the Mitigation and Monitoring Plan for the Managed Open Space area, and/or reducing use of harmful pesticides within the Managed Open Space Area.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-6a would avoid and minimize impacts to Crotch bumble bee and would therefore reduce potential impacts to **less than significant**.

Impact 4.3-7 Northern Harrier and Short-Eared Owl. *Grading or vegetation removal associated with construction of the proposed Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space area, could result in disruption of northern harrier or short-eared owl nesting. This impact would be potentially significant.*

Northern harriers and short-eared owls have not been documented nesting on the Project Site, but suitable nesting habitat for the northern harrier occurs within the non-native grasslands and seasonal wetlands and swales found within the Project Site. Northern harrier individuals were observed foraging over the Project Site during the summer (breeding season) during site reconnaissance of the property by HBG. Suitable breeding habitat for short-eared owl also occurs on the Project Site, particularly in the eastern portion of the Annexation Area east of Pennsylvania Avenue and in the area south of Cordelia Road. If a northern harrier or short-eared owl were found to be nesting on the Project Site during the construction period, potential impacts to either of these species from the proposed Project could occur, including disturbance to nesting birds and possible mortality of adults and/or young. Disturbances to nest sites for these special status species are possible either during grading or vegetation removal for project construction within the proposed Development Area of the Project Site or from grading required for creation of mitigation wetlands and enhanced upland refugia within the proposed Managed Open Space area in the southern portion of the Project Site. Disturbance that causes nest abandonment or loss of nest productivity (e.g., killing or abandonment of eggs or young) would be a violation of the Migratory Bird Treaty Act and California Fish and Game Code and would be a **potentially significant** impact**.**

Mitigation Measure 4.3-7a: Preconstruction Nesting Survey

A qualified biologist shall conduct a preconstruction nesting survey for northern harrier and short-eared owl if construction is scheduled during the nesting season (February 1 through August 31). Surveys shall be conducted no more than 14 days prior to ground disturbance by walking transects through all suitable habitat (grassland, seasonal wetlands and swales) within the proposed Development Area and the proposed Managed Open Space area of the Project Site.

Mitigation Measure 4.3-7b: Implement Non-Disturbance Buffers

If an active northern harrier or short-eared owl nest is detected during the surveys, the nest site shall be protected by implementing a minimum 500-foot radius buffer zone around the nest marked with orange construction fencing. If an active nest is located outside of the Project Site, the buffer shall be extended onto the Project Site and demarcated where it intersects the Project Site. The qualified biologist, in consultation with CDFW, may modify the size of buffer zone based on the type of construction activity that may occur, physical barriers between the construction site and active nest, behavioral factors, and the extent that northern harriers or short-eared owls may have acclimated to disturbance. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by a qualified

raptor biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest by a qualified biologist.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-7a and 4.3-7b would avoid disturbing a northern harrier or short-eared owl active nest through implementation of preconstruction nesting surveys and non-disturbance buffers, as needed, thus reducing potential impacts to **less than significant**.

Impact 4.3-8 Swainson's Hawk. *Project construction would result in the loss of 92.0 acres of Swainson's hawk foraging habitat. Construction activities could disturb nesting Swainson's hawk if individuals of this species were found to be nesting within one-half mile of Project construction activities. Therefore, this impact would be* ***potentially significant.***

Twenty Swainson's hawk nesting records are within 10 miles from the Project Site and a known nest site for this species was located approximately 1.4 miles west of the Project Site in 2022. Therefore, development of the Project would permanently remove approximately 92.01 acres of non-native grasslands, seasonal wetlands and swales that provide suitable foraging habitat for Swainson's hawks. While establishment of mitigation wetlands within the Managed Open Space area would additionally convert 38 acres of grassland foraging habitat to seasonal wetlands, these areas would be expected to retain foraging habitat value for Swainson's hawk after wetland re-establishment.

No nesting habitat would be directly affected by the proposed Project because no trees occur on the Project Site, and no large trees capable of supporting nesting by Swainson's hawk occur in the immediate Project vicinity. Trees adjacent to the site include trees within the off-site riparian habitat of Ledgewood Creek, but none of these trees appeared to be of suitable size or stature to support nesting by Swainson's hawk. Some trees, including eucalyptus trees, within one-half mile of the site could support nesting by the species. If Swainson's hawks were found to be nesting near Project construction during the nesting season, potential impacts to this species could occur, including disturbance to nesting birds, nest abandonment and possible mortality of eggs or nestlings. These impacts would be **potentially significant.**

Mitigation Measure 4.3-8a: Preserve Swainson's Hawk Foraging Habitat

To offset impacts to 92.0 acres of Swainson's hawk foraging habitat, the Project applicant shall provide habitat preservation at a location that will provide foraging habitat value to Swainson's hawks consistent with CDFW guidance as set forth in the *1994 Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California*. CDFW 1994 guidance provides that mitigation lands should be provided if an active nest is located within a 10-mile radius of the Project Site, mitigation habitat value shall be equal to or higher than what currently occurs on the Project Site, and at a minimum of 1:1 ratio. Currently, the Project proposes 393.2 acres of Managed Open Space area, of which 205.4 acres consists of annual grasslands and seasonal wetlands considered suitable foraging habitat, shall be preserved and protected in perpetuity by deed restriction or a conservation easement that would provide more than the minimum 1:1 compensation acreage for Swainson's hawk foraging habitat. Furthermore, the project proposes that the preserved 205.39 acres of Swainson's hawk foraging habitat would be enhanced by grazing the Managed Open Space area to control the buildup of thatch.

If additional Swainson's hawk foraging habitat mitigation is required by the CDFW, the Project applicant shall purchase mitigation credits from an approved Swainson's hawk mitigation bank which services the

Project Site, or preserve suitable foraging habitat offsite at an approved CDFW location so as to satisfy the additional CDFW requirement to offset the permanent loss of foraging habitat.

Mitigation Measure 4.3-8b: Preconstruction Nesting Surveys

Preconstruction surveys for Swainson's hawk shall be conducted prior to initiation of Project construction activities. Surveys shall follow CDFW guidelines for conducting surveys for Swainson's hawk (SHTAC 2000). These preconstruction surveys shall include investigation of all potential nesting trees within a one-half-mile radius around all Project activities and shall be completed for at least two survey periods immediately prior to commencement of project construction. If no nesting Swainson's hawk are found during the first two required survey periods (Survey Period II and III) starting March 20 and extending to April 20, then project construction may commence. If during the third survey period (June 10 to July 30) Swainson's hawks are found to be nesting in the Project vicinity and construction has commenced, the Project applicant shall consult CDFW to determine whether the nesting Swainson's hawk are habituated to the ambient level of noise and disturbance emanating from the Project Site and setbacks can be reduced or whether additional measures are needed to avoid adversely affecting nesting activities.

Mitigation Measure 4.3-8c: Implement Nest Buffer

If Swainson's hawks are found to be nesting within 0.25 miles of Project construction, a non-disturbance buffer shall be established to keep all construction activities a minimum of 0.25 miles from the nest site (CDFW 1994). The CDFW shall be consulted regarding the adequacy of the buffer established by the qualified biologist.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-8a through 4.3-8c would compensate for the loss of Swainson's hawk foraging habitat and would avoid adverse effects on Swainson's hawks nesting near the Project Site. These measures would reduce potential impacts on Swainson's hawks to **less than significant**.

Impact 4.3-9 Burrowing Owl. Construction of the Project, including the proposed Development Area or for creation of wetlands within the proposed Managed Open Space area, could impact burrowing owls if found to be present in or near areas of construction. The impact is potentially significant.

No burrowing owls or their burrows have been observed on the site by HBG wildlife biologists or other biologists studying the site over a 20-year period. The nearest record of burrowing owl in the CNDDB is a 2006 report of an occupied burrow off the site adjacent to Cordelia Road. Portions of the on-site grasslands are potentially suitable for occupation by burrowing owl, especially in the few areas where ground squirrel colonies are present, but much of the site consists of wetlands that have saturated soils during at least a portion of the year that would not be conducive to creation of ground squirrel dens nor occupation by burrowing owl. The species could occur along levee banks and other raised areas that do not become saturated during the winter and spring. Future occupation of the species on the property cannot be ruled out, especially if the property were to be occupied by a greater number of California ground squirrels. Disturbances to either nesting or wintering burrowing owl could occur during grading or vegetation removal within the proposed Development Area of the Project Site or from grading required for creation of mitigation wetlands or enhanced upland refugia within the proposed Managed Open Space area of the Project Site. Loss of active burrowing owl burrows or disturbances to nesting or wintering burrowing owl would be **potentially significant.**

Mitigation Measure 4.3-9a: Preconstruction Burrowing Owl Nesting Survey

A pre-construction survey for burrowing owls shall be conducted in suitable habitat prior to any ground-disturbance for construction of the Project at the proposed Development Area of the Project Site, and off-site improvement areas, and for construction of mitigation wetlands within the proposed Managed Open Space area of the Project Site. The pre-construction survey shall be conducted by a qualified raptor biologist following CDFW *Staff Report on Burrowing Owl Mitigation* (CDFW 2012) survey methods to establish the status of burrowing owl on the Project Site.

Mitigation Measure 4.3-9b: Avoid Impacts to Occupied Burrows

If preconstruction surveys determine that burrowing owls occupy the Project Site during the non-breeding season (September 1 to January 31), occupied burrows shall be avoided by establishing a no-disturbance buffer zone in consultation with CDFW. During the non-breeding season, if a qualified raptor biologist determines in consultation with CDFW that an occupied burrow(s) may be impacted even with implementation of non-disturbance buffers, the Project applicant shall consult CDFW to determine if a passive relocation effort and implementation of a Burrowing Owl Exclusion Plan prepared in accordance with the CDFW guidelines (CDFG 2012) is appropriate to avoid impacts. Implementation of such a Burrowing Owl Exclusion Plan would likely require habitat mitigation consistent with the requirements of the 2012 CDFW Staff Report.

If burrowing owls are found to be present on the Project Site or off-site improvement areas during the breeding season (February 1 to August 31), the Project applicant shall consult CDFW and implement the CDFW-recommended avoidance protocol (CDFG 2012) whereby occupied burrows will be avoided with a no-disturbance buffer during the breeding season.

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing an active burrowing owl nest and avoid harming a burrowing owl during the nonbreeding season. These measures would reduce potential impacts to burrowing owls to **less than significant**.

Impact 4.3-10 California Black Rail. *Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space portion of the Project Site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present. This impact would be potentially significant.*

The CNDDB contains records of California black rail south of the site in marsh habitat bordering Suisun Bay and associated sloughs. These rails may occur along slough channels with dense perennial marsh habitat in the southern portion of the Project Site closest to Suisun Marsh and within the perennial marsh habitat on the eastern portion of the annexation area that provides low to medium quality foraging and nesting habitat for the species. No habitat for this species is found within the proposed Development Area of the Project Site; therefore, no direct impacts to California black rail would result from construction of the proposed Project.

Mitigation wetlands and areas of enhanced upland refugia are proposed to be constructed within the proposed Managed Open Space area of the Project Site, both within the eastern portion of the Annexation Area and within the proposed Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh (see Appendix C, Figure 17). Though the created wetlands and enhanced upland refugia are proposed to be

constructed in uplands, some proposed locations for wetland creation are close enough to areas of marsh habitat that disturbances to nesting California black rail, if present, are possible. Although no direct impacts to the marsh habitat of California black rail would occur, if a California black rail was nesting in or near the work area for wetland construction, an individual could be disturbed by the operation of equipment and the activities of work crews conducting construction activities at that site. Such indirect disturbance could cause individuals to disperse, could result in harassment, harm or even mortality, or could cause individuals to remain more susceptible to predation during high tide events. Noise and other disturbances could disrupt nesting and breeding activity, as well as behaviors associated with foraging and other essential activities engaged in by the species. Construction activity near nests could cause nest abandonment, reduced care for young or eggs, or increased dispersal with subsequent potential increases in predation. Therefore, this impact would be **potentially significant.**

Mitigation Measure 4.3-10: Preconstruction Nesting Surveys

If construction work is proposed during the black rail nesting season (February 1 through August 31) pre-construction surveys for nesting California black rail shall be conducted in suitable habitat within 700 feet of the work area to determine if setbacks are warranted to protect nesting California black rail from indirect impacts. Surveys shall be conducted using the methodology described in *Site-specific Protocol for Monitoring Marsh Birds: Don Edwards San Francisco Bay and San Pablo Bay National Wildlife Refuges* (Wood et al. 2017), or a variation thereof as approved by CDFW. If the surveys detect the presence of a California black rail nest, or the activity center of vocalizing California black rails, a non-disturbance buffer or other appropriate avoidance measures shall be established in consultation with CDFW.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-10 would avoid disturbance of nesting California black rail, thus reducing potential impacts to **less than significant**.

Impact 4.3-11 Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. *Grading or vegetation removal associated with construction of the Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space area of the Project Site, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of are present. This impact would be* ***potentially significant****.*

Direct and indirect impacts to nesting populations of state species of concern including loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or tricolored blackbird could occur through habitat removal or disturbance of potential nest sites during construction. Disturbances to nesting activities are possible either during grading or vegetation removal for construction of the Project, including within the proposed Development Area, or from grading for creation of mitigation wetlands or enhanced upland refugia within the proposed Managed Open Space area in the southern portion of the Project Site. Impacts on nesting birds, including these special status species, include visual or auditory disturbance from construction noise and human presence. These types of disturbance could result in nest abandonment or failure by deterring birds from preferred nest and foraging sites, and/or distracting adults from tending to their eggs or young. These impacts would be **potentially significant.**

Mitigation Measure 4.3-11: Preconstruction Nesting Surveys

If construction will occur during the nesting season (February 1 through August 31) in the proposed Development Area of the Project Site or for construction of mitigation wetlands within the proposed

Managed Open Space area of the Project Site, a qualified biologist shall conduct a preconstruction nesting bird survey no more than 14 days prior to any ground-disturbance. Surveys shall be conducted by a qualified biologist to search for nesting of loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony. If the surveys find an active tricolored blackbird colony CDFW shall be consulted to develop an appropriate non-disturbance buffer. If nests of loggerhead shrike, Suisun song sparrow, or grasshopper sparrow are found, appropriate buffer zones determined by the qualified biologist shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. The buffer shall be marked with orange construction fencing. The size of buffer zones shall be determined per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-11 would avoid disturbing a nesting loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony, thus reducing potential impacts to **less than significant**.

Impact 4.3-12 Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew. *Direct and indirect impacts to salt marsh harvest mouse or Suisun shrew may occur as a result of construction or operation of the proposed Project. These impacts would be potentially significant.*

The CNDDB reports that a salt marsh harvest mouse was trapped in the perennial brackish marsh near the proposed Development Area of the Project Site in the eastern portion of the Annexation Area in 1986. No habitat for salt marsh harvest mouse or Suisun shrew occurs within the proposed Development Area of the Project Site, but it is assumed that salt marsh harvest mouse and Suisun shrew could occur within suitable habitat in the eastern portion of the proposed Annexation Area or within the area south of Cordelia Road within the proposed Managed Open Space area of the Project Site.

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of brackish marsh. Where construction activities are to occur in upland habitat near brackish marshes in the proposed Development Area or the Managed Open Space area of the Project Site, direct construction impacts could occur to a wandering salt marsh harvest mouse or Suisun shrew in the adjacent upland areas. This risk is highest during extreme high tides when these species seek refugia in uplands. Construction for the proposed Project, especially in Planning Area 3, is anticipated to occur close to uplands bordering high marsh areas of the perennial brackish marsh at the east end of the Annexation Area. Grading to establish mitigation wetlands and to enhance upland refugia in the southern portion of the site may also impact salt marsh harvest mouse and Suisun shrew, that could occur in uplands adjacent to brackish marsh habitat, especially during extreme high tides.

Project operation could have indirect impacts on the salt marsh harvest mouse and/or Suisun shrew that may occur within in the eastern portion of the Annexation Area or near Suisun Marsh in the portion of the site south of Cordelia Road. Increased food availability associated with development could attract and support larger populations of small mammals such as rats, house mice, feral and domestic cats, and raccoons that could prey on salt marsh harvest mice or Suisun shrew. As predator populations associated with development increase, other predators forced out of developed areas could infiltrate harvest mouse or shrew habitat. In addition, development

within the proposed Development Area of the Project Site could provide additional habitat for crows and ravens that could prey on salt marsh harvest mice or Suisun shrew. If desirable food is available and suitable nesting habitat exists nearby, crows and ravens will breed in the area. The introduced industrial use would also bring more people and associated disturbances to the vicinity of the habitat for salt marsh harvest mouse and Suisun shrew.

Operational activities at the site including truck and other vehicle traffic and pedestrian activities could result in noise and other disturbances that could affect salt marsh harvest mouse, Suisun shrew and other wildlife species in the adjacent habitats within the Managed Open Space. An increase in the number of people within the development site has the potential to increase noise and other disturbances in the vicinity of the perennial marsh habitat. Night-lighting could spill over into the perennial marsh habitat or immediately surrounding uplands can be an additional disturbance to salt marsh harvest mouse, Suisun shrew, and other nocturnal species.

The construction and operation impacts described above would be **potentially significant.**

Mitigation 4.3-12a: Worker Environmental Awareness Training

All workers involved in the clearing of vegetation or other construction activities associated with construction of the proposed Project, including the proposed Development Area or for creation of mitigation wetlands within the proposed Managed Open Space portion of the Project Site, shall participate in a training session led by a qualified biologist prior to initiation of work. This training session shall include information on the ecology and identification of salt marsh harvest mouse and Suisun shrew. The training shall also include information related to the Endangered Species Act and penalties associated with harm done to an individual of a listed species and the need to stop work and inform the on-site biologist in the event of a potential sighting.

Mitigation Measure 4.3-12b

Where the Project footprint borders perennial marsh habitat suitable for this species (i.e., within 100 feet), work shall be scheduled to target the dry season to minimize the potential for wet weather, surface flooding, and high water tables in and adjacent work areas such that it might push salt marsh harvest mouse or Suisun shrew to seek refuge in the higher ground of the work areas.

Mitigation Measure 4.3-12c: Vegetation Removal and Installation of Exclusion Fencing

Proposed construction work areas in areas immediately adjacent to brackish marsh habitat shall be protected with exclusion fencing to ensure that individuals of salt marsh harvest mouse or Suisun shrew do not wander into the work area during the construction period. The fence shall be established in all areas subject to construction disturbance within 50 feet of brackish marsh habitat subsequent to removal of pickleweed and other vegetation as described below Exclusion fencing shall be made of a material that does not allow small mammals to pass through, such as a properly installed silt fence or other material (e.g., plastic or metal) so that the outside is too smooth to be climbed, and shall be buried at least 6 inches below the ground surface and extend a minimum of 2 feet above ground with stakes angling up and away from the work area so small mammals use the stakes to make their way over the fence and out of the work area rather than into it. The exclusion fence shall be installed on all three sides of the development associated with Planning Area 3 (e.g., Pennsylvania Avenue east to the perennial brackish marsh slough channel, south along the channel, and west back to Pennsylvania Avenue) and between areas of proposed

created mitigation wetlands and brackish marsh in the proposed Open Space Management Area. The final design and proposed location of the fencing shall be submitted to USFWS and CDFW for review and approval prior to installation.

Prior to installation of the exclusion fence described above, efforts shall be made to ensure that salt marsh harvest mouse and Suisun shrew are not present in areas of salt or brackish marsh or immediately adjacent uplands subject to potential impact from either the development or from construction of created mitigation wetlands within the proposed Open Space Management Area through vegetation removal. Prior to removal of vegetation, a qualified biologist will walk the work zone to ensure no nests of harvest mouse or Suisun shrew are present. Pickleweed and other vegetation shall be removed using hand tools such as weed-whackers from all construction areas within 50 feet of brackish marsh habitat. Immediately after vegetation removal is complete and no evidence of salt marsh harvest mouse or Suisun shrew presence is observed within the construction zone, the temporary exclusion fencing will be placed around the defined work area prior to the start of construction activities to prevent salt marsh harvest mouse or Suisun shrew from moving into construction areas. A biological monitor approved by USFWS and CDFW shall be present during vegetation clearing and installation of the exclusion fence. Fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the fencing shall be completely removed.

Mitigation Measure 4.3-12d: Biological Construction Monitoring

A qualified biologist shall remain on-site during all work involving vegetation clearing and ground disturbance associated with construction of the Development Area (especially near Planning Area 3) or of mitigation wetlands within the Managed Open Space to help ensure that no salt marsh harvest mouse or Suisun shrew are harmed. The biological monitor shall check the integrity of the exclusion fence, search for salt marsh harvest mouse or Suisun shrew that may have wandered into the work area, and monitor construction to ensure impacts to the species do not occur. If a salt marsh harvest mouse is found on the site within the work area, construction should be halted until it appears that the individual has left the project area of its own volition. If a Suisun shrew is found in the work area, the individual should be relocated outside of the work area after coordination with CDFW regarding appropriate relocation methodologies.

Mitigation Measure 4.3-12e: Establish Setback of 50 feet

Establish a minimum of a 50-foot (average) setback from the proposed Development Area of the Project Site and the adjacent perennial brackish marsh that is suitable for salt marsh harvest mouse and Suisun shrew to minimize indirect impacts to salt marsh harvest mouse and Suisun shrew habitat from industrial uses introduced by the proposed Project. The 50-foot setback would begin at the edge of the perennial brackish marsh on the east side of the slough channel adjacent to Planning Area 3. The open channel of the slough and areas to the west are not suitable for these species; the open slough channel would also act as a movement barrier to the species.

Mitigation Measure 4.3-12f: Install Permanent Fencing

Install a permanent fence along the boundaries of the proposed Development Area of the Project Site adjacent to perennial brackish marsh slough channel, to prevent people from accessing potential salt marsh harvest mouse and Suisun shrew habitat.

Mitigation Measure 4.3-12g: Proper Waste Disposal

During operation of the proposed Project, appropriate waste disposal procedures shall be adopted and enforced for the industrial uses proposed (i.e., all garbage shall be placed in cans with lids) to avoid and minimize attracting predators such as crows and ravens.

Mitigation Measure 4.3-12h: Night Lighting Shielding

Night lighting shall be shielded and directed onto the proposed Development Area of the Project Site and away from marsh areas and immediately surrounding uplands.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-12a through 4.3-12h would prevent direct impacts on salt marsh harvest mouse and Suisun shrew during construction by excluding these species (if present) from the construction footprint in areas adjacent to suitable habitat; and would prevent direct and indirect impacts from Project operations through the establishment of a Development Area setback from suitable habitat and installation of a permanent perimeter fence to keep these species out of the Project Site, and establishment of proper waste management and light shielding to minimize indirect impacts on this species if present in nearby habitats. Collectively these mitigation measures would reduce the potential for direct and indirect impacts on salt marsh harvest mouse and Suisun shrew to **less than significant**.

Impact 4.3-13 Loss of Upland Refugia. *Proposed Project construction would permanently develop 54.2 acres of upland annual grassland, of which approximately 3 acres are directly adjacent to perennial marsh, and would convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the Project Site. This habitat loss and conversion could result in potential indirect impacts to salt marsh harvest mouse, the Suisun shrew, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events. This impact would be* ***potentially significant.***

Project construction would permanently develop 54.17 acres of upland annual grassland and would permanently convert 38 acres of upland annual grassland to seasonal wetlands within the proposed Managed Open Space portion of the Project Site. Of the 54.17 acres of upland annual grassland to be developed, approximately 3 acres are within Planning Area 3 in close proximity to tidal marsh areas to the east. Upland grassland habitat loss and conversion in areas adjacent to tidal marsh could potentially result in indirect impacts to wildlife which rely on upland refugia habitat adjacent to the tidal marsh, such as for salt marsh harvest mouse and Suisun shrew. Suitable habitat for salt marsh harvest mouse and Suisun shrew can be found in brackish marsh areas of Suisun Marsh in the southern portion of the Project Site. If sea levels continue to rise beyond the 2050 predictions, upland refugia habitat with higher topographic elevations would become more critical adjacent to the tidal marsh. Permanent conversion of 38 acres of upland annual grassland (potential refugia) habitat would result from the construction of mitigation wetlands proposed in the proposed Managed Open Space area south of Cordelia Road to compensate for impacts to wetlands associated with proposed development of the Project Site. The *Permittee-Responsible Preliminary Mitigation and Monitoring Plan and Long-Term Mitigation Management Plan for the*

Highway 12 Logistics Center (Mitigation and Monitoring Plan) for the proposed Managed Open Space portion of the Project Site includes details regarding placement of created wetlands in upland portions of the proposed Managed Open Space area away from marsh areas that provide habitat for salt marsh harvest mouse and Suisun shrew (see Figure 17 of Appendix C).

Both the salt marsh harvest mouse and Suisun shrew have been known to inhabit uplands adjacent to areas of tidal marsh, and also use these areas as upland refugia during high tides. The upland annual grassland habitat within the proposed Managed Open Space portion of the Project Site is relatively flat but currently offers sufficient topography to provide upland refugia during high tides. The proposed construction of mitigation wetlands described above as part of the Mitigation and Monitoring Plan would convert approximately 38 acres of upland annual grasslands adjacent to tidal marsh areas to seasonal wetlands within the proposed Managed Open Space area of the Project Site. During the winter and early spring, portions of the 38 acres of constructed wetlands would be ponded for several days to several weeks at a time and therefore not available as upland refugia habitat.

The permanent loss and conversion of potential upland refugia habitat would be **potentially significant.**

Mitigation Measure 4.3-13: Create Upland Refugia in Managed Wetland

To offset potential loss of annual grassland upland refugia for salt marsh harvest mouse, Suisun shrew and any other species that need upland cover during high tide events, soil from the excavation of mitigation wetlands shall be used to raise the topographic elevation of portions of the remaining 60.2 acres of upland areas within the Managed Open Space area that are adjacent to the perennial brackish tidal marsh such that they would no longer become inundated and would serve as upland refugia during high tide events. Detailed design plans, including a Vegetation Planting Plan, for the upland refugia in the Managed Open Space shall be developed in consultation with USFWS.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-13 would enhance and provide additional upland refugia in the proposed Managed Open Space area of the Project Site for salt marsh harvest mouse, Suisun shrew, and any other species that need cover during high tide events and would reduce this potential impact to **less than significant**.

Impact 4.3-14 Nesting Birds. *The removal of vegetation during the February 1 to August 31 breeding season for the proposed Project could result in mortality of nesting avian species if they are present. Therefore, this impact would be potentially significant.*

Nesting bird species protected by the federal Migratory Bird Treaty Act or California Fish and Game Code could be impacted during project construction. Work related to construction involving the removal of vegetation during the February 1 to August 31 breeding season of birds could result in mortality of nesting avian species (including eggs or young) if they are present.

To ensure compliance with the MBTA and the California Fish and Game Code, bird nesting surveys are generally required if construction work requires vegetation removal during the bird nesting season. CDFW generally considers the nesting season to be from February 1 to August 31 for most bird species. Required setbacks to protect active nests from construction activity are typically about 500 feet or more for raptors and 250 feet for passerines (songbirds) and other bird species.

Habitats within the Project Site were shown to support a number of bird species during field surveys conducted by HBG over a period of 20 years. The on-site grasslands and seasonal wetlands provide suitable nesting substrate for a number of species. Many of the bird species documented on or near the site could possibly nest within the vegetation in the on-site grasslands or seasonal wetlands. If active nests were present in this vegetation during construction of the Project Site, including for creation of mitigation wetlands or enhanced upland refugia within proposed Managed Open Space area, direct or indirect impacts that cause nest abandonment or loss of nest productivity could occur to nesting bird species protected by the Migratory Bird Treaty Act or the California Fish and Game Code as a result of construction activity; this could result in a violation of these regulations. Therefore, this impact would be **potentially significant.**

Mitigation Measure 4.3-14a: Preconstruction Nesting Surveys

If construction is to be conducted during the breeding season of migratory birds (February 1 to August 31), a qualified biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 14 days prior to the onset of construction activity. Nesting bird surveys shall cover the Project footprint in addition to a 500-foot buffer beyond the boundaries of the footprint.

Mitigation Measure 4.3-14b: Nest Zone Buffers

If bird nests are found, appropriate non-disturbance buffer zones shall be established around all active nests to protect nesting adults and their young from direct or indirect impacts related to project construction disturbance. Buffer zones shall be 500 feet for raptors and 250 feet for passerines, and other bird species. The size of the buffer zone may be modified per recommendations of the qualified biologist based on site conditions and species involved. No construction or earth-moving activity shall occur within the established buffer zone until it is determined by the biologist that the young have fledged or that the nesting cycle is otherwise determined to be complete based on monitoring of the active nest.

Significance after Mitigation

Implementation of Mitigation Measures 4.3-14a and 4.3-14b will avoid and minimize potential impacts during construction of the proposed Project on nesting avian species, thus reducing potential impacts to **less than significant**.

Impact 4.3-15 Special Status Fish Species. *Proposed Project construction activities could result in potential water quality impacts in Ledgewood Creek and other waterways and could adversely affect special status fish species. This impact would be potentially significant.*

Fish species including the Central Valley Evolutionarily Significant Unit (ESU) of steelhead, the Central Valley fall/late fall-run and the spring run Chinook salmon and the Sacramento River winter run of Chinook Salmon have the potential to occur in Ledgewood Creek. Ledgewood Creek is not currently known to support breeding or rearing habitat for these species; however, it is accessible from Suisun Slough (south and east from the Project Site) and fish in Suisun slough could potentially migrate upstream in search of suitable breeding habitat. Additionally, the Delta smelt, longfin smelt and Sacramento splittail have the potential to occur in the lower reach of Ledgewood Creek and slough channels within the Managed Open Space area. The lower reach of Ledgewood Creek and slough channels within the Managed Open Space area are hydrologically connected to Suisun Slough and may provide suitable spawning habitat for these species.

The Project Site is located outside Ledgewood Creek and the slough channels, apart from construction associated with a stormwater outfall culvert located adjacent to PA-3 that may impact 0.002 acres of a slough channel categorized as a perennial brackish marsh. Off-site migration of soil from construction-related ground disturbance associated with the outfall culvert could lead to siltation in adjacent slough channels that could adversely impact special status fish species if present in the slough channels, such as covering of spawning gravels, a decreased respiratory function in fish, increasing turbidity levels and diminishing light penetration to submergent vegetation, and raising of water temperature.

Implementation of a Stormwater Pollution Prevention Plan (SWPPP), with identification of proper construction techniques and BMPs, would provide assurance that water quality of nearby waterways is not affected by on-site construction activities. For example, silt fence and straw wattles would be installed per the SWPPP along portions of the Project Site to prevent water pollutants, including soil, from migrating off-site. In addition, vegetation would only be cleared from the permitted construction footprint; all cleared areas would be subject to soil stabilization requirements to prevent erosion and runoff.

This impact would be **potentially significant** without implementation of the SWPPP and associated BMPs to protect Ledgewood Creek and other adjacent aquatic resources from potential project-related effects from erosion, sedimentation and pollution.

Mitigation Measure 4.3-15a: Implement SWPPP and BMPs

The Project applicant shall comply with requirements described in SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ) and shall coordinate with the San Francisco Bay Regional Water Quality Control Board to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) and erosion control BMPs to minimize any wind- or water-related material discharges. The SWPPP shall provide guidance for measures to protect environmentally sensitive areas, and to prevent and minimize stormwater and non-stormwater discharges. Protective measures shall include the following, at a minimum:

a. Discharge of pollutants into storm drains or watercourses from vehicle and equipment cleaning will be prohibited.

b. Maintenance and refueling areas for equipment will be located a minimum of 50 feet from active stream channels in predesignated staging areas, except at an established commercial gas station or vehicle maintenance facility.

c. Spill containment kits will be maintained on-site at all times during construction operations and/or staging or fueling of equipment.

d. Dust control measures will include the use of water trucks and dust palliatives to control dust in excavation-and-fill areas, and to cover temporary stockpiles when weather conditions warrant such action.

e. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment.

f. Permanent erosion control measures, such as biofiltration strips and swales to receive stormwater discharges from the highway or other impervious surfaces, will be implemented to the maximum extent practicable.

g. Construction Site Management Practices. The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:

- Routes and boundaries of roadwork will be clearly marked before initiation of construction or grading.
- All equipment will be maintained to prevent leaks of automotive fluids, such as gasoline, oils, or solvents, and a spill response plan will be prepared.
- Hazardous materials, such as fuels, oils, and solvents, will be stored in sealable containers in a designated location that is located at least 100 feet from wetlands and aquatic habitats.
- Before construction activities begin, the contractor, in consultation with a qualified biologist and in accordance with the project plans, will clearly demarcate environmentally sensitive areas adjacent to the project footprint. Temporary fencing will be installed along the perimeter of all environmentally sensitive areas that are to be avoided; will remain in place throughout the duration of construction and will be fully maintained and inspected daily when project activities are underway. Repairs to the fencing will be made within 24 hours of identifying the need for repair. After construction is completed, the fencing will be completely removed.
- Restrict Vehicles and Construction to Designated Work Areas. All construction equipment will be restricted to operating within the designated work areas, staging areas, and access routes. The limits of designated work areas and staging areas (i.e., project footprint) will be clearly marked before beginning construction.

Significance after Mitigation

Implementation of Mitigation Measure 4.3-15a would avoid and minimize potential impacts during construction of the proposed Project to protect Ledgewood Creek and other adjacent aquatic resources from potential project-related effects from erosion, sedimentation, and pollution, thus reducing potential impacts to **less than significant**.

Riparian Habitat

Impact 4.3-16 Riparian Habitat. *Construction activities near the riparian corridor of Ledgewood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with proposed Project operation could also adversely affect wildlife in the riparian corridor. These impacts would be potentially significant.*

No riparian habitat would be directly affected by the proposed Project. However, the western boundary of the proposed Development Area of the Project Site is immediately adjacent to the Ledgewood Creek riparian corridor. Construction activities could result in degradation of water quality and adjacent sensitive habitat areas and adversely affect wildlife activities through increased erosion and sedimentation, spills during vehicle

refueling, or disposal of food and trash. Project development and activities during Project operation could reduce the value of wildlife habitat in the riparian corridor and potentially disrupt wildlife activities and movement in the riparian zone. These impacts would be **potentially significant.**

Mitigation Measure 4.3-16a: Construction Best Management Practices

Construction activities shall be implemented using the following BMPs to protect Ledgewood Creek:

- Install temporary fencing during construction. The Project applicant shall install fencing along the boundary of the Riparian Corridor Protection Zone during construction in the vicinity of Ledgewood Creek. Fencing during construction will ensure that construction related ground-disturbances do not encroach into the minimum 50-foot Riparian Corridor Protection Zone referenced in Mitigation Measure 4.3-12b. The location of the fencing shall be marked in the field with stakes and flagging prior to installation and shown on the construction drawings. The construction specifications shall include clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities beyond the fence. Temporary construction fencing shall remain in place throughout the duration of construction and shall be fully maintained and inspected daily when project activities are underway. Repairs to the fencing shall be made within 24 hours of identifying the need for repair. After construction is completed, the temporary fencing shall be completely removed.

- Vehicle Fueling and Maintenance. All fueling and maintenance of vehicles and other equipment as well as locations of staging areas shall occur at least 100 feet from the edge of the riparian area of Ledgewood Creek. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

- Proper Waste Disposal. Food, trash, and other solid wastes shall be disposed of in contained, covered refuse containers and regularly removed from the construction site.

Mitigation Measure 4.3-16b: Riparian Corridor Protection Zone.

The Project applicant shall establish a riparian corridor buffer zone to be protected with permanent fencing upon completion of construction. The western boundary of the proposed Development Area of the Project Site and the permanent fence line adjacent to Ledgewood Creek shall be set back a minimum of 50 feet from the top of the bank or the outside edge of riparian vegetation, whichever distance is greater. Fencing details including the material, specifications, and location of the fence line shall be approved by CDFW prior to installation.

Significance after Mitigation

Mitigation Measure 4.3-16a requires BMPs to avoid direct and indirect impacts to Ledgewood Creek and its riparian habitat. Mitigation Measure 4.3-16b, which requires establishment of a riparian setback from Ledgewood Creek would serve to protect the riparian corridor from operational activities and environmental degradation facilitated by project development. These measures would reduce impacts to **less than significant**.

WETLANDS

Impact 4.3-17 Wetlands. *Grading activities would result in the permanent placement of fill material into 16.3 acres of Seasonally Saturated Annual Grassland; 14.1 acres of Vernal Pools; 7.4 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh. In addition, grading within the Managed Open Space to establish/create wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands. These impacts would be* ***potentially significant.***

Development of the proposed Project within the proposed Development Area would result in permanent impacts to 38 acres of wetlands considered Waters of the U.S and Waters of the State. The location of wetland impacts associated with the proposed Project within the proposed Development Area is shown in Attachment C, Figure 13, and the acreage of impacts to each wetland is summarized below in Table 4.3-5. Permanent loss of 16.33 acres of seasonally saturated annual grassland, 14.09 acres of vernal pools; 7.42 acres of alkali seasonal wetlands; and 0.002 acre of perennial brackish marsh would result from implementation of the proposed Project. Grading within the Managed Open Space area to create wetlands could also adversely affect the hydrology and water quality of existing adjacent wetlands. These wetland impacts would be **significant.**

Table 4.3-5. Impacted and Unimpacted Wetlands by Vegetation Community

Vegetation Community/Wetland Habitat Type	Total Wetland Acreage by Habitat Type	Unimpacted Wetlands (ac)	Impacted Wetlands (ac)
Seasonally Saturated Annual Grassland	78.88	62.55	16.33
Vernal Pool	19.76	5.67	14.09
Akali Seasonal Wetland	46.41	38.99	7.42
Perennial Brackish Marsh	176.27	176.27	<0.01 (0.002)
Project Site Totals	**321.32**	**283.45**	**37.84**

Impacts of this magnitude would typically require that the Project applicant apply for and obtain an Individual Permit from the San Francisco District of USACE for the placement of fill material within approximately 38 acres of wetlands/Waters of the U.S. under Clean Water Act Section 404 jurisdiction. The application would require a plan to compensate for wetland losses, as well as a detailed alternatives analysis under the Section 404(b)(1) guidelines. For the USACE permit to be valid, the project applicant would be required to apply for and obtain the accompanying Section 401 Water Quality Certification from the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over much of the Project Site and a BCDC permit would also be required.

Implement Mitigation Measure 4.3-13a: Implement SWPPP and BMPs (see Impact 4.3-13, above)

Mitigation Measure 4.3-17a: Secure Permits and Implement All Permit Conditions

The Project applicant shall coordinate with the San Francisco District USACE, the San Francisco Bay RWQCB, and the BCDC to obtain proper permits for the placement of fill material within approximately 38 acres of wetlands and implementation of the Mitigation and Monitoring Plan, which includes construction of mitigation wetlands in the Managed Open Space area of the Project Site within the Suisun Marsh primary and Secondary Management Areas. The Project applicant shall implement all conditions

required in these permits. The Mitigation and Monitoring Plan shall be submitted to the San Francisco Bay RWQCB, San Francisco District USACE, and BCDC for review and permit conditioning as part of the permitting process with these agencies.

Mitigation Measure 4.3-17b: Wetland Establishment and Performance Monitoring

The Project applicant shall establish/create wetlands at a 1:1 ratio to include 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh concurrent with project construction. Performance standards for the established/created wetlands will be monitored for a minimum of 10 years in accordance with the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C).

If the permits described above specify additional wetland mitigation beyond that described in the Mitigation and Monitoring Plan, the Project applicant shall purchase wetland mitigation credits from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available that service the proposed Development Area of the Project Site, the Project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

Mitigation Measure 4.3-17c: Avoid Impacts to Existing Wetlands in Managed Open Space

To ensure detailed construction plans will avoid potential indirect impacts to existing wetlands and special status plants and wildlife, the Project applicant shall obtain detailed topographic plans, at minimum of 0.5-foot contours, before implementing the proposed wetland creation activities described in Attachment 7 in Appendix C. This topographic information will be used to conduct a water balance study to determine if construction of the created wetlands in the proposed Managed Open Space could adversely affect ponding and/or soil saturation in adjacent existing wetlands. This study would supplement the "Adequate Hydrology Determination" presented in the Mitigation and Monitoring Plan for the proposed Managed Open Space (Attachment 7 in Appendix C). If it is determined there is an adverse effect on the hydrology of existing wetlands due to grading within the Managed Open Space area to establish/create wetlands that would reduce the extent of the wetlands, construction plans will be modified to avoid alterations to the hydrology of existing wetlands. If the revised plans result in a reduction in available acreage for wetland creation for mitigation, and the acreage of wetlands established needs to be reduced, the project applicant shall purchase wetland mitigation credits to offset the reduced acreage, and/or preserve land offsite, approved by the USFWS, that is suitable for preserving and creating/establishing wetland habitat. The mitigation credits shall be purchased from an approved mitigation bank which services the proposed Development Area. If no mitigation banks are available which service the proposed Development Area, the project applicant shall use an approved mitigation bank whose service area includes the Solano-Colusa Vernal Pool Region as defined in the 2006 Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Currently, according to the Regulatory In-lieu Fee and Bank Information Tracking System (RIBITS), there are banks with a service area that encompasses the Project Site with wetland preservation credits (e.g., Goldfields Conservation Bank) and establishment/creation credits (e.g., Elsie Gridley Mitigation Bank) available which may be suitable to off-set wetland impacts that cannot be mitigated on-site. In addition, according to RIBITS, there are mitigation banks with preservation and wetland creation credits with service areas that encompass the Solano-Colusa Vernal Pool Region.

Mitigation Measure 4.3-17d: Limit Staging Areas and Access Routes.

To avoid potential impacts to preserved wetlands during construction of the proposed Project, including the proposed Development Area and construction of mitigation wetlands of the proposed Managed Open Space area, the number of access routes, and number and size of staging areas shall be limited to the minimum necessary to achieve the project goal. Routes and boundaries shall be clearly marked/flagged. These areas shall be outside of wetland areas and other sensitive areas proposed for preservation.

Mitigation Measure 4.3-17e. Implement Mitigation and Monitoring Plan

To compensate for loss of wetlands and impacts to rare plant populations the Project applicant shall implement an Agency-approved Mitigation and Monitoring Plan. A draft Mitigation and Monitoring Plan for the proposed Managed Open Space portion of the Project Site (Appendix C, Attachment 7), has been prepared in accordance with the Subpart J – Compensatory Mitigation for Losses of Aquatic Resources outlined in the State Water Resources Control Board Procedures, and in accordance with the State Water Resources Control Board Implementation Guidance dated April 2020. The referenced Mitigation and Monitoring plan may be modified based on recommendations from the USACE, USFWS, and RWQCB during the permitting process. In summary, the Mitigation and Monitoring Plan shall:

- Establish within the Managed Open Space a minimum of 16.33 acres of Seasonally Saturated Annual Grassland; 14.09 acres of Vernal Pools; 7.42 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh.

- Provide financial assurances to ensure a high level of confidence that the Mitigation and Monitoring Plan will be successfully completed, in accordance with applicable performance standards.

- Design ecological performance standards to assess whether the Mitigation and Monitoring Plan is achieving the overall objectives, so that it can be objectively evaluated to determine if it is developing into the desired resource type, providing the expected conditions or function, and attaining any other applicable metrics such as acres, percent cover of native plants, structural patch richness, control of invasive plants, water depth etc.

- Monitor the site for a minimum of 10 years to determine if the Mitigation and Monitoring Plan is meeting the performance standards; and

- Assess the potential effects of changing weather patterns that are currently occurring, and that may occur due to climate change in the foreseeable future and how these changes may impact the long-term viability of the constructed wetlands. The purpose of this assessment is to locate and design the wetlands to avoid and minimize impacts from climate change and to develop adaptive management measures into the Mitigation and Monitoring Plan specifically to minimize these potential effects.

The Mitigation and Monitoring Plan shall include a site protection instrument (e.g., deed restriction or conservation easement[s]) that will restrict use of the proposed Managed Open Space area of the Project Site to offset impacts to wetlands and impacts to rare plants and shall include a long-term endowment funded by the proposed Project to manage the entire 393.2-acre Managed Open Space area in perpetuity and in accordance with the Mitigation and Monitoring Plans' Long-Term Management Plan (see Property Analysis Record in the Mitigation and Monitoring Plan, in Appendix C).

Significance after Mitigation

The proposed Project would protect 393.2 acres east of Pennsylvania Avenue and south of Cordelia Road; this area would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately 331.7 acres of this 393.2-acre Managed Open Space is currently within the Suisun Marsh Protection Plan jurisdiction. However, the proposed Managed Open Space area provides additional benefits to enhance the quality and diversity of Suisun Marsh wildlife habitats beyond that provided by the Suisun Marsh Protection Plan. The site protection instrument would create new freshwater wetlands and will provide a sanctuary for wildfowl during hunting season by excluding duck hunting, and foster implementation of Suisun March Protection Plan policies and goals such as managing agricultural lands to support waterfowl and enhancements of wildlife habitat. The Project would create a long-term endowment to provide funding to support regular site inspections, maintenance actions and sustained stewardship to:

- manage vegetation grazing practices to be compatible with wildlife habitat enhancement and rare plant protections
- implement invasive plant inspections and undertake remedial actions
- clean up dump sites and remove trash before it enters waterways
- prevent damage from homeless encampments
- maintain fences, gates, and signage

In addition, Managed Open Space area will include protection to approximately 51.5 acres to the Managed Open Space area which is not currently within the Suisun Marsh Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge to wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.7 acres is within the primary and Secondary Management Areas of the Suisun Marsh.

Implementation of the proposed Managed Open Space in accordance with Mitigation Measures 4.3-17a through 4.3-17e would therefore offset permanent impacts to the 16.33 acres of Seasonally Saturated Annual Grassland; 14.1 acres of Vernal Pools; 7.4 acres of Alkali Seasonal Wetlands; and 0.002 acre of Perennial Brackish Marsh and ensure there is no-net loss of wetland area, thus reducing potential impacts to l**ess than significant**.

CONSERVATION AND PROTECTION PLANS

Impact 4.3-18 Conservation and Protection Plan Conflicts. *Because the proposed Project would not conflict with the provisions of any adopted habitat conservation plan, and because management of Project area that falls within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats, this impact would be less than significant.*

The Solano Multispecies Habitat Conservation Plan (SMHCP) has been in draft form for approximately 20 years. The SMHCP has not yet been adopted and currently there are no proposals to adopt this conservation plan in the foreseeable future. Therefore, the proposed Project poses no conflict with an adopted conservation plan.

The proposed Project is consistent with the provisions and objectives of the Suisun Marsh Protection Plan. The objectives of the Suisun Marsh Protection Plan are to preserve and enhance the quality and diversity of the Suisun Marsh wildlife habitats and to assure retention of upland areas adjacent to the Suisun Marsh in uses compatible with its protection. All portions of the Project Site that overlap with the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats. The project would bring additional funding and management oversight for 393.2 acres of the Suisun Marsh and adjacent uplands; as described in Appendix C, Attachment 7, a site protection instrument, and a long-term endowment fund would provide additional resources to augment management of 393.2 acres of proposed Managed Open Space area within the Project Site with the goal of protecting and enhancing wildlife habitat.

The public acquisition recommendations in the Suisun Marsh Protection Plan specify acquisition of lands within and adjacent to the marsh close to population centers like Suisun City so that these lands can be managed as wildlife habitat and provide refuge areas to protect wildfowl, especially during hunting season. Approximately 51.5 acres of the proposed Managed Open Space of the Project Site is currently outside of the Suisun Marsh Protection Plan's jurisdiction. The proposed Project would provide new protections for this area because it would be managed in perpetuity as wildlife habitat in the proposed Managed Open Space area and would provide refuge to wildfowl, consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining 331.7 acres is within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan.

Because the proposed Project would not conflict with the provisions of any adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, this impact would be **less than significant**.

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4.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

4.4.1 ENVIRONMENTAL SETTING

Unless otherwise cited, this Prehistoric Overview and the Historic Setting text through the history of Suisun City is adapted from *City of Suisun City 2035 General Plan Background Report—Chapter 3, Cultural and Paleontological Resources* (City of Suisun City 2015).

PREHISTORIC OVERVIEW

The following discussion focuses on the archaeology of the Project area and provides a brief summary of the area's cultural history. Time periods discussed are those presented by David Fredrickson in the early 1970s.[1]

Lower Archaic Period

The Lower Archaic Period dates to 10,000–6000 Years Before Present (BP). The beginning of this period coincides with that of the middle Holocene climatic shift to more arid conditions that brought about the drying up of the pluvial lakes located in northern and southern California. Subsistence appears to have been focused more on plant foods, although hunting clearly still provided for important food and raw material sources. Settlement was semi-sedentary, with an emphasis on material wealth. Most tools were manufactured of local materials, and exchange remained on an ad-hoc basis. Distinctive artifact types include large projectile points, milling slabs, and hand-stones. The oldest known archaeological component in this region of central California is from the Los Vaqueros Reservoir area in eastern Contra Costa County.

Middle Archaic Period

The Middle Archaic Period dates to 6000 to 2500 BP. This period is often discussed in terms of two distinct divisions, the Initial and the Terminal. The Initial Archaic Period dates from 6000 to 4500, and the Terminal Archaic Period from 4500 to 2500. In general, this period begins at the end of mid-Holocene climatic conditions, when weather patterns became similar to present-day conditions. Discernable cultural change was likely brought about, in part, in response to these changes in climate and accompanying variation in available floral and faunal resources. Economic systems were more diversified and likely included the introduction of acorn processing technology. Hunting remained an important source of food and raw materials although reliance on plant foods appears to have dominated the subsistence system.

The Middle Archaic Mendocino Pattern settlements originate in this period and persist through the Upper Archaic and possibly into the Emergent Period. The Hultman Aspect identified in the Clear Lake Basin is the southernmost of two identified cultural divisions, while the Windmiller Patter is present to the north. The two share such basic material traits as basalt core tools, shaped unifaces, heavily worked bifaces, and thin, finely flaked obsidian knives. The Hultman Aspect is distinguished by the presence of ovate scrapers, numerous simple

[1] In the early 1970s, David Fredrickson proposed a sequence of cultural manifestations, or patterns, for the central districts of the North Coast Ranges. He placed these patterns within a framework of cultural periods he believed were applicable to California as a whole. Fredrickson recognized that the economic and cultural component of each pattern could be manifest in neighboring geographic regions according to the presence of stylistically different artifact assemblages. This integrative framework provides the means for discussing temporally equivalent cultural patterns across a broad geographic space.

tools (incised or drilled), steatite plummets (charmstones), and the use of obsidian for the manufacture of projectile points.

Mortuary practices are characterized by tightly flexed burials with no apparent patterning in orientation and fewer artifact associations compared to the elaborate practices evidenced in Windmiller Pattern burials. Grave associations include numerous Olivella saucer and saddle beads and Haliotis ornaments. The artifact assemblage is distinguished by a highly developed bone tool industry represented by bone needles, bird and mammal bone whistles, serrated scapula saws, bone hairpins and spatulae, mammal and bird bone tubes, and other types of flaked, ground, and polished bone artifacts. Mortars and pestles dominate the milling tool assemblage with only infrequent occurrences of milling slabs and hand-stones. Non-stemmed obsidian projectile points and knives are abundant. Midden deposits contain large accumulations of oyster, clam, and salt-water mussel shells in the Bay Area, while freshwater mussel predominates in Central Valley sites.

With the exception of isolated human burials, extensive early Middle Archaic deposits were not known in the San Francisco Bay/Sacramento–San Joaquin Delta (Bay-Delta) region until 1996 as reported by Meyer and Rosenthal in 1997. Prehistoric archaeological site CA-CCO-637, located in a small valley, included deeply buried components in an alluvial fan adjacent to Kellogg Creek. This site deposit was found in buried soil and included an assortment of habitation debris, residential and processing features, and several human burials. Several buried sites in Contra Costa and Solano counties date to the Terminal Period, including CA-CCO-637 and CA-CCO-696 at Los Vaqueros Reservoir; CA-CCO-308 in the San Ramon Valley; and others in the area of Green Valley in Solano County.

Upper Archaic Period

The Upper Archaic Period dates to 2500–1300 BP. A dramatic expansion of sociopolitical complexity marks this period, with the development of well documented status distinctions based upon material wealth. Group-oriented religions emerge and may be the origins of the Kuksu religious system that arises at the end of the period. There was a greater complexity of trade systems with evidence for regular, sustained exchanges between groups. Shell beads gained in significance as possible indicators of personal status and as important trade items. This period retained the large projectile points in different forms, but the milling stone and hand-stone were replaced throughout most of California by the bowl mortar and pestle.

During this period, the Mendocino Pattern is present in the central and northern parts of the North Coast Ranges, and the Berkeley Pattern persisted in the Central Valley, Bay, and southern part of the North Coast Ranges, including within the City's existing Sphere of Influence.

Emergent Period

The Emergent Period dates to 1200–200 BP. The distinctive cultural pattern of the Emergent Period, the Augustine Pattern, is marked by the appearance, for the first time, of small arrow-sized projectile points, beautifully trimmed show mortars, flanged pestles, flanged steatite pipes, and chevron-designed bird-bone tubes. It is postulated that as the Emergent Period began, the Meganos culture, which originated in the San Joaquin Valley circa 500 B.C. to A.D. 100, appears to have retreated to the southern Delta region.

It was also during the Emergent Period that bedrock mortar milling stations were first established in the Bay Area, beginning around 1,300 years ago. Portable mortars and pestles continued to be used, although smaller ones were

preferred. Also during this time, small arrow points replaced the larger projectile point forms more commonly associated with atlatls. Implements such as harpoons, bone fishhooks, and gorge hooks were also found in the tool assemblages.

At this time, large mammals appear to have taken a more prominent role in the diet than small-seeded resources. Marine shellfish and marine fishes were moved inland in much larger quantities during the Emergent Period. Large villages of hundreds of people are thought to have been located in the Delta region, while small hamlets composed of one or two extended families were located in many of the smaller valleys.

ETHNOGRAPHIC SETTING

When Europeans first entered central California, the area west of the Sacramento River and north of Suisun Bay (including the City's Sphere of Influence) was occupied by linguistically and culturally related groups or "tribelets" that appeared to lack political unity or collective identity. However, because of their linguistic similarities, they became known as Patwin, the term each group used to identify themselves.

They, along with their neighbors the Nomlake and Wintu, are speakers of the Wintuan language, which is part of the larger Penutian language family. This language family also includes Miwok, Maidu, Costanoan, and Yokuts. The Patwin occupied a strip of land about 60 kilometers wide that extended approximately 150 kilometers along the lower Sacramento River and the eastern foothills of the North Coast Range, terminating at San Pablo and Suisun bays on the south.

The Patwin were organized into tribelets consisting of a primary village and several smaller associated villages. Each village was led by a chief, who attained his office through paternal descent. Social structure was divided into three groups: the paternal family; the family social group; and the household. The paternal family group included the patriarch and his brothers, sisters, sons, and daughters. Married sisters and married men were not included in the social group, since they were included within other social groups. The household consisted of a family that lived under one roof and included his wife, unmarried offspring, and any married daughters and their husbands and their children that had not yet acquired sufficient wealth to establish their own household.

Settlements were generally large, with villages usually located along river or stream banks or the shorelines of seasonal lakes. Permanent houses were erected within the village, and less substantial structures were located at remote locations near exploitable resources. The Patwin diet was varied and depended on seasonal rounds augmented by resources obtained through trade. Tule elk, deer, antelope, bear, ducks, geese, quail, turtle, fish, and other small birds and mammals were hunted. Acorns were a staple food, supplemented with seeds, nuts, berries, and fruit. The association of flaked stone tools and milling equipment with vernal pools appears to indicate that these features were also associated with Patwin subsistence, apparently as a result of faunal and botanical species drawn to these features.

Euro-American contact with the Patwin began with Spanish missionaries and explorers in the late 1700s. By the middle of the nineteenth century, many Patwin had been relocated to mission settlements, local ranches, or small reservations. Euro-American diseases decimated much of the Patwin population at this time, and it is estimated that as much as 75 percent of the Native American population in the Central Valley and Bay/Delta regions died from the 1833 malaria epidemic.

Euro-American influences within Patwin territory increased dramatically as ranching and farming became popular in the area. Euro-American settlers quickly made inroads into lands occupied by Native Americans. Conflicts increased and Patwin populations continued to decline from military skirmishes, vigilante raids, and other causes. In 1972, the Bureau of Indian Affairs listed only 11 remaining Patwin descendants. Despite the massive decline in population, the Patwin still reside in Solano County and many intermarried with the Wintu. Despite a long history of population decline and marginalization, indigenous populations survive to this day, and are reinvesting in their traditional culture.

HISTORIC SETTING

Early Exploration and Settlement

The first documented European expedition within the vicinity of the City's Sphere of Influence was the Pedro Fages expedition of 1772, which reached the Carquinez Strait and was followed four years later by the Anza expedition. The Anza expedition was searching for a land route to Point Reyes. The Spanish had begun establishing a presence in the region in 1769, through Franciscan missions and military presidios; these were used as vehicles for taking complete control of Alta California. Alta California was the Spanish term used for upper California as opposed to Baja California (lower California) in which the Dominican missions were located. Beginning in San Diego, the Spanish priests quickly moved north. The first crossing of the Carquinez Strait did not occur until 1810 when Gabriel Moraga led a raid against the Suisun tribe. This initial entry into the region culminated with the establishment in 1823 of Mission San Francisco Solano, located in Sonoma.

In 1835, General Mariano Guadalupe Vallejo was ordered by the Mexican government to colonize today's Fairfield/Suisun City area to protect interior Spanish interests from the Russians at Fort Ross. The lower part of the Sacramento Valley and Delta areas were then settled rapidly, as the Mexican government granted large tracts of land and access to the region's natural resources. At that time, chief Francisco Solano of the Suisun tribe likely allied himself and his group of Patwin with Vallejo to gain political advantage over rival native groups.

19th and 20th Century Settlement

Much of the Spanish population had been expelled by 1832. Mexican government secularization of the missions had begun a few years prior, establishing the Mexican Land Grant system. Land formerly held by Spain was divided into vast tracts called "ranchos." These parcels, such as Rancho Tolenas (located northwest of the Project site), were granted by the government to individuals and used primarily for farming and raising cattle with vineyards, fruits, and vegetables planted for personal needs.

Solano County contained five confirmed Mexican land grants. The first of the land grants was Rancho Suisun. Rancho Tolenas, adjacent to Rancho Suisun, included part of the city of present day Fairfield and extended north into Napa County. The patent (i.e., rights to the land grant) was issued in 1840 to Jose Francisco and Antonio Armijo.

During the Gold Rush, ranchers and farmers discovered that selling their crops to miners was extremely profitable. In the late 1840s and 1850s, former gold seekers and pioneers began settling Solano County, where they raised livestock and cultivated fruit orchards, vineyards, wheat, barley, and oats. Produce and livestock were transported overland by wagons to docks located at sloughs throughout the county, then shipped to market. Due to this trade, economic development, and arrival of the railroad, 12 townships were established in Solano County

between 1850 and 1871. While the largest towns were located adjacent to San Pablo and Suisun bays (e.g., Suisun City), small towns were located at the ends of sloughs and channels that primarily ran through the eastern portion of the county. Suisun Valley was one of the major fruit producing areas in Solano County and Suisun Slough provided easy shipping access.

The construction of two rail networks (California Pacific and Napa Valley Railroads) further spawned economic growth in the region. In 1868, the completion of the California Pacific Railroad through Solano County allowed the shipment of goods to East Coast markets, significantly bolstering economic development, agricultural production, and population growth. The turn of the 20th century saw increased progress in transportation. In 1913, the Oakland, Antioch, and Eastern Railway, a high-speed electric interurban railway, opened its 93-mile route from San Francisco to Sacramento, through largely unpopulated parts of Solano County. In 1928, the Sacramento Northern Railway purchased the railroad, but the Great Depression and the popularity of the automobile contributed to the end of passenger service in 1940. By 1987, the railway had been abandoned (WRM.org 2022).

Suisun City

What would become known as Suisun City was initially called Suisun (named for a Patwin village or triblet). The name has appeared in Spanish records since 1807, although it was sometimes spelled Suysun. Suisun City was established to take advantage of this location and became the trade center for central Solano County.

By the mid-1850s, several buildings had been erected in the new city. Suisun City thrived during that latter part of the 19th century. The California Pacific Railroad began passenger service from Vallejo to Suisun in 1868. Three years later, the Central Pacific Railroad purchased the California Pacific providing Suisun City with shipping access to distant markets via the transcontinental railroad. As of 1880, the city had a population of 600.

These railroads were important to furthering agricultural commerce in and around Suisun City and made Susin the shipping point for the area. Prior to the railroads, lumber and agricultural freight from the surrounding area was shipped to Sacramento and San Francisco from warehouses along Suisun Slough on the east side of Susin City, including Lewis Pierce's large grain warehouse and plank wharf. By 1905, 30,000 tons of grain were annually shipped out of Suisun, as well as large quantities of fresh fruit in refrigerated cars, and dried fruits and nuts. Initial reclamation of marshlands near Suisun City provided land for dairy operations, but in 1911, 4,000-acres were reclaimed by large landholders for more agricultural land (Solano County Board of Supervisors 1905: 39-41; Sanborn 1888; Sanborn 1889; *Sacramento Daily Union* 1911 July 9).

Between 1880 and 1920, fruit cultivation flourished in the Suisun Valley due in part to the development of large-scale fruit drying and canning and refrigerated railcars. Desirable railroad and wharf access to transport goods allowed the Suisun area to flourish. Reclaimed marshland in the vicinity of the city was devoted to dairy farming and nearby cement facilities of the Pacific Portland Cement Company provided an industrial element to the local economy.

By the early 20th century, commercial activity in nearby Fairfield began to eclipse Suisun. This was due in part to the construction of the new state highway through Solano County which bypassed Suisun City, traveling instead through Fairfield. By 1920, Fairfield's population of 1,000 residents surpassed Suisun City's population, which stood at 875 that year.

Although Suisun City retained its status as a shipping and banking center for several decades, the Great Depression brought hard times locally. A rapidly declining national fruit market resulted in closure of several nearby canneries and drying facilities.

World War II brought generalized economic recovery in the area and marked Fairfield's final eclipse of Suisun City as the preeminent municipality in central Solano County. The development of what became Travis Air Force Base between Fairfield, Vacaville, and Suisun City brought an abundance of new jobs to the Fairfield-Suisun area. A revived national fruit market generated prosperity for growers who survived the Great Depression, but no sizeable cannery again operated in the area. Trucking activity was boosted in northern California and Solano County by bridge construction in the Bay Area during the 1930s, and by the expansion of U.S. Highway 40 through Fairfield into a modern, multi-lane freeway during the 1960s (present-day Interstate 80). These investments hurt waterway shipping based in Suisun City. The Suisun City wharf never regained its status as a shipping point central to the local agricultural economy. Now it serves mainly as a launch for recreational boaters.

The City grew very little until the decades following World War II. Large-scale residential development spread east on the other side of Suisun Slough beginning in the 1960s. A city-wide redevelopment program began in the early 1990s. The largest outcome of the program was redevelopment of the industrial waterfront with a public marina, walking trails, and new housing (HistoricAerials.com 1948, 1957, 1968, 1982; *Daily Republic* 2014 December 28).

Development Area Built Environment

The two parcels in the Cultural Resources Study Area for the Project were once part of a 280-acre property owned by large land-holder Lewis Pierce by 1878, that was originally part of the Suisun Rancho. Pierce and his brothers started a successful grain brokerage business in San Francisco that used Suisun City as a main shipping location. Lewis moved to Suisun City in 1872 and through grain cultivation and other agricultural pursuits, amassed more than 10,000-acres and a three-story home, approximately 3.25-miles northwest from the Project Site, before his death in 1880 (Thompson & West 1878; Guinn 1904: 361; DeCaro and Ewing 2013: 20).

The 280-acre property was the northwestern parcel of four parcels, totaling nearly 600-acres owned by Pierce that spanned just north of the California Pacific Railroad (CPRR) [now the California Northern Railroad (CFNR)] and then traveled southeast to Suisun and Peytonia sloughs. The current alignments of Pennsylvania Avenue and Cordelia Road cut through the 280-acre property, but the areas where the extant commercial buildings are located were undeveloped (Thompson & West 1878). By 1890, the CPRR realigned a section of track south of Fairfield that paralleled a section of Cordelia Road to connect to the Sacramento Northern Railway (SNR) [now the Union Pacific Railroad (UPRR)] just west of Suisun City (Eager 1890).

Initial development on the properties at 1001 Pennsylvania Avenue and APN 0032-190-020: occurred between 1890 and 1896, likely as a railroad packing shed to transport locally grown agricultural products. Also by 1901, the CPRR was taken over by the Southern Pacific Railroad (SPRR) and renamed this section the "San Francisco and Ogden Line" and the SPRR [now UPRR] also took over the SNR and renamed this section the "Suisun Branch" (Eager 1890; USGS 1901). All SPRR lines were absorbed by UPRR in 1996. The segment of railroad through the Project area is part of a long-term lease by CFNR from SPRR/UPRR that operates between Schellville and the UPRR connection at Suisun City.

TRIBAL CULTURAL RESOURCES

Tribal Cultural Resources (TCRs) are distinct from cultural resources, which are discussed above. TCRs include sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either listed on or determined to be eligible for inclusion on the CRHR or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. Tribal cultural resources provide the backdrop to:

- religious understanding;
- traditional stories;
- knowledge of resources, such as varying landscapes, bodies of water, animals and plants; and
- self-identity.

Tribal cultural resources may contain physical cultural remains or may be places within a landscape. A cultural landscape that meets these criteria is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be TCRs if they meet these criteria.

Native American Communities – Yocha Dehe Wintun Nation

Of the tribes invited to provide input for the City's environmental review of the proposed Project, the Yocha Dehe Wintun Nation actively participated. The following provides a summary of their current status as told by the Tribe (Yocha Dehe Wintun Nation 2022).

For thousands of years, members of California's Wintun Tribes have been guided by a culture rich with an understanding of medicine, technology, food production and land stewardship. The towns and roads of today were the villages and trade routes of our past. Their land was healthy and their early communities thrived.

The arrival of missionaries and European explorers forever altered the course of Native people in California. Many Wintun people were enslaved to serve the missions, while abuse and disease further dwindled our numbers. By the 1800s, many of their ancestors were purged of their home and hunting lands by opportunists driven by gold and greed. Northern California Native people were decimated by the Gold Rush and federal policies that legalized genocide. During this time the Yocha Dehe population declined dramatically and their ancestors were rendered nearly extinct.

In the early 1900s, the Tribe was forcibly removed from their village by the U.S. government and placed on a federally created rancheria—otherwise known as a reservation—in Rumsey, California. Stranded on barren, non-irrigatable land, they struggled to survive. In 1940, their people gained a hard-won relocation to a small parcel of land further south in the Capay Valley, where they managed to cultivate small amounts of food. Without the opportunity to produce more than subsistence levels of crops, their ancestors, who had lived sustainably for thousands of years, became dependent on the U.S. government for survival.

Finally, in the late 1980s, the tide began to turn. Some ancestral lands were restored to the Tribe, providing a land base for housing and economic development. It was at this time that the State of California instituted the California Lottery and the federal government enacted the Indian Gaming Regulatory Act (IGRA). The United States Congress enactment of IGRA in particular provided a means to promote economic development and self-

sufficiency with the explicit purpose of strengthening tribal self-governance. This offered the Tribe the opportunity to open Cache Creek Indian Bingo on part of their 188 acres of trust land.

Initially, the Tribe knew little about gaming and focused resources on building the necessary foundation for their tribal government to manage assets generated by the bingo hall. Powered by hard work and determination, the Tribe developed their own management strategy and expanded the bingo hall into the world-class Cache Creek Casino Resort, eventually providing economic development and stability for their tribal members.

The independence gained from the initial influx of gaming revenue gave the Tribe the wherewithal to reacquire some of their traditional lands, to invest in the future of their children through improved education and to provide philanthropic support for communities in need.

In 2009, the Tribe legally changed their name from the Rumsey Band of Wintun Indians, as they were originally labeled by the federal government, to Yocha Dehe Wintun Nation, named for their homeland in their ancestral Patwin language. The name change represents an important mark in time for the people of Yocha Dehe. It connects the Tribe to their heritage and expresses their sense of pride and hope for the future.

4.4.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

Section 106 of the National Historic Preservation Act, 1966

Federal regulations for cultural resources are governed primarily by Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended). Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties and affords the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on such undertakings. The ACHP's implementing regulations are the "Protection of Historic Properties" 36 Code of Federal Regulations (CFR) Part 800. The Federal agency first must determine whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are those that meet the criteria for or are listed in the National Register of Historic Places (NRHP).

National Register of Historic Places

"Historic properties," as defined by the ACHP, include any "prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP maintained by the Secretary of the Interior" (CFR Section 800.16(I)). Eligibility for inclusion in the NRHP is determined by applying the following criteria, developed by the National Park Service in accordance with the NHPA:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1995). NRHP guidance further asserts that properties must have been completed at least 50 years before evaluation to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (Criteria Consideration G) to be considered for listing.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Environmental Quality Act and the California Register of Historical Resources

Under CEQA, lead agencies must consider the effects of their projects on historical resources. The California Environmental Quality Act (CEQA) defines a "historical resource" as a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources (CRHR), a resource included in a local register of historical resources, and any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant (Section 15064.5[a] of the Guidelines). Solano County nor the city of Suisun City do not currently have local registers. Public Resources Code Section 5024.1 requires that any properties that can be expected to be directly or indirectly affected by a proposed project be evaluated for CRHR eligibility. According to Public Resources Code Section 5024.1(c)(1–4), a resource may be considered historically significant if it retains integrity and meets at least one of the following criteria. A property may be listed in the CRHR if the resource:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region or method of installation, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

To be considered eligible, a resource must meet one of the above stated criteria and also retain integrity. Integrity has been defined by the National Park Service as consisting of seven elements: location, design, setting, materials, workmanship, feeling, and association.

Impacts to historical resources that materially impair those characteristics that convey its historical significance and justify its inclusion or eligibility for the NRHP or CRHR are considered a significant effect on the environment (CEQA Guidelines 15064.5).

In addition to historically significant resources, which can include archaeological resources that meet the criteria listed above, an archeological site may meet the definition of a "unique archeological resource" as defined in Public Resources Code Section 21083.2(g):

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Public Resources Code Section 21083.2 [a], [b] and [c]). CEQA Guidelines Section 15064.5, subdivision (e), requires that excavation activities be stopped whenever human remains are uncovered and that the county coroner be called in to assess the remains. If the county coroner determines that the remains are those of Native Americans, the Native American Heritage Commission (NAHC) must be contacted within 24 hours. At that time, the lead agency must consult with the appropriate Native Americans, if any, as timely identified by the NAHC. Section 15064.5 directs the lead agency (or applicant), under certain circumstances, to develop an agreement with the Native Americans for the treatment and disposition of the remains.

Tribal Cultural Resources

CEQA requires lead agencies to consider whether projects will affect Tribal Cultural Resources. Tribal Cultural Resources may or may not manifest as archaeological sites. In some cases, TCRs are viewsheds, plant gathering areas, or other sacred spaces that are not readily identifiable to non-tribal members. In many cases, TCRs also include an archaeological component, such as artifacts, features, and sites (with or without human remains). Public Resources Code Section 21074 states the following:

(a) "Tribal cultural resources" are either of the following:

(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

(b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the county coroner has examined the remains (Section 7050.5b). Public Resources Code Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Section 7050.5c). The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by the NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains, and items associated with Native Americans.

Assembly Bill AB 52

AB 52 (effective July 1, 2015) added Public Resources Code Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to CEQA, relating to consultation with California Native American tribes, consideration of "tribal cultural resources," and confidentiality. AB 52 provides procedural and substantive requirements for lead agency consultation with California Native American tribes and consideration of effects on tribal cultural resources, as well as examples of mitigation measures to avoid or minimize impacts to tribal cultural resources. AB 52 establishes that if a project may cause a substantial adverse change in the significance of a tribal cultural resource, that project may have a significant effect on the environment. Lead agencies must avoid damaging effects to tribal cultural resources, when feasible, and shall keep information submitted by tribes confidential.

AB 52 requires a lead agency to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe requests consultation. Section 21080.3.1(d) states that within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project location and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to requests consultation pursuant to this section.

SOLANO COUNTY GENERAL PLAN

The Solano County General Plan contains the following policies related to archaeological, historical, and tribal cultural resources (Solano County 2008):

Policies

- **Policy RS.P-38:** Identify and preserve important prehistoric and historic structures, features, and communities.
- **Policy RS.P-39:** Tie historic preservation efforts to the County's economic development pursuits, particularly those relating to tourism.
- **Policy RS.P-40:** Consult with Native American governments to identify and consider Native American cultural places in land use planning.

CITY OF SUISUN CITY GENERAL PLAN

The Suisun City General Plan (City of Suisun City 2015) includes the following policies and program related to cultural resources that apply to the proposed Project:

Open Space and Conservation

- **Policy OSC-5.1:** The City will use geologic mapping and cultural and paleontological resource databases to determine the likely presence of resources and the appropriate level of cultural and paleontological resources analysis and mitigation required for new developments.
- **Policy OSC-5.2:** New developments shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever feasible.

    - **Program OSC-5.2: Cultural Resource Review and Mitigation**

      New development projects that could have significant adverse impacts to prehistoric or historic resources shall be required to assess impacts and provide feasible mitigation. The following steps, or those deemed equally effective by the City, will be followed:

        - Request information from the Native American Heritage Commission regarding Native American groups that may have important sites in areas that could be affected by project development.
        - Involve the local Native American community in determining the appropriate mitigation of impacts to significant prehistoric sites.
        - Consult updated information from the Northwest Information Center regarding cultural resource sites, structures, or landscapes that could be affected by project activities.
        - Based upon the sensitivity of the subject proposed project area, additional technical work may be required. Where a cultural resources survey has not been performed:
            - A pedestrian survey may be required in areas of low sensitivity;
            - A pedestrian survey will be required in areas of moderate and high sensitivity; and
            - Based on findings of the pedestrian survey, additional technical studies may be required, such as geoarchaeological sensitivity analysis, Native American consultation,

ethnographic studies, or other analysis scaled according to the nature of the individual project.

- For new developments that would alter historic structures (structures 50 years old or older), a qualified architectural historian shall conduct a record search and assess the potential for the project to result in significant impacts to historic resources that occur as part of the existing built environment.

- Determination of impacts, significance, and mitigation (i.e., site monitors, avoidance, and/or other measures) shall be made by a qualified professional archaeologist or architectural historian, as appropriate.

- If impacts cannot be avoided through project design, appropriate and feasible treatment measures are required. Such measures may consist of, but are not limited to actions, such as data recovery excavations, photographic documentation, or preparation of design drawings documenting the resource subject to significant impacts.

- Provide the Northwest Information Center with appropriate California Department of Parks and Recreation site record forms and cultural resources reports documenting resources that may be identified through technical work performed to review projects accommodated under the General Plan.

- If human remains are discovered during construction of projects occurring under General Plan buildout, the project proponent and landowner shall comply with California Health and Safety Code Section 7050.5 and California Public Resources Code Section 7050.5.

4.4.3 METHODOLOGY

A records search, Native American consultation, fieldwork, and archival research were conducted to establish what cultural resources and tribal cultural resources may be present within the Project area and, furthermore, may be impacted as a result of the implementation of the proposed Project. The impact analysis for archaeological, historical resources, human remains, and tribal cultural resources is based on the findings and recommendations in the *Highway 12 Logistics Center Cultural Resources Report* prepared by AECOM (AECOM 2023). The analysis is also informed by the provisions and requirements of federal, State, and local laws and regulations that apply to cultural resources and tribal cultural resources.

NWIC RECORDS SEARCH

A records search of the California Historical Resource Information System (CHRIS) was completed for the Project Site and a 0.25-mile buffer by staff at the Northwest Information Center (NWIC) at Sonoma State University in Rohnert Park on April 24, 2021 (NWIC File No. 20-1831). The CHRIS search also included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Inventory of Historic Resources.

The records search identified 13 previous studies (S-2840, S-5093, S-5094, S-5132, S-5167, S-6552, S-22736, S-22817, S-25311, S-30659, S-33061, S-34410 and S-45102) have been conducted within the Project Site (Table 4.4-1), and 12 others within the records search buffer of 0.25-mile. One cultural resource, the Union Pacific Railroad/Southern Pacific Railroad/California Northern Railroad (P-48-000549) has been documented within the Development Area and another 89 have been documented within 0.25 miles. No pre-contact sites have been previously documented in the excavation areas for habitat construction within the Managed Open Space or within 0.25 miles of the Project Site. Of the 89 cultural resources within the records search buffer of 0.25-mile, 87 are buildings within the Suisun City Historic District, east of the Project Site.

Table 4.4-1. Summary of Previous Investigations within the Project Area

NWIC Report Number	Title	Author
S-2840	First Addendum Archaeological Survey for the Proposed Fairfield Bypass Project, Solano County	Wiant 1981
S-5093	Archaeological Survey: Realignment of Highway 12, Fairfield, California	True 1977
S-5094	Archaeological Survey Near Fairfield, California: Alternate Route for Highway 12	True 1978
S-5132	Archaeological Records Search and Reconnaissance Survey, Fairfield Redevelopment Project, Fairfield, CA	Mabry 1979
S-5167	Cultural Resources Evaluation of the North Bay Aqueduct Alignment Alternatives (Routes 1, 4, and 6), Solano County, California	Chavez 1980
S-6552	Fairfield Vicinity Streams, Solano County, California. Intensive Cultural Resource Survey	Kenton and Johnson 1984
S-22736	Final Cultural Resources Inventory Report for Williams Communications, Inc., Fiber Optic Cable System Installation Project, Point Arena to Robbins and Point Arena to Sacramento, California: Volume I	Jones & Stokes Associates, Inc.
S-22817	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Segment WS01: Sacramento to Oakland	Nelson, Carpenter, and Costello 2000
S-25311	Cultural Resources Assessment Report, SFPP, LP. Proposed Concord to Sacramento Pipeline Project	Martin and Self 2002
S-30659	A Cultural and Paleontological Resources Study for the Crosstown Waterline Project, Fairfield, Solano County, California	Jones and Matzen 2008
S-33061	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, state of California	SWCA Environmental Consultants 2006
S-34410	A Cultural and Paleontological Resources Study for the East-West Water Transmission Pipeline Project, Phase 2, Solano County, California	Jones 2007
S-45102	Historic Property Survey Report, 1-8011-680/SR 12 Interchange Project, California Department of Transportation, District 4, Solano County, California	Bowen 2009

Source: NWIC compiled by AECOM. All reports are on file at the NWIC

Note: NWIC = Northwest Information Center

NATIVE AMERICAN CONSULTATION

AECOM contacted the NAHC in Sacramento on March 19, 2021, requesting a review of the Sacred Lands File and a list of Tribes and individuals who may have information regarding the Project Site. The request contained location details, project map, and a general description of the Project. The NAHC responded on April 9, 2021, with a negative result from the Sacred Lands File in the Project Site and a list of seven Native American contacts:

- Cachil Dehe Band of Wintun Indians of the Colusa Indian Community
- Guidiville Indian Rancheria
- Cortina Rancheria – Kletsel Dehe Band of Wintun Indians
- Yocha Dehe Wintun Nation (four contacts)

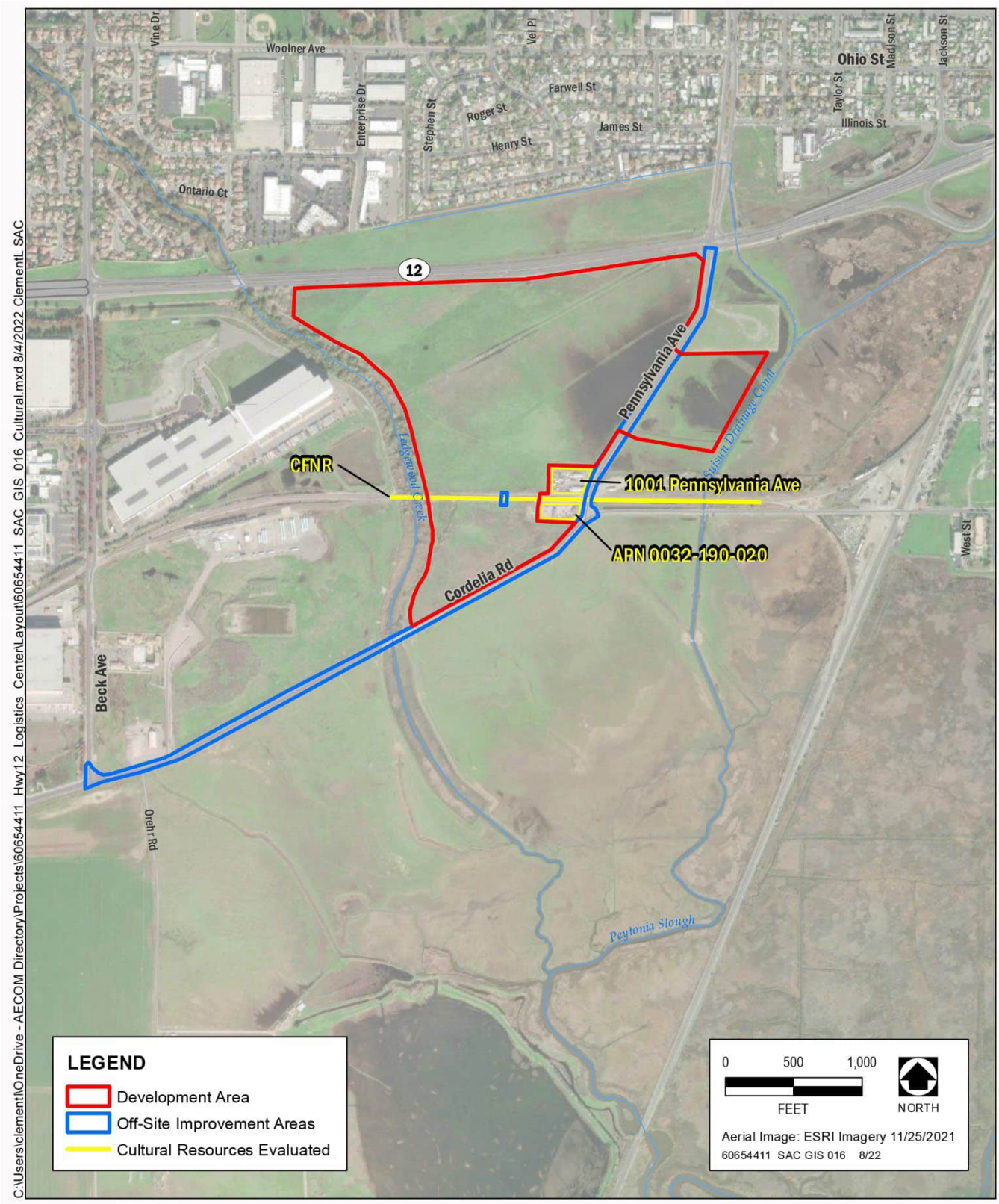
The City of Suisun contacted traditionally and culturally affiliated California Native American tribal representatives on May 14, 2021 that had requested notice of projects where AB 52 applies within the City. The City requested any information regarding tribal cultural resources (as defined by Public Resources Code 21074) within the Project Site so that this information can be incorporated into project planning.

The only response was in a letter dated May 19, 2021 from the Yocha Dehe Wintun Nation's Cultural Resources Department stated that after review of the Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Development Area. Based on the information provided, the Tribe has concerns that the Project could impact known cultural resources, and highly recommend including cultural monitors during development and ground disturbance, including Cultural Sensitivity Training prior to all ground disturbance activities. Additionally, they requested that the City incorporate Yocha Dehe Wintun Nation's Treatment Protocol into the mitigation measures for the City's environmental document, provide the Tribe with a copy of the same, and continue to consult with the Tribe. City representatives met with representatives of the Yocha Dehe Wintun Nation to invite additional input on August 28, 2023 and the Tribal representatives confirmed that preconstruction should be required, that Tribal monitoring should be allowed during the grading and early construction, and that the EIR should stipulate actions in case of uncovering resources. The Tribal recommendations are incorporated in this EIR.

FIELD SURVEY

AECOM developed a Cultural Resources Study Area, consisting of the proposed Development Area and off-site improvement areas (see Exhibit 4.4-1). AECOM Archaeologist Diana Ewing conducted the cultural resources field survey on June 17, 23, and 24, 2022. Transects of approximately 15 to 20 meters were employed to cover the Development Area and off-site improvement areas. The field on the west side of Pennsylvania Avenue was covered in tall grasses allowing approximately 10 to 20 percent soil visibility. While polyvinyl chloride (PVC) pipes and a concrete structure were observed, no indigenous or historic-age material was observed. There was abundant modern refuse near all roads and current homeless activity. The field to the east of Pennsylvania Avenue was actively grazed with cattle, leaving grasses short and 4 to 50 percent of soil was visible due to grazing. No cultural material was observed though modern refuse was abundant. Working under the direction of AECOM architectural historians, Ms. Ewing recorded three historic-age built environment resources within the Cultural Resources Study Area: 1001 Pennsylvania Avenue (APN 0032-010-020), APN 0032-190-020 which lacks a situs address, and the CFNR that separates these two properties. The buildings on each property were subsequently recorded and evaluated for CRHR eligibility on two Department of Parks and Recreation (DPR) 523 series forms and the railroad was recorded on an Update DPR 523 form.

As detailed in Chapter 3 of this EIR, "Project Description," the Project proposes a Managed Open Space area. In addition to habitat preservation, the Managed Open Space area would include mitigation activities that would involve excavation of soils in depths between 1 and 4 feet to be placed in upland areas or used as fill in the Development Area.



Source: AECOM 2022

Exhibit 4.4-1. Cultural Resources Study Area

4.4.4 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project may have a significant impact related to cultural resources if it would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.
- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- disturb any human remains, including those interred outside of formal cemeteries.

Based on Appendix G of the CEQA Guidelines, the proposed Project may have a significant impact on TCRs if it would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

    i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

    ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

IMPACT ANALYSIS

Impact 4.4-1: Substantial adverse change in the significance of known historical resources. *There are no known historical resources or known unique archaeological resources within areas that would be affected by Project construction. This impact would be none.*

No known historical resources or known unique archaeological resources have identified within the Cultural Resources Study Area of the proposed Development Area or in off-site infrastructure improvement areas, through a records search, Native American consultation, fieldwork, and archival research. As no historical resources or unique archaeological resources have been identified, **no impact** would occur.

Mitigation Measures

No mitigation measures are required.

Impact 4.4-2: Substantial adverse change to undiscovered historical resources or unique archeological resources. *Earth disturbance in the Development Area, off-site infrastructure improvement areas, and areas proposed for the creation of*

mitigation wetlands within the proposed Managed Open Space Area could affect precontact or historic-era archaeological cultural resources. This impact would be ***potentially significant****.*

Grading, utility trenching, and excavation activities are required in the Development Area, off-site infrastructure improvement areas, and for the creation of mitigation wetlands within the proposed Managed Open Space Area. Ground disturbing activities as part of the Project could unearth precontact or historic-era archaeological cultural resources. As discussed above, no known historical resources or known unique archaeological resources have been identified within the Cultural Resources Study Area of the proposed Development Area or in off-site infrastructure improvement areas, through a records search, Native American consultation, fieldwork, and archival research. The fact that a resource is not listed in, or determined to be eligible for listing in, NRHP, the CRHR, or not included in a local register of historical resources shall not preclude a lead agency from determining whether the resource may be an historical resource for purposes of CEQA. In addition to assessing whether historical resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the California Register criteria prior to making a finding as to a proposed project's impacts to historical resources (Public Resources Code Section 21084.1, CEQA Guidelines Section 15064.5[3]). This impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 4.4-2 Stop Work and Evaluate if Materials are Encountered, and Implement a Treatment Plan, as Necessary, to Avoid Potential Effects on Cultural Resources

During ground disturbing activities, and in the event that archaeological cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural resources are discovered during Project ground disturbing activities, the Project applicant or construction contractor(s) shall ensure that all ground disturbing activity in the area of the discovery are halted until a qualified archaeologist can access the significance of the find. If it is a precontact archeological site, the appropriate Native American group shall be notified. If the archaeologist determines that the find does not meet the CRHR standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan shall be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with the Project applicant to avoid disturbance to the resources and, if completed avoidance is not possible, follow accepted professional standards in recording any find including submittal of the standard DPR Record forms and location information to the appropriate California Historical Resources Information System office for the Project Site (the NWIC).

Significance after Mitigation

Implementation of this mitigation measure would reduce potentially significant impacts to cultural resources because evaluation of discovered resources would take place by a qualified archaeologist and appropriate Native American group, if appropriate, before construction would proceed and, if determined necessary, a data recovery plan and appropriate next steps would be developed in coordination with the appropriate federal, state, and/or local agency(ies) and Tribes to avoid, move, record, or otherwise treat discovered cultural resources appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of cultural resources, this impact would be reduced to a **less-than-significant** level.

Impact 4.4-3: Disturbance of human remains. *It is possible that unknown human remains could be discovered through ground-disturbing construction activities associated with the proposed Project. The impact would be* ***potentially significant****.*

As described above in the Environmental Setting section, no evidence for precontact or early historic interments was found in the proposed Development Area or in off-site infrastructure improvement areas through background research, Native American correspondence, and field surveys. However, this does not preclude the existence of buried subsurface human remains. Prehistoric archaeological sites including some that contain human remains have been identified in other areas of Solano County. It is possible that unknown human remains could be discovered through ground-disturbing construction activities associated with the proposed Project, and the likelihood of inadvertently exposing currently unknown archaeological resources, including those containing human remains during development of the proposed Project cannot be dismissed. The inadvertent exposure of previously unidentified human remains, including those interred outside of formal cemeteries, during Project implementation would be a **potentially significant** impact.

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 compliance with the California Health and Safety Code, if any human remains are uncovered, all construction must stop and the County Coroner must be notified. If the remains are determined to be Native American, California law dictates appropriate follow-on actions.

Mitigation Measures

Mitigation Measure 4.4-3: Halt Construction if Human Remains are Discovered and Implement Appropriate Actions

In accordance with California law and local policies described above, if human remains are uncovered during Project ground-disturbing activities, the Project applicant and/or their contractor(s) would be required to halt potentially damaging excavation in the area of the burial and notify the County Coroner and a qualified 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, the coroner must contact the NAHC 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 5097.9. Following the coroner's findings, the Project applicant and/or contractor(s), a qualified 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 Project applicant and/or their contractor(s) would be required to ensure that the immediate vicinity (according to 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 5097.9 suggests that the concerned parties may extend discussions beyond the initial 48 hours to allow for the discovery of additional remains. The following is a list of site protection measures that could be employed:

1. record the site with the NAHC or the appropriate Information Center,
2. use an open-space or conservation zoning designation or easement, and
3. record 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.

In the event that Native American human remains are found during development of a Project and the Yocha Dehe Wintun Nation or a member of the Tribe is determined to be the Most Likely Descendant, the following additional provisions shall apply.

The Tribe shall complete its inspection and make its MLD recommendation within forty-eight (48) hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may include avoidance of the human remains, reburial on-site, or reburial on tribal or other lands that will not be disturbed in the future. The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b).

The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods, and animals. Ashes, soils, and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.

Significance after Mitigation

Compliance with California Health and Safety Code, California Public Resources Code, and the provisions of Mitigation Measure 4.4-3 would reduce potential impacts on previously undiscovered human remains. Implementing this mitigation measure ensures that any potential human remains encountered during construction would be treated in an appropriate manner under applicable laws and regulations. This impact would be **less than significant**.

Impact 4.4-4: Substantial adverse change in the significance of a tribal cultural resources. *The Sacred Lands File records search indicated that no Native American resources are on file fall within the Project Site. Nonetheless, it is possible*

that construction of the Project could affect existing or previously undiscovered tribal cultural resources. The impact would be potentially significant.

Conducting consultation early in the CEQA process allows tribal governments, public lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to TCRs, and reduce the potential for delay and conflict in the environmental review process. The intent of the consultations is to provide an opportunity for interested Native American contacts to work together with the City during the project planning process to identify and protect TCRs.

The California NAHC Sacred Lands File records search response on April 9, 2021, indicated that no Native American resources on file at the NAHC fall within the Project Site.

Pursuant to the AB 52 consultation requirement, formal AB 52 notification letters were sent on May 14, 2021, by the City to Native American tribal contacts who previously requested to be notified of Solano County projects within their traditionally and culturally affiliated area. The AB 52 notification package included a brief cover letter, complete Project description, and mapping.

A response was received from the Yocha Dehe Wintun Nation's Cultural Resources Department (May 19, 2021) stated that after review of the Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Project area. Based on the information provided, the Tribe has concerns that the Project could impact known cultural resources, and highly recommend including cultural monitors during ground disturbance, including Cultural Sensitivity Training prior to all ground disturbance activities. Additionally, they requested that the City's environmental document incorporate Yocha Dehe Wintun Nation's Treatment Protocol into the mitigation measures for this Project, provide the Tribe with a copy of the same, and continue to consult with the Tribe. A Tribal Cultural Resource is defined in Public Resources Code Section 21074 as either site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe. It is possible that construction of the Project could affect existing or previously undiscovered tribal cultural resources. The impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 4.4-4a: Cultural Sensitivity Training and Non-Disclosure of TCRs

To minimize the potential for destruction of, or damage to, existing or previously undiscovered tribal cultural resources, to identify any such resources at the earliest possible time during Project-related earthmoving activities, and to prevent the disturbance of reburied TCRs, the Project applicant and its construction contractor(s) will implement the following measures:

Cultural sensitivity training shall be provided to assist construction teams with the identification and protection of TCRs prior to the beginning of earth disturbance. This training shall provide a definition and examples of TCRs that may be encountered during construction.

If any resources are encountered, unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the

specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System ("CHRIS") on a form that is acceptable to the CHRIS center. The Tribe may also suggest that the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.

Mitigation Measure 4.4-4b: Native American Monitoring

To minimize the potential for destruction of, or damage to, existing or previously undiscovered tribal cultural resources and to identify any such resources prior to Project-related earthmoving activities, the Project applicant and its construction contractor(s) will implement the following measures:

> Native American Monitors from Yocha Dehe Wintun Nation will be invited to monitor the vegetation grubbing, stripping, grading, or other ground-disturbing activities in the Development Area and off-site improvement areas to determine the presence or absence of any TCRs. Native American Representatives from culturally affiliated tribes act as a representative of their Tribal government and shall be consulted before any cultural studies or ground-disturbing activities begin.
>
> Native American Representatives and Native American Monitors have the authority to identify sites or objects of significance to Native Americans and to request that work be stopped, diverted, or slowed if such sites or objects are identified within the direct impact area; however, only a Native American Representative can recommend appropriate treatment of such sites or objects.

Mitigation Measure 4.4-4c: Treatment of Native American Remains

In the event that Native American human remains are found during development of a Project and the Yocha Dehe Wintun Nation or a member of the Tribe is determined to be the Most Likely Descendant, implement Mitigation Measure 4.4-3.

Mitigation Measure 4.4-4d: Treatment of Cultural Resources

Treatment of all cultural items, including ceremonial items and archeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archeological items, which may be found at a Project site should be turned over to the Tribe for appropriate treatment, unless otherwise ordered by a court or agency of competent jurisdiction. The Project applicant shall waive any and all claims to ownership of Tribal ceremonial and cultural items, including archeological items, which may be found on a Project site in favor of the Tribe. If any intermediary, (for example, an archaeologist retained by the Project applicant) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.

Significance after Mitigation

As described above, the implementation of Mitigation Measure 4.4-2 and Mitigation Measure 4.4-3 would generally reduce the potential impacts to any unknown archaeological sites or buried human remains that could be determined to be TCRs, and implementation of MM 4.4-4a through 4.4-4d that integrate Yocha Dehe Wintun Nation's Treatment Protocol would ensure the potential significant impacts specific to TCRs will be addressed.

Implementation of Mitigation Measure 4.4-4a would reduce potentially significant impacts to TCRs because Cultural Sensitivity Training developed by Yocha Dehe Wintun Nation would help construction workers to identify potential TCRs during ground-disturbing activities and allow the Tribe to treat discovered resources appropriately, in accordance with pertinent laws and regulations.

Implementation of Mitigation Measure 4.4-4b would reduce potentially significant impacts to TCRS because mitigation would be developed in coordination with the Tribe to monitor ground-disturbance activities and have the authority request that work be stopped, diverted, or slowed if such TCRs are identified within the direct impact area.

Compliance with California Health and Safety Code, California Public Resources Code, and the applicable County General Plan policies, City General Plan policies, and Yocha Dehe Wintun Nation's Treatment Protocol, as required under Mitigation Measure 4.4-4c, would reduce potential impacts on previously undiscovered Native American human remains. Implementing Mitigation Measures 4.4-4c ensures that any Native American human remains encountered during construction would be treated in an appropriate manner under CEQA, other applicable laws and regulations, and the Yocha Dehe Wintun Nation's Treatment Protocol, as well as provides the Tribe final determination as to the disposition and treatment of human remains and grave goods.

Implementation of Mitigation Measure 4.4-4d would reduce potentially significant impacts to TCRs by providing the Tribe appropriate treatment of cultural items, including ceremonial items and archeological items.

Implementation of this mitigation measure would reduce potentially significant impacts to inadvertent cultural resources and TCRs because mitigation would be developed in coordination with Tribes to record and evaluate significant discovered inadvertent cultural resources and TCRs appropriately in accordance with pertinent laws and regulations. Therefore, for the reasons described above, this impact would be reduced to a **less-than-significant** level.

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4.5 GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

4.5.1 ENVIRONMENTAL SETTING

GEOLOGY

The Project Site and the off-site improvements areas are located along the southwestern margin of the Sacramento Valley and the northeastern margin of the San Francisco Bay Area. Rock units exposed at the surface of the Project Site and the off-site improvement areas consist of Holocene-age (11,700 years Before Present [B.P.] to Present Day) alluvial fan and Bay Mud deposits, and artificial fill. The alluvial fan deposits are composed of sand, gravel, silt, and clay deposited where streams emanate from upland regions to the north and west onto more gently sloping valley floors or plains. Older late-Pleistocene (129,000 to 11,700 years B.P.) alluvial fan deposits underlie the Holocene fan deposits. Bay Mud is composed of water-saturated estuarine mud, predominantly clay and silty clay, underlying marshlands, and tidal mud flats. The mud also contains lenses of well-sorted, fine sand and silt, a few shell layers (oysters), and peat. The mud interfingers with and grades into fine-grained fan deposits at the distal edge of Holocene fans. Bay Mud generally occupies the area between the modern shoreline and the historical limits of tidal marshland (Graymer et al. 2002). At depth, the Project Site is underlain by the Great Valley Complex, which outcrops at the surface approximately 2 miles to the north. The Great Valley Complex is of Mesozoic age (150 to 65 million years B.P.), and is composed of the Coast Range ophiolite (altered silicic and volcanic rocks) and the Great Valley sequence (sandstone, conglomerate, and shale) (Graymer et al. 2002).

The topography at the Project Site and the off-site improvement areas slopes gently towards the southeast, and ranges from approximately 5 to 15 feet above mean sea level.

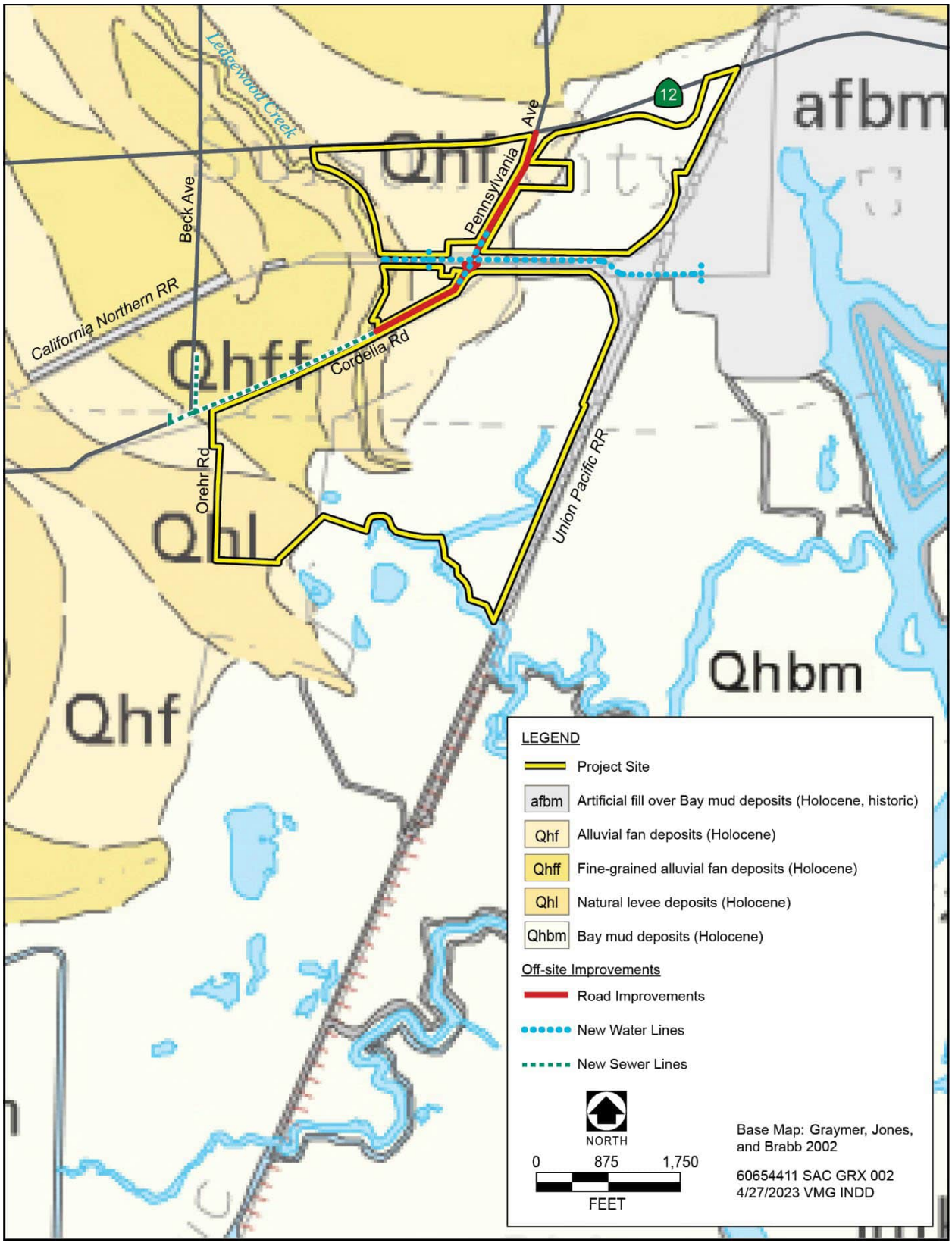
PALEONTOLOGICAL RESOURCES

Based on a review of the *Geologic Map of the Northeastern San Francisco Bay Region* (Graymer et al. 2002), the Project Site and the off-site improvement areas are underlain by Holocene-age (11,700 years B.P. to Present Day) deposits consisting of artificial fill over Bay Mud deposits, alluvial fan deposits, fine-grained alluvial fan deposits, natural levee deposits, and Bay Mud deposits (Exhibit 4.5-1). Soil borings obtained at the Project Site by Mid Pacific Engineering, Inc. (MPE 2020) confirmed that Holocene deposits are present to the maximum boring depth (i.e., 25 feet below the ground surface), and cone penetration test results to depths of 50–75 feet below the ground surface returned similar results. In order to be considered a fossil, a paleontological resource 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.

SEISMICITY

Surface Fault Rupture

Geologists have determined that the greatest potential for surface fault rupture and strong seismic ground shaking is from active faults; that is, faults with evidence of activity during the Holocene epoch (the last 11,700 years). Surface rupture is the actual cracking or breaking of the ground surface along a fault during an earthquake, which is generally limited to a linear zone that is only a few yards wide. If surface fault rupture occurs, structures that



Source: Graymer, et al. 2002

Exhibit 4.5-1. Geologic Formations

are located across the fault trace can be torn apart, and pipelines can rupture. The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was created to help reduce the loss of life and property from an earthquake by prohibiting the construction of structures designed for human occupancy across the traces of active faults.

The Project Site and the off-site improvement areas are not located within an Alquist-Priolo Earthquake Fault Zone, or within or adjacent to the trace of any other known fault. As shown in Exhibit 4.5-2, the nearest active fault (i.e., a fault that has shown evidence of movement during Holocene time) is the Green Valley-Cordelia-Concord Fault Zone approximately 3.2 miles west of the Project Site (California Geological Survey [CGS] 2020, Jennings and Bryant 2010).

Strong Seismic Ground Shaking

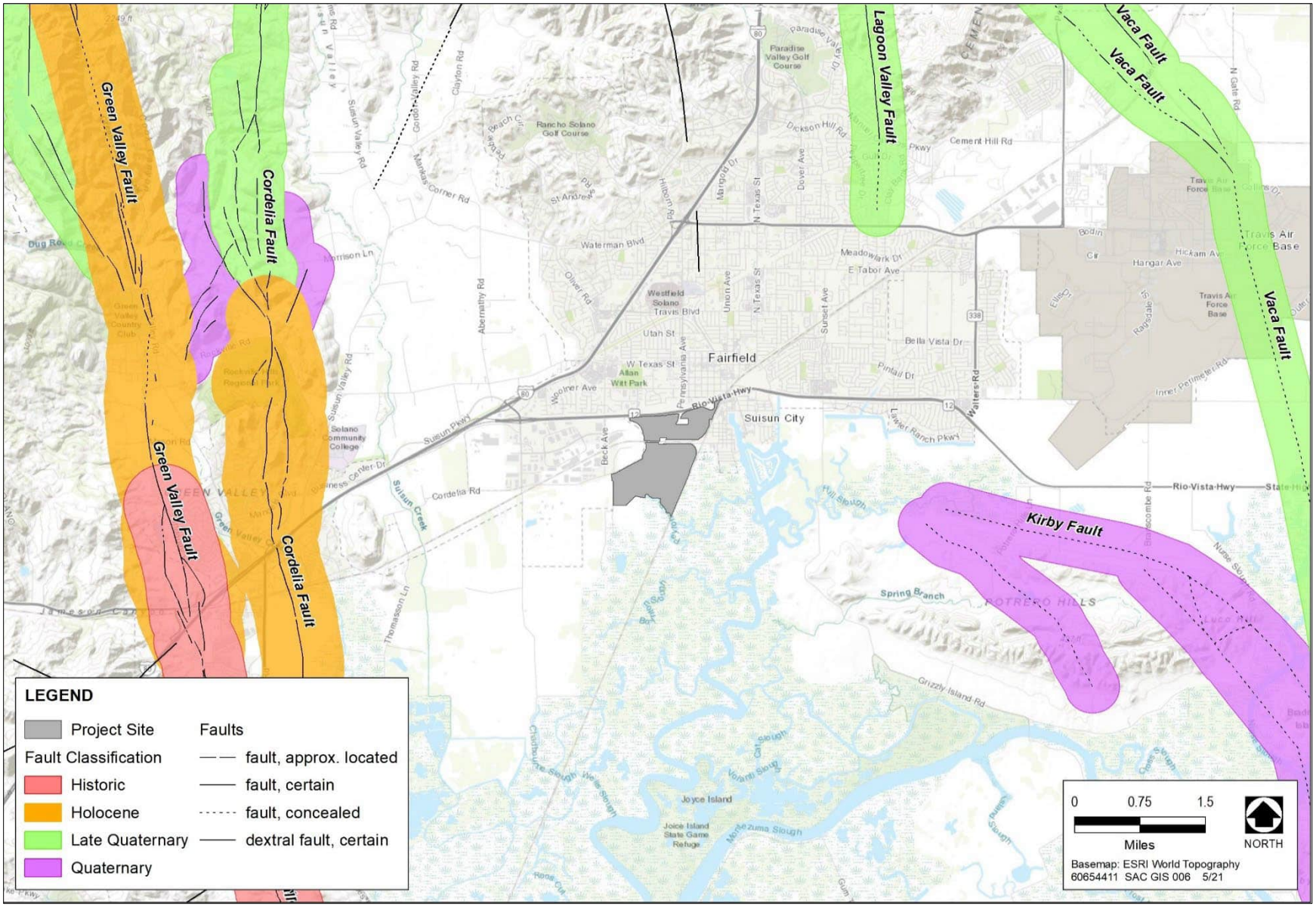
Ground shaking—motion that occurs as a result of energy released during faulting—could potentially result in the damage or collapse of buildings and other structures, depending on the magnitude of the earthquake, the distance to the epicenter, and the character and duration of the ground motion. Other important factors to be considered are the characteristics of the underlying soil and rock and, where structures exist, the building materials used, and the workmanship of the structures.

The Project Site and the off-site improvement areas are located in a seismically active area, as shown in Exhibit 4.5-2. The U.S. Geological Survey indicates that the estimated probability of one or more magnitude 6.7 earthquakes occurring during the 30-year period 2013–2043 in the San Francisco Bay Area is 72 percent (Aagaard et al. 2016). In the project region, the fault with the highest estimated probability of generating damaging earthquakes is the Hayward-Rodgers Creek (33 percent), with a 16 percent probability for the Green Valley Fault.

The Green Valley Fault, which is the easternmost strike-slip fault of the larger San Andreas system in the San Francisco Bay area, is the closest active fault in the project region. It extends from Wooden Valley in the north to Suisun Bay in the south. The southern end of the Green Valley Fault probably connects with the Concord fault along an approximately 0.5-mile-wide extensional jog south across Suisun Bay. The Cordelia Fault may be an eastward extension of the Green Valley Fault. The Green Valley Fault has produced multiple surface-rupturing events in the past 2,700 years.

Although it is not classified as “active,” the Vaca-Pittsburg-Kirby Hills Fault Zone, which runs through Travis Air Force Base approximately 5 miles east of the Project Site, has shown evidence of activity during the Late Quaternary (approximately 700,000 years B.P.). In addition, Segment 5 of the Great Valley Fault Zone (which is a blind-thrust fault zone that does not have a surface expression), has also shown evidence of activity during the Late Quaternary and is approximately 5 miles east of the Project Site. Although these faults are not classified as active, they may still be capable of strong seismic ground shaking. Historic earthquake locations and magnitudes near Suisun City are shown in Exhibit GEO-10 in the *Geology and Soils Background Report* (City of Suisun City 2015a) prepared in support of the Suisun City 2035 General Plan.

Peak horizontal ground acceleration, which is a measure of the projected intensity of ground shaking from seismic events, can be estimated using a computer model. As part of the geotechnical report prepared for the Project Site, MPE (2020) determined that a peak ground acceleration of 0.72*g* would be appropriate for use in seismic-related design and engineering for the Project Site. This indicates that a strong level of seismic ground shaking would be anticipated for the Project Site.



Source: Jennings and Bryant 2010

Exhibit 4.5-2. Fault Activity Map

Liquefaction/Subsidence

Soil liquefaction occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Structures on soil that undergoes liquefaction may settle or suffer major structural damage. Liquefaction is most likely to occur in low-lying areas where the substrate consists of poorly consolidated to unconsolidated water-saturated sediments, recent Holocene-age sediments, or deposits of artificial fill. Additional factors that determine the liquefaction potential are the distance to an active seismic source and the depth to groundwater.

Groundwater was encountered at depths of 7–12 feet below the ground surface during soil borings obtained for the geotechnical report. Because the boreholes were open only for a short period of time, MPE (2020) noted that groundwater may actually be present at a shallower depth. As a result, future excavations deeper than 5 feet below the ground surface for utilities and loading dock excavations may encounter groundwater, requiring construction dewatering (MPE 2020). Because conditions are expected to be similar for the adjacent off-site improvements, which are comprised of the same soil types, construction dewatering may also be required for the off-site improvements.

MPE (2020) performed a site-specific liquefaction analysis as part of the geotechnical report. MPE determined that liquefaction could occur in thin, discontinued layers (3–15 inches thick) of soils encountered at depths between 12 and 18 feet below the ground surface. MPE also determined that liquefaction could occur in discontinuous layers (9 inches to 3 feet thick) of soils encountered at depths greater than 22 feet below the ground surface. However, considering that these soil layers were encountered at depths greater than 12 feet below the ground surface, the relative thinness of the layers, and the fact that these layers are embedded within stiff to very stiff clay soils, MPE found that a loss of bearing capacity of the foundations and surface manifestation associated with liquefaction are not anticipated. Because the off-site improvements would be located in the same soil types and geologic formations, liquefaction is not anticipated for the same reasons described above for the Project Site.

Seismically-induced settlement or subsidence can occur from strong ground motions generated by an earthquake. Seismically-induced settlement can result in cracking of foundations, exterior cladding, and interior finishes. MPE (2020) predicted that seismically-induced settlement ranging from 0.16–2.92 inches could occur at the Project site. However, proper engineering and design of buildings and foundations are required to incorporate the projected amount of settlement to reduce structural damage.

Slope Stability

The Project Site, the off-site improvement areas, and the surrounding locale are situated on a broad, nearly flat alluvial plain, and the northern edge of the Suisun Marsh. There are no steep slopes that would be subject to landslide hazards either within or adjacent to the Project Site or the off-site improvement areas.

SOILS

Soil properties influence the development of building sites, including the engineering design, construction techniques, and site maintenance. Soil properties also influence the potential for erosion and stormwater runoff.

The results of soil borings obtained by MPE (2020) indicate that Project Site soils consist of stiff to very stiff, lean clays to depths of 7–16 feet below the ground surface. These clays are underlain by medium stiff to stiff, sandy

clays and medium stiff to hard, lean silty clays to the maximum depth explored (25 feet below the existing ground surface). To supplement the soil borings, seven cone penetration test[1] soundings were performed to maximum depths of approximately 50–75 feet below the ground surface. The soil conditions encountered at the cone penetration test locations were generally consistent with those encountered in the soil borings (i.e., clay and silty clay).

A review of U.S. National Resources Conservation Service (NRCS 2022) soil survey data indicates that near-surface soils at the Project Site and the off-site improvement areas consist of five soil types, as shown in Exhibit 4.5-3. Pertinent NRCS soil properties for the Project Site and the off-site improvement areas are listed in Table 4.5-1.

In the proposed Development Area and off-site improvement areas, NRCS (2022) has rated the native Alviso, Sycamore, and Pescadero soils as very limited for development due to a high shrink-swell potential, low soil bearing strength, shallow depth to a water-saturated zone, and moderate to high potential for flooding (Table 4.5-1).

Erosion and Stormwater Runoff

NRCS (2020) has rated the soils in throughout the Project Site with a moderate water erosion hazard and a low wind erosion hazard (Table 4.5-1).

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 for new development. Soils are assigned to groups A, B, C, or D. The soils in the Development Area and off-site improvement areas have been assigned by NRSC to either Hydrologic Group C or D. Group C soils have slow infiltration rate and therefore have a high stormwater runoff potential, and Group D soils have a very slow water infiltration rate and a very high stormwater runoff potential (NRCS 2022). Soils in the proposed Managed Open Space area are assigned to similar hydrologic groups (Table 4.5-1).

Expansion

Expansive soils are composed largely of clays, which greatly increase in volume when saturated with water and shrink when dried (referred to as “shrink-swell” potential). Soils with a moderate to high expansion potential can result in cracked foundations, structural distortions, and warping of doors and windows. Underground pipelines can also be damaged.

The results of laboratory testing from soil borings obtained as part of the site-specific geotechnical report (MPE 2020) determined that the on-site native surface and near-surface soils consist predominantly of clays with a medium to high expansion potential. However, proper foundation design and soil treatment can generally eliminate the problems caused by expansive soils. Based on NRCS (2022) soil survey ratings for the off-site improvement areas, those soils also have a high expansion potential (see Table 4.5-1).

[1] A method used to determine the geotechnical engineering properties of soils and to delineate soil stratigraphy, which involves pushing an instrumented cone (with the tip facing down) into the ground at a controlled rate, using a hydraulic ram.

Table 4.5-1. Soil Properties

Area of Project Site	Soil Name	Approximate Acreage	Expansion Potential[1]	Water Erosion Potential[2]	Wind Erosion Potential[3]	Drainage Class	Permeability[4]	Hydrologic Soil Group[5]	NRCS Soil Limitations for Building Site Development
Proposed Development Area	Alviso silty clay loam	0.7	High	Moderate	6	Poorly drained	Moderately low	D	High shrink-swell potential, low soil bearing strength, shallow depth to a water-saturated zone, high potential for flooding.
Proposed Development Area	Sycamore silty clay loam, saline	91.1	Moderate	Moderate	6	Somewhat poorly drained	Moderately high	C	High shrink-swell potential, low soil bearing strength, shallow depth to a water-saturated zone, high potential for flooding.
Proposed Development Area	Pescadero silty clay loam, 0% slopes	51.5	High	Moderate	6	Somewhat poorly drained	Moderately low	D	High potential for shallow soil ponding with water, high potential for flooding, high shrink-swell potential.
Proposed Managed Open Space	Alviso silty clay loam	159.9	High	Moderate	6	Poorly drained	Moderately low	D	Not Applicable – no proposed development
Proposed Managed Open Space	Joice muck	27.2	NR	NR	2	Very poorly drained	High	A/D	Not Applicable – no proposed development
Proposed Managed Open Space	Made land[6]	1.9	NR	NR	NR	Well drained	NR	NR	Not Applicable – no proposed development
Proposed Managed Open Space	Pescadero silty clay loam, 0% slopes	51.5	High	Moderate	6	Somewhat poorly drained	Moderately low	D	Not Applicable – no proposed development
Proposed Managed Open Space	Sycamore silty clay loam, saline	138.7	Moderate	Moderate	6	Somewhat poorly drained	Moderately high	C	Not Applicable – no proposed development
Off-Site Improvement Areas[a]	Alviso silty clay loam	0.22	High	Moderate	6	Poorly drained	Moderately low	D	High shrink-swell potential, low soil bearing strength, shallow depth to a water-saturated zone, high potential for flooding.

Area of Project Site	Soil Name	Approximate Acreage	Expansion Potential[1]	Water Erosion Potential[2]	Wind Erosion Potential[3]	Drainage Class	Permeability[4]	Hydrologic Soil Group[5]	NRCS Soil Limitations for Building Site Development
Off-Site Improvement Areas[a]	Sycamore silty clay loam, saline	2.92	Moderate	Moderate	6	Somewhat poorly drained	Moderately high	C	High shrink-swell potential, low soil bearing strength, shallow depth to a water-saturated zone, high potential for flooding.
Off-Site Improvement Areas[a]	Pescadero silty clay loam, 0% slopes	0.50	High	Moderate	6	Somewhat poorly drained	Moderately low	D	High potential for shallow soil ponding with water, high potential for flooding, high shrink-swell potential.

Note: NR = not rated; NRCS = National Resources Conservation Service

[a]Assumes a 6-foot-wide area of disturbance for utility trenching and a 12-foot-wide area of disturbance for roadway work. Acreages of disturbance for off-site improvements are estimated and are not intended to be exact.

[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 the erosion factor “Kw whole soil,” which is a measurement of relative soil susceptibility to sheet and rill erosion by water.

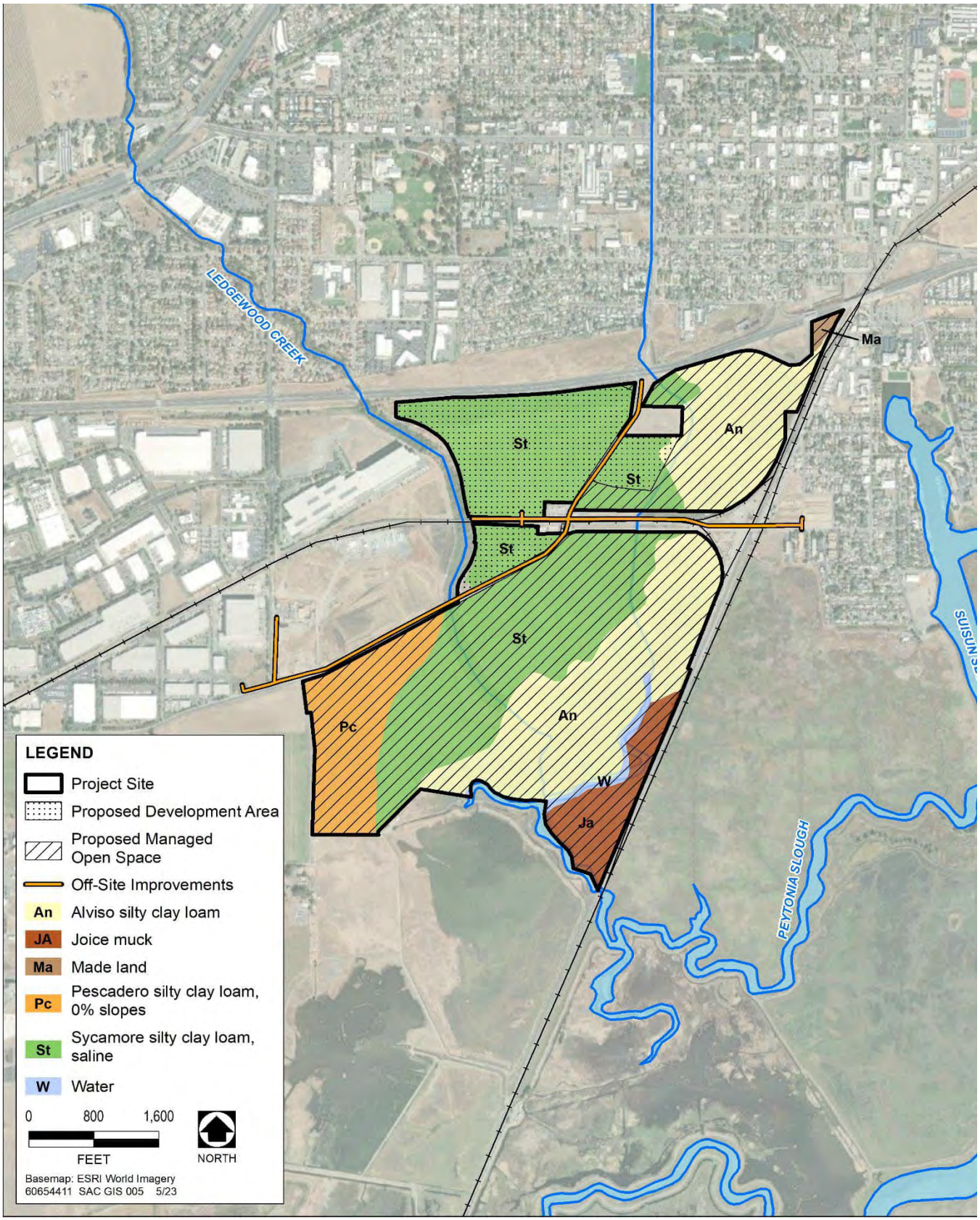
[3] Soils assigned to wind erodibility group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

[4] Based on standard NRCS saturated hydraulic conductivity class limits. Saturated hydraulic conductivity refers to the ease with which pores in a saturated soil transmit water.

[5] Soils are assigned to Group A, B, C, or D. Group A soils have the fastest water infiltration rate and therefore have a correspondingly low stormwater runoff potential; Group D soils have a very slow water infiltration rate and therefore have a very high stormwater runoff potential.

[6] “Made land” consists of land that has been substantially modified by human activity and may partially consist of artificial fill.

Source: NRCS 2022



Source: NRCS 2022

Exhibit 4.5-3. Soil Types within the Project Site

Settlement

Static settlement generally occurs under all foundations in all soil conditions. However, the amount of settlement is influenced by a variety of factors such as the weight of the proposed building, the type of underlying soil or rock, and seismic activity. Differential settlement commonly occurs as a result of the non-uniform movement of the underlying soils/rock (i.e., soil settlement at different rates). Too much settlement can result in cracking of foundations, exterior cladding, and interior finishes.

As part of the geotechnical report, MPE (2020) noted that static settlement ranging from 0.5–1.0 inch, and differential settlement ranging from 0.5–1.5 inches, could occur at the Project Site. Foundations constructed over engineered fill will be subject to long-term settlement. Even well-compacted fills may experience minor long-term settlements due to secondary strains or hydrocompression. In addition, shallow foundations constructed over engineered fill and bedrock transitions may experience differential movements under static and seismic loading conditions. However, proper engineering and design of buildings and foundations are required to incorporate the projected amount of settlement to reduce structural damage.

MINERALS

Areas of known important mineral deposits are classified by CGS as mineral resource zone (MRZ)-2. As shown on Exhibit GEO-8 in the *Geology and Soils Background Report* (City of Suisun City 2015a) prepared in support of the Suisun City 2035 General Plan, the Project Site and the off-site improvement areas are classified as MRZ-1: areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence (O'Neal and Gius 2018). Furthermore, the Suisun City 2035 General Plan (City of Suisun City 2015b) has not designated any mineral resource deposits of local importance. The Solano County General Plan (Solano County 2008) considers the potential for locally important mineral resources in areas classified as MRZ-3 (areas containing mineral deposits, the significance of which cannot be evaluated from existing data) in addition to areas classified as MRZ-2.

4.5.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

Earthquake Hazards Reduction Act, Public Law 95–124

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 United States 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 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 United States Geological Survey.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Alquist-Priolo Earthquake Fault Zoning Act, California Public Resources Code Sections 2621–2630

The Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) (California Public Resources Code 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 Alquist-Priolo Act requires the State Geologist to establish regulatory zones around certain active faults, and to issue associated maps delineating Earthquake Zones of Required Investigation (EZRI). The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Site-specific investigations within EZRIs are required for the following: (1) any proposed structure used or intended for supporting or sheltering any human use or occupancy that is expected to have a human occupancy rate of more than 2,000 person-hours per year (California Code of Regulations, Title 14, Division 2, Section 3601[e]); or (2) for a proposed addition or alteration to a structure in existence prior to May 4, 1975, if the proposed change exceeds 50% of the value of the structure (Public Resources Code Division 2, Chapter 7.5, Section 2621.6). If the site-specific investigation determines that a potential for hazard is found to exist, plans to reduce the hazard of surface fault rupture—either through avoidance or engineered design—must be provided prior to a lead agency issuing a permit for construction.

Seismic Hazards Mapping Act, California Public Resources Code Sections 2690–2699.6

The Seismic Hazards Mapping Act of 1990 (California Public Resources Code 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 respective cities or counties with jurisdiction over 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.

National Pollutant Discharge Elimination System

In California, the State Water Resources Control Board (SWRCB) administers regulations promulgated by the U.S. Environmental Protection Agency (55 Code of Federal Regulations 47990) requiring the permitting of stormwater-generated pollution under the National Pollutant Discharge Elimination System (NPDES). In turn, the SWRCB's jurisdiction is administered through nine regional water quality control boards. Under these federal regulations, an operator must obtain a permit through the NPDES Stormwater Program for all construction activities with ground disturbance of 1 acre or more. SWRCB's statewide storm water general permit for construction activity (Construction General Permit) (Order WQ 2022-0057-DWQ (SWRCB 2022) requires the implementation of best management practices (BMPs) to reduce sedimentation into surface waters and to control erosion. One element of compliance with the NPDES permit is preparation of a storm water pollution prevention plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction.

Construction-related stormwater discharges from Caltrans properties, including Caltrans rights-of-way, are regulated under the SWRCB's Statewide NPDES Permit CAS000003, SWRCB Order 2012-0011-DWQ as amended in 2017 (Caltrans Construction NPDES Permit) (State Water Resources Control Board 2017). During construction, projects that are within the Caltrans right-of-way must use the *Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* (Caltrans 2016) to design stormwater control plans and implement BMPs that comply with Caltrans' *Construction Site Best Management Practices (BMP) Manual* (Caltrans 2017), which incorporates the SWRCB's requirements contained in the Caltrans Construction NPDES Permit and the Clean Water Act. To comply with the Caltrans Construction NPDES Permit, a SWPPP must be prepared and implemented if 1 acre or more of soil would be disturbed; if the disturbance would encompass less than 1 acre, a Water Pollution Control Program (WPCP) must be implemented. Caltrans' stormwater pollution control requirements are intended to be implemented on a year-round basis at an appropriate level. The requirements must be implemented in a proactive manner during all seasons while construction is ongoing. (See Section 4.8 of this EIR, "Hydrology and Water Quality," for more information about the NPDES permit program and SWPPPs.)

California Building Standards Code, California Code of Regulations Title 24

The California Building Standards Commission is responsible for coordinating, managing, adopting, and approving building codes in California. The State of California provides minimum standards for building design through the California Building Standards Code (CBC) (California Code of Regulations Title 24). Where no other building codes apply, Chapter 29 of the CBC also regulates excavation, foundations, and retaining walls. The CBC applies to building design and construction in the state and is based on the Federal Uniform Building Code used widely throughout the country (generally adopted on a state-by-state or district-by-district basis). The CBC has been modified for California conditions with numerous more detailed or more stringent regulations.

The state earthquake protection law (California Health and Safety Code Section 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. The CBC requires an evaluation of seismic design that falls into Categories A–F (where F requires the most earthquake-resistant design) for structures designed for a project site. The CBC philosophy focuses on "collapse prevention," meaning that structures are designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. Chapter 16 of the CBC specifies exactly how each seismic design category is to be determined on a site-specific basis through the site-specific soil characteristics and proximity to potential seismic hazards.

Chapter 18 of the CBC regulates the excavation of foundations and retaining walls. This chapter regulates the preparation of a preliminary soil report, engineering geologic report, geotechnical report, and supplemental ground-response report. Chapter 18 also regulates analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Category C, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading. For Seismic Design Categories D, E, and F, Chapter 18 requires these same analyses plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. The Project Site has been identified as Seismic Design Category D, based on the site-specific Geotechnical Engineering Report (MPE 2020). It also requires mitigation measures to be considered in structural design. Mitigation measures may include ground stabilization, selection of appropriate foundation type and depths,

selection of appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions. Peak ground acceleration must be determined from a site-specific study, the contents of which are specified in CBC Chapter 18.

Finally, Appendix Chapter J of the CBC regulates grading activities, including drainage and erosion control and construction on unstable soils, such as expansive soils and areas subject to liquefaction.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Solano County General Plan

The Solano County General Plan (Solano County 2008) contains the following policies related to short-term erosion and associated water quality degradation that are applicable to the proposed Project (see Section 4.8, "Hydrology and Water Quality," for policies and impacts associated with long-term stormwater runoff, erosion, and water quality). There are no policies related to geology, seismicity, or mineral resources that are applicable to the proposed Project, because buildings would be constructed within an area proposed to be annexed into the City of Suisun City and are not proposed to be constructed in the Managed Open Space area. The Solano County General Plan does not contain any policies related to paleontological resources.

Resources Element

- **Policy RS.P-65:** Require the protection of natural water courses.
- **Policy RS.P-70:** Protect land surrounding valuable water sources, evaluate watersheds, and preserve open space lands to protect and improve groundwater quality, reduce polluted surface runoff, and minimize erosion.
- **Policy RS.P-71:** Ensure that land use activities and development occur in a manner that minimizes the impact of earth disturbance, erosion, and surface runoff pollutants on water quality.

City of Fairfield General Plan

Because a portion of the Ledgewood Creek Open Space area, which is within the city of Fairfield, is immediately adjacent to the western property boundary of the Project Site, where project-related development is proposed, the City of Suisun City has considered the following City of Fairfield General Plan (City of Fairfield 2002) policy related to construction-related erosion and water quality.

Health and Safety Element

- **Policy HS 2.8:** Require an erosion control and rehabilitation plan to be prepared for projects requiring substantial groundbreaking activities to control short-term and long-term erosion and sedimentation in nearby streams and rivers.

Fairfield Municipal Code Chapter 22B, Stormwater Management and Discharge Control

Because a portion of the Ledgewood Creek Open Space area, which is within the city of Fairfield, is immediately adjacent to the western property boundary of the Project Site, where Project-related development is proposed, the City of Suisun City has considered the following sections of the City of Fairfield Municipal Code.

Section 22B.130 Construction Site Controls

B. All construction sites must implement and maintain at least the following minimum best management practices:

1. Erosion control at the site;

2. Run-on and run-off controls to and from the site;

3. Control of sediments and fines on the site;

4. Active treatment systems (as necessary);

5. Good site management; and

6. Non-stormwater management.

Section 22B.150, Watercourse Protection

B. No person shall permit or cause to be committed any of the following acts, unless a written approval has first been obtained from the Public Works Director:

1 Discharge into or connect any pipe or channel to a watercourse;

2 Modify the natural flow of water in a watercourse;

3 Carry out development within thirty (30) feet of the center line of any creek or twenty (20) feet of the top of a bank;

4 Deposit in, plant in, or remove any material from a watercourse including the banks, except as required for necessary maintenance;

5 Construct, alter, enlarge, connect to, change, or remove any structure in a watercourse; or

6 Place any loose or unconsolidated material along the side of or within a watercourse or so close to the side as to cause a diversion of the flow, or to cause a probability of such material being carried away by stormwaters passing through such watercourse.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015b) includes the following policies related to geology, soils, and paleontological resources that apply to the proposed Project. The Suisun City General Plan does not

contain any policies related to mineral resources (because no significant mineral deposits are known to be present).

Public Health and Safety Element

- **Policy PHS-14.1:** The City will implement state and local building code requirements, including those related to structural requirements and seismic safety criteria, in order to reduce risks associated with seismic events and unstable and expansive soils.

- **Policy PHS-14.2:** The City will require the preparation of a geotechnical site investigation for new development projects, which will be required to implement recommendations to reduce the potential for ground failure due to geologic or soil conditions.

- **Policy PHS-14.3:** The City will require new developments that could be adversely affected by geological and/or soil conditions to include project features that minimize these risks.

    - **Program PHS-14.1: Geotechnical Investigations.** The City will require geotechnical evaluation and recommendations before development or redevelopment activities. Such evaluations will be required to focus on potential hazards related to liquefaction, erosion, subsidence, seismic activity, and other relevant geologic hazards and soil conditions for development. New development would be required to incorporate project features that avoid or minimize the identified hazards to the satisfaction of the City.

- **Policy PHS-5.1:** New development shall incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City and Fairfield-Suisun Urban Runoff Management Program standards.

    - **Program PHS-5.1: Stormwater Development Requirements.** The City will review new developments for applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit. New developments must use BMPs during construction to mitigate impacts from construction work and during post construction to mitigate post-construction impacts to water quality. Long-term water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. The City will encourage proactive measures that are a part of site planning and design that would reduce stormwater pollution as a priority over mitigation measures applied to projects after they are designed. Some of the many ways to reduce water quality impacts through site design include: reduce impervious surfaces; drain rooftop downspouts to lawns or other landscaping; and use landscaping as a storm drainage and treatment feature for paved surfaces.

Open Space and Conservation Element

- **Policy OSC-5.1:** The City will use geologic mapping and cultural and paleontological resource databases to determine the likely presence of resources and the appropriate level of cultural and paleontological resources analysis and mitigation required for new developments.

- **Policy OSC-5.2:** New developments shall be designed to avoid adverse impacts to any known archaeological and paleontological resources, wherever feasible.

- **Policy OSC-5.3:** New developments in areas underlain by Pleistocene Alluvium and the Tehama Formation shall include training, notification, and recovery procedures for fossils.

Suisun City Grading, Erosion Control, and Creekside Development Ordinance

Suisun City Municipal Code Title 15, Chapter 15.12 regulates grading, erosion control, and development adjacent to surface water bodies. A grading permit is required for projects that exceed 50 cubic yards of material or include more than 5,000 square feet of surface area. The application for a grading permit requires submittal of a site plan; grading map; and an erosion, sediment, and runoff control plan. The erosion, sediment, and runoff control plan must include the land treatment, structural measures, and timing requirements that would be implemented at the Project Site to effectively minimize soil erosion and sedimentation. The runoff control plan must also indicate the calculated runoff from the site under pre- and post-development conditions, using City drainage standards. The runoff control plan must demonstrate that peak runoff from the site would not increase after development and must include all necessary measures to ensure this result to the satisfaction of the City engineer. All materials must be prepared by a registered civil engineer.

In addition, the following sections of Chapter 15.12 related to grading, erosion control, and creekside development are applicable to the proposed Project.

- **15.12.100 Soil disturbance to minimize erosion.** Stripping or burning of vegetation, grading or other soil disturbance shall be done in a manner which will minimize erosion.

- **15.12.110 Vegetation retention and supplementation.** Existing natural vegetation shall be retained, protected and supplemented when feasible. Site development shall be accomplished so that existing trees can be preserved whenever possible and practical.

- **15.12.120 Soil exposure.** Exposure of soil to erosion by removal of vegetation shall be limited to the smallest area practical and for the shortest time practical. Soil exposure shall not exceed an area in which development can be completed during a single construction season to ensure that soils are stabilized and vegetation is established in advance of the rainy season (October 15th-April 15th). When necessary, an extension of the time may be granted by the Director of Public Works.

- **15.12.130 Retention of sediment.** Facilities shall be constructed to retain sediment produced on the site.

- **15.12.140 Installation of required measures.** Sediment basins, sediment traps or similar required measures shall be installed in advance of any clearing or grading and maintained until removal is authorized in written form by the director of public works.

- **15.12.150 Temporary Stabilization.** Temporary seeding, mulching or other suitable stabilization shall be used to protect exposed erodible areas during development and in advance of the rainy season (October 15th-April 15th).

- **15.12.180 Slopes.** Slopes, both cut and fill, shall not be steeper than two horizontal to one vertical unless a thorough geological and engineering analysis indicates that steeper slopes are safe and appropriate erosion control measures are specified.

- **15.12.190 Disposal and storage of slash and excavated materials.** disposal and/or storage of cleared vegetation and excavated materials shall be accomplished in a manner which reduces the risk of erosion and strictly conforms to the provisions of the approved grading permit. Topsoil shall be conserved for reuse in revegetation of disturbed areas whenever possible.

- **15.12.200 Development and roadway design.** Proposed development and roadway alignments should be designed to minimize erosion.

- **15.12.210 Waterway design.** Waterways shall be designed to avoid erosion as much as practical. Channels and slopes should be lined with grass or other appropriate vegetation. Every effort will be made to preserve natural channels and drainageways.

- **15.12.211 Diversion of runoff.** Runoff shall be diverted away from denuded slopes or other critical areas with barriers or ditches.

- **15.12.212 Construction access routes.** Construction access routes should be limited and access points should be stabilized.

- **15.12.213 Delineation of limits.** Clearing limits, easements, setbacks, sensitive or critical areas and their buffers; trees and drainage courses shall be delineated by marking them in the field.

- **15.12.214 Contingency Plan.** A contingency plan shall be prepared in the event of unexpected rain or Best Management Practice (BMP) failure including, but not limited to, an immediate response plan, storing extra or alternative control materials on-site, notifying the local agency, etc.

- **15.12.230 Development plan (Creekside Development).** Whenever development is proposed for an area within three hundred feet of the centerline of a designated watercourse, the designation to be as provided by resolution of the city council, a detailed plan of the proposed development shall be submitted to the city for approval. The plan shall include, but not be limited to, the following:

  A. Volume and extent of grading, filling and excavation;

  B. Placement of drainage outflows. Such outflows and associated drainage facilities shall be designed so as to eliminate or minimize increases in the rate and amount of stormwater discharge;

  C. Type and amount of native vegetation. If any is to be removed, the type and method of replacement.

4.5.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

Evaluation of potential impacts related to geology, soils, minerals, and paleontological resources was based on a review of documents pertaining to the Project Site, including soil survey data (NRCS 2020), published geologic literature (including maps), and aerial photographs. Geologic and soils information relating to the Project Site was also obtained from the *Geotechnical Engineering Report, Gentry Project, Highway 12 and Pennsylvania Avenue, Suisun City, California* prepared by MPE in 2020.

The information obtained from these sources was reviewed and summarized to document existing conditions and to identify the potential environmental effects of the proposed Project.

THRESHOLDS OF SIGNIFICANCE

Geology, Soils, or Mineral Resources

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to geology, soils, or mineral resources if it would:

- directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - strong seismic ground shaking;
  - seismic-related ground failure, including liquefaction; or
  - landslides;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; or
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property;
- have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- 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
- result in the loss of availability of 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 a significant impact 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 DISCUSSED FURTHER

Risks to People or Structures Caused by Surface Fault Rupture—The Project Site and the off-site improvement areas are not located within an Alquist-Priolo Earthquake Fault Zone or within or immediately adjacent to the trace of any other known fault (CGS 2020, Jennings and Bryant 2010). Thus, there would be **no impact** related to fault rupture and this issue is not evaluated further in this EIR.

Risks to People or Structures Caused by Liquefaction—MPE (2020) performed a site-specific liquefaction analysis and determined that liquefaction would not pose a hazard for structures at the Project Site. Because the off-site improvement areas are comprised of the same soil types, the same geologic formations, and are adjacent to the Project Site where groundwater conditions would be similar, liquefaction would likely also not pose a hazard for the off-site improvements. Furthermore, site-specific investigations for the off-site improvements would be conducted by geotechnical engineers, with implementation of the resulting engineering and construction methods as recommended by the geotechnical engineers per local city and CBC requirements. Thus, there would be **no impact** related to liquefaction and this issue is not evaluated further in this EIR.

Risks to People or Structures Caused by Landslides—Because the Project Site and the off-site improvement areas are flat and are not adjacent to any steep slopes subject to potential landslides, there would be **no impact** from landslide hazards and this issue is not evaluated further in this EIR.

Soil Suitability for Septic Systems—The proposed Project does not include the use of septic systems or other alternative means of wastewater disposal. Therefore, construction of the proposed Project would have **no impact** related to soil suitability for septic tanks or alternative wastewater disposal systems, and this issue is not evaluated further in this EIR.

Destruction of a Unique Paleontological Resource or Site—The Project Site and the off-site improvement areas are composed of Holocene-age deposits (Exhibit 4.5-1) to depths of at least 25 feet below the ground surface (MPE 2020), which is well below the anticipated maximum depth of excavation. Holocene deposits contain only remains of extant, modern taxa (if any resources are present) that are not considered unique paleontological resources. Furthermore, a records search performed at the University of California Museum of Paleontology (UCMP) on April 22, 2021, indicated there are no recorded fossil localities within the Project Site or the off-site improvement areas (UCMP 2021). Therefore, Project construction would have **no impact** on unique paleontological resources and this issue is not evaluated further in this EIR.

Destruction of a Unique Geologic Feature—Unique geologic features consist of outstanding natural landforms such as mountain peaks, deep scenic canyons and gorges, scenic rock formations, large waterfalls, volcanic cinder cones, lava fields, or glaciers. There are no unique geologic features within or adjacent to the Project Site or the off-site improvement areas. Thus, there would be **no impact** on unique geologic features and this issue is not evaluated further in this EIR.

Loss of Mineral Deposits of Statewide or Local Importance—The Project Site and the off-site improvement areas are classified by CGS as MRZ-1 (areas where no significant minerals deposits are present). There are no City- or County-designated areas of locally important mineral resources within or adjacent to the Project Site or the off-site improvement areas. Thus, there would be **no impact** from loss of mineral resources and this issue is not evaluated further in this EIR.

IMPACT ANALYSIS

Impact 4.5-1. Risks to People and Structures Caused by Strong Seismic Ground Shaking. *Project implementation would subject structures and people to risks from strong seismic ground shaking. However, all Project-related structures, utilities, and roads would be designed in accordance with the CBC, the recommendations of a licensed engineer, and the requirements of the City. This impact would be less than significant.*

The Project Site and the off-site improvement areas are located in a seismically active area, and there is a 72 percent probability of a major, damaging earthquake occurring in the San Francisco Bay Region during the 30-year timeframe of 2013–2043. As shown in Exhibit 4.5-2, the Green Valley-Cordelia-Concord Fault System is located approximately 3.2 miles west of the Project Site and is classified by CGS as active. The Green Valley Fault System (connected) has the potential to generate a magnitude 6.8 earthquake (MPE 2020). Although the Vaca-Pittsburg-Kirby Hills Fault Zone and the Great Valley Fault Zone Segment 5 are not classified as active by CGS, they have exhibited evidence of movement within the last 700,000 years (which is relatively recent in geologic terms) and are located approximately 5 miles east of the Project Site. A large magnitude earthquake on any of these faults, or along other active faults such as the West Napa (11 miles west of the Project Site) or Hayward-Rodgers Creek (22 miles west of the Project Site), would subject people and structures at the Project Site and the off-site improvement areas to risks from strong seismic ground shaking. Suisun City General Plan Policies PHS-14.1, 14.2, and 14.3 require compliance with state and local building code requirements, preparation

of a geotechnical report, and incorporation of site design measures to reduce seismic and geotechnical risks. All structures and infrastructure at the Project Site and the off-site improvement areas must be designed and built according to the requirements of the seismic design parameters specified in the CBC. The CBC philosophy focuses on "collapse prevention," meaning that structures must be designed for prevention of collapse for the maximum level of ground shaking that could reasonably be expected to occur at a site. MPE (2020) has performed a preliminary geotechnical engineering report for the Project Site and has calculated the site's seismic response spectrum as required by the CBC. A final geotechnical report would be prepared prior to preparation of detailed construction plans and prior to building permit application to inform final design and construction. Therefore, the potential damage to the proposed development from strong seismic ground shaking would be addressed through proper design as determined by a licensed engineer. The City would review the Project's building permit applications for compliance with the CBC and implementation of recommendations in the geotechnical study to address seismic hazards. Therefore, impacts related to strong seismic ground shaking would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.5-2. Construction-Related Soil Erosion. *Construction activities during Project implementation would involve excavation, grading, and movement of earth, which could expose soils to erosion. However, the Project applicant would be required to implement BMPs specifically designed to reduce erosion as part of the SWPPP and the grading and erosion control permit obtained from the City. This impact would be less than significant.*

As discussed in detail in Section 4.8, "Hydrology and Water Quality," Ledgewood Creek is immediately adjacent to the western Project Site boundary where development is proposed (see Exhibit 4.5-3). South of the proposed Development Area, Ledgewood Creek crosses through the proposed Managed Open Space portion of the Project Site, in a northwest to southeast direction. The proposed 8- to 10-inch sewer line that would be installed in Cordelia Road, tying in with the existing sewer line in Beck Road, would either be attached to the side of the existing Cordelia Road bridge crossing over Ledgewood Creek, or a jack-and-bore technique would be used to install the pipeline underneath the creek. Ledgewood Creek discharges into Peytonia Slough at the southern property boundary, which in turn discharges to Suisun Marsh.

Limited earthmoving activities are proposed in the Managed Open Space area to construct wetlands. Project-related construction activity in the Development Area and the off-site improvement areas would include soil removal, trenching, excavation, pipe and footing installation, grading, and revegetation. No work would be performed in the bed or bank of Ledgewood Creek. Construction 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. Once particles are dislodged and the storm is large enough to generate runoff, localized erosion could occur. In addition, soil disturbance during the spring and summer months could result in loss of topsoil because of wind erosion. As indicated in Table 4.5-1, the NRCS (2022) has rated the soils at the Project Site, the off-site improvement areas, and the Managed Open Space area as having a moderate water erosion hazard, a low wind erosion hazard, and a high stormwater runoff potential. However, the Project applicant must comply with the Suisun City Grading, Erosion Control, and Creekside Development Ordinance (Title 15, Chapter 15.12 of the Suisun City Municipal Code). The ordinance requires project applicants to obtain a grading permit, which must include submittal of engineered grading plans and a soils and engineering geology report. The

report also must include a suite of BMPs to control runoff and erosion such as settlement basins, dust palliatives, drainage swales, check dams, and rip rap. As described in detail in Subsection 4.5.2, "Regulatory Framework," the Project applicant must implement a suite of measures (Suisun City Municipal Code Sections 15.12.100 through 15.12.230) that are specifically designed to control and reduce construction-related erosion and stormwater runoff and protect water quality. Furthermore, because the Project includes construction activities that would disturb more than 1 acre, the Project applicant must obtain a Construction General Permit from the San Francisco Bay RWQCB through the NPDES Stormwater Program. The Construction General Permit requires the implementation of BMPs to reduce sedimentation into surface waters and to control erosion, as well as preparation of a SWPPP that addresses control of water pollution, including sediment, in runoff during construction.

Suisun City General Plan Policy PHS-5.1 requires new development to incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during the construction phase, consistent with City and Fairfield-Suisun Urban Runoff Management Program standards. Suisun City General Plan Program PHS-5.1, "Stormwater Development Requirements," requires the City to review new developments for applicable requirements of the NPDES permit. New developments must use BMPs during construction to reduce water quality impacts from construction work. These General Plan policies and programs would be implemented for the proposed Project by requiring compliance with the submittal requirements and design standards in the City's Grading, Erosion Control, and Creekside Development Ordinance.

For off-site road improvements to SR 12, which are under the jurisdiction of Caltrans, contractors must use the *Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* (Caltrans 2016) to design and implement site-specific BMPs as required by the *Construction Site Best Management Practices (BMPs) Manual* (Caltrans 2017) to meet the requirements set forth in the Caltrans Construction NPDES Permit (SWRCB 2017). The requirements set forth in these manuals would be followed, as required by the SWRCB, to reduce construction-related erosion, sediment transport, and water quality degradation.

Finally, as described in Chapter 2, "Project Description," the Managed Open Space portion of the Project Site would be managed consistent with the Suisun Marsh Protection Plan and in accordance with required permit conditions (including conditions related to installation of constructed wetlands) imposed by applicable regulatory agencies such as the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and San Francisco Bay Conservation and Development Commission.

Through compliance with the above-described requirements, construction-related water quality impacts related to soil erosion and stormwater runoff would be **less than significant**. (See also EIR Section 4.3, "Biological Resources," for further analyses related to water quality from constructed wetlands in the Managed Open Space.)

Mitigation Measures

No mitigation measures are required.

Impact 4.5-3. Potential Damage to Structures and Infrastructure from Construction in Unstable/Expansive Soils. *Soils at the Project Site and the off-site improvement areas are likely to experience settlement and have a moderate to high shrink-swell potential, which could result in damage to Project facilities. However, all project-related structures, utilities, and roads*

would be designed in accordance with the CBC, the recommendations of a licensed engineer, and the requirements of the City. This impact would be ***less than significant.***

As a result of soil borings and laboratory analyses prepared in support of the geotechnical report, MPE (2020) predicted that seismically-induced settlement ranging from 0.16–2.92 inches could occur at the Project Site. MPE also noted that static settlement ranging from 0.5–1.0 inch could occur, and differential settlement ranging from 0.5–1.5 inches could occur at the Project Site. Foundations constructed over engineered fill would be subject to long-term settlement; even well-compacted fills may experience minor long-term settlements due to secondary strains or hydrocompression. In addition, shallow foundations constructed over engineered fill and bedrock transitions may experience differential movements under static and seismic loading conditions. However, final engineering and design of buildings and foundations would incorporate the projected amount of settlement to reduce structural damage.

Groundwater was encountered at depths of 7–12 feet below the ground surface during soil borings obtained for the geotechnical report. Because the boreholes were open only for a short period of time, MPE (2020) noted that groundwater may actually be present at a shallower depth (i.e., approximately 5 feet below the ground surface). Therefore, soils excavated from near or below the groundwater table will be in a saturated condition. The near-surface soils also may be in a near-saturated condition during and for a period of time following the rainy season, due to the water being unable to penetrate through the clay soils below existing site grade. If grading operations are to proceed shortly after the rainy season, and before prolonged periods of warm dry weather, the near-surface soils may be at moisture contents where substantial aeration or lime-treatment may be required to dry the soils to moisture content where the specified degree of compaction can be achieved (MPE 2020). A similar situation is likely to exist with regards to shallow groundwater at the off-site improvement areas because these areas are immediately adjacent to the Project Site in the same low-lying area and with the same soil types.

In addition, due to the high water table, groundwater is likely to exert substantial pressure on building slabs. This problem could result in soils-related cracking of the slab-on-grade floors. In the site-specific preliminary geotechnical report, MPE (2020) included the following recommendations. Slabs should be coated with a moisture barrier and be underlain by a layer of free-draining gravel to prevent moisture from migrating upward. Additional moisture protection for office and warehouse interior slabs may be provided by placing a plastic water vapor directly over the crushed rock. Retaining walls should be fully drained to prevent the build-up of hydrostatic forces behind the wall. If loading dock slabs will extend below existing grade, they may be affected by seasonal variations in groundwater levels subject to buoyant forces and/or flooding. Occasional seasonal flooding of the depressed loading docks may be possible. The slabs may be either designed to resist groundwater rising to an assumed level of 3 feet below the ground surface, or relief valves could be provided in the slab to relieve the water pressure and allow flooding of the dock.

Based on a review of site-specific soil borings obtained for the geotechnical report, MPE (2020) found that the soils at the Project Site have a moderate to high expansion potential. Soil expansion, including volume changes during seasonal fluctuations in moisture content, could adversely affect interior slabs-on-grade, landscaping hardscapes, and underground pipelines. However, the geotechnical report prepared by MPE (2020) includes recommendations for appropriate engineering and design of proposed buildings and asphalt pavement in areas of expansive soil. These recommendations include replacement of expansive soil with engineered fill, aggregate base, or soil treatment with lime, to depths 18 to 24 inches below the ground surface for building pads and exterior flatwork, and should also extend at least 5 feet beyond the building foundations and at least 2 feet beyond

exterior flatwork areas. Expansion joints should be provided to allow for minor vertical movement of the flatwork. Reinforcement for the slabs should consist of at least heavy duty welded wire fabric (flat sheets), or equivalent steel reinforcing bars, placed mid-depth of the slab. Areas adjacent to new foundations and slabs-on-grade should be fully landscaped to prevent near-surface drying and maintain more uniform soil moisture conditions adjacent to and under the foundations and slabs. Soil expansion could also affect the off-site improvement areas but would be handled in a similar manner from a geotechnical perspective, including either replacement of expansive soil with engineered fill or aggregate base, or soil treatment with lime.

The Project applicant would be required to implement the measures that are determined by the soils and civil/structural engineering studies to be appropriate for the Project, in accordance with the requirements of the CBC and the City. Furthermore, off-site SR 12 roadway improvements would be implemented in accordance with Caltrans' Standard Specifications and Standard Plans (Caltrans 2022), which include measures to ensure geologic and soil stability. With adherence to Caltrans' Standard Specifications for off-site SR 12 improvements, the requirements of the CBC as applicable to the site-specific nature of the soils, and the required permit application and design review for on-site improvements by the City, Project-related impacts related to construction in unstable/expansive soils would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

4.6 GREENHOUSE GAS EMISSIONS AND ENERGY

4.6.1 ENVIRONMENTAL SETTING

OVERVIEW

Certain gases in the Earth's atmosphere, classified as greenhouse gases (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. Anthropogenic (e.g., human caused) emissions of GHGs lead to atmospheric levels in excess of natural ambient concentrations and have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the Earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2021).

Global surface temperature has increased by approximately 1.96 degrees Fahrenheit (°F) over the last 140 years (IPCC 2021); the likely total human-caused global surface temperature increase is 1.93°F. The rate of increase in global average surface temperature has not been consistent; the last four decades have warmed at a much faster rate per decade (IPCC 2021).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2021).

Energy use (and efficiency) is an important indicator of GHG emissions, as well as a key opportunity to reduce GHG emissions. Therefore, energy is analyzed in this section in conjunction with the GHG analyses. This section considers the primary energy use 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. The discussion of electrical and natural gas service providers and infrastructure is provided in Section 4.13, "Utilities and Service Systems."

PRINCIPAL GREENHOUSE GASES AND SOURCES

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic (human-caused) sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the

respiration of humans, animals, and plants; decomposition of organic matter; volcanic activity; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes. The following are the principal GHG pollutants that contribute to climate change and their primary emission sources:

- Carbon Dioxide (CO_2): Natural sources of CO_2 include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.

- Methane (CH_4): CH_4 is emitted during the production and transport of coal, natural gas, and oil. CH_4 emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

- Nitrous Oxide (N_2O): N_2O is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

- Fluorinated gases: These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes called High Global Warming Potential (High GWP) gases. These High GWP gases include:

    - Chlorofluorocarbons (CFCs): These GHGs are used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants.

    - Perfluorinated Chemicals (PFCs): PFCs are emitted as by-products of industrial processes and are also used in manufacturing.

    - Sulfur hexafluoride (SF_6): This is a strong GHG used primarily as an insulator in electrical transmission and distribution systems.

    - Hydrochlorofluorocarbons (HCFCs): These have been introduced as temporary replacements for CFCs and are also GHGs.

    - Hydrofluorocarbons (HFCs): These were introduced as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are GHGs emitted as by-products of industrial processes and are also used in manufacturing.

GHGs are not monitored at local air pollution monitoring stations and do not represent a direct impact to human health. Rather, GHGs generated locally contribute to global concentrations of GHGs, which result in changes to the climate and environment.

GLOBAL WARMING POTENTIAL

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time the gas remains in the atmosphere (its “atmospheric lifetime”).

The GWP of each gas is measured relative to CO_2. Therefore, CO_2 has a GWP of one. GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). For example, SF_6, while comprising a relatively small fraction of the total GHGs emitted annually worldwide, has a GWP of 22,800, meaning that one ton of SF_6 has the same contribution to the greenhouse effect as approximately 22,800 tons of CO_2. The concept of CO_2 equivalence (CO_2e) is used to account for the different GWP potentials of GHGs. GHG emissions are typically measured in terms of metric tons (MT) of CO_2e, and are often expressed in MT CO_2e.

Climate change is a global issue because GHGs can have global effects. GHGs have long atmospheric lifetimes (one year to several thousand years), or long enough to be dispersed around the globe.

POTENTIAL EFFECTS OF CLIMATE CHANGE

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The IPCC's 2021 Synthesis Report indicated that warming of the climate system is unequivocal and, since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2021).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. Climate change is expected to make parts of California hotter, drier, and increasingly prone to extremes like megadroughts, flooding, and large wildfires. These changing conditions are likely to affect water and energy availability, agricultural systems, plants and wildlife, public health, housing, and quality of life.

- **Agriculture.** Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events; significant shifts in water availability and water quality; changes in pollinator lifecycles; temperature fluctuations; increased risks from invasive species and weeds, agricultural pests, and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

- **Biodiversity and Habitat.** Specific climate change challenges to biodiversity and habitat include species migration, range shift, and novel combinations of species; pathogens, parasites, and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; and threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss occurs).

- **Energy.** Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea level rise. Increasing temperatures and reduced snowpack negatively affect the availability of a steady flow of snowmelt to hydroelectric reservoirs. Higher temperatures also reduce the capacity of thermal power plants since power plant cooling is less efficient at higher ambient temperatures.

- **Forestry.** The most significant climate change–related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and, combined with increasing temperatures, have led to an overall increase in wildfire risks. Increased wildfire intensity

subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions. These factors contribute to decreased forest growth, geographic shifts in tree distribution, loss of fish and wildlife habitat, and decreased carbon absorption.

- **Ocean and Coastal Ecosystems and Resources.** Sea level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate longstanding challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities.

- **Public Health.** Climate change can affect public health through various environmental changes. Changes in precipitation patterns affect public health primarily through potential for altered water supplies and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves is likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively affect air quality and increase or intensify respiratory illness such as asthma and allergies.

- **Transportation.** The transportation industry is vulnerable to climate change risks, including sea level rise and erosion, which threaten many coastal California roadways, airports, seaports, transit systems, bridge supports, and energy and fueling infrastructure. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. Other forms of extreme weather events, such as extreme storm events, can negatively affect infrastructure, which can impair movement of people and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly affect the transportation system and pose a serious risk to public safety.

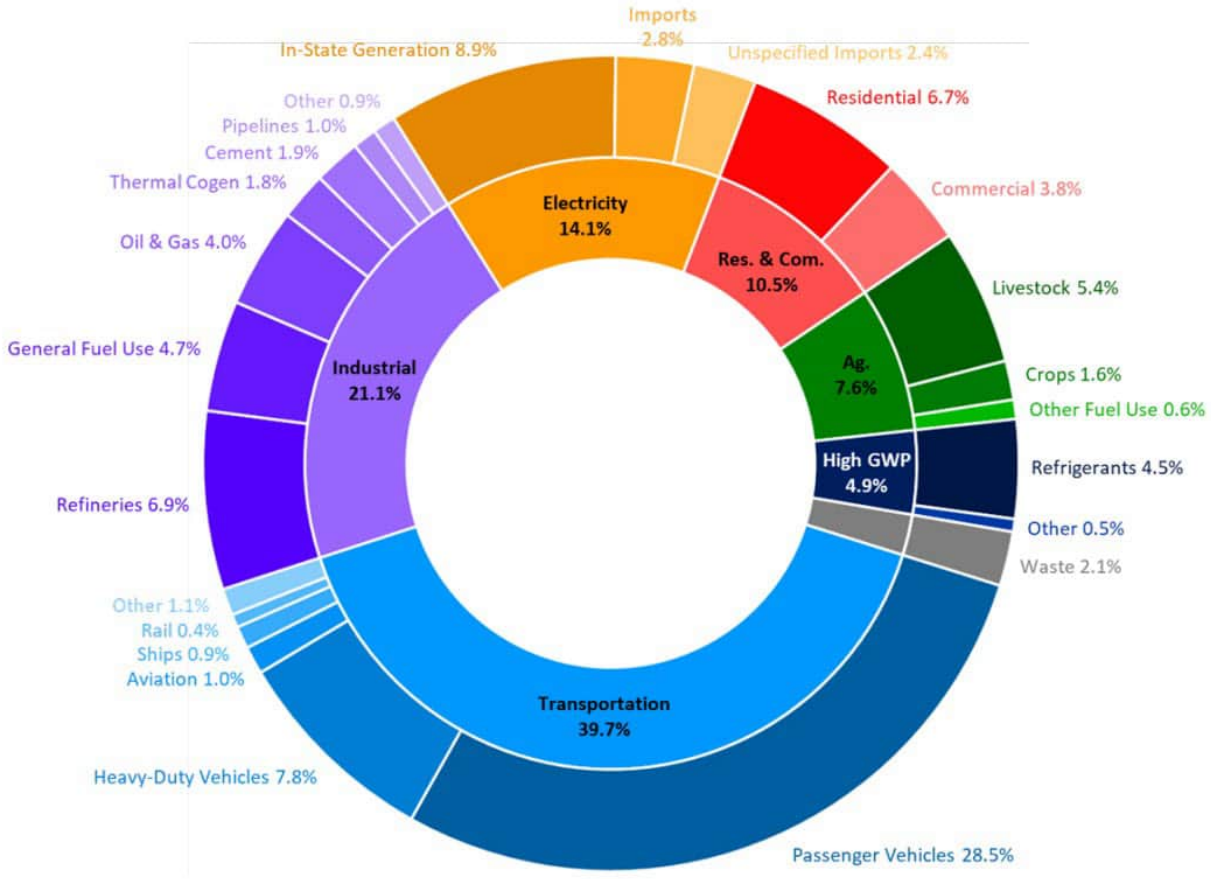
- **Water.** Climate change could seriously affect the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can affect water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the wintertime. Increased risk of flooding has a variety of public health concerns including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively affect groundwater reserves and result in increased overdraft and subsidence.

GREENHOUSE GAS EMISSIONS INVENTORIES AND TRENDS

State

The California Air Resources Board (ARB) prepares an annual inventory of statewide GHG emissions. GHGs are typically analyzed by sector, a term that refers to the type of activity. As shown in Exhibit 4.6-1, emissions from GHG emitting activities statewide were 418.2 million MT CO_2e in 2019. Although the State has updated this emissions inventory for 2020 and identified a reduction in statewide emissions of 35.3 million MT CO_2 from 2019 to 2020, the 2019 to 2020 decrease in emissions is noted by ARB as likely due in large part to the impacts of the COVID-19 pandemic and is likely an anomaly (ARB 2022a); therefore, emissions contained herein are reported for 2019. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG

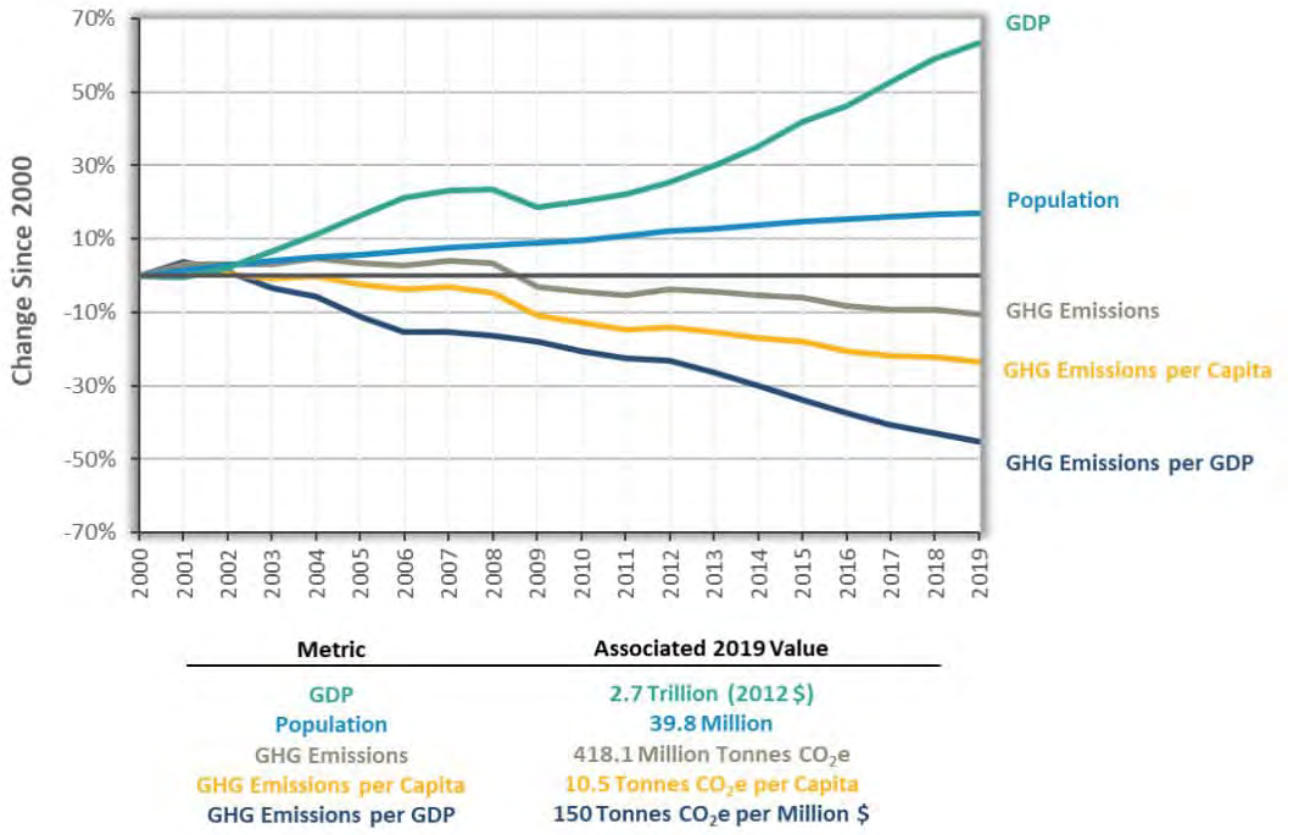
emissions in 2019, accounting for 40 percent of total GHG emissions. Transportation was followed by industry, which accounted for 21 percent, and then the electric power sector (including in-state and out-of-state sources), which accounted for 14 percent of total GHG emissions (CARB 2021a).



Source: CARB 2021a

Exhibit 4.6-1. 2019 California Greenhouse Gas Emissions Inventory by Sector

California has implemented several programs and regulatory measures to reduce GHG emissions. Exhibit 4.6-2 demonstrates California's progress in reducing statewide GHG emissions. Since 2007, California's GHG emissions have been declining, even as population and gross domestic product have increased. Per-capita GHG emissions in 2019 were 25 percent lower than the peak per-capita GHG emissions recorded in 2001. Similarly, GHG emissions per million dollars of gross domestic product have decreased by 47 percent since the peak in 2001.



Metric	Associated 2019 Value
GDP	2.7 Trillion (2012 $)
Population	39.8 Million
GHG Emissions	418.1 Million Tonnes CO_2e
GHG Emissions per Capita	10.5 Tonnes CO_2e per Capita
GHG Emissions per GDP	150 Tonnes CO_2e per Million $

Source: CARB 2021b

Exhibit 4.6-2. Trends in California Greenhouse Gas Emissions (Years 2000 to 2019)

San Francisco Bay Area

The Bay Area Air Quality Management District (BAAQMD) The BAAQMD established a climate protection program in 2005 to acknowledge the link between climate change and air quality. The BAAQMD regularly prepares inventories of criteria and toxic air pollutants to support planning, regulatory and other programs. The most recent emissions inventory estimates GHG emissions produced by the San Francisco Bay Area (Bay Area) in 2011 (BAAQMD 2015). The inventory, which was published January 2015, updates the BAAQMD's previous GHG emission inventory for base year 2007. In 2011, approximately 87 MMT CO_2e of GHGs were emitted in the Bay Area. Fossil fuel consumption in the transportation sector was the single largest source of the Bay Area's GHG emissions in 2011. The transportation sector (including on-road motor vehicles, locomotives, ships and boats, and aircraft) contributed approximately 40 percent of GHG emissions and the industrial and commercial sectors (excluding electricity and agriculture) contributed 36 percent of GHG emissions in the Bay Area. Energy production activities such as electricity generation and co-generation were the third largest contributor with approximately 14 percent of the total GHG emissions. Off-road equipment such as construction, industrial, commercial, and lawn and garden equipment contributed 1.5 percent of GHG emissions.

Solano County

The County of Solano adopted a Climate Action Plan (CAP) in June 2011 to address climate change and reduce the community's GHG emissions at the local level. Based on the CAP, approximately 960,700 MT CO_2e were

generated within the unincorporated County in 2005, with transportation contributing approximately 51 percent of these communitywide annual emissions, electricity and natural gas contributing 22 percent, agriculture, contributing approximately 21 percent, the water sector contributing approximately 4 percent and the waste sector accounting for approximately 2 percent of the inventory (Solano County 2011).

ENERGY SOURCES AND DEMAND

Energy resources in the state of California include natural gas, electricity, water, wind, oil, coal, solar, geothermal, and nuclear resources. Energy production and energy use both result in the depletion of nonrenewable resources, such as oil, natural gas, and coal, and result in the emissions of pollutants. Primary energy resources associated directly with the proposed Project include gasoline and diesel fuel, electricity, and natural gas.

Pacific Gas and Electric (PG&E) delivers electricity and provides natural gas service to unincorporated Solano County and the city of Suisun City and would provide such service to the Project site. PG&E is regulated by the California Public Utilities Commission and purchases both gas and electrical power from a variety of sources, including other utility companies. PG&E offers customers the option to purchase up to 100 percent of their electricity from a community renewable program generating renewable power within California.

Gasoline and diesel fuel are the primary fuels for transportation in California. However, the types of transportation power sources have diversified in California and elsewhere, including the increase in electric and hybrid vehicles. Various statewide regulations and plans (e.g. Low Carbon Fuel Standard, AB 32 Scoping Plan), in addition to federal funding programs, encourage the use of a variety of alternatives are used to reduce demand for petroleum-based fuel. Depending on the vehicle capability, conventional gasoline and diesel are increasingly being replaced by biodiesel, electricity, ethanol, hydrogen, natural gas, and other synthetic fuels. California has a growing number of alternative fuel vehicles through the joint efforts of the California Energy Commission (CEC), ARB, local air districts, federal government, transit agencies, utilities, and other public and private entities.

4.6.2 REGULATORY FRAMEWORK

Federal, state, regional, and local GHG-related plans, policies, and regulations are helpful for understanding the overall context for GHG emissions impacts and strategies to reduce GHG emissions.

Federal Plans, Policies, Regulations and Laws

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. In *Massachusetts v. Environmental Protection Agency et al.,* 12 states and cities (including California) along with several environmental organizations sued to require EPA to regulate GHGs as pollutants under the CAA (127 S. Ct. 1438 [2007]). The Inflation Reduction Act, signed on August 16, 2022, affirms EPA's authority to regulate greenhouse gas emissions under the CAA.

State Plans, Policies, Regulations, and Laws

The legal framework for GHG emissions analysis has come about through Executive Orders, legislation, and regulations. The major components of California's climate change initiatives are outlined below.

Greenhouse Gas Reduction Targets

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 and the State Climate Change Scoping Plan

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions below 1990 levels by 2020. AB 32 also identifies CARB as the State agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target.

In December 2008, CARB adopted the Climate Change Scoping Plan (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (CARB 2008). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of California's GHG inventory. CARB acknowledges that land use planning decisions will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors. The Scoping Plan details the regulations, alternative compliance mechanisms, voluntary actions, and incentives proposed to meet the target emission reduction levels.

The Scoping Plan differentiates between "capped" and "uncapped" strategies. Capped strategies are subject to the proposed Cap-and-Trade Program, discussed further below. The Scoping Plan states that the inclusion of these emissions within the Cap-and-Trade Program will help ensure that the emission targets in AB 32 are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Uncapped strategies that will not be subject to the Cap-and-Trade Program are provided as a margin of safety by accounting for additional GHG emission reductions (CARB 2008).

CARB 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. CARB approved the first update to the Climate Change Scoping Plan: Building on the Framework in June 2014 (CARB 2014). The Scoping Plan Update includes a status of the 2008 Scoping Plan measures and other federal, State, and local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020. The Scoping Plan Update determined that the State was on schedule to achieve the 2020 target (i.e., 1990 levels by 2020) and that 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.

CARB released the 2030 Target Scoping Plan Update Concept Paper to initiate a discussion regarding how to most effectively achieve a 40 percent reduction in GHG emissions by 2030 as compared to 1990 statewide GHG emissions (consistent with SB 32 and Executive Order B-30-15, outlined below) (CARB 2016). This Concept Paper was followed by the release of the 2017 Scoping Plan Update: *California's 2017 Climate Change Scoping Plan*, which establishes a proposed framework of action for California to reduce statewide emissions by 40 percent by 2030 compared to 1990 levels (CARB 2017). CARB has now released the final 2022 Scoping Plan

Update, which evaluates progress toward the statutorily required 2030 target, as well as examining scenarios that could achieve carbon neutrality by 2045 or sooner (CARB 2022b). The statewide measures adopted under the direction of AB 32, and as outlined in the Scoping Plan and updates to the Scoping Plan, would reduce GHG emissions associated with existing development, as well as new development.

Executive Order B-30-15

Signed in 2015, EO B-30-15 established a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and EO S-3-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014. EO B-30-15 also requires all state agencies with jurisdiction over sources of GHG emissions to implement measures within their statutory authority for achieving reductions in GHG emissions and meeting the 2030 and 2050 GHG emission reduction targets.

Senate Bill 32

SB 32 was adopted in 2016, amending the California Global Warming Solutions Act of 2006.[1] SB 32 directed ARB to adopt, to the extent technologically feasible and cost effective, the rules and regulations necessary to achieve a reduction in statewide GHG emissions (i.e., to 40 percent below 1990 levels by 2030). The passage of SB 32 codified the 2030 interim GHG emissions reduction target established by Executive Order B-30-15.

SB 32 was paired with AB 197 (2016), which amended the Health and Safety Code.[2] AB 197 provides additional guidance on how to achieve the reduction targets established in EO B-30-15 and SB 32. SB 32 and AB 197 became effective January 1, 2017.

Assembly Bill 1279

For the post-2030 period, EO B-55-18 established a statewide goal of achieving carbon neutrality as soon as possible, but no later than 2045, and achieving and maintaining net negative emissions thereafter. Signed September 16, 2022, AB 1279, the California Climate Crisis Act, codified EO B-55-18. This bill declares the policy of the state both to achieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and achieve and maintain net negative greenhouse gas emissions thereafter. It as requires that by 2045 statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the 1990 levels.

Transportation Sector Regulations to Reduce Greenhouse Gas Emissions

Senate Bill 375

SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires the 18 Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy (SCS) to address ARB adopted regional GHG targets for passenger

1 California Health and Safety Code Division 25.5, Section 38566.

2 California Government Code, Division 2 of Title 2, Article 7.6 of Chapter 1.5, California Health and Safety Code Sections 39510, 39607, 38506, 38531, and 38562.5.

vehicles and light trucks. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate "alternative planning strategy" to meet the targets.

ARB Advanced Clean Cars Program/Zero Emission Vehicle Program

AB 1493 (Chapter 200, Statutes of 2002), also known as the Pavley regulations, required ARB to adopt regulations by January 1, 2005, that would result in the achievement of the "maximum feasible" reduction in GHG emissions from vehicles used in the State primarily for non-commercial, personal transportation.

In January 2012, ARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars (13 California Code of Regulations [CCR] 1962.1 and 1962.2). The Advanced Clean Cars requirements include GHG standards for model year 2017 to 2025 vehicles.

The Advanced Clean Cars Program also includes the Low Emission Vehicle (LEV) III amendments to the LEV regulations (13 CCR 1900 *et seq*.); Zero Emission Vehicle Program and the Clean Fuels Outlet Regulation. The Zero Emission Vehicle Program is designed to achieve California's long-term emission reduction goals by requiring manufacturers to offer for sale specific numbers of the very cleanest cars available. These zero-emission vehicles, which include battery electric, fuel cell, and plug-in hybrid electric vehicles, have now entered the marketplace. The Clean Fuels Outlet regulation ensures that fuels, such as electricity and hydrogen, are available to meet the needs of the new advanced technology vehicles as they come to market. ARB projects that the LEV III standards will reduce motor vehicle GHG emissions by 34 percent in 2025 (ARB 2022b). In June 2022, in support of EO N-79-20, ARB proposed the Advanced Clean Cars II Regulations requiring manufacturers of light-duty passenger cars, trucks, and sport utility vehicles (SUVs) to transition to electric zero-emission vehicles beginning with model year 2026 and phasing in of increasingly stringent requirements through 2035. By 2035, under the proposed Advanced Clean Cars II Regulations, all new passenger vehicles sold within the state would be zero emission.

Advanced Clean Trucks

The advanced clean truck regulation, approved in March 2021, is part of the ARB approach to achieve a large-scale transition to zero-emission medium- and heavy-duty vehicles for Class 2b to Class 8 trucks.[3] The basis of the advanced clean truck regulation is to help ensure that zero-emission vehicles, specifically medium- and heavy-duty trucks, are brought to market. For manufacturers of these vehicles, the regulation requires zero-emission truck/chassis sales to be an increasing percentage of the total annual California sales of Class 2b through Class 8 sales from 2024 to 2035; by 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b – 3 truck sales, 75 percent of Class 4 – 8 straight truck sales, and 40 percent of truck tractor sales. The regulation also includes reporting requirements for large employers, including retailers, manufacturers, and brokers, regarding shipments and shuttle services; as well as reporting requirements about fleet operations for fleet owners with 50 or more trucks.

3 Class 2b vehicles have a gross vehicle weight rating ranging from 8,501 to 10,000 pounds. Class 3 through 8 vehicles have a gross vehicle weight rating of 10,001 pounds or more. Code of Federal Regulations, Part 523 – Vehicle Classification, *https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-523*, accessed March 10, 2023.

Advanced Clean Fleet

The advanced clean fleet regulation is still being developed and is subject to change. Building on the advanced clean truck regulation, the basis of the proposed advanced clean fleet regulation is to deploy medium- and heavy-duty zero-emission vehicles (i.e., trucks, vans, and buses) everywhere feasible by requiring fleets, as appropriate, to transition to zero-emission vehicles. The proposed regulation targets fleets, businesses, and public entities that own or direct the operation of medium- and heavy-duty vehicles in California to increase the purchase and operation of zero-emission vehicles and achieve a transition to zero-emission vehicles fleets by 2040 everywhere feasible. The proposed regulation would affect fleets performing drayage operations; those owned by state, local, and federal government agencies; and high-priority fleets. The regulation would apply to medium- and heavy-duty vehicles, off-road yard trucks, and light-duty mail and package delivery vehicles.

Transportation Refrigeration Unit Airborne Toxic Control Measure

ARB adopted the transportation refrigeration unit (TRU) airborne toxic control measure in 2004 (and amended it in 2010 and 2011) to reduce DPM emissions and related health risk from diesel-powered TRUs. In February 2022, ARB approved amendments to the TRU airborne toxic control measure. The 2022 amendments include a lower PM emissions standard of no greater than 0.02 gram per brake hp-hour, which aligns with the U.S. EPA standard for Tier 4 final off-road PM emissions for 25 to 50 hp engines. This standard applies to all model year 2023 and newer trailer TRUs, domestic shipping container TRUs, railcar TRUs, and TRU generator set engines. Beginning in 2023, the 2022 airborne toxic control measure requires TRU owners to turn over at least 15 percent of their truck TRU fleet operating in California to zero-emission technology each year for seven years. Finally, the 2022 airborne toxic control measure includes several additional reporting requirements to demonstrate compliance. The 2022 airborne toxic control measure anticipates all truck TRUs operating in California to be zero-emission by the end of the year 2029.

California Executive Order N-79-20

On September 23, 2020, Governor Gavin Newsom issued Executive Order N-79-20 establishing a goal that 100 percent of new passenger cars and trucks sold in California shall be zero-emission by 2035. The Executive Order also sets a goal that, where feasible, all operations include zero-emission medium- and heavy-duty trucks by 2045, and drayage trucks by 2035. Off-road vehicles have a goal to transition to 100 percent ZEVs by 2035, where feasible. While in-state sales of EVs will increase through 2045, the State does not have legislation which will restrict or preclude the use of fossil-fueled vehicles by or after 2045.

Energy Sector Regulations to Reduce Greenhouse Gas Emissions

Senate Bill 1078 (2002), Senate Bill 100 (2021) – California Renewable Portfolio Standard

Established in 2002 by SB 1078, California's Renewables Portfolio Standard (RPS) requires electricity providers (i.e., utilities, cooperatives, and community choice aggregators) to provide a specified minimum portion of their electricity supply from eligible renewable resources by milestone target years. Since 2002, state legislative actions have modified and accelerated the RPS several times, resulting in one of the most ambitious renewable energy standards in the country. As of December 2021, per SB 100, the RPS requires retail sellers of electricity to serve 60 percent of their electric load with renewable energy by 2030 with new interim targets of 44 percent by 2024 and 52 percent by 2027, as well as requiring that all of the state's electricity come from carbon-free resources (not only RPS-eligible ones) by 2045.

California Code of Regulations Title 20: Appliance Efficiency Regulations

California Code of Regulations, Title 20, Division 2, Chapter 4, Article 4, Sections 1601-1608 (Appliance Efficiency Regulations): Appliance Efficiency Regulations regulates the sale of appliances in California. The Appliance Efficiency Regulations include standards for both federally regulated appliances and non-federally regulated appliances. There are 23 categories of appliances are included in the scope of these regulations. The standards within these regulations apply to appliances that are sold or offered for sale in California, except those sold wholesale in California for final retail sale outside the State and those designed and sold exclusively for use in recreational vehicles or other mobile equipment.

California Code of Regulations Title 24, Part 6: Energy Efficiency Standards

California Code of Regulations, Title 24, Part 6 (California's Energy Efficiency Standards for Residential and Nonresidential Buildings or Building Energy Efficiency Standards) was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The California Energy Commission updates the Building Energy Efficiency Standards every three years. In addition to strengthening standards, updates allow consideration and possible incorporation of new energy-efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2019 Building Energy Efficiency Standards went into effect on January 1, 2020, and the 2022 Building Energy Efficiency Standards were adopted August 11, 2021, and are applicable to buildings for which permit applications are applied for on or after January 1, 2023.

California Code of Regulations Title 24, Part 11: California Green Building Standards Code

California Code of Regulations, Title 24, Part 11, is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went into effect on January 1, 2011. The Code is updated on a regular basis. The 2019 California Green Building Standards Code (CALGreen) became effective January 1, 2020, and the 2022 California Green Building Standards Code, Title 24 became effective January 1, 2023. Local jurisdictions are permitted to adopt more stringent requirements, as State law provides methods for local enhancements.

Regional Plans, Policies, Regulations and Laws

Plan Bay Area 2050

As required by SB 375, the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) are jointly tasked with developing a Sustainable Communities Strategy (SCS) as part of development of the Regional Transportation Plan (RTP). The SCS integrates transportation, land use, and housing for the region to help the State meet GHG reduction mandates.

Plan Bay Area 2050 is a long-range regional plan for the nine-county San Francisco Bay Area, adopted by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) in October 2021. Plan Bay Area originally was developed out of the California Sustainable Communities and Climate Protection Act of 2008 (California Senate Bill 375), which requires each of the state's 18 metropolitan areas, including the Bay Area, to reduce GHG emissions from cars and light-duty trucks. Thirty-five strategies comprise the plan to improve housing, the economy, transportation, and the environment across the Bay Area's nine counties — Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and

Sonoma. These strategies are public policies or set of investments that can be implemented in the Bay Area at the city, county, regional, or state level over the next 30 years (ABAG 2021).

The proposed Project's Development Area is identified by the Plan Bay Area 2050 as a Priority Production Area (PPA) (ABAG 2021). PPAs are defined as locally identified places for job growth in middle-wage industries like manufacturing, logistics, or other trades (ABAG 2021). An area must be zoned for industrial use or have a predominantly industrial use, at least one-half mile from a major rail commute hub, and be located in a jurisdiction with a certified housing element to be defined as a PPA (ABAG 2022).

Plan Bay Area 2050 integrates the region's SCS, RTP, and Regional Housing Need Allocation (RHNA) into a single regional plan. Plan Bay Area 2050 contains several goals for the region to attain ranging in focus from housing, economic development, transportation, and environmental resilience.

County of Solano Climate Action Plan

The County of Solano CAP set a target GHG reduction of 20 percent below 2005 emissions inventory levels by 2020. It recommends 31 measures and 94 implementing actions that the community can take to reduce both emissions and community-wide contributions to global climate change. None of the measures and implementation actions are applicable to the proposed Project.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015) includes the following policies related to public services that apply to the proposed Project.

Transportation Element

- Policy T-3.2: The City will encourage new developments and public facility investments designed to minimize vehicle trips and vehicle miles traveled.
- Policy T-3.6: New developments that would accommodate 100 full- or part-time employees or more are required to incorporate feasible travel demand management strategies, such as contributions to transit/bike/pedestrian improvements; flextime and telecommuting; a carpool program; parking management, cash out, and pricing; or other measures, as appropriate, to reduce travel demand.
- Policy T-3.7: The City will support regional goals to reduce per-capita GHG emissions reductions from automobiles and light-duty trucks in a way that also promotes 2035 General Plan objectives.
- Policy T-6.13: New developments shall provide pathways that link to sidewalks, trails, streets, and adjacent transit stops.

Open Space and Conservation Element

- Policy OSC-8.2: The City will require that new developments are designed for maximum energy efficiency, taking into consideration such factors as building-site orientation and construction, articulated windows, roof overhangs, appropriate building and insulation materials and techniques, and other architectural features that improve passive interior climate control.

- Policy OSC-8.3: The City will encourage landscaping methods, materials, and designs that promote energy conservation.
- Policy OSC-8.5: The City will require that new buildings meet state standards for energy efficiency and provide for renewable energy development and use, to the greatest extent feasible.
- Policy OSC-8.8: The City will encourage the installation and use of active solar systems to reduce electricity use from the grid.

4.6.3 Environmental Impacts and Mitigation Measures

Methodology

The proposed Project's GHG emissions were estimated using similar methods as those described in Section 4.2, "Air Quality."

For construction, this analysis uses CalEEMod to estimate GHG emissions for off-road construction equipment, material delivery trucks, haul trucks, and construction worker vehicles. The same Project-specific inputs applied to the estimating of criteria air pollutants, as described in Section 4.2, "Air Quality," were used to estimate construction-related GHG emissions.

For operational activities, GHG emissions were estimated for worker commute trips, visiting truck trips, transportation refrigeration unit (TRU) use in transit, on-site travel of workers and trucks, on-site idling of TRUs and trucks, on-site yard equipment (e.g., forklifts), stationary (i.e., backup generator) sources, and natural gas use, using the same data and assumptions as those used to estimate criteria air pollutants. In addition, CalEEMod also estimates indirect GHG emissions associated with electricity and water consumption, refrigerants, wastewater treatment, and solid waste transport; while there are no criteria air pollutant emissions associated with these sources, these GHG emissions were estimated using CalEEMod for building operations and included for the purposes of estimating total Project-related GHG emissions provided in this section. Please see Appendix B of this EIR for model details, assumptions, inputs, and outputs.

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to GHG emissions and energy resources if it would:

- generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment;
- conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs;
- result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- conflict with or obstruct a State or local plan for renewable energy or energy efficiency.

Establishment of GHG Thresholds for this Project

CEQA Guidelines Section 15064.4(b) states that, when assessing the significance of impacts from GHG emissions, a lead agency should consider (1) the extent to which a project may increase or reduce GHG emissions compared with existing conditions, (2) whether a project's GHG emissions would exceed a threshold of significance that the lead agency has determined to be applicable to the project, and (3) the extent to which a project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

As described above in the Regulatory Framework, the basis for evaluating the significance of GHG emissions is established by the State's legislative mandates for GHG emissions reduction, which are themselves based on global assessments of GHG concentrations and climate change effects. AB 32 (2006) required reduction of statewide GHG emissions to 1990 levels by 2020, which was achieved. SB 32 (2016) established a reduction mandate of 40 percent below 1990 statewide emissions levels by 2030. AB 1279 (2022) established a statewide policy of achieving carbon neutrality[4] no later than 2045 and achieving and maintaining net negative emissions thereafter, and requires that by 2045 Statewide anthropogenic greenhouse gas emissions are reduced to at least 85 percent below the 1990 levels.

As explained in the introduction to this impact section, there is substantial scientific evidence amongst international experts regarding the implications of global warming and the critical need to limit warming to 1.5°C, with the mid-century mark as a likely point at which such warming could occur without near-term action and long-term planning. The State's GHG reduction goals are established based on this science and reflect the scientific community's consensus of what is needed to limit global warming (OPR 2018). Therefore, these near-term and long-term legislative targets create a framework that can be used to inform the level of emissions reductions necessary and whether GHG emissions associated with a project would represent a cumulatively considerable contribution to the significant cumulative impact of climate change. As the Supreme Court held, "consistency with meeting [those] statewide goals [is] a permissible significance criterion for project emissions" (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 220).

Compared to global emissions of GHGs, the proposed Project will not, by itself, contribute significantly to climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. As stated by the Supreme Court, "[t]o the extent a project incorporates efficiency and conservation measures sufficient to contribute its portion of the overall GHG reductions necessary [to achieve the State's climate goals], one can reasonably argue that the project's impact is not cumulatively considerable, because it is helping to solve the cumulative problem..." (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal.4th 220 [internal quotation marks omitted]).

Lead agencies have flexibility to develop their own significance thresholds or to determine significance thresholds within environmental documents on a case-by-case basis. Neither the City nor the BAAQMD has adopted thresholds of significance for construction-related GHG emissions. The most recent BAAQMD CEQA Thresholds Justification Report (April 2022) states that GHG "emissions from construction represent a very small portion of a project's lifetime GHG emissions" and that the BAAQMD's GHG "thresholds for land use project

[4] "Carbon neutrality" is defined in Executive Order B-55-18 as the point at which the removal of carbon pollution from the atmosphere meets or exceeds carbon emissions. Carbon neutrality is achieved when carbon dioxide and other GHGs generated by sources such as transportation, power plants, and industrial processes are less than or equal to the amount of carbon dioxide that is stored, both in natural sinks and mechanical sequestration.

are designed to address operational GHG emissions which represent the vast majority of project GHG emissions." The BAAQMD, in their 2022 CEQA Air Quality Guidelines (adopted April 2022), suggests that lead agencies should quantify and disclose GHG emissions from project construction and incorporate best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable. BAAQMD provides a list of BMPs for construction-related GHG emissions in its CEQA Air Quality Guidelines (Table 6-1 of the Guidelines).

In order to provide a more comprehensive assessment of cumulative GHG emissions-related effects, the proposed Project's construction related emissions were quantified for total construction emissions and amortized over the estimated lifetime of the Project and added to the operational emissions.

For operational GHG emissions, BAAQMD adopted recommended thresholds of significance on April 20, 2022 for evaluating impacts under CEQA related to the generation of GHG emissions and climate change. BAAQMD's approach was to identify what project design features and transportation performance standards "will be required of new land use development projects to achieve California's long-term climate goal of carbon neutrality goal by 2045" (BAAQMD 2022, page 2). BAAQMD's recommendations for thresholds are summarized in the BAAQMD's Justification Report: *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans*. Specifically, the recommended design elements are intended to allow a new land use development project to demonstrate its 'fair share' of what would be required to achieve the State's long-term 2045 climate goal.

Based on the BAAQMD Justification Report: *CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Projects and Plans* (2022) a project that demonstrates consistency with either criterion A or B provided below would be considered to result in result a less-than-significant (less than cumulatively considerable) impact related to GHG emissions. BAAQMD criteria are as follows:

A. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b), or

B. Projects must include, at a minimum, the following project design elements.

a. Buildings:

i. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).

ii. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.

b. Transportation:

i. Achieve compliance with EV requirements in the most recently adopted version of CALGreen Tier 2.

ii. Achieve a reduction in project-generated VMT below the regional average consistent with the current version of the California Climate Change Scoping Plan

(currently 15 percent) or meet a locally adopted SB 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:

1. Residential projects: 15 percent below the existing VMT per capita.
2. Office projects: 15 percent below the existing VMT per employee.
3. Retail projects: no net increase in existing VMT.

The BAAQMD-identified design elements outlined in criteria A and B above reflect BAAQMDs analysis of how residential, office, and retail projects need to be designed, located, and built to contribute a fair share of the reductions required for the state as a whole to achieve carbon neutrality by 2045. The identified design elements were established based on the concept that a majority of GHG emissions from the land use sector result from building energy use and transportation. Regarding natural gas usage, BAAQMD's analysis acknowledges that retrofitting an existing building to replace natural gas infrastructure with electrical service is difficult and expensive, and often not feasible or desirable for building owners and operators after the time of construction. However, to achieve the long-term goal of carbon neutrality and consistency with the State 2022 Scoping Plan, BAAQMD concluded that natural gas usage must be eliminated from buildings. BAAQMD's Justification Report notes that the need to eliminate natural gas in new projects in order to achieve carbon neutrality in buildings by 2045 is demonstrated by analyses conducted by the California Energy Commission (CEC) in its California Building Decarbonization Assessment (CEC 2021), in which the CEC found that actions that hinder the most aggressive building electrification scenario would also obstruct the State achieving its 2045 GHG target. With the elimination of natural gas, this would also increase reliance upon electricity. SB 100 requires that all electricity provided to retail users in California come from carbon-free sources by 2045, which is the responsibility of the utility and not the end user. The shift to intensified electrification of both land use and transportation will also put an increased demand on electricity resources. Without increasing energy efficiency, the increased shift to electricity as the primary energy source could require the development of additional carbon-free energy sources at higher costs and delays in meeting the State's mandate of 100 percent carbon-free electricity by 2045, also necessary in achieving the State's 2045 carbon neutrality goal. Finally, with regard to transportation, decarbonization of transportation requires shifting to electric vehicles, as well as reducing VMT. BAAQMD identified Tier 2 CalGreen standards for EV infrastructure as the pathway toward providing EV infrastructure that goes beyond short-term charging needs and provides for long-term 2045 vehicle electrification. BAAQMD's recommended VMT reductions are based on the OPR recommendations in its *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018). This OPR guidance, and the BAAQMD threshold criteria provide guidance for VMT and associated GHG emissions attributable to residential, office, and retail projects.

As described above, lead agencies maintain flexibility to develop their own significance thresholds or to determine significance thresholds on a case-by-case basis in the context of individual environmental documents. As noted in the BAAQMD Justification Report, the BAAAQMD developed these thresholds of significance based on "typical residential and commercial land use projects and typical long-term communitywide planning documents such as general plans and similar long-range development plans" and "these thresholds are or may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project or general plan update" (BAAQMD 2022, pages 3 and 4). The BAAQMD analysis and recommended design elements for a project to demonstrate less than significant GHG emissions does not account for unique

components associated with other land use types, such as warehousing and logistics or the proposed Project, nor, as noted above, does the BAAQMD approach address the significance of GHG emissions associated with heavy-duty trucks.

In demonstrating consistency with statewide GHG reduction mandates, it is important to consider the efficiency of a project's GHG emissions profile – to evaluate whether a subject project "incorporates efficiency and conservation measures sufficient to contribute its portion of the overall greenhouse gas reductions necessary" for the State to achieve its own mandates (*Center for Biological Diversity*). If a project or plan demonstrates that the *rate* of GHG emissions is efficient enough to provide its share of State emissions reduction targets, the impact is not cumulatively considerable (*Center for Biological Diversity v. California Department of Fish and Wildlife*; Crockett 2011). Therefore, for evaluation of the proposed Project's generation of GHG emissions, and for an evaluation under the State's shorter-term goal of SB 32 (achieve 40 percent below 1990 levels by 2030) and long-term goal established under AB 1279 (no later than 2045, achieve carbon neutrality[5] and reduce anthropogenic emissions to 85 percent below 1990 levels), the City has chosen to use a GHG efficiency metric and analysis methodology that are specifically tailored for new development, to the proposed Project type, and to the proposed Project location to assess the GHG efficiency of the proposed Project, whether the proposed Project would be consistent with statewide legislative mandates, and whether the proposed Project would provide for its fair share of emissions reductions embodied within SB 32 and AB 1279 short- and long-term statewide reduction targets, respectively.

The intent of the 2022 Scoping Plan, and the State legislation on which it is built, is to decouple the State's population and economic growth from carbon emissions, thereby accommodating continued growth in California but in a way that achieves a lower *rate* of GHG emissions (ARB 2008, 2022a). With a reduced rate of emissions per resident and employee, California can accommodate expected population growth and achieve economic development objectives, while also abiding by legislative emissions targets. An efficiency target can be developed that mirrors statewide emissions reduction legislation and applicable EOs for the target year. To create an efficiency target, the statewide emissions target for a specified target year can be divided by the forecast population and/or employment statewide for the same year. This yields an emissions "budget" for each California resident/employee and allows a community to assess whether or not a subject project's emissions rate is consistent with the statewide emissions budget.

To develop an efficiency target, the statewide mass emissions targets for the analysis year (e.g., 2030) are divided by the forecast "service population" (i.e., population and/or employment) statewide for the same year. This yields an emissions "budget" for each resident and/or employee that would be accommodated by a proposed Project and provides a metric by which to assess whether a development project's emissions rate is consistent with the statewide emissions reduction legislation for a reduction of GHG emissions to 40 percent below 1990 levels by 2030 (per SB 32) and 85 percent below 1990 levels by 2045 (AB 1279). To make this relevant to the proposed Project, however, the statewide mass emissions target and service population were tailored to focus on the emissions sources and employment sectors that are specifically relevant for the proposed Project.

5 "Carbon neutrality" is defined in Executive Order B-55-18 as the point at which the removal of carbon pollution from the atmosphere meets or exceeds carbon emissions. Carbon neutrality is achieved when carbon dioxide and other GHGs generated by sources such as transportation, power plants, and industrial processes are less than or equal to the amount of carbon dioxide that is stored, both in natural sinks and mechanical sequestration.

In building the significance threshold, the non-land use-related emissions and jobs were removed from consideration. Since the efficiency significance threshold is a ratio, with emissions in the numerator and service population in the denominator, it was appropriate to remove inapplicable emissions sources from the numerator and inapplicable employment estimates associated with these emissions sources from the denominator to allow an appropriate comparison with project GHG efficiency. By removing these emissions and jobs from the calculation of statewide GHG efficiency, the efficiency threshold is tailored for the proposed Project, consistent with suggestions in the ruling in *Center for Biological Diversity. v. California Department of Fish and Wildlife (2015)*. For example, as explained in the note to Table 4.6-1, jobs that are not specific to Solano County and related emissions were removed from consideration (EDD 2022). In addition, as the proposed Project does not propose residential uses, the service population for the purposes of this Project-specific threshold is defined only as employees; therefore, emissions associated with residential uses were removed from the numerator and residents (i.e., population) were not included in the denominator, thereby further refining the GHG efficiency threshold to be specifically applicable to the Project type. Tailoring the efficiency significance threshold in this way ensures that the threshold is appropriate for use by the proposed Project and the Project Site.

Table 4.6-1 presents the land use-related statewide emissions and employment figures and calculates the proposed 2030 and 2045 GHG efficiency targets to quantitatively evaluate the proposed Project's GHG emissions. For the purposes of analysis in this EIR, the 2030 GHG efficiency threshold was calculated to be 13.981 MT CO_2e per employee and the 2045 GHG efficiency threshold was calculated to be 3.32 MT CO_2e per employee; additional calculations and inputs beyond the methodology explained above and data provided in Table 4.6-1 is available in Appendix B to this EIR.

Table 4.6-1. Project-Specific Greenhouse Gas Efficiency Threshold

Metric	1990 State Inventory	2030 Project-specific GHG Efficiency Threshold	2045 Project-specific GHG Efficiency Threshold
Statewide Emissions (MMT CO_2e/yr) [1]	431	258.6	64.7
Adjusted Land Use-Related Emissions (MMT CO_2e/yr) [1]	286	173	43
Percent Mass Emissions Reduction	n/a	40 percent below 1990	85 percent below 1990
Adjusted Land Use-Related Employment [2] (service population)	n/a	12,371,400	13,025,310
Per Employee Emissions Efficiency Threshold (MT CO_2e/SP)	**n/a**	**13.98**	**3.32**

Notes: ARB = California Air Resources Board, EO = Executive Order, GHG = greenhouse gas, MMT CO_2e = million metric tons of carbon dioxide equivalent; n/a = not applicable, Service Population (SP) = population + employment, yr = year

[1] California 1990 Greenhouse Gas Emissions Level and 2030 Limit by Sector, ARB: <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>; targets for 2030 based upon 40 percent mass emissions reduction target established by SB 32; targets for 2045 based upon 85 percent mass emissions reduction goal established by AB 1279.

[2] Employment data from the Employment Development Department Labor Market Information Division. Sorted to remove jobs that are unrelated to the proposed Project.

See Appendix B for detailed calculations and inputs.

The ARB 2022 Scoping Plan Update assesses progress toward the statutory 2030 target, while laying out a path to achieving carbon neutrality no later than 2045. Carbon neutrality is not a standard to be achieved on an individual project basis, but through the implementation of best available technology, increasingly stringent regulations to

reduce emissions from various sources, State, and regional plans to reduce VMT and increase carbon-free vehicle use, and carbon capture and sequestration actions focused on the natural and working lands sector, as identified in the 2022 Scoping Plan. Instead, evaluating consistency with the State's emissions reduction targets for 2030 and 2045 shows alignment with the State's approach to reduce the generation of GHG emissions from existing and anticipated future sources by 85 percent compared to 1990 levels, a key component of the ARB 2022 Scoping Plan.

Comparison of the proposed Project's amortized construction plus operational emissions in terms of efficiency relative to the employment served by the Project allows an assessment of the Project's ability to provide a "fair share" of the emissions reduction required for the State to achieve the GHG reductions for 2030 and 2045, avoid a conflict with the State's goal of carbon neutrality by 2045, and demonstrate consistency with the State Scoping Plan.

If the proposed Project would achieve the efficiency thresholds, it would demonstrate that implementation of the proposed Project would generate GHG emissions at a level that would be consistent with State legislation in the near-term (i.e., SB 32) and long-term over the lifetime of the Project as it continues to generate GHG emissions (i.e., AB 1279). Similarly, consistency with the BAAQMD criterion for significance demonstrate consistency with actions identified by BAAQMD as necessary of a new development project to do its "fair share" for the State to achieve its long-term goal of carbon neutrality by 2045 and consistency with the State Scoping Plan. Therefore, both of the CEQA Guidance Appendix G checklist questions for GHG emissions are evaluated under a single impact discussion using the above detailed GHG efficiency metric.

IMPACT ANALYSIS

Impact 4.6-1 *Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be* ***cumulatively considerable****.*

GHG emissions have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. 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. Therefore, impacts are analyzed within the context of the proposed Project's potential contribution to the cumulatively significant impact of climate change. The proposed Project would generate GHG emissions as a result of short-term construction and long-term operational activities.

The analysis for GHG emissions in this section is unique in relation to the environmental baseline. Instead of focusing on the difference between the existing baseline and conditions with implementation of the proposed Project, the analysis considers GHG emissions with implementation of the proposed Project in relation to State targets and goals for GHG emissions reduction.

Project GHG Efficiency

In order to calculate the GHG efficiency of the proposed Project, GHG emissions from construction and operation of the proposed Project were calculated and amortized construction emissions were added to annual operational emissions. The proposed Project's annual emissions (inclusive of amortized construction and annual operational emissions) are divided by the proposed Project's service population to determine whether the proposed Project is

efficient enough to provide its fair share of the State's emissions reduction targets. The service population for the proposed Project is the approximately 1,275 employees that would be accommodated by the proposed Project. Please see Appendix B of this Draft EIR for modeling details, assumptions, inputs, and outputs.

During construction of the proposed Project, exhaust GHG emissions would be generated from a variety of sources such as heavy-duty construction and clearing equipment, haul trucks, material delivery trucks, and construction worker vehicles. Construction would be short term, occurring in phases, and anticipated to last approximately 28 months in total, and the generation of construction-related GHG emissions would cease at the end of construction. As noted above in the discussion of *Thresholds of Significance*, total construction-related GHG emissions were amortized over 30 years and added to the total Project annual operational emissions. This approach accounts for the persistence of GHG emissions in the environment (in other words, the temporary emission sources result in emissions that persist over many years), and also ensures that mitigation measures account for construction GHG emissions as part of the total emissions considered and mitigated.

Operational GHG emissions can be direct and indirect. Direct GHG emissions are generated at the location of consumption or use; for example, mobile-source emissions are direct emissions because GHG emissions are generated directly by the vehicle as exhaust. Other direct emissions sources include on-site natural gas use, backup generators, onsite yard equipment, TRU operations, and fugitive emissions from refrigerant use in equipment such as air conditioning units and freezers. Conversely, indirect emissions occur at a different time or location from the point of consumption or use. For example, electricity-related GHG emissions are indirect emissions because, as consumers use electricity at their workplace, 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 from solid waste disposal and water consumption.

As noted above, the proposed Project's GHG emissions are evaluated against efficiency thresholds for 2030 and for 2045, based on the emissions reduction targets in SB 32 and AB 1279, respectively. These GHG emissions efficiency thresholds were derived to be specific for this location, tailored for this specific Project, and appropriate for *new* development. In creating this efficiency threshold, emissions sources not relevant to Suisun City and Solano County or to the proposed Project were removed from consideration in building the emissions efficiency threshold. Similarly, inapplicable employment estimates were removed when building the efficiency threshold, so that the threshold was tailored to apply to emissions sources related to the proposed Project. For example, as noted earlier, jobs that do not exist in Solano County and are not relevant to the project were removed from consideration and emissions related to agriculture and forestry, mining, petroleum refining, and waterborne transportation emissions were removed from consideration in the efficiency threshold since these jobs and emissions do not exist within the City. The emissions rate, when combined with the methodology for estimating Project-related emissions is also designed to be appropriate for *new* development (as opposed to existing, on-the-ground development).

In order to calculate the GHG efficiency of the proposed Project, emissions for the proposed Project were estimated for the initial operating years (phased, assumed to start in 2025 and conservatively assumed to reach full operations in 2026) for evaluation against the 2030 threshold. Please see Appendix B to this Draft EIR for modeling details, assumptions, inputs, and outputs.

Table 4.6-2 presents the maximum annual, total, and amortized construction-related GHG emissions. Table 4.6-3 presents the annual operational emissions by source for the initial fully operating year of 2026 and operations in

2045, as well as the total proposed Project emissions, summing the amortized construction and total annual operational emissions for each year. Table 4.6-3 also shows the proposed Project's GHG efficiency in 2030 and compares this to the Project-specific thresholds for each 2030.

Table 4.6-2. Proposed Project Construction-Related GHG Emissions

Construction Year	Emissions (MT CO_2e)
Construction 2024	1,474
Construction 2025	828
Construction 2026	220
Total Construction	2,521
Annual Construction Amortized over 30 years	**84**

Notes:

GHG = greenhouse gas emissions; MT CO_2e = metric tons of carbon dioxide equivalents

See Appendix B for detailed calculations and inputs.

Table 4.6-3. Proposed Project GHG Efficiency in the Year 2026

Proposed Project Emissions Source	GHG Emissions of the Proposed Project in 2026 (MT CO_2e)
Visiting Trucks	22,364
Worker Passenger Vehicles	2,232
Transportation Refrigeration Units	4,672
Electricity	3,049
Natural Gas	337
Fugitive Refrigerants	5,631
Yard Equipment (e.g., forklifts)	681
Stationary (e.g. backup generators and fire pumps)	46
Area Sources	19
Water Use	585
Waste Generation	375
Total Annual Operational Emissions	39,993
Annual Construction Amortized over 30 years[1]	84
Total Project Annual Emissions (Operational + Amortized Construction)	**40,077**
Proposed Project Service Population (Employees)	1,275
Proposed Project GHG Efficiency (MT CO_2e per service population)	**31.43**
2030 GHG Efficiency Target (MT CO_2e per service population)	**13.98**
Project Consistent with GHG Efficiency Target?	**No**

Notes:

GHG = greenhouse gas emissions; MT CO_2e = metric tons of carbon dioxide equivalents

See Appendix B for detailed calculations and inputs.

1. See Table 4.6-2 for detailed construction emissions by year and total construction emissions.

As shown in Table 4.6-3, the proposed Project's emissions would be higher than the Project-specific 2030 GHG efficiency threshold. The primary emission sources associated with the proposed Project is mobile activity, which is primarily the result of visiting truck travel. As explained above, the proposed Project's GHG efficiency

assumes all emissions sources related to the proposed Project are created by the proposed Project, regardless of whether the proposed Project would serve demand that would otherwise be served in another facility. In addition, the service population accounted for in the denominator of the calculation to determine the project's GHG efficiency ***only*** accounts for the proposed Project's on-site employees, not visiting truck drivers.

Because the Project's GHG efficiency would exceed the 2030 GHG efficiency target, implementation of the proposed Project could result in the generation of GHG emissions at a level that result in a **cumulatively considerable** contribution to the significant cumulative impact of climate change and conflict with State GHG emission targets adopted for the purpose of reducing GHG emissions. This impact is **cumulatively considerable**.

Mitigation Measures

Mitigation Measure 4.6-1a: Use Battery or Electric-powered Construction Equipment

The Project applicant shall require that construction contractor(s):

- Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible.
- Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites.
- Use battery-powered equipment for all off-road construction equipment with a power rating below 19kW (e.g., plate compactors, pressure washers) during construction.

Prior to the issuance of grading permits for the Project, the Project applicant shall include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities.

Mitigation Measure 4.6-1b: Reduce Construction Worker Travel for Meals

The Project applicant shall provide meal options on-site or shuttles between the facility and nearby meal destinations for construction employees.

Mitigation Measure 4.6-c: Limit Model Year of On-road Heavy Duty Haul Trucks

The Project applicant shall require the construction contractor(s) use on-road heavy-duty haul trucks to be model year 2014 or newer if diesel-fueled.

Mitigation Measure 4.6-1d: Limit Idling of Heavy-Duty Construction Equipment & Trucks

The Project applicant shall require the construction contractor(s) forbid the idling of construction equipment and trucks, if diesel-fueled, for more than two minutes. The Project applicant or construction contractor(s) shall provide appropriate signage onsite communicating this requirement to onsite equipment operators.

Mitigation Measure 4.6-1e: Omit the Inclusion of Natural Gas Infrastructure.

The City shall require the Project applicant to omit the inclusion of natural gas infrastructure in the design and construction of the proposed Project. The final design drawings must demonstrate the omission of natural gas connections to the Project Site and be provided to and approved by the City prior to the issuance of grading permits.

Mitigation Measure 4.7-1f: Source Electricity for Project Operations from a Power Mix that is 100 Percent Carbon-free.

Electricity to serve the Project Site shall be supplied from a power mix that comprises 100 percent carbon-free electricity sources. The Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating the Project's electricity demand, including that of electric vehicle charging stations and other onsite electric infrastructure required to support electrification of the onsite offroad equipment, will be supplied with 100 percent carbon-free electricity sources. These sources may include, but are not limited to, on-site renewable generation system(s) or Pacific Gas and Electric Company (PG&E) 100 percent solar electricity service option, or a similar 100 percent carbon-free utility option that becomes available in the future and meets the requirements of this mitigation measure.

To ensure that 100 percent of the Project's electricity demand generated by the proposed Project is supplied with 100 percent carbon-free electricity sources, the project applicant or other appropriate Project Site operations manager shall maintain records for all electricity consumption and supply associated with the proposed Project's operation and make these records available to the City upon request. These records shall be maintained until such time as the only grid-available power options are inherently carbon-free and this mitigation does not serve to provide any additional Project requirements to reduce electricity-related GHG emissions.

Mitigation Measure 4.6-1g: Implement Mitigation Measure 4.12-1, Transportation Demand Management (TDM) Plan.

Mitigation Measure 4.6-1h: Incorporate CALGreen Tier 2 Standards for Electric Vehicle Infrastructure into Project Design.

The City shall require the Project applicant to include electric vehicle (EV) capable parking at the rate consistent with the California Green Building Standards Code (CALGreen) Tier 2 standards for the proposed Project land use. The EV capable parking shall include the installation of the enclosed conduit that forms the physical pathway for electrical wiring and adequate panel capacity to accommodate future installation of a dedicated branch and charging stations(s). The total EV capable parking to be provided shall be based on the proposed size and scale of development and the most current CALGreen Tier 2 standards at the time of the application for a building permit.

Mitigation Measure 4.6-1i: Electrification of Yard Equipment

The Project applicant shall stipulate in tenant lease agreements that all yard equipment and similar on-site off-road equipment, such as forklifts, be electric. Prior to the issuance of an occupancy permit, the Project applicant shall provide the City with documentation, to the City's satisfaction, demonstrating that the building occupant shall only use on-site off-road equipment that is electric-powered.

Mitigation Measure 4.6-1j: Electrification of Transportation Refrigeration Units

The Project applicant shall require that all transportation refrigeration units operating on the Project Site be electric or alternative zero-emissions technology, including hydrogen fuel cell transport refrigeration and cryogenic transport refrigeration, to reduce emissions of NO_X without substantially increasing other emissions. Any electric or hybrid transportation refrigeration units shall be charged via grid power (i.e., not an idling truck or diesel engine). The Project design shall also include necessary infrastructure; for example, requiring all dock doors serving transportation refrigeration units to be equipped with charging infrastructure to accommodate the necessary plug-in requirements for electric transportation refrigeration units while docked or otherwise idling, as well as the electrical capacity to support the on-site power demand associated with electric transportation refrigeration unit charging requirements.

Mitigation Measure 4.6-1k: Prohibition of Truck Idling for More than Two Minutes

The Project applicant shall require that onsite idling of all visiting gasoline- or diesel-powered trucks not exceed two minutes, and that appropriate signage and training for on-site workers and truck drivers be provided to support effective implementation of this limit.

Mitigation Measure 4.6-1I: Limitation of Model Year of Visiting Trucks

The Project applicant shall require that lease agreements stipulate that any gasoline- or diesel-powered vehicle, whether owned or operated by tenant(s), that enters or operates on the Project Site and has a gross vehicle weight rating greater than 14,000 pounds, have a model year dated no older than model year 2014.

Mitigation Measure 4.6-1m: Use of Reduced GWP Refrigerants

Future buildings and tenants using cold storage shall use R-407F or class of refrigerant that has an equivalent or lower global warming potential (i.e., global warming potential of 1,825 or less). The Project applicant shall require that lease agreements stipulate that any refrigeration unites operated on-site meet these requirements and that equipment specifications and maintenance records demonstrating system and refrigerant type and compliance with service and maintenance requirements to minimize fugitive leaks.

Mitigation Measure 4.6-1n: Purchase and Retire GHG Emissions Credits.

The Project applicant shall purchase and retire greenhouse gas (GHG) emissions credits for the proposed Project. Prior to the issuance of a building permit, the Project applicant shall provide documentation for review and approval by the City, that demonstrates consistency with the requirements of this mitigation measure, including the specific performance standards outlined below regarding the credit program selected.

The Project applicant shall purchase and retire GHG emissions credits in an amount sufficient to reduce the proposed Project's annual amortized construction and operational emissions, after implementation of Mitigation Measures 4.6-1a through 4.6-1m, to a level considered less than cumulatively considerable based upon the 2030 GHG efficiency threshold of 13.98 MT CO_2e per employee and the State's target of an 85 percent reduction from 1990 levels by 2045, represented by the 2045 GHG efficiency threshold of 3.32 MT CO_2e per employee. The Project applicant shall purchase and retire GHG emissions credits sufficient to meet such requirements for operations through 2055, which reflects the assumed 30-year lifetime of the proposed Project. Total amortized construction emissions plus operational emissions, with

implementation of Mitigation Measures 4.6-1a through 4.6-1m, and required GHG credits were estimated the 30-year Project lifetime. Based on these timelines and the Project's operational emissions between 2025 and 2055, the total required amount credits is currently estimated to be 358,128 MT CO_2e for the life of the Project.

The purchase and retirement of credits may occur through one of the following programs, which are all developed consistent with ARB's offset protocols: (i) a California Air Resources Board (CARB) approved registry, such as the Climate Action Reserve, California Offsets through the American Carbon Registry, and the Verified Carbon Standard; (ii) any registry approved by CARB to act as a registry under the California Cap and Trade program; or (iii) through the California Air Pollution Control Officers Association (CAPCOA) GHG Rx. Such credits shall be based on protocols approved by ARB, consistent with Section 95972 of Title 17 of the California Code of Regulations, and shall not allow the use of offset projects originating outside of California. Off-site mitigation credits shall be real, additional, quantifiable, verifiable, enforceable, permanent, consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2) and that satisfy all of the following criteria:

- Real: emission reduction must have actually occurred, yielding quantifiable and verifiable reductions or removals determined using appropriate, accurate, and conservative methodologies that account for all GHG emissions sources, GHG sinks, and GHG reservoirs within the offset project boundary and account for uncertainty and the potential for activity-shifting leakage and market-shifting leakage.

- Additional: an emission reduction cannot be required by an existing law, rule, or other requirement that applies directly to the proposed Project, or otherwise have occurred in a conservative business-as-usual scenario, consistent with CEQA Guidelines Section 15126.4(c)(3) and Health and Safety Code section 38562(d)(2). One carbon offset credit shall mean the past reduction or sequestration of one metric ton of carbon dioxide equivalent that is 'not otherwise required', consistent with CEQA Guidelines Section 15126.4(c)(3).

- Quantifiable: reductions must be quantifiable through tools or tests that are reliable, based on applicable methodologies, relative to the proposed project baseline in a reliable and replicable manner for all GHG emission sources and recorded with adequate documentation.

- Verifiable: the action taken to produce credits can be audited by an accredited verification body and there is sufficient evidence to show that the reduction occurred and was quantified correctly.

- Enforceable: an enforcement mechanism must exist to ensure that the reduction project is implemented correctly.

- Permanent: emission reductions or removals must continue to occur for the expected life of the reduction project (i.e., not be reversible, or if the reductions may be reversible, that mechanisms are in place to replace any reversed GHG emissions reductions).

The purchase and retirement of credits shall be prior to the issuance of any grading permit for the Project. Purchase and retirement of credits can also occur for multiple years in advance up to the total purchase requirement described above.

The applicant shall provide the City with evidence of the purchase and retirement of credits in adequate amounts and appropriate timing to achieve the 2030 and 2045 efficiency thresholds. If the entire amount is retired up-front, the applicant shall provide the City evidence of the purchase and retirement prior to

approval of any building permit associated with the project. If the reduction credits are purchased annually, the applicant shall provide evidence to the City prior to the annual renewal of the business license. The evidence of purchase and retirement of credits shall include (i) the applicable protocol(s) and methodologies associated with the carbon offsets, (ii) the third-party verification report(s) and statement(s) affiliated with the carbon offset projects, and (iii) the unique serial numbers assigned by the registry(ies) to the carbon offsets to be retired, which serves as evidence that the registry has determined the carbon offset project to have been implemented in accordance with the applicable protocol or methodology and ensures that the offsets cannot be further used in any manner.

Significance after Mitigation

Implementation of Mitigation Measures 4.6-1a through 4.6-1d would reduce emissions associated with offroad equipment use during Project construction. Mitigation Measures 4.6-1e through 4.6-1m would reduce emissions associated with natural gas use, electricity consumption, worker vehicle and truck travel and idling, TRU operations, use of onsite offroad equipment such as forklifts, and backup generators. Implementation of these mitigation measures would reduce the Project's generation of GHG emissions to support the Project's fair share contribution emissions reductions toward the State GHG reduction mandates and the State's goal of statewide carbon neutrality. The Project's GHG emissions and GHG efficiency with implementation of these measures are presented in Table 4.6-4. The table presents the proposed Project's GHG emissions with mitigation as applicable in 2026 (i.e., not yet implementing Mitigation Measure 4.6-1m for all zero-emission trucks) and for operations with all mitigation measures implemented in 2045. As shown in this table, even with implementation of Mitigation Measures 4.6-1a through 4.6-1m, the proposed Project would still exceed the GHG efficiency thresholds for 2030 and for 2045.

Table 4.6-4. Mitigated Proposed Project GHG Efficiency in the Years 2026 and 2045

Proposed Project Emissions Source	Mitigated GHG Emissions in 2026 (MT CO_2e)	Mitigated GHG Emissions in 2045 (MT CO_2e)
Visiting Trucks	22,209	14,829
Worker Passenger Vehicles	1,897	1,437
Transportation Refrigeration Units	-	-
Electricity	-	-
Natural Gas	-	-
Fugitive Refrigerants	2,620	2,620
Yard Equipment (e.g., forklifts)	-	-
Stationary (e.g. backup generators and fire pumps)	16	16
Area Sources	6	6
Water Use	585	585
Waste Generation	375	375
Total Annual Operational Emissions	**27,707**	**19,866**
Annual Construction Amortized over 30 years[1]	**84**	**84**
Total Project Annual Emissions (Operational + Amortized Construction)	**27,791**	**19,950**
Proposed Project Service Population (Employees)	1,275	1,275

Proposed Project Emissions Source	Mitigated GHG Emissions in 2026 (MT CO_2e)	Mitigated GHG Emissions in 2045 (MT CO_2e)
Proposed Project GHG Efficiency (MT CO_2e per service population)	**21.80**	**15.65**
2030 GHG Efficiency Target (MT CO_2e per service population)	**13.98**	**3.32**
Project Consistent with GHG Efficiency Target?	**No**	**No**

Notes:

GHG = greenhouse gas emissions; MT CO_2e = metric tons of carbon dioxide equivalents

See Appendix B for detailed calculations and inputs.

[1.] See Table 4.6-2 for detailed construction emissions by year and total construction emissions.

Mitigation Measure 4.6-1n further reduces the proposed Project's impacts related to the generation of GHG emissions, as it requires the purchase and retirement of GHG emissions credits based on protocols approved by ARB, consistent with Section 95972 of Title 17 of the California Code of Regulations. Mitigation Measure 4.6-1n also requires the Project applicant to provide documentation demonstrating that the mitigation credits are real, additional, quantifiable, verifiable, enforceable, permanent, and consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Mitigation Measure 4.6-1n would ensure that the Project's GHG emissions efficiency would be consistent with that of the State SB 32 regulatory GHG emissions reduction target for 2030 and with the State AB 1279 regulatory GHG emissions reduction target for 2045 over the long-term operations of the Project. Therefore, with implementation of Mitigation Measures 4.6-1a through 1n, the generation of GHG emissions associated with the proposed Project would not result in a substantial contribution to the significant impact of climate change or conflict with an applicable plan, policy, or regulation adopted for the purposes of reduction GHG emissions. However, the City cannot guarantee the availability of emissions credits meeting the standards outlined in Mitigation Measures 4.6-1n presented above. There is no additional feasible mitigation available. Therefore, with implementation of Mitigation Measures 4.6-1a through 4.6-1n, the Project construction and operations would be **cumulatively considerable and significant and unavoidable**.

Impact 4.6-2 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or conflict with or obstruction of a State or local plan for renewable energy or energy efficiency. *Implementation of the proposed Project would result in energy consumption for the duration of the proposed Project's construction phases 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 proposed Project would not result in an unnecessary or wasteful use of energy and would not conflict with a state or local plan for renewable energy or energy efficiency.* Therefore, this impact would be less than significant.

Construction-Related Energy Consumption

Implementation of the proposed Project would increase the consumption of energy for the duration of construction in the form of electricity, natural gas, and fossil fuels (*e.g.*, gasoline, diesel fuel). The primary energy demands during construction would be fuel consumption associated with offroad equipment and vehicle use. 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. Fuel use was estimated for construction equipment and vehicles, including construction worker commute trips, equipment and material deliveries, and haul truck trips (see Appendix B).

Over the approximately 28-month construction period, inclusive of all phases of the Project Site development and mitigation wetland construction, the proposed Project would require approximately 60,466 gallons of diesel and 37,091 gallons of gasoline. The proposed Project could also involve the use of battery-powered smaller equipment and on-site electric-powered equipment when such grid power is available, the use of which would supplant the need for gasoline and diesel fuel.

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. Material resulting from any site preparation and trenching would be reused to the extent feasible, in accordance with CALGreen standards for the diversion of non-hazardous waste. Construction equipment and personnel would be staged within the boundaries of the Project Site, and on-site idling of heavy-duty equipment would be limited to no more than 5 minutes, in accordance with California Code of Regulations Title 13, Sections 2485 and 2449.

State plans adopted for the purpose of promoting energy efficiency include the California Renewable Portfolio Standard, the Clean Energy and Pollution Reduction Act of 2015 (SB 350), the California Energy Efficiency Standards for Nonresidential Buildings, and the CALGreen Code. Construction activities under the proposed Project would be conducted in accordance with all applicable laws and regulations, including applicable federal, state, and local laws that are intended to promote efficient utilization of resources and minimize environmental impacts.

Therefore, construction activities associated with the proposed Project would not result in inefficient, wasteful, or unnecessary use of fuel or other energy sources and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be **less than significant.**

Operational Energy Consumption

Energy for operation of proposed Project would be required for heating and cooling of buildings, lighting, mechanical equipment, warehousing and logistics equipment, vehicle travel, and other needs.

Using CalEEMod, electrical and natural gas demands were modeled to estimate building (and parking area) energy use based on the proposed land uses. Energy demands of the proposed Project would be approximately 32,634 megawatt-hours per year for electricity and 6,331 million British thermal units of natural gas, based on energy consumption rates developed for CalEEMod. In addition, fuel consumption associated with worker passenger vehicle and visiting truck trips, as well as onsite equipment use, was calculated. Estimated annual fuel consumption for Project operations would be approximately 245,645 gallons of gasoline and 1,067 gallons of diesel fuel.

The proposed buildings would be constructed to meet all applicable energy efficiency standards at the time of construction and would be required to comply with the current energy performance standards found in Title 24 of the California Code of Regulations, including the Green Building Code (Part 11 of Title 24) Building Energy Efficiency Standards. These energy efficiency standards ensure that building energy consumption would not be wasteful, inefficient, or unnecessary. In addition, the Project Site is adjacent to SR 12 and provides convenient and efficient regional access for trucks and also provides local job opportunities for local residence of Suisun City and the surrounding communities that may otherwise commute further (see Section 4.9, Land Use & Planning, Population and Housing). Thus, building operations and operational transportation fuel consumption would not be wasteful, inefficient, or unnecessary. Impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

4.7 HAZARDS, INCLUDING WILDFIRE, AND HAZARDOUS MATERIALS

4.7.1 ENVIRONMENTAL SETTING

EXISTING USES OF THE PROJECT SITE AND VICINITY

Most of the Project Site is used for cattle grazing, and has been in use as grazing land since at least the 1930s (AEI Consultants [AEI] 2006).

The Project Site and the off-site improvement areas are located in a mixed industrial/residential/agricultural area. SR 12 is immediately adjacent to the northern Project Site boundary, with an undeveloped area in the city of Fairfield zoned Industrial Business Park (IBP) north of SR 12 and west of Pennsylvania Avenue, and Service Commercial (CS) north of SR 12 and east of Pennsylvania Avenue, with residential uses farther to the north. Union Pacific Railroad tracks are present on the east side of the Project Site, with light industrial, commercial, and residential development in Suisun City east of the railroad tracks. Undeveloped land is present south of the Project Site. Ledgewood Creek is immediately adjacent to the northwest portion of the Project Site, with industrial development west of the creek. Land in active agricultural cultivation (i.e., hay) is present on the southwest side of the Project Site, west of Orehr Road.

Located near the center of the Project parcels, but not within the Project Site, are two commercial businesses operating near the intersection of Pennsylvania Avenue and the California Northern Railroad: (1) Kings of Auto/U-Haul, located at 1001 South Pennsylvania Avenue, consists of an auto repair shop and a U-Haul rental shop, and (2) Nor Cal Concrete, a concrete contractor, which is immediately south of Kings of Auto.

An approximately 5-acre parcel (APN 0032-020-040) east of Pennsylvania Avenue and adjacent to the Project Site, which is fenced, is surrounded by the Project Site, but no changes of any kind are proposed to this property.

HAZARDOUS MATERIALS

Phase I Environmental Assessment (2020)

In 2020, Bole and Associates (Bole 2020) conducted a Phase I Environmental Site Assessment (ESA) for the Project Site. There are no structures at the Project Site. No sources of irrigation water (i.e., wells, canals, or municipal lines) were noted during Bole's site visit. According to the ranch manager, all irrigation comes from precipitation or the tidal influences of the nearby Suisun Marsh. No hazardous materials or signs of hazardous materials dumping were observed on the Project Site during Bole's 2020 site visit.

As part of the Phase I ESA, Bole retained the services of EDR, Inc. to perform a search of over 90 federal, state, and tribal databases related to hazardous materials, including the databases that are maintained under California Public Resources Code Section 65962.5 (i.e., the "Cortese List"). The parcels covered by the Phase I ESA were not listed in any of these databases. The Solano County Environmental Health Department had no available files to review for the parcels covered by the Phase I ESA. Bole (2020) noted that the results of EDR's search of the Integrated Waste Management Board's Solid Waste Information System (SWIS) database indicated that the former "Pennsylvania Avenue Landfill" is located approximately 400 feet south of the intersection of SR 12 and Pennsylvania Avenue, on APN 0032-020-040. Bole stated that the former landfill site is currently used as a storage yard, and that no current landfill operations take place on the site.

Phase I Environmental Assessment (2006)

In 2006, a Phase I ESA was performed by AEI, which included all of the Project Site except the small parcel east of the SR 12/Webster Street on/off ramp. The results of that Phase I ESA are summarized below.

AEI (2006) provided details regarding a former 5-acre landfill site, identified as the Cordelia Road Landfill and/or the Fairfield City Dump (referred to above as the "Pennsylvania Avenue Landfill"), located on APN 0032-020-040, just east of Pennsylvania Avenue and approximately 400 feet south of SR 12 (see Exhibit 4.7-1). This parcel is not part of the Project Site.[1] Based on a review of aerial photographs, the landfill site was enclosed by a fence sometime prior to 1957, and landfill operations clearly were occurring in the 1965 aerial photo. The precise date when landfill operations began could not be determined, but the landfill was closed in 1979. Since the early 1980s, the site has been used by the City of Fairfield as a staging area for construction debris. The former landfill is subject to annual inspections by the Solano County Environmental Health Department; based on records reviewed by AEI, deficiencies noted in most inspection records include areas of exposed debris, and lack of secure fencing ultimately leading to unauthorized encampments. No issues were noted relating to hazardous materials or wastes. Although no evidence exists that hazardous materials were ever disposed of at the former landfill, landfills are commonly recognized sources of leachate.[2] If the landfill has no leachate collection system, the leachate can enter groundwater, and this can pose environmental or health problems as a result. Development associated with the Project is not proposed on the former landfill parcel. However, development of the proposed Building G and a stormwater retention pond would be located immediately adjacent to and south of the former landfill parcel, and development of the proposed Building B/C and a stormwater retention pond would be located across Pennsylvania Avenue immediately west of the former landfill parcel (Exhibit 4.7-1).

AEI (2006) also identified several buried Kinder Morgan petroleum pipelines at the Project Site. One of the pipelines carries jet fuel from Concord to Travis Air Force Base and was put into service in the 1970s. Another pipeline was put into service in the 1960s and carried multiple petroleum products to Sacramento, but is currently out of service. The third pipeline, put into service in December 2004, measures 20 inches in diameter and replaced the out-of-service pipeline previously discussed. All three pipelines are cathodically protected, and are visually inspected twice per month. No leaks have ever been reported from the pipelines in the area of the Project Site, although no information on any sampling was made available to AEI. No records related to pipeline releases were included in the regulatory database search performed as part of AEI's Phase I ESA. The pipelines appear to be in compliance with present regulations. The approximate locations of all known natural gas and jet fuel pipelines at the Project Site and the off-site improvement area are shown on Exhibit 4.7-1, and were delineated based on mapping from the Pipeline and Hazardous Materials Safety Administration (PHMSA 2021) Public Map Viewer. (In accordance with PHMSA's security policy, the scale of the Public Map Viewer is restricted to 1:24,000, and the minimum accuracy of the mapped pipeline locations is 500 feet.) No known high-pressure pipeline ruptures or accidents have occurred at the Project Site; the closest incidents were approximately 12 miles to the southwest and south, respectively (PHMSA 2021).

1 The Annexation Area – 161 acres – includes a 5-acre property east of Pennsylvania Avenue that is not a part of the Project Site. The Project does not propose any physical changes, General Plan changes, prezoning, or any other change to this property, but the acreage is included in the total Annexation Area since annexation of this property would be required to avoid an unincorporated "island."

2 Leachate is the liquid produced when water percolates through any permeable material; it can contain either dissolved or suspended material, or frequently both. This liquid is most commonly found in association with landfills as a result of rain percolating through the waste and reacting with the products of decomposition, chemicals, and other materials.

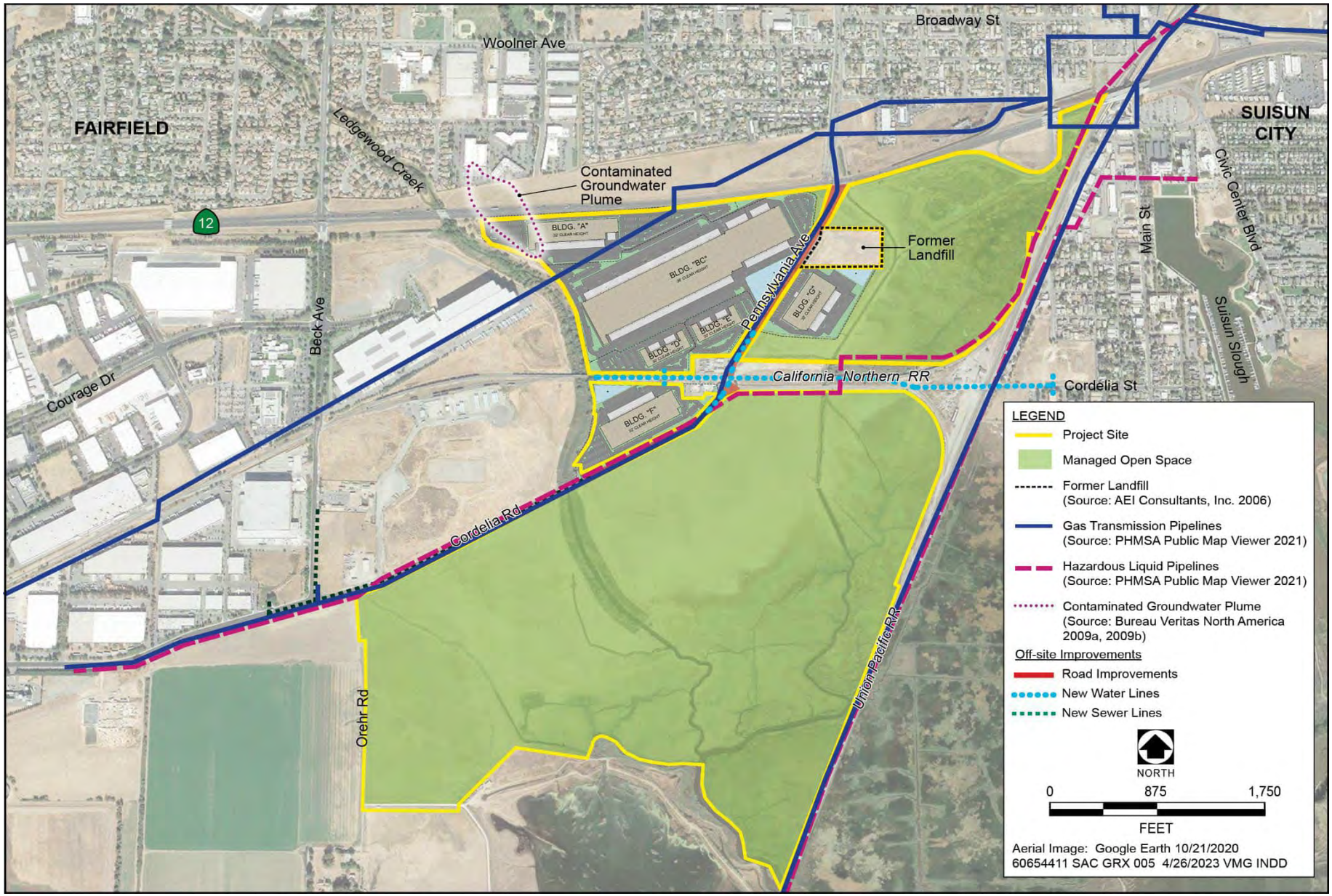


Exhibit 4.7-1. Project Site Hazards

In addition, a 36-inch water transmission main owned by the City of Vallejo traverses the Project Site in a northeast-southwest direction.

AEI (2006) recommended that a Phase II ESA be performed in relation to the former landfill and the pipelines, which should include soil, groundwater, and/or soil-gas sampling designed to determine whether a release may have occurred that has affected the Project Site.

Cortese-Listed Hazardous Materials Sites

In 2021, AECOM performed an updated site-specific search of several databases maintained as part of the Cortese List. The Hazardous Waste and Substances Site List (the "EnviroStor" database) is maintained by the California Department of Toxic Substances Control (DTSC) as part of the requirements of Public Resources Code Section 65962.5. The State Water Resources Control Board (SWRCB) maintains the GeoTracker database, an information management system for groundwater. Data on leaking underground storage tanks (USTs) and other types of soil and groundwater contamination, along with associated cleanup activities, are part of the information that the SWRCB must maintain under Public Resources Code Section 65962.5. AECOM also performed a search of the U.S. Environmental Protection Agency's (EPA) Superfund database (which includes records maintained under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [CERCLA]). The closest site on the EPA National Priorities List (i.e., Superfund) is Travis Air Force Base, approximately 4.5 miles east of the Project Site and the off-site improvement area (EPA 2021).

The results of records searches from the EnviroStor and GeoTracker databases indicated there are there several closed and one open hazardous materials site within 0.25 mile of the current Project Site boundaries and the off-site improvement areas (DTSC 2021, SWRCB 2022). These sites all involve leaking underground storage tanks. Since the direction of groundwater flow is towards the southeast, the hazardous materials sites that are situated east of the Project Site (including the one case that is still open) would not result in hazardous materials issues at the Project Site. However, the off-site water line that would be installed in Cordelia Street east of the Project Site would require excavation immediately adjacent to a closed site with land use controls. That hazardous materials site, along with the two closed sites that are west and north of the Project Site, respectively, are discussed in further detail below.

Former Crystal Middle School

An underground storage tank was in use at the site of the former Crystal Middle School (which was located at 100 Cordelia Street, east of the Union Pacific Railroad [UPRR]) between 1920 and 1945. The school was demolished in 2007. During demolition an old bunker heating oil tank was discovered. The tank was located in the northern portion of the former school site, near the corner of Morgan and West Streets, approximately 370 feet north of the proposed water line in Cordelia Street. Leaks from the tank resulted in contamination of soil and shallow groundwater with petroleum hydrocarbons (e.g., diesel, gasoline, motor oil, ethylbenzene, and xylene). The contaminated area was estimated to comprise approximately 300 square feet. Contaminated soil was excavated and removed. Soil and groundwater sampling in 2018 determined that residual contamination levels had dropped below the respective environmental screening levels due to natural attenuation. However, based on the *Site Screening Report and Request for No Further Action* (IMC Geologic Inc. 2018), if subsurface utility work is required there is potential for construction workers to contact contaminants in soil. In addition, construction work during periods of high groundwater elevations could encounter groundwater, and therefore expose construction workers directly via ingestion, vapor inhalation, and contact. Groundwater levels at this site were documented as

shallow as 3–5 feet bgs. The case was closed in 2018. However, land use controls are in place that prevent land use changes or excavation at this hazardous materials site without prior coordination with SWRCB. Because the water line in Cordelia Street would occur in the road right-of-way approximately 370 feet south of the very small contamination area, this site likely does not represent a hazard for the construction of the proposed off-site water pipeline.

Breuner's Manufacturing – 299 Beck Avenue

At the former Breuner's Furniture manufacturing site, located at 299 Beck Avenue approximately 620 feet west of the Project Site and approximately 225 feet north of the proposed off-site sewer pipeline in Beck Avenue (from the south), a limited Phase II soil and groundwater investigation (Ramcon Engineering and Environmental Contracting, Inc. 2015) detected low concentrations of total petroleum hydrocarbons as diesel (TPH-d) and oil (TPH-o) in shallow groundwater adjacent to a former sump within a maintenance building. The leak from the sump occurred, and was remedied, in 1992, and the case was closed in 2015. The 2015 Ramcon investigation found that the contaminated groundwater plume extended approximately 100 feet east from the sump, and the contaminants were present at a very low level. The groundwater plume at the Breuner's site is approximately 100 feet north of the proposed off-site sewer pipeline in Beck Avenue, 520 feet northwest of the proposed Managed Open Space area and approximately 0.5 mile west of the proposed Development Area. Because of the distance from the Project Site and the fact that natural attenuation will continue to occur over time to reduce the already low concentration of contaminants, this site likely does not represent a hazard for the Project Site or excavation associated with the off-site sewer pipeline.

1745 Enterprise Drive

The 1745 Enterprise Drive site, approximately 350 feet north of the Project Site (on the north side of SR 12), has been occupied by various industrial/manufacturing tenants over a period of many years. Bureau Veritas North America (Bureau Veritas 2006) found that groundwater underneath the building was contaminated with TPH-d, and groundwater underneath the building and vacant land to the south was contaminated with various Volatile Organic Compounds (VOCs), all of which exceeded Regional Water Quality Control Board (RWQCB) threshold levels and State Maximum Contaminant Levels (MCLs) for drinking water (Bureau Veritas 2006). The contamination likely originated from spills and leaks associated with a former vapor degreaser and aboveground solvent storage tank, which were removed in 1994. The direction of groundwater flow is to the southeast (towards the Project Site). Because the contaminated groundwater plume was found to extend off the Enterprise Drive property south to the edge of SR 12, and was approximately 375 feet wide, two additional groundwater monitoring wells were installed at the northwest corner of the Project Site in 2009 to delineate the full extent of the contaminated plume (Bureau Veritas 2009a). As shown in Exhibit 4.7-1, the contaminated groundwater plume extends approximately 300 feet south of SR 12 onto the Project Site (Bureau Veritas 2009b). There are two groundwater aquifers present: shallow (at depths ranging from 10 to 25 feet below the ground surface) and deep (at depths ranging from 32 to 46 feet below the ground surface). Concentrations of 1,1-dichloroethene (DCE) in the shallow and deep groundwater plume beneath the Project Site ranged from 0.5 to 6.8 micrograms per liter, respectively. The DCE concentration was slightly above the San Francisco Bay RWQCB threshold level and the MCL for drinking water, which is 6 micrograms per liter (Bureau Veritas 2009b). The concentration of 1,1-dichloroethane (DCA) in the deep groundwater plume beneath the Project Site was 1.6 micrograms per liter, which is below the San Francisco Bay RWQCB and MCL thresholds; DCA was not present in the shallow groundwater aquifer underneath the site (Bureau Veritas 2009b). As a result of continued groundwater monitoring in 2010, Bureau Veritas (2010) found that natural degradation of the VOCs in groundwater was occurring through

the process of abiotic chemical reactions and was likely to continue over time. The two groundwater wells in the northwest corner of the Project Site were abandoned according to San Francisco Bay RWQCB requirements in 2011. The case was closed in 2011, but land use controls in the form of deed restrictions were imposed on the property north of SR 12; the land use controls prohibit a change in land use, and prohibit excavation. Because Project-related excavation, earthmoving, and future land use operation at the Project Site would occur within the plume boundary, construction workers, future employees, and the environment could be exposed to potentially harmful chemicals. Additional detailed information about the contamination from the Enterprise Drive site in relationship to the proposed development at the Project Site, based on an investigation performed by Brusca Associates 2021 at the request of the Project applicant, is provided below in Impact 4.7-3.

Contamination from Railroad Corridors

There are two rail lines that traverse the Project Site (Exhibit 4.7-1), which are owned by Union Pacific and California Northern, respectively. Off-site improvements for new underground water lines would occur adjacent to both rail lines.

According to the Rails-to-Trails Conservancy (2004), the most commonly reported soil contamination along railroad corridors are metals and petroleum products from railroad operations. For example, elevated concentrations of arsenic are common in shallow soils from historical applications of inorganic herbicides and leaching from chemically-preserved railroad ties and/or arsenic-laced slag used as ballast material. Other sources of contaminants associated with historical railroad operations may include coal ash from engines and polynuclear aromatic hydrocarbons (PAHs) from diesel exhaust. The risk of soil contamination is generally greater at railyards and along railroad corridors that are adjacent to industrial areas, where historical loading practices, leaks during material transfers or storage, and repair activities may have contaminated the soil.

Environmental investigations conducted along an existing railroad corridor redeveloped for the Bay Area Rapid Transit (BART) found that soil and ballast materials along the existing railroad corridor were not substantially affected by polychlorinated biphenyls (PCBs), VOCs, semi-volatile organic compounds, or petroleum hydrocarbons (Earthtech, Inc. 2008). However, elevated concentrations of arsenic and lead in the shallow soil and ballast materials were present along much of the existing railroad corridor. These findings are consistent with the common contaminants reported along railroad corridors by the Rails-to-Trails Conservancy (2004). Therefore, elevated concentrations of metals and petroleum hydrocarbons could potentially be present in shallow soil and ballast materials along existing railroad corridors within the Project footprint, which is of particular concern in the western portion of the Project Site where development is proposed adjacent to the California Northern Railroad.

AEI (2006) noted that oils containing PCBs and herbicides are typically associated with weed control activities for railroad tracks. The railroad tracks located on and adjacent to the Project Site and the off-site improvement areas are surrounded by gravel. Based on the presence of gravel, AEI indicated that the use of oils and herbicides associated with weed control is expected to be minimal, and therefore likely does not represent a significant environmental concern. No documented releases on these railroad tracks were noted in the regulatory database search performed by AEI in 2006.

Lead Hazards

Aerially-deposited lead can be present along major roadway corridors. SR 12, which carries high traffic volumes, is adjacent to the northern Project Site boundary and off-site improvements would be made to a portion of SR 12

adjacent to the Project Site (Exhibit 4.7-1). Lead alkyl compounds were first added to gasoline in the 1920s to boost octane levels and improve engine performance. Beginning in 1973, EPA ordered a gradual phase-out of lead from gasoline that substantially reduced the prevalence of leaded gasoline by the mid-1980s. Prior to the 1970s, EPA estimated that vehicles emitted approximately 75 percent of the lead consumed in leaded gasoline as particulate matter in tailpipe exhaust (DTSC 2004). DTSC regulations specify the levels at which lead in soil is considered to be a risk. In areas where road construction will occur, Caltrans has found levels of lead that are higher than DTSC's specifications. The lead is found within 30 feet of the edge of the pavement and within the top 6 inches of the soil. In some cases, lead has been found as deep as 2–3 feet below the surface. Therefore, soils in major roadway corridors have the potential to be contaminated with aerially-deposited lead from car emissions that occurred prior to the elimination of lead in gasoline (DTSC 2016a).

SCHOOLS

The closest K–12 school is Crystal Middle School, located at 400 Whispering Bay Lane in Suisun City, is approximately 0.6 mile east of the Project Site and approximately 0.5 mile east of the off-site improvement area associated with the proposed water line.

AIRPORTS AND AIRSTRIPS

The Project Site is approximately 4.5 miles southwest of Travis Air Force Base (AFB), which is owned and operated by the U.S. Department of Defense and is not open for public use. Travis AFB occupies 6,383 acres (10 square miles). There are two major paved runways that are both approximately 11,000 feet long, and one paved assault strip approximately 3,500 feet long. Travis AFB experienced approximately 63,500 yearly aircraft operations, and an average of 170 daily operations, in 2000. The majority of flights at the airport consist of touch-and-goes. For airport planning purposes, the yearly activity level in 2000 was assumed to potentially double to 127,000 yearly aircraft operations in the future. The airport accommodates a variety of military airplanes, but the primary focus is on C-5 heavy duty transport planes, heavy-duty KC-10 mid-air refueling planes, and the large E-6 Mercury airborne command post and communications relay plane (Solano County Airport Land Use Commission [ALUC] 2002). In addition, the assault landing strip accommodates training operations for the C-17 military transport plane (ALUC 2015).

The Airport Land Use Compatibility Plan (ALUCP) for Travis AFB contains land use safety compatibility criteria that are intended to minimize the risks associated with an off-airport aircraft accident or emergency landing (ALUC 2015). The Project Site and off-site improvements areas are located in land use compatibility Zone D. Compatibility Zone D includes all other locations beneath any of the Travis AFB airspace protection surfaces delineated in accordance with Federal Aviation Regulations (FAR) Part 77 as well as areas subject to frequent aircraft overflight. Limitations on the height of structures (limited to less than 200 feet above the ground surface) and notice of aircraft overflights are the only compatibility factors within this zone.

The ALUCP includes two wildlife hazard zones: the Bird Strike Hazard Zone and the Outer Perimeter, which contain specific development requirements. The Bird Strike Hazard Zone is delineated by a radius 14,500 feet from the runway centerlines. The Outer Perimeter is located 5 miles from the farthest edge of Travis AFB's air operations area, which is the distance the FAA recommends for any hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace. The ALUCP Section 5.8.1 contains the following specific requirements related to wildlife hazards (ALUC 2015):

(b) Outer Perimeter: Outside the Bird Strike Hazard Zone but within the Outer Perimeter, as shown on Figure 4 [of the ALUCP], any new or expanded land use involving discretionary review that has the potential to attract the movement of wildlife and cause bird strikes are required to prepare a wildlife hazard analysis (WHA). Expansion of existing wildlife attractants includes newly created areas and increases in enhanced or restored areas. The WHA must demonstrate wildlife movement that may pose hazards to aircraft in flight will be minimized.

(c) All discretionary projects located within the Bird Strike Hazard Zone and Outer Perimeter are required to consider the potential for the project to attract hazardous wildlife, wildlife movement, or bird strike hazards as part of environmental review process required by CEQA.

The Project Site and the off-site improvement areas are located within the Outer Perimeter.

According to the FAA's wildlife strike database, there were four wildlife strikes reported at Travis Air Force Base from 2000 to 2019; all of the strikes were from birds. One of the strikes resulted in moderate damage to the aircraft; the remainder caused no damage (FAA 2021).

EMERGENCY RESPONSE AND EVACUATION

Solano County Emergency Operations Plan – Base Plan

The Solano County Emergency Operations Plan (Solano County Office of Emergency Services 2017a) addresses the County's planned responses to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. The plan focuses on operational concepts and would be implemented relative to large-scale disasters, which can pose major threats to life, property, and the environment requiring unusual emergency responses.

Solano County Emergency Operations Plan – Evacuation Annex

The Evacuation Annex to the Emergency Operations Plan (Solano County Office of Emergency Services 2017b) provides an overview of evacuation functions, agency roles and responsibilities, and overall guidelines for the evacuation of people from hazardous areas to areas of safety in both incidents with and without warning. It describes the actions, roles, and responsibilities of coordinating and participating organizations, and how the County will endeavor to manage the evacuation process before, during, and after the emergency. The function of the Evacuation Annex is to provide strategies to move large numbers of people out of harm's way in time to avoid being negatively affected by an emergency situation.

Solano County Local Multi-Hazard Mitigation Plan

The County's *Local Multi-Hazard Mitigation Plan* (Solano County Office of Emergency Services 2022) identifies hazard risks and vulnerabilities for the Solano County Operational Area (including the County and the incorporated cities, such as Suisun City) and identifies mitigation projects and actions to help reduce those risks. It also provides for the integration and coordination of planning efforts of multiple jurisdictions within Solano County. The intent of the Hazard Mitigation Plan is to provide the County with a blueprint for hazard mitigation planning to better protect the people and property of the County from the effects of future natural hazard events.

Suisun City Local Hazard Mitigation Plan

The City's *Local Hazard Mitigation Plan* (City of Suisun City 2017) includes planning to develop a sustained course of action that will be taken to reduce or eliminate long-term risk to people and property from both natural and technological hazards and their effects. The planning process includes establishing goals and recommendations for hazard mitigation strategies, an evaluation of hazard impacts, and identification of actions to minimize or eliminate the impact. The plan is intended to integrate hazard mitigation strategies into the day-to-day activities and programs of the City. The plan identifies and evaluates specific strategies to be considered by the City of Suisun City and its agencies. It serves as a jurisdiction-wide support document as well as a steering support tool for those local subdivisions, agencies, departments, special districts, and organizations.

WILDFIRE

Fire prevention areas considered to be under state jurisdiction are referred to "state responsibility areas" or SRAs, and the California Department of Forestry and Fire Protection (CAL FIRE) is responsible for vegetation fires within SRA lands.[3] In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, and grass, whether of commercial value or not, that provide watershed protection for irrigation or for domestic or industrial use; or lands in areas that are principally used, or are useful for, range or forage purposes.

Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189 require identification of fire hazard severity zones within the State of California. Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire's tendency to burn upward into trees and tall brush), and ember production and movement within the area in question. In SRAs, CAL FIRE is required to delineate three wildfire hazard ranges: moderate, high, and very high. The Project Site is not within or near a SRA. The nearest SRA to the Project Site is the Rockville Hills Regional Park, located approximately 4 miles west of the Project Site, which is classified as a moderate fire hazard severity zone (CAL FIRE 2022).

CAL FIRE identifies only very high fire hazard severity zones in "local responsibility areas" (LRAs), which are areas under the jurisdiction of local entities (e.g., cities and counties). The Project Site is in a LRA where the City of Suisun City Fire Department provides fire protection services (see Section 4.15, "Public Services and Recreation," for further discussion of the City of Suisun City Fire Department). There are no very high fire hazard severity zones in or near Suisun City. The nearest very high fire hazard severity zone to the Project Site within an LRA is within the city of Martinez, located approximately 15 miles south of the Project Site in Contra Costa County (CAL FIRE 2022).

4.7.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

U.S. Environmental Protection Agency

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by USEPA for the regulation of the generation, transportation,

3 California Public Resources Code Sections 4125–4127 define a State Responsibility Area as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the State of California.

treatment, storage, and disposal of hazardous waste. The RCRA was amended in 1984 by the Hazardous and Solid Waste Act, 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 Hazardous and Solid Waste 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 waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; 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. The National Contingency Plan provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The National Contingency Plan also established the National Priorities List, which is a list of contaminated sites warranting further investigation by the USEPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Emergency Planning and Community Right-To-Know Act

The Emergency Planning Community Right-to-Know Act of 1986 was included under the Superfund Amendments and Reauthorization Act (SARA) law and is commonly referred to as SARA Title III. The Act was passed in response to concerns regarding the environmental and safety hazards proposed by the storage and handling of toxic chemicals. The Act establishes requirements for federal, state, and local governments, Indian Tribes, and industry regarding emergency planning and Community Right-to-Know reporting on hazardous and toxic chemicals. SARA Title III requires states and local emergency planning groups to develop community emergency response plans for protection from a list of Extremely Hazardous Substances (40 Code of Federal Regulations [CFR] Appendix B). The Community Right-to-Know provisions help increase the public's knowledge of and access to information on chemicals at individual facilities, their uses, and their release into the environment.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act (HMTA) of 1975 was created to provide adequate protection from the risks to life and property related to the transportation of hazardous materials in commerce by improving regulatory enforcement authority of the Secretary of Transportation.

Occupational Safety and Health Administration

The Occupational Safety and Health Administration is the federal agency responsible for enforcing and implementing federal laws and regulations pertaining to worker health and safety. The administration's Hazardous Waste Operations and Emergency Response regulations require training and medical supervision for workers at hazardous waste sites (29 CFR Section 1910.120). Additional regulations have been developed regarding exposure to lead (29 CFR Section 1926.62) and asbestos (29 CFR Section 1926.1101) to protect construction workers.

Federal Aviation Regulations, Part 77

FAR (U.S. Code Title 14) Part 77, "Safe, Efficient Use, and Preservation of the Navigable Airspace" has been adopted as a means of monitoring and protecting the airspace required for safe operation of aircraft and airports. Part 77 recognizes that certain safety hazards to aircraft and airport operations may occur where a land use would:

- exceed certain specified height limits
- attract large concentrations of birds within approach/climb out areas,
- produce smoke or flashing lights,
- reflect light or generate electronic interference, or
- use or store large quantities of flammable materials.

Part 77 establishes the following:

- the requirements to provide notice to the FAA of certain proposed construction activities, or the alteration of existing structures;

- the standards used to determine obstructions to air navigation, and navigational and communication facilities; and

- the process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities, or equipment.

Objects that exceed certain specified height limits constitute airspace obstructions. FAR Section 77.9 requires that the FAA be notified of proposed construction or alteration of certain objects within a specified distance from an airport, among them the following:

- construction or alteration of more than 200 feet in height above the ground level at its site; or

- construction or alteration of greater height than an imaginary surface extending outward and upward at [a slope of] 100 to 1 for a horizontal distance of 20,000 feet from the nearest point of the nearest runway of each [public-use airport, public-use airport under construction, or military airport] with at least one runway more than 3,200 feet in actual length, excluding heliports.

However, notice does not need to be filed with the FAA for construction of any object that would be shielded by existing permanent, substantial structures or by natural terrain or topographic features of equal or greater height, and that would be located in the congested area of a city, town, or settlement where the shielded structure would not adversely affect air navigation safety.

Federal Aviation Administration Advisory Circular 150/5200-33C (Hazardous Wildlife Attractants)

The FAA's Advisory Circular 150/5200-33C provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near airports, including large detention/retention ponds and certain conservation-based land uses, which can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. Advisory Circular 150/5200-33C

provides airport operators and those parties with whom they cooperate with guidance to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near airports (FAA 2020).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Environmental Protection Agency

The California Environmental Protection Agency (CalEPA) was established in 1972 by the State of California to establish a cabinet-level voice for the protection of human health and the environment and to assure the coordinated deployment of state resources. CalEPA administers and enforces many of the laws, rules, and regulations promulgated by USEPA. CalEPA also oversees various other state agencies involved with hazardous materials regulation and cleanup, including DTSC, California Department of Pesticide Regulation (DPR), and SWRCB.

California Department of Toxic Substances Control

The DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport and disposal of hazardous waste under the authority of the Hazardous Waste Control Law. Since August 1, 1992, DTSC has been authorized to implement the state's hazardous waste management program for CalEPA.

State Water Resources Control Board

The SWRCB was established in 1967. The Central Valley RWQCB is authorized by the SWRCB to enforce provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the Central Valley RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the state is threatened and to require remediation of the site, if necessary.

California Occupational Safety and Health Administration

California Occupational Safety and Health Administration (CalOSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within California. Regulations pertaining to the use of hazardous materials in the workplace (Title 8 of the California Code of Regulations [CCR]) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and preparation of emergency action and fire prevention plans. CalOSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous-waste sites. The hazard communication program requires that employers make Safety Data Sheets available to employees, and requires documentation of informational and training programs for employees.

The CalOSHA regulations also include requirements for protective clothing, training, and limits on exposure to hazardous materials. CalOSHA also enforces occupational health and safety regulations specific to lead and asbestos investigation and abatement. These regulations equal or exceed their federal counterparts. Specific

worker safety measures for excavation hazards (e.g., falling or cave-in of excavation walls) are described in the Title 8 CCR Section 1541.

Senate Bill (SB) 1082 – California Environmental Protection Agency's Unified Program

In 1993, Senate Bill 1082 gave CalEPA the authority and responsibility to establish a unified hazardous waste and hazardous materials management and regulatory program, commonly referred to as the Unified Program. The purpose of this program is to consolidate and coordinate six different hazardous materials and hazardous waste programs, and to ensure that they are consistently implemented throughout the state. The Unified Program is overseen by CalEPA with support from DTSC, RWQCBs, the Office of Emergency Services (OES), and the State Fire Marshal. The six programs are:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act Program
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

State law requires county and local agencies to implement the Unified Program. The agency in charge of implementing the program is called the Certified Unified Program Agency (CUPA). The Solano County Department of Resource Management, Environmental Health Services is the designated CUPA for the county. In addition to the CUPA, other local agencies, such as the City of Suisun City, help to implement the Unified Program.

Cortese List, California Government Code Section 65962.5

The provisions of Section 65962.5 of the California Government Code 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's requirement to provide information about the location of hazardous-materials release sites. Government Code Section 65962.5 requires CalEPA to develop an updated Cortese List at least annually. DTSC and SWRCB are responsible for most of the information contained on the Cortese List. Other state and local government agencies, including the RWQCBs and local cities and counties, are also required to provide additional information for the Cortese List about releases of hazardous materials.

In addition, Section 65962.5 requires all project applicants to consult the Cortese List and determine whether any site-specific project is within a hazardous materials site on the list. If so, the project applicant is required to notify the lead agency in writing prior to the issuance of a building permit, so the lead agency can determine the appropriate course of action (which generally includes environmental site assessments and site-specific remediation).

AB 2185 and AB 2189, Hazardous Materials Business Emergency Response Plan Program, CA Health and Safety Code Chapter 6.95

The State of California requires an owner or operator of a facility to complete and submit a Hazardous Materials Business Plan (HMBP) to the Governor's Office of Emergency Services if the facility handles a hazardous material or mixture containing a hazardous material in amounts greater than specified threshold quantities. Yolo County Environmental Health is responsible for the implementation of the HMBP program in Yolo County.

Chapter 6.95, Section 25505 of the California Health & Safety Code requires any business that handles and/or stores a hazardous material or a mixture containing a hazardous material to establish and implement a HMBP that provides emergency plans procedures that the business will follow in the event of a release or threatened release of a hazardous material, if the business handles hazardous materials in the following "reportable" quantities:

1. Equal to or greater than 500 pounds, 55 gallons, or 200 cubic feet of gas (gas calculated at standard temperature and pressure).

2. Equal to or greater than the applicable federal threshold planning quantity for an extremely hazardous substance listed in Appendix A, Part 355, Title 40, of the Code of Federal Regulations.

3. Radioactive materials that are handled in quantities for which an emergency plan is required to be adopted pursuant to Part 30 (commencing with Section 30.1), Part 40 (commencing with Section 40.1), or Part 70 (commencing with Section 70.1), of Chapter 10 of Title 10 of the Code of Federal Regulations (54 Federal Register 14051), or pursuant to any regulations adopted by the state in accordance with those regulations.

The HMBP is also required to include an inventory of hazardous materials used at the business, site plan showing hazardous material storage areas and ingress and egress points for emergency vehicles, and documentation of employee training in the safe handling of hazardous materials.

Airport Land Use Commissions

The State regulates airports under the authority of the Airport Land Use Commission Law, Section 21670 et seq. of the California Public Utilities Code. This law is implemented through individual ALUCs, which are required in every county with a public-use airport or with an airport served by a scheduled airline. Under the provisions of the law, each ALUC has certain responsibilities conferred upon it and specific duties to perform. Among these are preparing an airport land use plan for each airport within its jurisdiction (California Public Utilities Code Sections 21674[c] and 21675[a]). See below under Regional and Local Plans, Policies, Regulations, and Ordinances for information regarding the relevant ALUCP adopted by the Solano County ALUC.

Petroleum Pipelines

Petroleum pipelines have been subject to pipeline safety and maintenance regulations since 1979, including the federal Hazardous Liquid Pipeline Safety Act (49 Code of Federal Regulations Section 195.412) and state regulations (California Government Code Sections 51010–51019.1). These regulations require that petroleum pipelines be designed with equipment, such as low-pressure alarms and safety shut-down devices, to minimize spill volume in the event of a leak.

Hazardous Materials Transport

Statutory requirements governing hazardous waste transportation in California are contained in the California Health and Safety Code, Division 20, Chapter 6.5, Articles 6.5, 6.6, and 13. Hazardous waste transporters must have a valid registration permit issued by DTSC. In addition, hazardous waste transporters must comply with a variety of other State and federal regulations, including the California Vehicle Code (CCR Title 13); California State Fire Marshal Regulations (CCR Title 19); U.S. Department of Transportation regulations (Title 49 Code of Federal Regulations); and EPA regulations (Title 40 Code of Federal Regulations).

The California Highway Patrol, Caltrans, and DTSC are responsible for enforcing federal and State regulations pertaining to the transport of hazardous materials. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill); the transporter is also responsible for cleanup (22 Cal. Code Regs. Section 66260.10 et seq.).

In addition, Caltrans has its own internal procedures and specifications related to hazardous materials that are implemented at all Caltrans projects. In particular, the *Standard Plans and Specifications* (Caltrans 2022), Section 14-11, contains the specifications related to hazardous waste and contamination. Section 14-11 contains the procedures to be followed for asbestos, lead-based paint, and aerially-deposited lead and other soil contamination.

Regional and Local Plans, Policies, Regulations, and Ordinances

Travis Air Force Base Land Use Compatibility Plan

The most recent ALUCP for Travis AFB was adopted in 2015 by the Solano County ALUC. The ALUCP depicts the areas where height restrictions are in effect to ensure that objects will not impair flight safety or decrease the operational capability of the airport. The ALUCP also describes the airport safety zones and compatible land uses allowed within each zone. The Solano County ALUC has adopted FAR Part 77, “Safe, Efficient Use, and Preservation of the Navigable Airspace” (see the description of federal airspace safety regulations, above) for protection of persons in the air and on the ground related to airport safety. Section 5.8 of the ALUCP addresses Wildlife Hazards, including the requirement to prepare a Wildlife Hazard Assessment for new or expanded land uses involving discretionary review, which are located within 5 miles of the Travis AFB, and have the potential to attract wildlife and/or cause bird strikes.

Solano County Environmental Health Services

The Solano County Department of Resource Management, Environmental Health Services Division (2022) serves as the local CUPA, and regulates hazardous waste, aboveground petroleum storage and risk management plans, hazardous materials business plans and chemical inventories, risk management plans, and underground storage tanks. The Suisun City Fire Department works cooperatively with the Solano County Environmental Health Services Division to regulate hazardous materials in the City.

Solano County General Plan

The Solano County General Plan Health and Safety Element (Solano County 2015) does not contain any policies related to hazards and hazardous materials that are applicable to the proposed Project.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015) includes the following policies and program related to hazards and hazardous materials that apply to the proposed Project.

Public Health and Safety Element

- **Policy PHS-10.1:** The City will assess risks associated with public investments and other City-initiated actions, and new private developments shall assess and mitigate hazardous materials risks and ensure safe handling, storage, and movement in compliance with local, state, and federal safety standards.
- **Policy PHS-10.2:** The City will protect property and life from disaster by implementing the Local Hazard Mitigation Plan.
- **Policy PHS-10.3:** The City will require that sites containing hazardous materials or waste be remediated in conformance with applicable federal and state standards prior to new development or adaptive reuse projects that could be substantially and adversely affected by the presence of such contamination.
- **Policy PHS-10.5:** The City will require that large quantities of hazardous materials be securely contained in a manner that minimizes risk until they can be transported off-site and neutralized to a nonhazardous state and appropriately disposed.
- **Policy PHS-10.8:** The City will require that dedicated pipeline rights-of-way be permanently protected from construction encroachment, particularly in areas where high-pressure pipelines adjoin developable properties.
    - **Program PHS-10.2 Hazardous Materials Business Plans**. Businesses shall submit their Hazardous Materials Business Plans (HMBP) to the City and the Solano County Environmental Health Services Division for approval prior to issuance of a building permit, occupancy permit, or business license within Suisun City, unless the business obtains an exemption from the Health Services Division.

4.7.3 Environmental Impacts and Mitigation Measures

Methodology

Evaluation of potential impacts related to hazards and hazardous materials was based on a review of documents pertaining to the Project Site, including a Phase 1 ESA prepared by Bole and Associates (2020); a Phase I ESA prepared by AEI Consultants (2006); a Groundwater and Soil Gas Report prepared by Brusca Associates (2021); and a review of publicly available databases maintained by SWRCB, DTSC, EPA, and PHMSA.

The information obtained from these sources was reviewed and summarized to document existing conditions and to identify the potential environmental effects of the proposed Project.

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to hazards and hazardous materials if it would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to wildfire if it would be located in or near state responsibility areas or lands classified as very high fire hazard severity zones and would:

- substantially impair an adopted emergency response plan or emergency evacuation plan;
- due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

ISSUES NOT DISCUSSED FURTHER

Result in Hazardous Emissions within One-Quarter Mile of a School—There are no K–12 schools within 0.25 mile of the Project Site or the off-site improvement areas. Thus, there would be **no impact**, and this issue is not addressed further in this EIR.

Impacts Associated with Wildfires. Appendix G of the CEQA Guidelines determines wildfire impacts based on whether a proposed project would occur within or near a state responsibility area or on lands classified as very high fire hazard severity zones. The Project Site is not within or near a SRA. The nearest SRA to the Project Site

is the Rockville Hills Regional Park, located approximately 4 miles west of the Project Site. The Project Site is in a LRA where the City of Suisun City Fire Department provides fire protection services. There are no very high fire hazard severity zones in Solano County. The nearest very high fire hazard severity zone to the Project Site is within the city of Martinez, located approximately 15 miles south of the Project Site in Contra Costa County. Thus, there would be **no impact** related to wildfire based on CEQA Guidelines, and this issue is not addressed further in this EIR.

IMPACT ANALYSIS

Impact 4.7-1 Routine Transport, Use, or Disposal of Hazardous Materials. *The routine transport, use, or disposal of minor quantities of hazardous materials used during construction or operational activities would not create a significant hazard to the public or the environment, because compliance is required with applicable rules and regulations 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 through local Hazard Mitigation Plans and emergency operations planning. This impact would be* ***less than significant****.*

Construction of the proposed facilities associated with the logistics center at the Project Site, along with the off-site improvements, would involve the routine storage, use, transport, and disposal of small quantities of hazardous materials such as fuels, oils and lubricants, paints and paint thinners, glues, and cleaning fluids (e.g., solvents). In addition, operation of the logistics center would require the routine use, transport, and disposal of hazardous material and waste and may increase exposure to risk of hazards.

Federal and State regulations require adherence to specific guidelines regarding the use, transport, disposal, and accidental release of hazardous materials, as described in the "Regulatory Framework" section above. The U.S. EPA is responsible for administering the Federal Toxic Substances Control Act and RCRA, which regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. The Solano County Department of Resource Management, Environmental Health Services Division is the CUPA for the County and is responsible for implementing hazardous waste and materials State standards, including preparation of Hazardous Materials Business Program, California Accidental Release Prevention Program, and managing hazardous material storage tanks. Caltrans and the California Highway Patrol regulate and manage routine transport of hazardous materials on SR 12. The Suisun City Fire Department works cooperatively with the Solano County Environmental Health Services Division to regulate hazardous materials in the city and to respond to local hazardous materials emergencies.

The construction contractor, along with future industrial and commercial tenants, are required by law to comply with the provisions of the California Hazardous Materials Regulations and other federal, State, and local regulations and requirements discussed in the "Regulatory Framework" section above, including preparation of a Hazardous Material Business Plan. Design and construction of the SR 12 improvements would be regulated by Caltrans, and hazardous materials at Caltrans projects are addressed in their *Standard Specifications* (Caltrans 2022). Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.7-2 Exposure to Hazardous Materials from Upset and Accident Conditions. *Development of the proposed Project would not 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 because the Project would comply with federal, State, and local laws, regulations, and policies that are specifically intended to reduce the potential for release of hazardous materials. Therefore, this impact would be* ***less than significant.***

The proposed uses at the Project Site would not generate potentially hazardous materials, and would not involve the use, handling, or storage of large quantities of hazardous materials. Compliance with federal, State, and regional/local regulations, which are presented in detail in the "Regulatory Framework" section above, would reduce the risk or severity of an accident from Project construction and operation. For example, federal regulations such as RCRA, CERCLA, the Clean Air Act, SARA Title III, and OSHA. In addition, State regulations enforced by CalEPA, CalOSHA, SB 1082 (Unified Program), AB 2185 and AB 2189 (Hazardous Materials Business Emergency Response Plan Program); and State, County, and Suisun City Local Hazard Mitigation Plans are all designed to reduce the risk of hazardous materials release from upset and accident conditions. The Solano County Emergency Operations Plan and Evacuation Annex, of which Suisun City is a participant, provide the necessary coordination among emergency providers and procedures to be implemented to safeguard the public in the event of an emergency situation (Suisun City General Plan Policy PHS-10.2). Compliance with these regulations, along with the requirements of the Solano County Environmental Health Services Division (the local CUPA) and policies in the Suisun City General Plan, would reduce the risk of accidental hazardous materials release from Project construction and operation to a **less-than-significant** level.

Mitigation Measures

No mitigation measures are required.

Impact 4.7-3 Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites. *Development of the proposed Project could expose people and the environment to existing hazards and hazardous materials from development in a Cortese-listed site, leachate from a former landfill, accidental rupture of underground pipelines, chemicals from railroad tracks, and aerially deposited lead potentially disturbed by proposed SR 12 roadway improvements. This impact is considered* ***potentially significant.***

Aerially-Deposited Lead

The proposed Project includes off-site roadway widening of SR 12 along the northern property boundary to create turn lanes for the Project entry at Pennsylvania Avenue. Until the mid-1980s, gasoline and other fuels contained lead as an additive. As each motor vehicle traveled the highways, tiny particles of lead were emitted in the exhaust and settled on the soils next to the roadways. Most of the time, lead tends not to move very far or very fast in the environment. Over the years, lead built up alongside the roadways that carry high traffic volumes. The off-site Caltrans highway-widening necessary for the proposed Project would disturb the soils, some of which contain lead. DTSC regulations specify at what levels lead in soil is considered to be a risk. In areas where road construction would occur, Caltrans has found levels of lead that are higher than DTSC's specifications; the lead is found within 30 feet of the edge of the pavement and within the top 6 inches of the soil. In some cases, the lead is as deep as 2 to 3 feet below the surface. Lead is toxic and it is present everywhere in the environment, most often at very low levels. If lead gets into the human body above certain levels, it can cause damage to the nervous system or blood cells; lead must enter the bloodstream to be harmful (DTSC 2016a). In 2016, Caltrans entered into an agreement with DTSC to ensure the safe reuse of soils contaminated with aerially-deposited lead during construction of

highway projects. The agreement requires Caltrans to sample and test soils for lead content, place a certain volume of cover material on top of the soils when the lead content is above specified levels, place the soils only in areas that are at least 5 feet above the maximum water table elevation, cover lead-containing soil stockpiles with plastic until the soil is reused, and properly dispose of excavated soils that are not reused (DTSC 2016a). The developer is required to comply with required setback distances from SR 12 as part of the Project design. With the required setbacks, construction and operation as proposed by the developer would not be likely to encounter soils contaminated with aerially-deposited lead. Because Caltrans is required to implement the conditions of the *Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils* (DTSC 2016b) per California Health and Safety Code 25187(b)(5), impacts from human health and environmental exposure to aerially-deposited lead at the off-site SR 12 improvements are considered **less than significant**.

Enterprise Drive Groundwater Plume and Former Pennsylvania Avenue Landfill

Based on a search of hazardous waste databases maintained by the SWRCB and DTSC, the northwestern corner of the Project Site (APN 0032-010-390) is within an area affected by a closed Cleanup Program Site. As discussed in detail in the "Environmental Setting" subsection above, a contaminated groundwater plume was found to be emanating from a former vapor degreaser and aboveground solvent storage tank located at 1745 Enterprise Drive, north of SR 12. Both the shallow and deep groundwater aquifers were found to be contaminated with a variety of VOCs. The full extent of the contaminated groundwater plume was delineated in 2009, after two groundwater monitoring wells were installed at the northwest corner of the Project Site. Samples obtained from those wells in 2009 found that DCE in the shallow and deep groundwater plume beneath the Project Site ranged from 0.5 to 6.8 micrograms per liter, respectively. The DCE concentration was slightly above the San Francisco Bay RWQCB threshold level and the MCL for drinking water (Bureau Veritas 2009b). The concentration of DCA in the deep groundwater plume beneath the Project Site was below the San Francisco Bay RWQCB and MCL thresholds; DCA was not present in the shallow groundwater aquifer underneath the site (Bureau Veritas 2009b). As a result of continued groundwater monitoring in 2010, Bureau Veritas (2010) found that natural degradation of the VOCs in groundwater was occurring through the process of abiotic chemical reactions and was likely to continue over time. The two groundwater wells in the northwestern corner of the Project Site were abandoned according to RWQCB requirements in 2011. The case was closed in 2011, but land use controls in the form of deed restrictions were imposed on the property north of SR 12 (off the Project Site); the land use controls prohibit a change in land use and prohibit excavation (which could encounter contaminated groundwater).

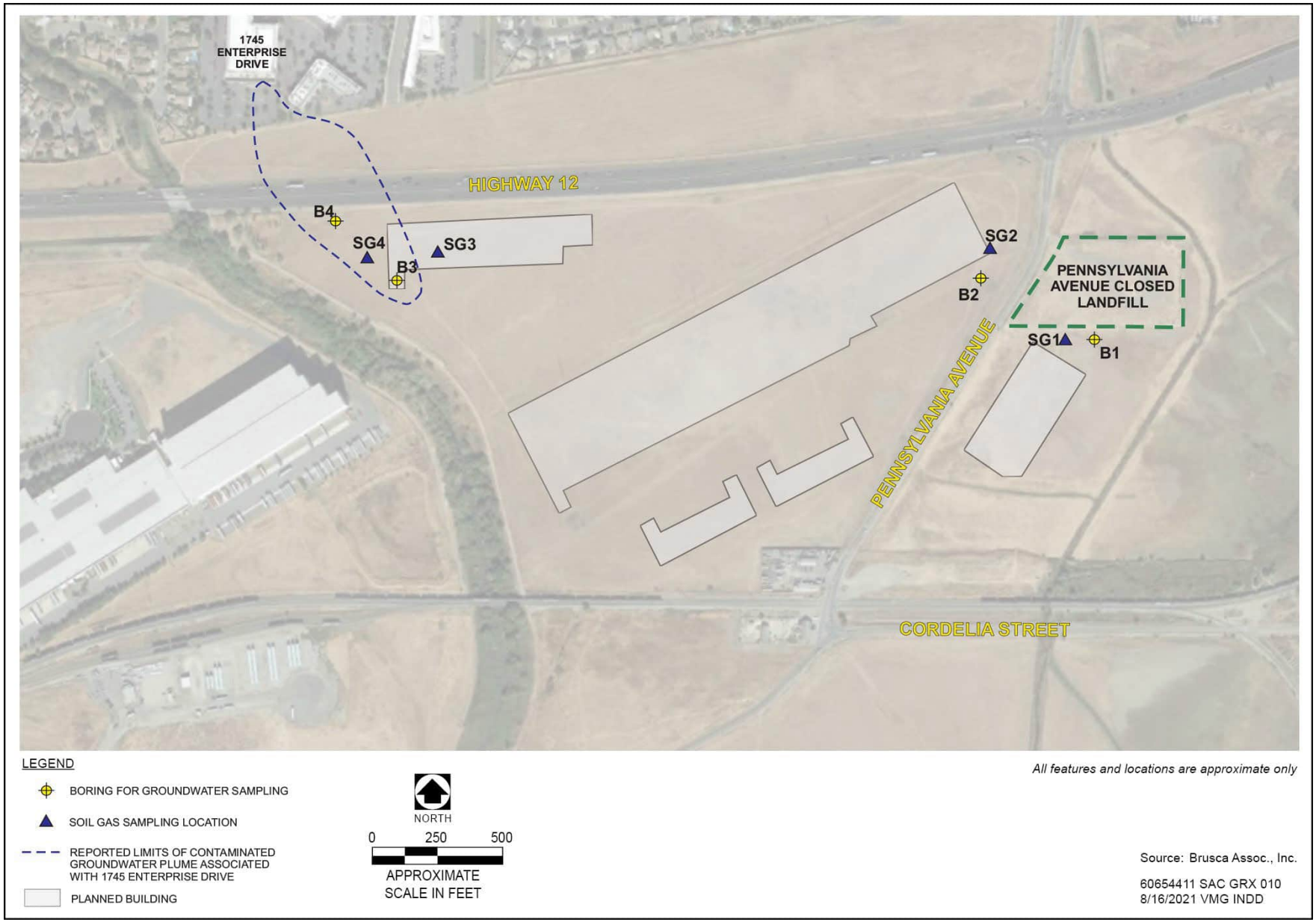
The Project Site has a shallow groundwater table; the depth to groundwater in 2009 was approximately 8.5 above mean sea level (approximately 2.5 feet below the ground surface). The depth to groundwater in the Project area fluctuates on a seasonal basis, rising during the winter rainy season and falling during the dry summer months. As part of the geotechnical report prepared for the Project Site, MPE (2020) found that the depth to groundwater at the soil boring closest to the groundwater plume was 7.5 feet below the ground surface. MPE also found that Project Site soils are composed primarily of water-saturated clay, and that seasonal flooding of groundwater above the proposed below-grade loading docks may be possible.

The former Fairfield City Dump (also referred to as the Cordelia Road Landfill or Pennsylvania Avenue Landfill) is adjacent to proposed development within the Project Site. This approximately 5-acre parcel (APN 0032-020-040) is east of Pennsylvania Avenue and approximately 400 feet south of SR 12 (see Exhibit 4.7-1). The proposed Building G and a stormwater retention basin would be located immediately adjacent to the former landfill to the south, and the proposed Building BC and another stormwater retention basin would be located on the west side of

Pennsylvania Avenue approximately 75 feet west of the former landfill. Although no evidence exists that hazardous materials were ever disposed of at the former landfill, landfills are commonly recognized sources of leachate. Leachate is the liquid produced when water percolates through any permeable material; it can contain either dissolved or suspended material, or frequently both. This liquid is most commonly found in association with landfills as a result of rain percolating through the waste and reacting with the products of decomposition, chemicals, and other materials. If the landfill has no leachate collection system, the leachate can enter groundwater, and this can pose environmental or health problems as a result.

Due to the shallow groundwater table that is present during the winter rainy season, construction dewatering during the winter may be necessary. Therefore, excavation and earthmoving activities at the Project Site associated with the west end of proposed Building A and the adjacent parking area to the west could encounter contaminated groundwater associated with the plume emanating from 1745 Enterprise Drive. Furthermore, depending on the level of contaminants in the groundwater, chemicals could migrate through the soil and volatilize as gas inside the proposed buildings, representing a human health hazard for future workers inside building A. Finally, as a result of leachate movement through the soil and shallow groundwater, both soil and groundwater underneath the proposed development in the areas immediately south and west of the former landfill could be contaminated with potentially harmful chemicals, representing a potential hazard to construction workers from direct contact, an indoor air quality hazard for future workers inside buildings G and BC, and a potential for additional groundwater contamination from migration through the proposed unlined stormwater retention ponds immediately south and west of the former landfill.

In order to investigate the potential human health and environmental hazards, Brusca Associates, Inc. was retained by the Project applicant to prepare a Groundwater and Soil Gas Investigation (Brusca Associates 2021). As part of the investigation, Brusca Associates collected two groundwater and two soil gas samples from locations at the Project Site associated with the contaminated groundwater plume emanating from 1745 Enterprise Drive, and from the former Pennsylvania Avenue landfill (see Exhibit 4.7-2). The results of laboratory analyses from the groundwater and soil gas samples are presented in Table 4.7-1 and Table 4.7-2, respectively. As shown in Table 4.7-1, the groundwater samples collected from Borings B1 and B2—near the former Pennsylvania Avenue landfill—did not contain VOCs, semi-VOCs, PCBs, or petroleum hydrocarbons at concentrations above the laboratory reporting limits. Several heavy metals were detected at concentrations above the laboratory reporting limits in the groundwater samples collected near the former landfill: barium, cobalt, molybdenum, nickel, and zinc. However, in general, the detected concentrations of these metals in groundwater are considered low. None of the detected metals concentrations exceeds California MCLs for drinking water, except for nickel as detected in groundwater sample B2 (120 micrograms per liter [µg/L]), which slightly exceeds the MCL value of 100 µg/L. Brusca Associates (2021) noted that similar slightly elevated levels of nickel in groundwater in the region have been found to be naturally occurring. As shown in Table 4.7-2, the soil gas samples collected from SG1 and SG2—near the former Pennsylvania Avenue landfill—did contain some VOCs, and fixed gases (such as methane), but the concentrations were below San Francisco Bay RWQCB Environmental Screening Levels (ESLs) for commercial/industrial uses. Because the proposed Project would not use on-site groundwater as a source of drinking water, the slightly elevated level of nickel on the west side of the former landfill would not represent a human health hazard, and is not high enough to require treatment during construction dewatering. Furthermore, since the nickel is present at a low level and is likely naturally occurring, use of this area for an unlined stormwater detention pond would not represent a substantial degradation of groundwater quality from surface water percolation. Finally, because the soil gas concentrations were all below the respective ESLs, Project-related excavation would not represent a human health hazard from direct contact, and would not



Source: Brusca Associates, Inc. 2021

Exhibit 4.7-2. Groundwater and Soil Gas Sampling Locations

Table 4.7-1. Groundwater Analysis Results

Sample ID	Petroleum Hydrocarbons			Volatile OrganicCompounds (VOCs)			Semi VOCs	Polychlorinated Biphenyls	Metals					
	Gasoline Range	Diesel Range	Motor Oil Range	1,1-Dichloroethane	1,1-Dichloroethene	Other VOCs			Barium	Cobalt	Molybdenum	Nickel	Zinc	Other Metals
B1	ND	ND	ND	ND	ND	ND	ND	ND	450	110	24	50	260	ND
B2	ND	ND	ND	ND	ND	ND	ND	ND	770	210	21	120	240	ND
B3	NT	NT	NT	1.0	5.5	ND	NT	NT	NT	NT	NT	NT	NT	NT
B4	NT	NT	NT	ND	1.9	ND	NT	NT	NT	NT	NT	NT	NT	NT
SCREENING LEVELS														
California Maximum Contaminant Level (MCL)	N/A	N/A	N/A	5.0	6.0				1,000	N/A	N/A	100	N/A	

Notes:

N/A = MCL not established.

ND = Not detected at a concentration above the laboratory reporting limit;

NT = Not tested;

All concentrations expressed in micrograms per liter (µg/L)

Source: Brusca Associates, Inc. 2021

Table 4.7-2. Soil Gas Analysis Results

Sample ID	Depth (feet)	Volatile Organic Compounds (VOCs)																			Fixed Gases		
		Acetone	Isopropyl alcohol	Carbon Disulfide	Hexane	Tetrahydrofuran	2-Butanone (Methyl Ethyl Ketone)	Methyl isobutyl ketone	Chloroform	Cyclohexane	Benzene	Trichloroethene (TCE)	Heptane	Toluene	Tetrachloroethene (PCE)	Ethylbenzene	Xylenes	Styrene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Other VOCs	Oxygen	Nitrogen	Methane
SG1	5	**100**	ND	**5.1**	**8.3**	ND	**33**	ND	**13**	ND	**4.1**	ND	**5.8**	**30**	**21**	**8.6**	**46**	ND	ND	**17**	ND	**20.9**	**78.4**	ND
SG2	5	**400**	ND	ND	**71**	ND	**230**	**47**	ND	**5.1**	ND	ND	**5.5**	**120**	ND	**7.5**	**37**	ND	**9.3**	**28**	ND	**19.4**	**77.7**	ND
SG3	5	**710**	**40**	ND	**6.2**	**6.2**	**230**	ND	ND	ND	**3.9**	ND	ND	**16**	ND	**4.9**	**25**	ND	ND	**14**	ND	NT	NT	ND
SG4	5	**820**	**38**	ND	**5.4**	ND	**390**	**46**	**5.2**	ND	**9.4**	**16**	ND	**62**	**110**	**13**	**36**	**9.8**	ND	**15**	ND	NT	NT	ND
AGENCY SCREENING VALUES																								
Environmental Screening Level, Commercial/ Industrial [1]		4,500,000	N/A	N/A	N/A	N/A	730,000	440,000	18	N/A	14	100	N/A	44,000	67	160	15,000	130,000	N/A	N/A				

Notes:

ND = Not detected at a concentration above the laboratory reporting limit;

NT = Not tested;

N/A = ESL value not published.

VOC concentrations expressed in micrograms per cubic meter (µg/m^3). Concentration of fixed gasses expressed in percent (%).

[1] San Francisco Bay Regional Water Quality Control Board, July 2019.

Source: Brusca Associates, Inc. 2021

represent an indoor air quality issue for future workers in the proposed buildings. Therefore, hazardous materials impacts from the former Pennsylvania Avenue landfill would be **less than significant**.

As also shown in Table 4.7-1, the groundwater samples collected from Borings B3 and B4—within the on-site portion of the groundwater plume emanating from Enterprise Drive—contained low levels of DCE and DCA, which were among the primary chemicals of concern (COCs) detected during the original work associated with remediation of the groundwater plume. However, the concentrations of both these chemicals in the plume underneath the Project Site, as tested in 2021, were below California MCLs. Additionally, the detected concentrations of DCE and DCA in on-site groundwater did not exceed San Francisco Bay RWQCB screening values for indoor air vapor intrusion. As shown in Table 4.7-2, the soil gas samples collected from SG3 and SG4—at the Project Site within and adjacent to the groundwater plume emanating from Enterprise Drive—did contain some VOCs; however, all but one of the concentrations were below San Francisco Bay RWQCB ESLs for commercial/industrial uses. The concentration of tetrachloroethene (PCE) detected in sample SG4 (110 micrograms per cubic meter [µg/m^3]) slightly exceeds the ESL value of 67 µg/m^3. However, Brusca Associates (2021) noted that the SG4 soil gas sample was collected at a location outside of the footprint of the planned Building A on the northwesterly portion of the site, and that the SG3 sample collected beneath the planned Building A footprint area did not contain PCE at a concentration above the ESL value. Furthermore, Brusca Associates (2021) also noted that the referenced ESL values for indoor air vapor intrusion were developed utilizing a default attenuation factor of 0.03, which generally is applicable to buildings constructed over a 4-inch-thick concrete slab. Given the nature of the planned buildings at the subject site, it is likely that the buildings would have floor slabs with a thickness of approximately 6 inches. As such, the cited ESL values likely are excessively conservative for the planned buildings. Therefore, the very low concentrations of DCE, DCA, and PCE at the Project Site in the area of the contaminated groundwater plume emanating from Enterprise Drive would not represent a human health hazard from direct contact or indoor air quality, or an environmental hazard from construction dewatering, and this impact is considered **less than significant.**

Underground Pipelines

Several major high-pressure pipelines containing natural gas and jet fuel, owned by Kinder Morgan and Pacific Gas & Electric Company (PG&E), traverse the Project Site and the off-site improvement areas (see Exhibit 4.7-1). In addition, a 36-inch water transmission main owned by the City of Vallejo traverses the Project Site, and other buried underground utility lines may be present at the Project Site such as stormwater, sewer, electrical, or communication cables. Suisun City General Plan Policy 10.8 requires that dedicated pipeline rights-of-way be permanently protected from construction encroachment, particularly in areas where high-pressure pipelines adjoin developable properties. A review of the PHMSA (2021) Pipeline Map Viewer indicated there have been no recorded pipeline releases within 12 miles of the Project Site, and AEI (2006) noted that the Kinder Morgan pipelines are subject to continuous inspection by the company and no releases are known. However, Project-related excavation and earthmoving activities could encounter buried pipelines resulting in accidental rupture or leaks, which could cause a human health and environmental hazard. For security reasons, the PHMSA (2021) Pipeline Map Viewer cannot be used for field verification of exact high-pressure pipeline locations, and the potential presence of other pipelines is unknown. Therefore, this impact is considered **potentially significant**.

Rail Lines

Project-related development is proposed on both sides of the active California Northern Railroad, immediately adjacent to the track right-of-way, in the northwestern portion of the Project Site. Construction activities around

railroad tracks can represent a safety hazard for both construction workers and train operators. Furthermore, as discussed in detail in the "Environmental Setting" subsection, commonly reported soil contamination along railroad corridors includes metals and petroleum products from railroad operations, along with herbicides used for weed control. AEI (2006) noted that because both sides of the tracks are covered with gravel, herbicide use has likely been minimal. Although unlikely, since no hazardous spills in the area have been reported, extended use of the rail lines may have resulted in soil contamination with metals and petroleum products. These constituents could result in human health and environmental hazards if present at high levels and disturbed during construction activities. Therefore, this impact is considered **potentially significant**.

Mitigations Measures

Mitigation Measure 4.7-3a: Prepare and Implement a Site-Specific Health and Safety Plan

To protect the health of construction workers and the environment, the Project applicant or construction contractor(s) shall prepare and implement a site-specific Health and Safety Plan (HASP) as described below:

- The HASP shall be prepared in accordance with State and federal OSHA regulations (29 CFR 1910.120) and approved by a certified industrial hygienist. Copies of the HASP shall be made available to construction workers for review during their orientation training and/or during regular health and safety meetings. The HASP shall identify potential hazards (including stained or odiferous soils at any location where earthmoving activities would occur within the proposed Development Area), chemicals of concern (i.e., VOCs, heavy metals, and gases), personal protective equipment and devices, decontamination procedures, the need for personal or area monitoring, and emergency response procedures.

- The HASP shall state that if stained or odiferous soil or groundwater is discovered during Project-related construction activities, Project applicants shall retain a licensed environmental professional to conduct a Phase II ESA that includes appropriate soil and/or groundwater analysis. Recommendations contained in the Phase II ESA to address any contamination that is found shall be implemented before initiating ground-disturbing activities in these areas.

- The HASP shall also require notification of the appropriate federal, State, and local agencies if evidence of previously undiscovered soil or groundwater contamination (e.g., stained soil, odorous groundwater, or groundwater with a surface sheen) or if previously undiscovered underground storage tanks are encountered during construction activities. Any contaminated areas shall be remediated in accordance with recommendations made by the RWQCB, DTSC, the Solano County Environmental Health Division, and/or other appropriate federal, State, or local regulatory agencies.

- The HASP shall address potential accidental damage to utility lines, including high-pressure natural gas and jet fuel lines. The plan shall identify chain-of-command rules for notification of authorities and appropriate actions and responsibilities regarding the safety of the public and workers. A component of the response plan shall include worker education training in response to such situations. The HASP shall include telephone numbers for emergency response providers, as well as the location of the nearest hospital; this information shall also be posted in the construction superintendent's trailer on the job site during construction.

- Because construction activities will be occurring in the immediate vicinity of an active rail line (i.e., California Northern Railroad), the HASP shall address potential railroad safety hazards for Project-related construction workers, including the need to: (1) stay a safe distance away from the tracks while working; (2) refrain from parking or driving vehicles or equipment across the tracks at any location other than the existing Pennsylvania Avenue crossing, and (3) observe all train crossing signals and warning lights. If there is a need for a temporary halt to train traffic on the California Northern Railroad lines during Project-related construction activities, the Project applicant and/or its construction contractor shall coordinate directly with the railroad and shall hold a site safety meeting to inform construction workers of their responsibilities and safety protocols. The appropriate emergency contact numbers for personnel at California Northern Railroad shall be included in the HASP and posted in the construction superintendent's trailer.

Mitigation Measure 4.7-3b: Locate and Avoid Underground Utilities in Areas Where Development is Proposed, and Prepare a Response Plan to be Implemented if Accidental Rupture Occurs

The Project applicant or construction contractor(s) shall implement the following measures before construction begins, to avoid and minimize potential damage to utilities that could result in hazardous materials incidents.

- Prior to the start of earthmoving activities in the vicinity of the pipelines identified on Exhibit 4.7-1, the Project applicant shall coordinate with Kinder Morgan, PG&E, and the City of Vallejo to identify and clearly mark the exact locations of the pipelines. All construction personnel shall be informed of the location of the pipelines during safety briefings throughout the period when construction is occurring. The locations of the pipelines shall be clearly identified on construction drawings and posted in the construction superintendent's trailer.

- Verify with Kinder Morgan that the pipeline underneath the proposed parking lot adjacent to Building A is no longer in service, and coordinate with Kinder Morgan for pipeline removal if necessary.

- As required by Suisun City General Plan Policy PHS-10.8, dedicated pipeline rights-of-way shall be permanently protected from construction encroachment, particularly in areas where high-pressure pipelines (see Exhibit 4.7-1) adjoin proposed development. High-visibility orange exclusionary fencing, or other clearly visible above-ground markers, shall be placed along the pipeline rights-of-way prior to the start of earthmoving activities.

- Verify through field surveys and the use of the Underground Service Alert services, the locations of any other utilities that may be buried at the Project Site in the areas where development is proposed (e.g., stormwater, sewer, water, electrical, or communication cables). Any buried utility lines shall be clearly marked in the field and on the construction drawings in advance of any Project-related earthmoving activities.

Significance after Mitigation

Implementation of Mitigation Measures 4.7-3a and 4.7-3b would reduce Project impacts related to hazards and hazardous materials to a **less-than-significant** level because a HASP would be prepared and implemented; the HASP would contain specific training requirements designed to reduce hazards from elevated hazardous materials contamination, site safety issues, and potential accidental pipeline rupture. In addition, the Project applicant would coordinate with Kinder Morgan, PG&E, and the City of Vallejo to mark the location of high-pressure

pipeline rights-of-way for avoidance during construction, and would utilize Underground Service Alert to locate, mark, and flag for avoidance any other buried utilities.

Impact 4.7-4 Creation of Potential Safety Hazards, Including Possible Birdstrike, in the Vicinity of an Airport. *Construction of the proposed Project would be compatible with ALUCP land use compatibility Zone D. The proposed Project would not increase aviation-related bird strike hazards because the on-site detention basins would be designed to drain quickly (i.e., detention not retention), and the proposed Managed Open Space habitat would replace existing habitat lost to development at a 1:1 ratio; thus, new waterfowl habitat would not be created. Therefore, this impact would be less than significant.*

The Project Site and the off-site improvement areas are approximately 4.5 miles southwest of Travis AFB. The Project Site and off-site improvement areas are located in ALUCP land use compatibility Zone D, which requires that: (1) structures are limited to a height that is less than 200 feet above the ground surface, and (2) notice of aircraft overflights must be provided to property owners (ALUC 2015). The maximum height of structures proposed at the Project Site is approximately 47 feet, and notice of aircraft overflights would be provided to future site-specific developers. Therefore, the proposed Project would be in compliance with land use compatibility Zone D, and the impact related to potential safety compatibility issues associated with Travis AFB is **less than significant**.

The Project Site and off-site improvement areas are also located within the ALUCP's Outer Perimeter. The ALUC requires that all discretionary projects within the Outer Perimeter must consider the potential for the project to attract hazardous wildlife, wildlife movement, or bird strike hazards as part of environmental review process required by CEQA (ALUC 2015). In 2022, AECOM biologists performed a *Wildlife Hazard Assessment* for the proposed Project to determine the existing level of wildlife and bird activity within the Project Site and evaluate the potential for wildlife hazards to affect routine operations at Travis AFB as a result of Project implementation (AECOM 2022). As discussed in Chapter 3, "Project Description," approximately 388 acres east of Pennsylvania Avenue and south of Cordelia Road are proposed as Managed Open Space and would be protected in perpetuity by a deed restriction or conservation easement. The Managed Open Space would preserve existing seasonal and perennial wetlands, as well as include the construction of proposed mitigation wetlands to offset the impacts associated with the development at a 1:1 ratio. During the site visit conducted for the Wildlife Hazard Assessment, a variety of birds were observed at the Project Site, including American white pelicans, and mallards (ducks). Small mammals including coyote and racoons were also observed during the site visit. The Project Site may also support other common mammals such as mule deer.

The Wildlife Hazard Assessment determined that proposed Project is not expected to result in a substantial attraction of birds or other wildlife to the property. In the proposed Development Area, existing vegetation would be removed and replaced with buildings, resulting in a reduction of existing habitat within the Development Area. Anticipated changes to the existing avian habitat associated with construction activities include grading, excavation, permanent development, storm water controls, lighting, irrigation, noise, and increased human presence. The proposed approximately 388-acre Managed Open Space is unlikely to result in an increase in wildlife activity due to disturbances caused by new lighting, human presence, and noise associated with the new development, in addition to the existing baseline noise and activity from SR 12 vehicular traffic and the Travis AFB air and vehicular traffic. Natural or man-made features that could attract wildlife to the property post-construction include the proposed stormwater detention basins and the 38 acres of created wetlands. However, the stormwater detention basins are unlikely to result in significant additional wildlife attraction because the systems

are designed for quick drainage (i.e., detention not retention), and because the basins will be surrounded by development. As described in Travis AFB's *Bird/Wildlife Aircraft Strike Hazard (BASH) Reduction Program* (Travis AFB 2021), Travis AFB is located on the Pacific Flyway. One of the passes west of Travis AFB which acts as a major flight path for birds is part of the Suisun Marsh. Because the Project Site is adjacent to Suisun Marsh, the wetlands at the Project Site and in the area are likely to attract birds as they leave and return to the marsh. Although new wetland habitat would be created within the Managed Open Space area as part of the proposed Project, this is not expected to cause an overall increase in the current level of wildlife activity because the created acreage is replacing wetlands that are being removed from the same general location (the Development Area) at a 1:1 ratio. Therefore, the proposed Project would not result in the creation of substantial new safety hazards related to birdstrike or other hazardous wildlife attractants, and this impact is **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 4.7-5 Interference with Emergency Response or Evacuation Plans. *Construction of the off-site improvements could result in short-term, temporary lane closures on SR 12; in addition, construction would increase construction-related truck traffic on SR 12 that could interfere with and result in slower emergency response times. Therefore, this impact would be potentially significant.*

The adopted Solano County Emergency Operations Plan and the Evacuation Annex (of which the City is a participant) addresses the County and incorporated Cities' evacuation plans and planned responses to extraordinary emergency situations associated with any type of natural disaster, technological incident, or state of war emergency. Proposed development is subject to design review by the City and is required to comply with City standards relating to appropriate street design to accommodate emergency vehicles and emergency evacuation thoroughfares. Construction equipment would be staged on site, and therefore would not impede emergency access or emergency evacuation routes on the surrounding local roadways. Design and construction of the SR 12 improvements would be regulated by Caltrans, and would be designed for appropriate emergency vehicle access as per the *Highway Design Manual* (Caltrans 2020).

SR 12 could be affected intermittently during construction at the Project Site and during construction of the off-site improvements, resulting in decreased emergency response times. In addition, traffic along Cordelia Street, Cordelia Road, and Beck Avenue could be affected by construction of the proposed off-site water line and sewer line, respectively. Off-site work along Pennsylvania Avenue for Project-related road improvements could also affect traffic. Project-related construction activities could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing services. Potential reduction of emergency response services during construction of the proposed on-site land uses and the off-site improvements would be a **potentially significant** impact.

Mitigations Measures

Mitigation Measure 4.7-5: Implement Traffic Control Plans

The Project applicant or contractor(s) shall implement traffic control plans for construction activities that may affect road rights-of-way during Project construction. The traffic control plans shall be designed to avoid traffic-related hazards and maintain emergency access during construction phases. The traffic

control plans shall illustrate the location of the proposed work area; provide a diagram showing the location of areas where the public right-of-way would be closed or obstructed and the placement of traffic control devices necessary to perform the work; show the proposed phases of traffic control; and identify the time periods when traffic control would be in effect and the time periods when work would prohibit access to private property from a public right-of-way. The plans may be modified by the City or Caltrans in order to eliminate or avoid traffic conditions that are hazardous to the safety of the public. Traffic control plans shall be submitted to the affected agencies, as appropriate, and shall be submitted to the City for review and approval before City approval of improvement plans, where future construction may cause impacts on traffic.

Significance after Mitigation

Implementation of Mitigation Measure 4.7-5 would reduce Project impacts related to interference with emergency response or emergency evacuation plans to a **less-than-significant** level because a traffic control plan(s), designed to avoid traffic-related hazards and maintain emergency access during construction phases, would be prepared and submitted to the City and Caltrans, as appropriate, for approval.

4.8 HYDROLOGY AND WATER QUALITY

4.8.1 ENVIRONMENTAL SETTING

SURFACE WATER RESOURCES

Watersheds and Drainage

The Project region has a mild Mediterranean climate, with hot dry summers and cool wet winters. Most of the precipitation falls during the winter months, from November to April. The Project region is within the Suisun Basin Hydrologic Unit in the San Francisco Bay Drainage Province (San Francisco Bay Regional Water Quality Control Board [RWQCB] 2023). The Suisun Basin Hydrologic Unit drains approximately 157 square miles. Pennsylvania Ave Creek flows south through the Project Site to Peytonia Slough and then into Suisun Marsh. Ledgewood Creek flows south along the northwestern Project boundary to Cordelia Road; south of Cordelia Road, Ledgewood Creek turns and flows southeast through the Project Site to Peytonia Slough (and thence into Suisun Marsh). Several other smaller unnamed drainage channels bisect the Project Site. Peytonia Slough discharges into Suisun Slough. Suisun Slough and Suisun Marsh drain into Grizzly Bay, then into Suisun Bay, and then into the Carquinez Strait.

On a regional level, the proposed Development Areas and off-site improvement areas west of Pennsylvania Avenue (see areas Planning Area 1 and Planning Area 2 in Exhibit 4.8-1) are within the Laurel Creek-Frontal Suisun Bay Watershed (Hydrologic Unit Code [HUC] 12), while the remainder of the Project Site and the other off-site improvement areas are within the Suisan Bay Estuaries Watershed (HUC 12). On a local level, the Project Site is within the Pennsylvania Avenue Creek subwatershed, which encompasses approximately 2,910 acres, as measured at the Cordelia Road Bridge. Approximately 285 acres of the watershed includes surface drainage from a portion of the developed City of Fairfield on the east side of Pennsylvania Avenue north of SR 12. From the west side of Pennsylvania Avenue and north of Interstate 80, approximately 2,625 acres of this watershed drain through an improved drainage channel (Morton and Pitalo 2021).

Morton and Pitalo, Inc. was retained to prepare a *Draft Drainage Master Plan* (Drainage Plan) for the proposed Development Area at the Project Site (Morton and Pitalo 2021) (Appendix D). For purposes of the Drainage Plan, the Development Area was split into three subareas: Planning Areas 1, 2, and 3. As shown in Exhibit 4.8-1, Planning Area 1 (approximately 69 acres) currently drains to the southwest to an existing 30-inch culvert under Pennsylvania Avenue labelled as POI-1. Planning Area 1 also receives flows from the off-site approximately 35.6-acre subshed to the north, through seven 24-inch culverts underneath SR 12 (indicated by the dashed lines in Exhibit 4.8-1), which discharge into a drainage ditch on the south side of SR 12. Drainage flows eastward in this ditch to a southward flowing ditch along the west side of Pennsylvania Avenue (labeled as “Reach 1”), to the 30-inch culvert noted above. This 30-inch culvert discharges to an open drainage channel (labeled as “Reach 2”) that flows eastward to Pennsylvania Avenue Creek.

Existing stormwater flows from Planning Area 3 (approximately 10 acres) also flow to the southeast into the unnamed drainage channel described above (“Reach 2”), and thence eastward into Pennsylvania Avenue Creek (see POI-3 on Exhibit 4.8-1).

Existing flows from area Planning Area 2 (approximately 13 acres) drain from northwest to southeast to an existing 18-inch culvert underneath Cordelia Road (see POI-2 on Exhibit 4.8-1; the arrow indicates the direction

of stormwater flow southeast onto the southern portion of the Project Site). Also, there is an existing 30-inch culvert that directs stormwater from a small area in Planning Area 1 underneath the California Northern railroad tracks and onto Planning Area 2 into a southwest-oriented drainage channel. However, this channel on both the north and south sides of the California Northern Railroad tracks appears to have no outlet to Ledgewood Creek, and therefore may function as a retention basin (infiltration only).

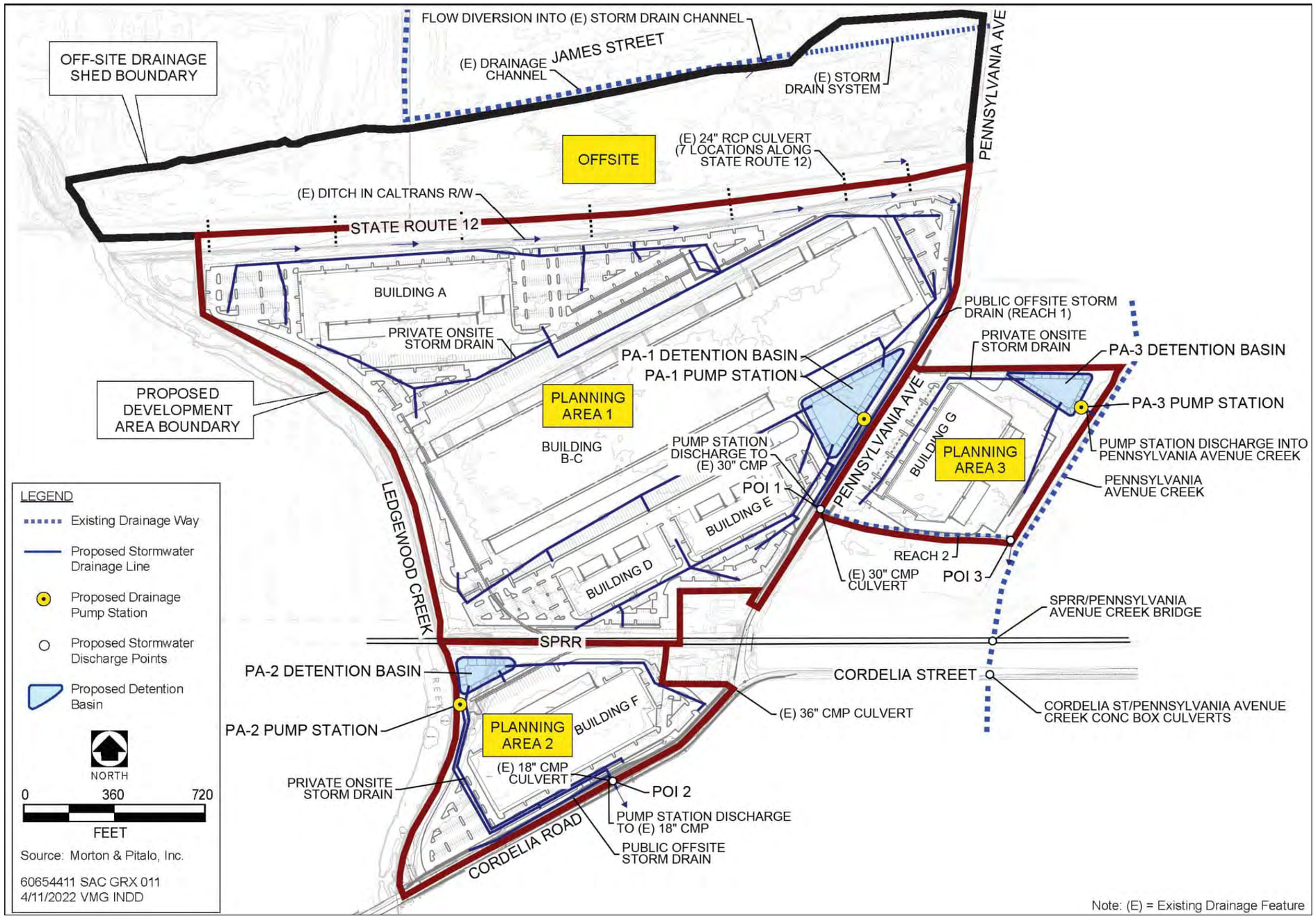
Finally, located near the center of the Project parcels, but not within the proposed Development Area, are two commercial businesses operating near the intersection of Pennsylvania Avenue and the California Northern Railroad: (1) Kings of Auto/U-Haul, located at 1001 S. Pennsylvania Avenue, consists of an auto repair shop and a U-Haul rental shop, and (2) Nor Cal Concrete, a concrete contractor, which is immediately south of Kings of Auto. Drainage from these businesses flows underground through a 36-inch culvert which discharges into a drainage channel south of the intersection of Cordelia Road and Pennsylvania Avenue (Exhibit 4.8-1; Morton and Pitalo 2021). This unnamed drainage channel flows southeast through the proposed Managed Open Space Area of the Project Site and discharges into the Pennsylvania Ave Creek, which discharges into Peytonia Slough.

Surface Water Quality

Section 303(d) of the federal Clean Water Act (CWA) requires each state to periodically prepare a list of all surface waters in the state for which beneficial uses of the water (e.g., drinking, recreation, aquatic habitat, and agricultural use) are impaired by pollutants. Beneficial uses for waters in the Project region are contained in the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan), updated and adopted by the San Francisco Bay RWQCB in 2023, which also includes the 2018 Basin Plan amendment for mercury and dissolved oxygen in Suisun Marsh (Resolution R2-2018-0015) (San Francisco Bay RWQCB 2018, 2023).

Table 4.8-1 lists the existing and potential beneficial uses designated in the San Francisco Bay Basin Plan for surface waters in the Suisun Basin Hydrologic Unit that could receive runoff from the proposed Project. Applying the San Francisco Bay RWQCB's "tributary rule," the beneficial uses of any specifically identified water body generally apply to all its tributaries (for example, Pennsylvania Avenue Creek). In some cases, a beneficial use may not be applicable to the entire body of water; in these cases, the San Francisco Bay Water Board's judgment regarding water quality control measures necessary to protect beneficial uses will be applied. In addition, beneficial uses of streams that only have intermittent flows must also be protected throughout the year (San Francisco Bay RWQCB 2023).

Section 303(d) of the CWA also requires states to identify waters where the permit standards, any other enforceable limits, or adopted water quality standards are still unattained. The law requires states to develop Total Maximum Daily Loads (TMDLs) to improve the water quality of impaired water bodies. TMDLs are the quantities of pollutants that can be safely assimilated by a water body without violating water quality standards. TMDLs are developed for impaired water bodies to maintain beneficial uses, achieve water quality objectives, and reduce the potential for future water quality degradation. National Pollutant Discharge Elimination System (NPDES) permits for water discharges (for both construction and operation) must take into account the pollutants for which a water body is listed as impaired.



Source: Morton & Pitalo 2021, adapted by AECOM 2022

Exhibit 4.8-1. Existing and Proposed Drainage in the Proposed Development Area

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Table 4.8-1. Beneficial Uses of Surface Waters in the Project Region

Waterbodies	Freshwater Replenishment to Surface Water	Industrial Process/Service Supply	Commercial and Sport Fishing	Cold Freshwater Habitat	Estuarine Habitat	Fish Migration	Rare & Endangered Species Preservation	Fish Spawning	Warm Freshwater Habitat	Wildlife Habitat	Water Contact Recreation	Non-Contact Water Recreation	Navigation
Ledgewood Creek	E	--	--	E	--	E	--	E	E	E	E	E	--
Peytonia Slough	--	--	E	--	E	--	E	--	--	E	E	E	--
Suisun Marsh	--	--	--	--	E	E	E	E	--	E	E	E	--
Suisun Slough	--	--	E	--	E	E	E	E	E	E	E	E	E
Grizzly Bay	--	--	E	--	E	E	E	--	--	E	E	E	--
Suisun Bay	--	E	E	--	E	E	E	E	--	E	E	E	E
Carquinez Straight	--	E	E	--	E	E	E	E	--	E	E	E	E

Notes: E = existing beneficial use; -- = not a beneficial use.
Source: San Francisco Bay RWQCB 2023

Table 4.8-2 lists impaired water bodies in the Suisun Basin Hydrologic Unit included in the State Water Resources Control Board's (SWRCB's) 303(d) list that could receive runoff from the proposed Project, the pollutants of concern, and whether they have approved TMDLs (SWRCB 2022a). Even if a specific stream is not included in the SWRCB's 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment.

Flooding

Most of the Project Site is located in a 100-year flood zone (1 percent annual exceedance probability [AEP]), as designated by the Federal Emergency Management Agency (FEMA 2016). Planning Areas 1 and 2 of the proposed Development Area and a portion of the proposed Management Open Space area are designated by FEMA as Zone AO, which is a 100-year flood zone where flooding is expected to occur via sheet flow, and with an average depth at the Project Site of 1 foot (Exhibit 4.8-2) (Morton and Pitalo 2021). Most of the remainder of the Project Site (including Planning Area 3 of the proposed Development Area) is designated by FEMA as Zone AE, which is a 100-year flood zone where the base flood elevation has been determined (varies by location; at the Project Site, the depth is projected to be approximately 10 feet) (Morton and Pitalo 2021). Most of the proposed off-site improvements are also located in FEMA 100-year flood zones (i.e., Zones AE or EO) (Exhibit 4.8-2).

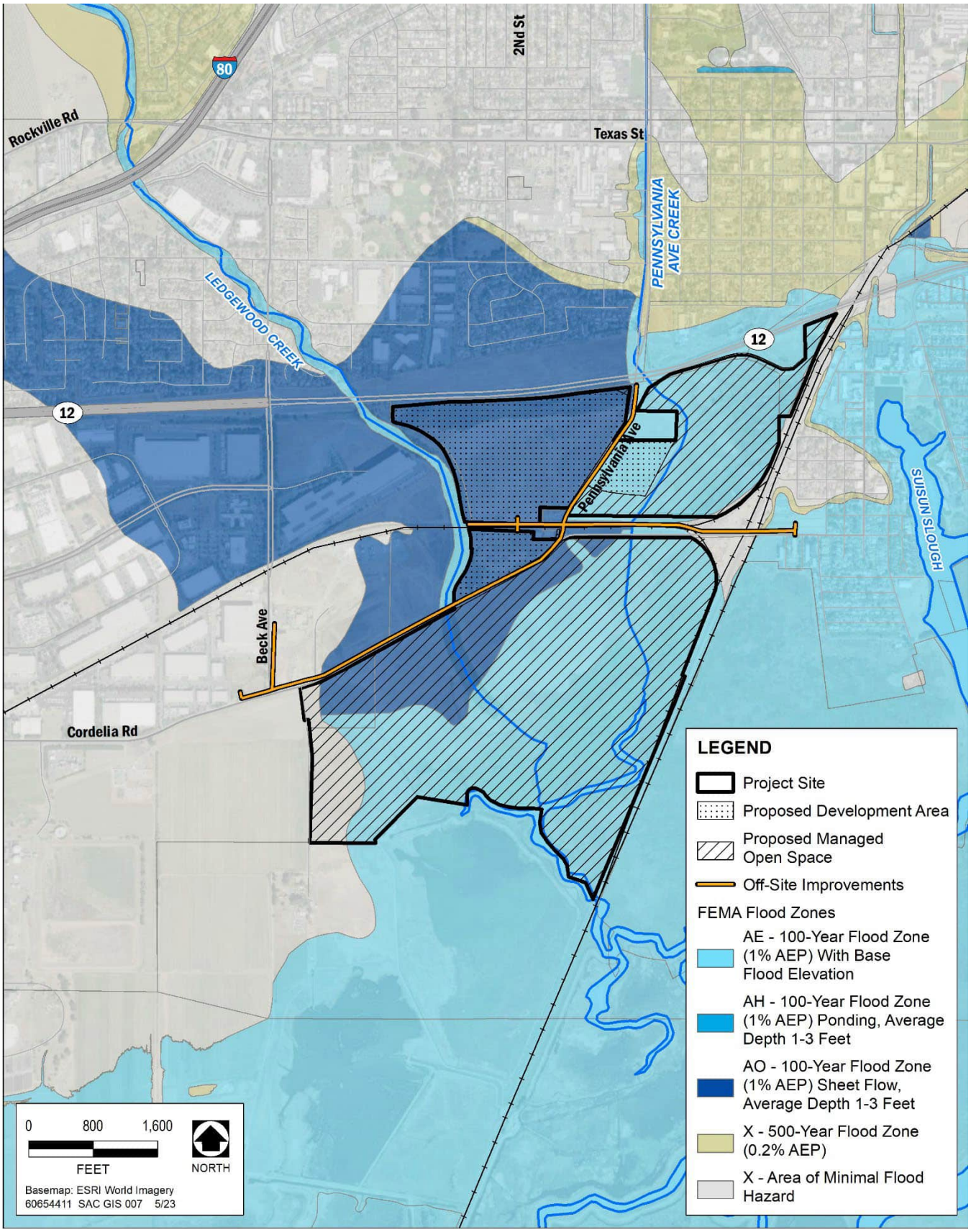
A small portion of the proposed Managed Open Space area in the southwest corner of the Project Site, a portion of the proposed off-site water line along Cordelia Street, and the southern end of the proposed off-site sewer line along Cordelia Road and Beck Avenue, are within FEMA Zone X, which is an area of minimal flood hazard (Exhibit 4.8-2).

Table 4.8-2. Section 303(d) List of Impaired Water Bodies

Impaired Water Body	Pollutant	Pollutant Source	TMDL Status
Ledgewood Creek	Diazinon	Unknown	Approved in 2007
Suisun Marsh Wetlands	Mercury	Historic Land Management Activities	Approved 2018
Suisun Marsh Wetlands	Nutrients	Unknown	Expected in 2019; still in process
Suisun Marsh Wetlands	Organic Enrichment/Low Dissolved Oxygen	Historic Land Management Activities	Approved 2018
Suisun Marsh Wetlands	Salinity/Total Dissolved Solids/Chlorides	Unknown	Expected in 2013; still in process
Suisun Bay	Chlordane	Agriculture	Expected in 2029
Suisun Bay	Dichlorodiphenyltrichloroethane (DDT)	Unknown	Expected in 2013; still in process
Suisun Bay	Dieldrin	Unknown	Expected in 2013; still in process
Suisun Bay	Dioxin Compounds	Unknown	Expected in 2019; still in process
Suisun Bay	Furan Compounds	Unknown	Expected in 2019; still in process
Suisun Bay	Invasive Species	Unknown	Expected in 2019; still in process
Suisun Bay	Mercury	Gold mining settlements and local mercury mining (historic); erosion and drainage from abandoned mines (ongoing)	Approved in 2008
Suisun Bay	Polychlorinated biphenyls (PCBs), non-dioxin-like	Unknown	Approved in 2010
Suisun Bay	Polychlorinated biphenyls (PCBs), dioxin-like	Unknown	Approved in 2010
Suisun Bay	Selenium	Unknown	Approved in 2016
Carquinez Strait	Chlordane	Unknown	Expected in 2013; still in process
Carquinez Strait	Dichlorodiphenyltrichloroethane (DDT)	Unknown	Expected in 2013; still in process
Carquinez Strait	Dieldrin	Unknown	Expected in 2013; still in process
Carquinez Strait	Dioxin Compounds	Unknown	Expected in 2019; still in process
Carquinez Strait	Furan Compounds	Unknown	Expected in 2019; still in process
Carquinez Strait	Invasive Species	Unknown	Expected in 2019; still in process
Carquinez Strait	Mercury	Gold mining settlements and local mercury mining (historic); erosion and drainage from abandoned mines (ongoing)	Approved in 2008
Carquinez Strait	Polychlorinated biphenyls (PCBs), non-dioxin-like	Unknown	Approved in 2010
Carquinez Strait	Polychlorinated biphenyls (PCBs), dioxin-like	Unknown	Approved in 2010
Carquinez Strait	Selenium	Unknown	Approved in 2016

Notes: TMDL = total maximum daily load

Source: SWRCB 2022a



Source: FEMA 2016

Exhibit 4.8-2. FEMA Flood Zones

Tsunami

A tsunami is an ocean wave usually created by undersea fault movement or by a coastal or submerged landslide. As the displaced water moves to regain equilibrium, waves are formed and radiate across the open water. When the waveform reaches the coastline, it quickly raises the water level, with accompanying high water velocities that can damage structures and sweep away objects and people. The Project Site and the off-site improvement areas are not in a tsunami inundation zone (California Emergency Management Agency et al. 2022).

Seiche

A seismic seiche causes standing waves to set up on rivers, reservoirs, ponds, and lakes when seismic waves from an earthquake pass through the area. Because they occur in an enclosed waterbody, standing waves continue to slosh back and forth over a period of time that may range from a few minutes to several hours. The nearest waterbody with potential for seiches is Grizzly Bay/Suisun Bay, approximately 6.5 miles south of the Project Site and the off-site improvement areas, and approximately 10 feet lower in elevation.

Erosion and 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 potential when drainage plans are prepared. Based on a review of U.S. Natural Resources Conservation Service ([NRCS] 2022) soil data (see Table 4.5-1 in Section 4.5, "Geology, Soils, Minerals, and Paleontological Resources"), the Alviso, Pescadero, and Sycamore silty clay loam soil in the proposed Development Area and the off-site improvements areas are classified as hydrologic Groups C and D, which have a slow to very slow infiltration rate when thoroughly wet and therefore have a high to very high runoff potential, respectively.

GROUNDWATER RESOURCES

Groundwater Basin

A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers. The California Department of Water Resources (DWR) evaluated the characteristics of groundwater basins in the San Francisco Bay region and throughout the state and summarized the results in California's Groundwater, Bulletin 118 (DWR 2003). There are 28 groundwater basins and seven sub-basins classified by DWR that produce, or potentially could produce, substantial amounts of groundwater in the San Francisco Bay region. The Project Site and the surrounding area are within the Suisun-Fairfield Valley Groundwater Basin (Basin ID 2-003). The Suisun-Fairfield Valley Groundwater Basin includes the aerial extent of unconsolidated to semi-consolidated sedimentary deposits that are bounded by the Coast Ranges to the west and north, the Sacramento groundwater basin to the east, and the Sacramento-San Joaquin Delta and Suisun Bay to the south. The main water-bearing units are the Sonoma Volcanics, Older Alluvium, Flood Basin and Marsh Deposits, and Younger Alluvium, which, when combined, are as much as 1,500-feet thick near the Sacramento–San Joaquin Delta (Dawson et al. 2018).

Groundwater Quality

The San Francisco Bay Basin Plan (San Francisco Bay RWQCB 2023) designates the following beneficial uses for groundwater in the Suisun-Fairfield Valley Groundwater Basin: municipal and domestic water supply, industrial process supply, industrial service supply, and agricultural water supply.

Groundwater quality issues within the Suisun-Fairfield Valley Groundwater Basin include high boron, Total Dissolved Solids (TDS), and elevated volatile organic compound (VOC) concentrations near Travis Air Force Base (Dawson et al. 2018, DWR 2020). Many private well owners in the Suisun-Fairfield Valley Groundwater Basin, such as the Solano Irrigation District, use groundwater for agricultural irrigation. However, due to the brackish quality of the groundwater which requires expensive treatment for potable use, surface water is used for potable water supplies (DWR 2020).

Sustainability

The Sustainable Groundwater Management Act (SGMA) and corresponding regulations require that each groundwater basin designated as a "high" or "medium" priority be operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use to ensure that undesirable results—such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams—do not occur. California's groundwater basins are classified into one of four categories; high-, medium-, low-, or very low priority based on components identified in the California Water Code Section 10933(b). Groundwater agencies located within high- or medium-priority basins must adopt groundwater sustainability plans by January 31, 2020, (if the basin was determined by DWR to be a condition of critical overdraft), or by January 31, 2022, for all other high and medium priority basins. Groundwater sustainability plans may be adopted, but are not required, for low and very low priority basins.

In late 2019, DWR released its final basin prioritizations and determined that the Suisun-Fairfield Valley Groundwater Basin is not in a state of overdraft and should be classified as a low priority basin (DWR 2020). Because of the low priority basin designation, a groundwater sustainability plan is not required and has not been prepared for the Suisun-Fairfield Valley Groundwater Basin.

Potable water for the proposed Project would be supplied by the Solano Irrigation District (SID). The SID service area overlies two groundwater basins: the Suisun-Fairfield Valley Groundwater Basin (in the southwest) and the Solano Groundwater Subbasin (in the northeast, Basin ID 5-21.66). Prior to the introduction of surface water through the Solano Project, groundwater served as the primary water source for both the cities and agricultural areas in the region; as a result, groundwater levels declined over time. Following the introduction of surface water deliveries by SID in 1959 to utilize surface water from Lake Berryessa, the ground water levels rebounded, and now the groundwater basin is considered to have generally stable groundwater levels. Deep percolation of applied surface water from irrigated lands and seepage from SID canals and drains provide beneficial recharge to the underlying aquifers. On an annual basis, the total average recharge from seepage, deep percolation of applied water, and deep percolation of precipitation is about 45,000 acre-feet, while the total average SID and private groundwater pumping is about 30,000 acre-feet. The SID has 35 deep wells of which 28 are currently in production and 7 are in place for monitoring groundwater levels; most of the wells are in the northeastern portion of the SID service area (in the Solano Groundwater Subbasin) (Davids Engineering, Inc. 2018).

SID provides water for agricultural irrigation, raw (untreated) water for landscape irrigation, and potable water for several public water systems, the largest of which is the Suisun-Solano Water Authority (SSWA). SSWA supplies potable water to the City of Suisun City (east of the Union Pacific Railroad tracks, on the east side of the Project Site). SSWA has not pumped groundwater since 2001 and has no plans to do so in the future (SSWA 2016). Because the Project Site is outside of the SSWA service area, SID commissioned a water supply assessment for the proposed Project. (Please see Section 4.13, "Utilities and Service Systems" of this EIR for additional information and analyses related to water supply.)

4.8.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

Clean Water Act

The CWA of 1972 (33 U.S.C. Section 1251 et seq.) is the primary federal law that governs and authorizes water quality control activities by the U.S. Environmental Protection Agency (EPA), the lead federal agency responsible for water quality management. By employing a variety of regulatory and non-regulatory tools, including establishing water quality standards, issuing permits, monitoring discharges, and managing polluted runoff, the CWA seeks to restore and maintain the chemical, physical, and biological integrity of surface waters to support the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water.

EPA is the federal agency with primary authority for implementing regulations adopted pursuant to the CWA, and 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 described below.

Water Quality Criteria and Standards

Pursuant to federal law, EPA published water quality regulations under Volume 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the CWA, water quality standards consist of two elements: (1) designated beneficial uses of the water body in question, and (2) criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. Section 303(d) requires states to develop lists of the water bodies and associated pollutants that exceed water quality criteria.

National Pollutant Discharge Elimination System Permit Program, Section 402

The NPDES permit program was established as part of the CWA to regulate municipal and industrial discharges to surface waters of the U.S. Federal NPDES permit regulations have been established for broad categories of discharges, including point source municipal waste discharges and nonpoint source stormwater runoff. NPDES permits generally identify limits on the concentrations and/or mass emissions of pollutants in effluent discharged into receiving waters; 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.

More specifically, the discharge prohibitions and limitations in an NPDES permit for wastewater treatment plants are designed to ensure the maintenance of public health and safety, protection of receiving water resources, and safeguarding of the water's designated beneficial uses. Discharge limitations typically define allowable effluent quantities for flow, biochemical oxygen demand, total suspended matter, residual chlorine, settleable matter, total coliform, oil and grease, pH, and toxic pollutants. Limitations also typically encompass narrative requirements regarding mineralization and toxicity to aquatic life.

In November 1990, EPA published regulations establishing NPDES permit requirements for municipal and industrial stormwater discharges. Phase I of the permitting program applied to municipal discharges of stormwater in urban areas where the population exceeded 100,000 persons.[1] Phase II of the NPDES stormwater permit regulations became effective in March 2003 and required NPDES permits be issued for construction activity for projects that disturb between 1 and 5 acres. Phase II of the municipal permit system (i.e., known as the NPDES General Permit for Small Municipal Separate Storm Sewer Systems [Small MS4s], Order No. 2003-0005-DWQ as amended by 2013-0001-DWQ) required small municipality areas of less than 100,000 persons (hereinafter called Phase II communities) to develop stormwater management programs. The Fairfield-Suisun Urban Runoff Management Program (FSURMP), discussed in detail below, describes the City's activities to comply with the NPDES General Permit for Small MS4s.

California's RWQCBs are responsible for implementing the NPDES permit system (refer to additional details in the section, "State Regulations," below).

Section 401 Water Quality Certification or Waiver

Under Section 401 of the CWA, an applicant for a Section 404 permit (to discharge dredged or fill material into waters of the U.S.) must first obtain a certificate from the appropriate 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 requirements is delegated by the SWRCB to the nine regional boards. The San Francisco Bay RWQCB is responsible for the Project area.

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 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 is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives. EPA must either approve a TMDL prepared by the state or disapprove the State's TMDL and issue its own. NPDES permit limits for listed pollutants must be consistent with the waste load allocation prescribed in the TMDL. The goal of the TMDL program is that, after implementation of a TMDL for a given pollutant on the 303(d) list, the causes that led to the pollutant's placement on the list would be remediated.

[1] Phase I also applies to storm water discharges from a large variety of industrial activities, including general construction activity if the project would disturb more than 5 acres.

Federal Antidegradation Policy

The federal antidegradation policy (40 CFR 131.12) is designed to protect existing water uses, water quality, and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- existing instream uses and the water quality necessary to protect those uses shall be maintained and protected;
- where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and
- where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

Federal Emergency Management Agency National Flood Insurance Program

FEMA administers the National Flood Insurance Program (NFIP, 42 U.S.C. 4016[a]) to provide flood insurance to individuals within communities that adopt and enforce NFIP regulations that limit development in floodplains; federally-backed flood insurance is only available within NFIP communities. FEMA also develops and issues Flood Insurance Rate Maps (FIRMs) that identify which land areas are subject to flooding. Flood hazard zones in the community are identified within the FIRMs, at the minimum, for the 1-in-100 AEP flood event and sometimes other flood events. 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 AEP (i.e., 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

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) of 1969 is California's statutory authority for the protection of water quality. Under the Act, the State must adopt water quality policies, plans, and objectives that protect the State's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. The RWQCBs are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne Act sets forth the obligations of the SWRCB and RWQCBs to adopt and periodically update water quality control plans (basin plans). The San Francisco Bay RWQCB regulates water quality in the Project area.

Basin plans are the regional water quality control plans required by both the CWA and Porter-Cologne Act in which beneficial uses, water quality objectives, and implementation programs are established for each of the nine regions in California. The act also requires waste dischargers to notify the RWQCBs of such activities through the filing of Reports of Waste Discharge (RWD) and authorizes the SWRCB and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, CWA Section 401 water quality certifications, or other

approvals. The RWQCBs also have authority to issue waivers to RWD requirements and 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.

State Water Resources Control Board

SWRCB and its nine RWQCBs administer water rights and enforce pollution control standards throughout the state. SWRCB is responsible for granting of water right permits and licenses through an appropriation process following public hearings and appropriate environmental review by applicants and responsible agencies. In granting water right permits and licenses, SWRCB must consider all beneficial uses, including water for downstream human and environmental needs. In addition to granting the water right permits needed to operate new water supply projects, SWRCB also issues water quality-related certifications to developers of water projects under Section 401 of the CWA.

Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan)

The *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) (San Francisco Bay RWQCB 2023) identifies the beneficial uses of water bodies and provides water quality objectives and standards for waters of the San Francisco Bay hydrologic region. State and federal laws mandate protecting designated "beneficial uses" of water bodies. State law defines beneficial uses as "domestic; municipal; agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves" (Water Code Section 13050[f]).

The beneficial uses of any specifically identified water body generally apply to all tributary streams to that water body. Those water bodies not specifically designated for beneficial uses in the Basin Plan are assigned the Municipal and Domestic Supply (MUN) use, in accordance with the State Water Board Resolution No. 88-63. Although specific surface waters have not been identified for groundwater recharge or freshwater replenishment in the Basin Plan, these additional protected beneficial uses are designated in the Basin Plan. Unless otherwise designated by the San Francisco Bay RWQCB, all groundwater is considered suitable or potentially suitable for MUN.

The Basin Plan describes a set of designated beneficial uses for each water body. Beneficial uses help to define the resources, services, and qualities of the aquatic systems. Beneficial uses also serve as a basis for establishing water quality objectives and discharge prohibitions. The Basin Plan contains specific numeric water quality objectives that are applicable to each water body or portions of water bodies. Objectives have been established for bacteria, dissolved oxygen, pH, pesticides, electrical conductivity, total dissolved solids, temperature, turbidity, and trace elements. Numerous narrative water quality objectives have also been established. Finally, the Basin Plan contains a set of implementation plans, which represent the San Francisco Bay RWQCB's programs and specific plans of action for meeting water quality objectives and protecting beneficial uses.

National Pollutant Discharge Elimination System Permit System

Waste Discharge Requirements for Construction

The SWRCB's statewide stormwater general permit for construction activity (Order WQ 2022-0057-DWQ, NPDES Permit No. CAS000002) is applicable to all construction activities that would disturb 1 acre of land or more (SWRCB 2022b). 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.

Through the NPDES and WDR process, SWRCB seeks to ensure that the construction and post-construction conditions do not cause or contribute to direct or indirect impacts on water quality (i.e., pollution and/or hydromodification) upstream and downstream. To comply with the requirements of the Construction General Permit, project applicants must file a notice of intent with the SWRCB to obtain coverage under the permit; prepare a Storm Water Pollution Prevention Plan (SWPPP); and implement inspection, monitoring, and reporting requirements appropriate to the project's risk level as specified in the SWPPP. The SWPPP includes a site map, describes construction activities and potential pollutants, and identifies Best Management Practices (BMPs) that would be employed to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources, such as petroleum products, solvents, paints, and cement. Construction activities subject to the general construction activity permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. The permit also requires dischargers to consider the use of post-construction permanent BMPs that will remain in service to protect water quality throughout the life of a project. All NPDES permits also have inspection, monitoring, and reporting requirements.

Municipal Regional Stormwater Discharge (MS4) Permit

Suisun City is under the purview of the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES (MS4) Permit Order R2-2015-0049 as amended in 2019, NPDES Permit No. CAS612008 (San Francisco Bay RWQCB 2015).

Originally issued in 2009, this updated permit was issued to 76 Bay Area municipalities, including the FSURMP formed by the cities of Suisun City and Fairfield (discussed further below).

The MS4 Permit specifies the actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable, in a manner designed to achieve compliance with water quality standards and objectives, and methods to effectively prohibit non-stormwater discharges into municipal storm drain systems and watercourses within the permittees' jurisdictions.

Waste Discharge Requirements for Industrial Operation

The Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (Industrial General Permit or IGP), as amended in 2015 and 2018, effective July 1, 2020, implements the federally required storm water regulations in California for storm water associated with industrial activities that discharge to waters of the United States (SWRCB 2020). The SWRCB and the nine RWQCBs implement and enforce the Industrial General Permit. The Industrial General Permit is called a general permit because many industrial facilities are covered by the same permit but comply with its requirements at their individual industrial facilities. The Industrial General Permit regulates discharges associated with 9 broad categories of industrial activities: certain specific manufacturing operations (e.g. asphalt, cement, fertilizer, and feedlots), all manufacturing facilities with standard industrial classifications, oil and gas mining facilities, hazardous waste treatment and disposal facilities, landfills and open dumps, recycling facilities, steam electric power generating facilities, facilities with vehicle maintenance shops and/or equipment cleaning operations, and wastewater treatment plants. Dischargers are required to use Best Available Technologies to reduce pollutants in stormwater

discharges. Dischargers are also required to prepare and implement a SWPPP along with a suite of BMPs designed to reduce pollutants; and to conduct an annual Comprehensive Facility Compliance Evaluation to determine whether the existing BMPs are effective or whether additional stormwater controls are needed. The Industrial General Permit also contains water quality monitoring and reporting requirements.

California Department of Transportation National Pollutant Discharge Elimination System Permits

Construction-related stormwater discharges from California Department of Transportation (Caltrans) properties, including Caltrans rights-of-way, are regulated under the SWRCB's Statewide NPDES Permit CAS000003, SWRCB Order 2012-0011-DWQ as amended in 2017 (Caltrans Construction NPDES Permit) (SWRCB 2017). Operation-related stormwater discharges from Caltrans properties are regulated under the SWRCB's Statewide NPDES Permit CAS000003, Order 2022-XXX-DWQ (SWRCB 2022c). These NPDES Permits are locally overseen by Caltrans and the San Francisco Bay RWQCB in the San Francisco Bay Region. During construction, projects that are within the Caltrans right-of-way must use the *Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual* (Caltrans 2016) to design stormwater control plans and implement BMPs that comply with Caltrans' *Construction Site Best Management Practices (BMPs) Manual* (Caltrans 2017), which incorporates the SWRCB's requirements contained in the Caltrans Construction NPDES Permit and the CWA. To comply with the Caltrans Construction NPDES Permit, a SWPPP must be prepared and implemented if 1 acre or more of soil would be disturbed; if the disturbance would encompass less than 1 acre, a Water Pollution Control Program (WPCP) must be implemented. Caltrans' BMP Manual provides guidance for the selection, installation, and required maintenance of individual BMPs, which are divided into six categories: temporary soil stabilization, temporary sediment control, wind erosion control, tracking control (i.e., stabilization of construction site access points), non-stormwater management[2], and waste management and material pollution[3]. Details related to each specific BMP are provided in the Manual. Caltrans' stormwater pollution control requirements are intended to be implemented on a year-round basis at an appropriate level. The requirements must be implemented in a proactive manner during all seasons while construction is ongoing.

During the operational stage, projects within the Caltrans right-of-way must comply with the requirements of the *Stormwater Quality Handbooks, Project Planning and Design Guide* (Caltrans 2019), which includes the following standard project planning and design requirements for new development and redevelopment.

- Design pollution prevention BMPs.
- Post-construction stormwater treatment controls for highway facility projects that create 1 acre or more of new impervious surface or non-highway facility projects that create 5,000 square feet or more of new impervious surface.
- Hydromodification requirements.

[2] Source control BMPs prevent pollution by limiting or reducing potential pollutants at the source before they come in contact with stormwater. These practices involve day-to-day operations of the construction site. These BMPs are also referred to as "good housekeeping practices," which involve keeping a clean, orderly construction site.

[3] Waste management consists of implementing procedural and structural BMPs for handling, storing, and disposing of wastes generated by a construction project to prevent the release of waste materials into stormwater discharges.

- Stream crossing design guidelines to maintain natural stream processes.

Off-site improvements that would involve work within Caltrans rights-of-way would be required to comply with Caltrans' manuals, handbooks, standard project planning and design requirements, and BMP requirements discussed above.

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 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 empower local agencies to adopt groundwater sustainability 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 and corresponding regulations require that each high and medium priority groundwater basin is operated to a sustainable yield, balancing natural and artificial groundwater recharge with groundwater use to ensure undesirable results such as chronic lowering of groundwater levels, loss of storage, water quality impacts, land subsidence, and impacts to hydraulically connected streams do not occur. 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 SGMA protects existing surface water and groundwater rights and does not affect current drought response measures.

California's 515 groundwater basins are classified into one of four categories; high-, medium-, low-, or very low-priority based on components identified in the California Water Code Section 10933(b). Basin priority determines which provisions of California Statewide Groundwater Elevation Monitoring (CASGEM) and the SGMA apply in a basin. In 2019, DWR completed its prioritization of the groundwater basins (DWR 2019).

The SGMA requires that local agencies form one or more groundwater sustainability agencies (GSAs) within 2 years (i.e., by June 30, 2017). Agencies located within high- or medium-priority basins must adopt groundwater sustainability plans by January 31, 2020, or January 31, 2022.[4] The time frame for basins determined by DWR to be in a condition of "critical overdraft" is by January 31, 2020, all other high and medium priority basin have until January 31, 2022. Local agencies will have 20 years to fully implement groundwater sustainability plans 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 groundwater sustainability plan is not adopted or implemented.

The SGMA requires local agencies to develop and implement groundwater sustainability plans in high and medium priority groundwater basins throughout the State of California. Groundwater sustainability plans are not required for low or very low priority basins. As noted above, because of the low priority basin designation, a groundwater sustainability plan is not required and has not been prepared for the Suisun-Fairfield Valley Groundwater Basin.

4 Unless the local agency has submitted an Alternative as defined in the SGMA which has been approved by DWR.

Suisun Marsh Protection Plan

The Suisun Marsh Protection Plan was enacted in 1977 to protect, use with discretion, enhance, and where possible, restore the tidal marsh, managed wetlands, seasonal marsh, lowland grasslands, upland grasslands, riparian areas, and waterways of the Suisun Marsh. State, regional, and local agencies (including Solano County and the City of Suisun City) with regulatory responsibilities in the Marsh are required to carry out those responsibilities and activities in conformity with the Suisun Marsh Protection Plan. The San Francisco Bay Conservation and Development Commission (BCDC) is responsible for carrying out the State's responsibilities under the Suisun Marsh Protection Plan. There are two management areas established by the Suisun Marsh Protection Plan: Primary and Secondary. The State's responsibilities are exercised through a permit system for development within the primary management area (BCDC 1976). The southern portion of the Project Site is within the Primary Management Area and a small portion of the southwestern extremity of the Project Site is within the Secondary Management Area. As shown in Exhibit 3-3 (see Chapter 3, "Project Description), all portions of the Project Site that are in the Primary Management Area and Secondary Management Area of the Suisun Marsh Protection Plan south and southeast of Cordelia Road and Cordelia Street are proposed for Managed Open Space as part of the proposed Project.

The following policies from the Suisun Marsh Protection Plan (BCDC 1976) related to water quality are applicable to the proposed Project.

Water Supply and Quality

- **Policy 7:** Disruption or impediments to runoff and stream flow in the Suisun Marsh watershed should not be permitted, if it would result in adverse effects on the quality of water entering the Marsh. Riparian vegetation in the immediate Suisun Marsh watershed should be preserved, and stream modification permitted, only if it is necessary to ensure the protection of life and existing structures from floods. Only the minimum amount of modification necessary should be allowed in such cases. Local runoff, erosion and sediment control ordinances should be established to protect the Marsh from potential adverse impacts.

- **Policy 10:** The development of industrial facilities adjacent to or upstream from the Marsh should not be permitted if they have the potential to cause significant adverse impacts on the water quality of the Suisun Marsh. Activities that could significantly alter the temperature, salinity or turbidity of the water should be prohibited. Industrial facilities that will increase the potential for spills of toxic and hazardous materials should not be permitted unless it is established that spills of such materials will not represent a significant threat to the Marsh.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Solano County General Plan

The Solano County General Plan Resources Element (Solano County 2008) and Public Health and Safety Element (Solano County 2015) contain the following policies related to hydrology and water quality in the proposed Managed Open Space area that would remain in the unincorporated county.

Resources Element

- **Policy RS.P-65:** Require the protection of natural water courses.

- **Policy RS.P-70:** Protect land surrounding valuable water sources, evaluate watersheds, and preserve open space lands to protect and improve groundwater quality, reduce polluted surface runoff, and minimize erosion.

- **Policy RS.P-71:** Ensure that land use activities and development occur in a manner that minimizes the impact of earth disturbance, erosion, and surface runoff pollutants on water quality.

- **Policy RS.P-16:** The County shall ensure that development in the County occurs in a manner which minimizes impacts of earth disturbance, erosion and water pollution.

- **Policy RS.P-17:** The County shall preserve the riparian vegetation along significant County waterways in order to maintain water quality and wildlife habitat values.

- **Policy RS.P-65:** Require the protection of natural water courses.

- **Policy RS.P-66:** Together with the Solano County Water Agency, monitor and manage the county's groundwater supplies.

- **Policy RS.P-68:** Protect existing open spaces, natural habitat, floodplains, and wetland areas that serve as groundwater recharge areas.

- **Policy RS.P-71:** Ensure that land use activities and development occur in a manner that minimizes the impact of earth disturbance, erosion, and surface runoff pollutants on water quality.

- **Policy RS.P-72:** Preserve riparian vegetation along county waterways to maintain water quality.

- **Policy RS.P-75:** Require and provide incentives for site plan elements (such as permeable pavement, swales, and filter strips) that limit runoff and increase infiltration and groundwater recharge.

- **Policy RS.P-76:** Promote sustainable management and efficient use of agricultural water resources.

Public Health and Safety

- **Policy HS.P-1:** Prevent or correct upstream land use practices that contribute to increased rates of surface water runoff.

- **Policy HS.P-2:** Restore and maintain the natural functions of riparian corridors and water channels throughout the county to reduce flooding, convey stormwater flows, and improve water quality.

- **Policy HS.P-3:** Require new developments to incorporate devices capable of detaining the stormwater runoff caused by a 100-year storm event or to contribute to regional solutions to improve flood control, drainage, and water recharge.

- **Policy HS.P-4:** Encourage the use of stormwater detention that may also be used for groundwater recharge.

- **Policy HS.P-5:** Appropriately elevate and flood proof developments for human occupancy within the 100-year floodplain for the profile of a 100-year flood event.

- **Policy HS.P-7:** Require new development proposals in dam, canal, or levee inundation areas to consider risk from failure of these facilities and to include mitigations to bring this risk to a reasonable level.

- **Policy HS.P-9:** Preserve open space and agricultural areas that are subject to natural flooding and are not designated for future urban growth; prohibit permanent structures in a designated floodway where such structures could increase risks to human life or restrict the carrying capacity of the floodway.

- **Policy HS.P-10:** Ensure that flood management policies that minimize loss of life and property also balance with environmental health considerations of the floodplain and therefore do not cause further erosion, sedimentation, or water quality problems in the floodplain area.

Suisun Marsh Policy Addendum

- Agriculture within the primary management area of the Suisun Marsh should be limited to activities compatible with, or intended for, the maintenance or improvement of wildlife habitat. These include extensive agricultural uses such as grain production and grazing. Intensive agricultural activities involving removal or persistent plowing of natural vegetation should not be permitted. Grain production should be confined to the Grizzly Island Wildlife Area and relatively small, well suited areas of some of the large duck clubs. Grazing should be used to control vegetation on duck clubs where plant cover is sub-optimum for waterfowl use and should be discouraged on those clubs where there is already a good mixture of preferred waterfowl food plants. *Grazing pressures should not exceed sound range management practices*. [Emphasis added]

- Disruption or impediments to runoff and stream flow in the Suisun Marsh watershed should not be permitted if it would result in adverse effects on the quality of water entering the Marsh. Riparian vegetation in the immediate Suisun Marsh watershed should be preserved, and stream modification permitted only if it is necessary to ensure the protection of life and existing structures from floods. Only the minimum amount of modification necessary should be allowed in such cases.

- The development of industrial facilities adjacent to or upstream from the Marsh should be planned to eliminate significant adverse environmental impacts on the water quality of the Suisun Marsh. Activities that could significantly alter the temperature, salinity, or turbidity of the water should be prohibited. Industrial facilities that will increase the potential for spills of toxic and hazardous materials should not be permitted unless it is established that spills of such materials will not represent a significant threat to the Marsh.

- Any development in the Suisun Marsh watershed or secondary management area proposed for areas that have poor soil conditions for construction or that are seismically active, should be controlled to prevent or minimize earth disturbance, erosion, water pollution, and hazards to public safety. Local runoff, erosion, and sediment control ordinances should be established in the immediate Suisun Marsh watershed to protect the Marsh from these potential adverse effects.

- The following upstream land use practices often contribute to increased rates of surface water runoff and should therefore be prevented or regulated;

    a. Overgrazing by livestock.

    b. Logging, clearing, burning, and other activities which can reduce natural vegetative cover.

c. Construction of extensive impermeable surfaces (large developments which might include a number of structures, patios, dwellings, roads, etc.) over naturally permeable soil and geologic areas.

- Upstream land use controls shall be formulated to protect riparian corridors (the stream, its banks, and creekside vegetation) from encroachment and degradation by development.

- No development shall be permitted which would interfere with existing channel capacity or would substantially increase erosion, siltation, or other contributors to the deterioration of any watercourse.

Suisun Marsh Local Protection Program

The majority of the Suisun Marsh lies under the jurisdiction of Solano County. Other local governmental agencies having jurisdiction within the Suisun Marsh include the cities of Benicia, Fairfield, and Suisun City, the Solano County Local Agency Formation Commission, the Solano County Mosquito Abatement District, and the Suisun Resource Conservation District. Under the provisions of the Suisun Marsh Preservation Act (California Public Resources Code Division 19, Sections 29000–29612), Solano County and each of these other agencies is required to bring its general and specific plans, ordinances and zoning maps, land use regulations, and other related standards and controls into conformity with the provisions of the Suisun Marsh Protection Plan. The combination of all such land use and development policies, standards, and controls adopted by all of these agencies constitutes the Suisun March Local Protection Program.

The Suisun Marsh Protection Plan (BCDC 1976) defines the Suisun Marsh watershed as the area immediately upland from the secondary management area of the Suisun Marsh, including those streams and adjacent riparian areas that are tributary to, or flow into, the Suisun Marsh. Consistent with the Suisun Marsh Protection Plan, the Solano County Element of the Suisun Marsh Local Protection Program seeks to ensure that further development outside the Suisun Marsh but within the watershed does not adversely affect water quality within the Suisun Marsh due to sedimentation and increased urban runoff. The Solano County Element of the Suisun Marsh Local Protection Program (Solano County 2018) includes development controls that are designed to achieve the following objectives (among others) directly related to water quality:

- erosion, sediment, and run-off controls in the secondary management area of the Suisun Marsh and the watershed; and

- controls on creek side developments that would protect riparian habitat and the Suisun Marsh from increased siltation and water run-off caused by waterway modification along and immediately adjacent to waterways flowing into the Marsh.

These development controls are enforced through a variety of Solano County Ordinances, the Solano County Zoning Code, and the Solano County General Plan goals, policies, and land use designations.

Ledgewood Creek, which flows adjacent to the northwestern portion of the Project Site and flows through the southern portion of the Project Site, is an adopted “protected channel” under the Local Protection Program.

City of Fairfield General Plan

Because the northern portion of the Project Site (along SR 12) where Project-related development is proposed abuts the city of Fairfield, and a portion of the Ledgewood Creek Open Space area within the city of Fairfield is

immediately adjacent to the northwestern property boundary where Project-related development is proposed, the City of Suisun City has considered the following City of Fairfield General Plan (City of Fairfield 2002) policies related to hydrology and water quality.

Health and Safety Element

- **Policy HS 2.8:** Require an erosion control and rehabilitation plan to be prepared for projects requiring substantial groundbreaking activities to control short-term and long-term erosion and sedimentation in nearby streams and rivers.

- **Policy HS 3.2:** Require development within flood plain areas to comply with FEMA regulations by providing adequate flood mitigation and financial protection in the event of flooding.

- **Policy HS 3.5:** Development that interferes with channel capacity or causes erosion and siltation shall not be allowed.

Open Space, Conservation, and Recreation Element

- **Policy OS 9.2:** Manage all seasonal creeks and other drainage courses so as to protect and enhance the Suisun Marsh.

- **Policy OS 9.8:** Preserve natural water courses through requirements of land dedication and open space improvement imposed during the land development process.

    - **Program OS 9.2 A.** During development review, require all projects to continue to meet the requirements of the Fairfield-Suisun Sewer District. Incorporate appropriate best management practices into stormwater runoff plans to reduce impacts on local seasonal creeks and drainage courses.

City of Fairfield Municipal Code Chapter 22B, Stormwater Management and Discharge Control

Because a portion of the Ledgewood Creek Open Space area, which is within the city of Fairfield, is immediately adjacent to the western property boundary where Project-related development is proposed, the City of Suisun City has considered the following sections of the City of Fairfield Municipal Code.

Section 22B.120 Reduction of Pollutants In Stormwater—Industrial and Commercial Site Controls

B. Requirements. Each [licensed commercial or industrial] business shall implement BMPs to reduce and/or eliminate potential discharges to the City's storm drain system from any outdoor process and manufacturing areas, outdoor material storage areas, outdoor waste storage and disposal areas, outdoor vehicle and equipment storage and maintenance areas and yards, outdoor parking areas and access roads, outdoor wash areas, outdoor drainage from indoor areas, rooftop equipment and any other such sources designated by the Public Works Director.

Section 22B.140 Reduction of Pollutants in Stormwater

C. Best Management Practices for New Developments and Redevelopments.

    1. All new and redevelopment projects shall comply with all applicable requirements set forth in Section C.3 of the NPDES Permit, with respect to the design, construction and maintenance of stormwater treatment

for new development or redevelopment projects. The City may adopt requirements identifying appropriate Best Management Practices to control the volume, rate, and potential pollutant load of stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants. All new and redevelopment projects shall comply with the terms, provisions, and conditions of such requirements.

E. Notification of Intent and Compliance with General Permits.

1. Each industrial discharger, discharger associated with construction activity, or other discharger, described in any general stormwater permit addressing such discharges, as may be adopted by the United States Environmental Protection Agency, the State Water Resources Control Board, or the California Regional Water Quality Control Board, San Francisco Bay Region, shall provide notice of intent, comply with, and undertake all other activities required by any general stormwater permit applicable to such discharges.

2. Each discharger identified in an individual NPDES permit relating to stormwater discharges shall comply with and undertake all activities required by such permit.

F. Compliance with Best Management Practices.

Where best management practices, guidelines or requirements have been adopted by any federal, state of California, regional and/or City agency, for any activity, operation or facility which may cause or contribute to stormwater pollution or contamination, illicit discharges, and/or discharge of non-stormwater to the stormwater system, every person undertaking such activity or operation, or owning or operating such facility shall comply with such guideline or requirements as may be identified by the Public Works Director.

Section 22B.150, Watercourse Protection

A. Every person owning property through which a watercourse passes, or such person's lessee or tenant, shall keep and maintain that part of the watercourse within the property reasonably free of trash, debris, excessive vegetation, and other obstacles which would pollute, contaminate, or significantly retard the flow of water through the watercourse; shall maintain existing privately-owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse; and shall not remove healthy bank vegetation beyond that actually necessary for the maintenance, nor remove the vegetation in such a manner as to increase the vulnerability of the watercourse to erosion.

B. No person shall permit or cause to be committed any of the following acts, unless a written approval has first been obtained from the Public Works Director:

1. Discharge into or connect any pipe or channel to a watercourse;

2. Modify the natural flow of water in a watercourse;

3. Carry out development within thirty (30) feet of the center line of any creek or twenty (20) feet of the top of a bank;

4. Deposit in, plant in, or remove any material from a watercourse including the banks, except as required for necessary maintenance;

5. Construct, alter, enlarge, connect to, change, or remove any structure in a watercourse; or

6. Place any loose or unconsolidated material along the side of or within a watercourse or so close to the side as to cause a diversion of the flow, or to cause a probability of such material being carried away by stormwaters passing through such watercourse.

Fairfield-Suisun Urban Runoff Management Program

In the cities of Fairfield and Suisun City, stormwater and urban runoff is collected in a system that is separate from the wastewater system. The FSURMP is a collaboration established by an agreement between the City of Fairfield and the City of Suisun City. In these two cities, development projects must comply with the Municipal Regional Stormwater NPDES Permit (MS4 Permit) issued by the San Francisco Bay Regional RWQCB to the FSURMP (and other agencies and stormwater programs) in 2015 (Order No. R2-2015-0049 as amended in 2019) (San Francisco Bay RWQCB 2015). The FSURMP implements the requirements of the MS4 Permit. The FSURMP is intended to reduce or eliminate pollutants discharged from the urban environment into storm drains, local creeks, and the Suisun Marsh. Water flowing into the gutters and storm drains is not treated before discharge into the creeks, which feed into the Suisun Marsh. Key components of the FSURMP include industrial and commercial inspections, education outreach to schools and the general public, monitoring municipal maintenance activities, and ensuring that local residential and commercial construction sites do not contribute to pollution in local waterways.

Development projects within the cities of Fairfield and Suisun City are required to address stormwater quality during development review. Projects must use BMPs during construction to reduce impacts from construction work, and also during project operation to reduce post-construction impacts to water quality. Long-term water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. Details related to these requirements are contained in the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012).

All projects that are required to treat stormwater must treat the permit-specified amount of stormwater runoff with the following Low Impact Development (LID) methods: rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment. However, biotreatment will be allowed only when it can be shown that other LID methods are infeasible at the project site. Vault-based treatment is not allowed as a stand-alone treatment measure. Where stormwater harvesting and use, infiltration, or evapotranspiration are infeasible, vault-based treatment measures may be used in series with biotreatment, for example, to remove trash or other large solids.

Projects that create and/or replace 5,000 square feet or more of impervious surface related to auto service facilities, retail gasoline outlets, restaurants, and/or surface parking are required to provide LID treatment of stormwater runoff. This requirement applies to uncovered parking that is standalone or included as part of any other development project, and it applies to the top uncovered portion of a parking structure, unless drainage form the uncovered portion is connected to the sanitary sewer. For all other land use categories, 10,000 square feet remains the regional threshold for requiring LID, source control site design, and stormwater treatment.

Storm Drainage Systems — Fairfield-Suisun Sewer District

The Fairfield-Suisun Sewer District participates in the FSURMP (described above) and assists the cities of Fairfield and Suisun City by: (1) operating and maintaining storm drain facilities, including pumping stations, pipelines, channels, natural creeks, detention basins, bridge foundations, sloughs and culverts; and (2) working with the San Francisco Bay RWQCB, the Environmental Protection Agency, and other agencies in enforcing pollution control regulations.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015) includes the following policies and program related to hydrology and water quality that apply to the proposed Project.

Public Health and Safety Element

- **Policy PHS-5.1:** New development shall incorporate site design, source control, and treatment measures to keep pollutants out of stormwater during construction and operational phases, consistent with City and Fairfield-Suisun Urban Runoff Management Program standards.

    - **Program PHS-5.1: Stormwater Development Requirements.** The City will review new developments for applicable requirements of the National Pollutant Discharge Elimination System (NPDES) permit. New developments must use best management practices (BMPs) during construction to mitigate impacts from construction work and during post construction to mitigate post-construction impacts to water quality. Long-term water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. The City will encourage proactive measures that are a part of site planning and design that would reduce stormwater pollution as a priority over mitigation measures applied to projects after they are designed. Some of the many ways to reduce water quality impacts through site design include: reduce impervious surfaces; drain rooftop downspouts to lawns or other landscaping; and use landscaping as a storm drainage and treatment feature for paved surfaces.

- **Policy PHS-5.2:** New developments shall incorporate low impact development (LID) strategies, such as rain gardens, filter strips, swales, and other natural drainage strategies, to the greatest extent feasible, in order to reduce stormwater runoff levels, improve infiltration to replenish groundwater sources, reduce localized flooding, and reduce pollutants close to their source.

- **Policy PHS-5.3:** New developments should minimize the land area covered with driveways, loading areas, and parking lots in order to reduce stormwater flows, reduce pollutants in urban runoff, recharge groundwater, and reduce flooding.

- **Policy PHS-5.4:** New developments should use permeable surfaces for hardscape, where feasible.

- **Policy PHS-5.5:** Industrial land uses with high wastewater generation rates or effluent pollutant concentrations may be required by the Fairfield Suisun Sewer District to install equipment for pre-treatment of wastewater.

- **Policy PHS-11.2:** The City will use the most current flood hazard and floodplain information from state and federal agencies (such as the State Department of Water Resources, the Federal Emergency Management

Agency, and the Army Corps of Engineers) as a basis for project review and to guide development, in accordance with federal and state regulations.

- **Policy PHS-11.3:** The City will regulate development within floodplains according to state and federal requirements to minimize human and environmental risks and maintain the City's eligibility under the National Flood Insurance Program.

- **Policy PHS-11.4:** The City will require evaluation of potential flood hazards before approving development projects.

- **Policy PHS-11.5:** The City will require that structures intended for human occupancy within the 100-year floodplain are appropriately elevated and flood proofed for the profile of a 100-year flood event. Flood proofing may include a combination of structural and nonstructural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents.

- **Policy PHS-11.6:** The City will require new developments within a 100-year floodplain to demonstrate that such development will not result in an increase to downstream flooding.

Open Space and Conservation Element

- **Policy OSC-1.2:** New developments in areas with waterways, riparian habitats, and stands of mature trees shall preserve and incorporate those features into project site planning and design, to the greatest extent feasible.

- **Policy OSC-1.3:** New developments shall be designed to protect and preserve natural watercourses and drainage channels to the maximum extent feasible.

- **Policy OSC-1.8:** Roads, water lines, sewer lines, drainage facilities, and other public facilities constructed to serve development shall be located and designed to avoid substantial impacts to stream courses, associated riparian areas, and wetlands, to the greatest practical extent.

- **Policy OSC-3.4:** New developments shall control debris, sediment, and the rate and dispersal of runoff before drainage into watercourses and Suisun Marsh through the incorporation of erosion control measures.

- **Policy OSC-3.5:** New developments adjacent to watercourses, Suisun Slough, and Suisun Marsh shall include buffer areas, as needed, to avoid flood hazards, protect water quality, and preserve habitat for wildlife.

- **Policy OSC-4.4:** The City will require measures in areas adjacent to the Suisun Marsh to ensure against adverse effects related to urban runoff and physical access to the Marsh.

Community Facilities and Services Element

- **Policy CFS-8.2:** New developments will be required to construct and dedicate facilities for drainage collection, conveyance, and detention and/or contribute on a fair-share basis to area-wide drainage facilities that serve additional demand generated by the subject project.

Suisun City Grading, Erosion Control, and Creekside Development Ordinance

Suisun City Municipal Code Title 15, Chapter 15.12 regulates grading, erosion control, and development adjacent to surface water bodies. A grading permit is required for projects that exceed 50 cubic yards of material or include more than 5,000 square feet of surface area. The application for a grading permit requires submittal of a site plan; grading map; and an erosion, sediment, and runoff control plan. The erosion, sediment, and runoff control plan must include the land treatment, structural measures, and timing requirements that would be implemented at the project site to effectively minimize soil erosion and sedimentation. The runoff control plan must also indicate the calculated runoff from the site under pre- and post-development conditions, using City drainage standards. The runoff control plan must demonstrate that peak runoff from the site would not increase after development and must include all necessary measures to ensure this result to the satisfaction of the City engineer. All materials must be prepared by a registered civil engineer. (Additional details related to the requirements of this ordinance are presented in Section 4.5, “Geology, Soils, Minerals, and Paleontological Resources.”)

Suisun City Municipal Code Title 15, Chapter 15.12, Section 15.12.230 (Creekside Development) requires that whenever development is proposed for an area within 300 feet of the centerline of a designated watercourse, a detailed plan of the proposed development shall be submitted to the City for approval. The plan shall include, but not be limited to, the following:

A. Volume and extent of grading, filling and excavation;

B. Placement of drainage outflows. Such outflows and associated drainage facilities shall be designed so as to eliminate or minimize increases in the rate and amount of stormwater discharge;

C. Type and amount of native vegetation.

Suisun City Drainage and Stormwater Quality Standards

Suisun City is a participant in the FSURMP (described above); therefore, project applicants are required to design and engineer stormwater drainage systems in compliance with the FSURMP’s *Stormwater C.3 Guidebook* (FSURMP 2012). In addition, the City encourages applicants for new and redevelopment projects to review and incorporate the following guidance from the Bay Area Stormwater Management Agencies Association (BASMAA): *Start at the Source: Design Guidance Manual for Stormwater Quality Protection* (BASMAA 1999),and *Using Site Design Techniques to Meet Development Standards for Stormwater Quality* (BASMAA 2003).

Suisun City Green Stormwater Infrastructure Plan

In 2019, Suisun City adopted a *Green Stormwater Infrastructure Plan* (GSI Plan) (City of Suisun City 2019). The MS4 Permit issued by the San Francisco Bay RWQCB (discussed above) requires permittees to develop and implement long-term GSI Plans for the inclusion of GSI measures into storm drain infrastructure on public and private property and in the right-of-way, including streets, roads, parking lots, and alleys. "Green Stormwater Infrastructure" refers to the construction and retrofit of storm drainage to reduce runoff volumes, disperse runoff to vegetated areas, harvest and use runoff where feasible, promote infiltration and evapotranspiration, and use bioretention and other natural systems to detain and treat runoff before it reaches creeks and the Bay. Green Stormwater Infrastructure facilities include, but are not limited to, bioretention facilities or "rain gardens," pervious pavement, infiltration features, and rainwater harvesting systems. The GSI Plan demonstrates the City's

long-term commitment to GSI implementation to reduce pollutants of concern, in particular PCBs and mercury, discharged to local waterways (per MS4 Permit requirements). The GSI Plan describes how the City will gradually integrate GSI features into its urban landscape over several decades, with a particular focus on retrofit and redevelopment projects. The Project Site is located in an area identified by the plan for implementation of Decentralized BMPs, which drain small areas and infiltrate runoff or attenuate pollutants near their source. Examples include (but are limited to) bioretention, infiltration features, or permeable pavement.

The MS4 Permit also requires that the GSI Plan include general design and construction guidelines, including standard specifications and details (or references to those documents), for incorporating GSI components into projects within the City. The GSI Plan incorporates (in Appendix B) the *Green Stormwater Infrastructure Design Guidebook* (Design Guidebook) developed by the cities of Fairfield, Suisun City, and Vallejo to reflect the best local and national GSI planning and design practices. The Design Guidebook is a tool for identifying and incorporating green stormwater infrastructure into the built environment. The Design Guidebook is organized to identify the green stormwater infrastructure integration opportunities within the cities of Fairfield, Suisun City, and Vallejo.

Suisun City Floodplains and Flood Damage Prevention Ordinance

Chapter 15.08, Article I of the Suisun City Municipal Code defines and regulates construction in floodplains. The Project Site is located within two of the City's three designated floodplain (FP) zones: (1) the secondary FP-2 zone, which applies to properties lying within inundation areas affected by overflow and backwater, but relatively free of any current and excluding FP-1 zones[5]; and (2) the City's tertiary FP-3 floodplain zone, which applies to flood-prone areas that are protected by levees. Within FP-2 zones, the ground-floor level of buildings, structures, and uses must be constructed above the flood profile level as determined by the City Engineer.

Section 15.08.070 states that buildings or structures may not be constructed, erected, converted, altered, enlarged in the primary FP-1 floodplain zone, or relocated within that zone, and no other conditions will be allowed that would tend to cause stream-channel alteration or adversely affect the carrying capacity of a designated floodway, so as to constitute a threat to life and property.

Chapter 15.08, Article II, Flood Damage Prevention, is intended to minimize public and private losses due to flood conditions. It contains methods and provisions for:

A. Restricting or prohibiting uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;

B. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

C. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;

D. Controlling filling, grading, dredging, and other development which may increase flood damage; and

[5] The FP-1 zone consists of a stream channel and its immediate associated floodplain.

E. Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards in other areas.

Section 15.08.370 requires application for a development permit for construction in FEMA flood zones, with approval by the City's floodplain administrator. The permit application must include plans showing:

1. Location, dimensions, and elevation of the area in question, existing or proposed structures, storage of materials and equipment and their location;

2. Proposed locations of water supply, sanitary sewer, and other utilities;

3. Grading information showing existing and proposed contours, any proposed fill, and drainage facilities;

4. Location of the regulatory floodway when applicable;

5. Base flood elevation;

6. Proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures; and

7. Proposed elevation in relation to mean sea level to which any nonresidential structure will be floodproofed.

The permit application must also include certification from a registered civil engineer or architect that the nonresidential floodproofed building meets the City's floodproofing criteria (Section 15.08.430[B]), and must include a description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

Section 15.08.420 requires that within FEMA flood zones AH or AO, adequate drainage paths must be provided around structures on slopes to guide floodwaters around and away from proposed structures.

4.8.3 Environmental Impacts and Mitigation Measures

Methodology

Potential impacts related to hydrology and water quality were evaluated based on a review of (1) available information regarding watersheds, surface waters, groundwater, flooding hazards, and stormwater control and treatment requirements in the Project area; and (2) the *Draft Drainage Master Plan* prepared for the proposed Project by Morton and Pitalo (2021). The information obtained from these sources was reviewed and summarized to document existing conditions and to identify the potential environmental effects of the proposed Project.

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;

- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    i) result in substantial erosion or siltation on- or off-site;
    ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
    iv) impede or redirect flood flows;
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

For potential water quality impacts to surface water and groundwater resources related to hazardous materials, please see Section 4.7, "Hazards and Hazardous Materials." Please see Section 4.3, "Biological Resources," for impacts related to the proposed Managed Open Space area, including impacts related to carrying out biological resources mitigation in the proposed Managed Open Space area.

IMPACT ANALYSIS

Impact 4.8-1: Violate Water Quality Standards or Substantially Degrade Surface or Groundwater Quality. *Buildout of the proposed Development Area would convert approximately 93 acres of undeveloped land used for cattle grazing to logistics and warehouse uses, resulting in a change in the types of pollutants, and a potential increase in the amount of pollutants to receiving water bodies. Pollutants from construction and operation at the Project Site, and from construction of the off-site improvements, could result in adverse changes to the water quality of local water bodies and could conflict with the Basin Plan. However, with implementation of grading, erosion control, and municipal and industrial stormwater pollutant laws, regulations, and permit conditions; and compliance with the Suisun Marsh Protection Plan, this impact would be* ***less than significant****.*

As part of the proposed Project, approximately 93 acres of existing cattle grazing land would be converted to urban development in the form of new urban (e.g., logistics and warehouse) land uses. In addition, off-site improvements related to roadways, water lines, and a sewer line are also proposed.

As indicated in Table 4.8-2, several streams adjacent to and downstream of the Project Site and the off-site improvement areas are included on the SWRCB's 303(d) list of impaired water bodies for a variety of pollutants such as pesticides, salinity, total dissolved solids, chlorides, and PCBs (among others). These streams include Ledgewood Creek, Suisun Marsh wetlands, and Suisun Bay (SWRCB 2022a).

Buildout of the proposed Development Area could affect long-term water quality by adding impervious surfaces and additional urban stormwater runoff. New development has the potential to alter the types, quantities, and

timing of contaminant discharges in stormwater runoff. Changes to a more developed state, if not properly managed, can adversely affect water quality. Sediment, trash, organic contaminants, nutrients, trace metals, and oil and grease compounds are common urban runoff pollutants that can degrade receiving water quality. Sources of these pollutants may be erosion from disturbed areas, deposition of atmospheric particles derived from automobiles or industrial sources, corrosion or decay of building materials, rainfall contact with toxic substances, and accidental spills of toxic materials on surfaces that receive rainfall and generate runoff. Specifically, sources of sediment from urban development include roads and parking lots, as well as destabilized landscape areas, streambanks, unprotected slopes, and disturbed areas where vegetation has been removed during the grading process. Sediments, in addition to being contaminants in their own right, transport other contaminants, such as trace metals, nutrients, and hydrocarbons that adsorb to suspended sediment particles. New development can generate urban runoff from parking areas, as well as any areas of hazardous materials storage exposed to rainfall.

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 (e.g., office, commercial, industrial), types of contaminants used at a given location (e.g., pesticides, herbicides, cleaning agents, petroleum byproducts), contaminants deposited on paved surfaces, and the amount of rainfall.

Long-term operational discharges of urban contaminants into the stormwater drainage system and ultimate receiving waters would increase with the buildout of the proposed Development Area, compared to existing conditions. The major factor in this increase is the added amount of impervious surfaces, primarily taking the form of parking lots, driveways, streets, rooftops, and sidewalks. In addition, the presence of additional urban land uses that use potential pollutants (e.g., cleaning agents, pesticides, oil) could result in discharges if there is improper storage, application, and/or disposal. The Alviso, Pescadero, and Sycamore soils in the proposed Development Area and the off-site improvement areas are classified as hydrologic Groups C and D, which have slow to very slow permeability rates and therefore have a high to very high stormwater runoff potential, respectively. New impervious surfaces associated with new development would result in an associated increase in urban stormwater runoff, which can be a source of surface water pollution.

Several existing regulations would apply to the proposed Development Area that would reduce or avoid impacts related to long-term erosion, sedimentation, and water quality degradation. To receive a building permit from the City, a grading and drainage plan must be submitted to the Department of Public Works that must incorporate stormwater pollution control, as well as storm drainage design features to control increased runoff from the Project Site. As described in Section 4.8.2, the City's Grading, Erosion Control, and Creekside Development Ordinance requires implementation of BMPs where a discharge has the potential to cause or contribute to pollution or contamination of stormwater, the City's storm drainage system, or receiving waters. Receiving waters include both groundwater and surface water. Groundwater quality can be affected either by direct contact during construction-related earthmoving activities, or by indirect contact as a result of percolation of stormwater. Earthmoving activities that could encounter groundwater during the construction process are issued permits by the San Francisco Bay RWQCB through the Project-specific permitting process; the permits contain provisions (in form of permit terms and conditions) that are specifically intended to protect groundwater quality. Protection of groundwater quality from operational stormwater percolation is accomplished through implementation of the MS4 permit (discussed below).

Projects that disturb more than 1 acre of land must comply with the requirements in the SWRCB General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order WQ 2022-0057-DWQ) (Construction General Permit). Through the NPDES and WDR process, SWRCB seeks to ensure that the construction and post-construction conditions at a project site do not cause or contribute to direct or indirect impacts on water quality. The Construction General Permit requires preparation and implementation of a SWPPP with associated BMPs that are specifically designed to reduce construction-related erosion, sedimentation, and pollutant transport. The Construction General Plan includes a numeric, two-part, risk-based analysis process. It also identifies the need to address changes in the hydrograph, defined as hydrograph modification or hydromodification, which could result from urbanization of a watershed, and requires LID controls to more closely mimic the pre-developed hydrologic condition.

Under the NPDES MS4 Phase II General Permit for stormwater discharge, the cities of Fairfield and Suisun City have joined together to develop and implement the FSURMP, which is intended to reduce or eliminate pollutants discharged from the urban environment into storm drains, local creeks, and the Suisun Marsh as required by the San Francisco Bay RWQCB. Development projects within the City of Suisun City are required to address stormwater quality during development review. Projects must use BMPs during construction to reduce impacts from construction work, and also during project operation to reduce post-construction impacts to water quality. Long-term water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. Details related to these requirements are contained in the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012). Stormwater design for new projects is also required to consider guidance contained in the BASMAA publications 1999. *Start at the Source: Design Guidance Manual for Stormwater Quality Protection* and *Using Site Design Techniques to Meet Development Standards for Stormwater Quality* (BASMAA 1999, 2003).

New development projects are also required to demonstrate compliance with the City's *Green Stormwater Infrastructure Plan* and the associated *Green Stormwater Infrastructure Design Guidebook* (City of Suisun City 2019), which include general design and construction guidelines, and standard specifications and details. The FSURMP requires that project must treat the permit-specified amount of stormwater runoff with LID methods such as rainwater harvesting and use, infiltration, evapotranspiration, or biotreatment. LID stormwater treatment is also required for projects that include 5,000 square feet or more of impervious surfaces from surface parking.

All of these requirements include reduction of post-construction runoff through the incorporation of BMPs, LID, and hydromodification management techniques. These measures to protect water quality are intended to support the City's compliance with the *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin* (San Francisco Bay RWQCB 2023).

Industrial or commercial facilities require appropriate NPDES permits/WDRs, and implementation of BMPs consistent with the *California Stormwater Quality Association (CASQA) Industrial/Commercial BMP Handbook* (CASQA 2019) or its equivalent, including annual reporting of any structural control measures and treatment systems.

For off-site improvements in Caltrans rights-of-way, construction stormwater control and treatment BMPs would be designed and implemented in accordance with the *Construction Site Best Management Practices (BMPs) Manual* (Caltrans 2017), which incorporates the SWRCB's requirements contained in the Caltrans Construction NPDES Permit (SWRCB 2017) and the CWA. To comply with the Caltrans Construction NPDES Permit, a

SWPPP must be prepared and implemented if 1 acre or more of soil would be disturbed; if the disturbance would encompass less than 1 acre, a WPCP must be implemented. Operational stormwater control for off-site improvements in Caltrans rights-of-way would be regulated by the Caltrans Operational NPDES Permit (SWRCB 2022b), and must incorporate the requirements of Caltrans' S*torm Water Quality Handbooks, Project Planning and Design Guide (PPDG)* (Caltrans 2019). Design and implementation of stormwater control and treatment BMPs as required by the Caltrans BMP Manual and PPDG Handbook would ensure that construction and operation of improvements to Caltrans rights-of-ways would comply with SWRCB NPDES permit requirements to avoid adverse impacts on water quality.

In conclusion, compliance with the above-listed regulations, standards, ordinances, and permit terms would require the proposed Project to reduce pollution and runoff generated in the proposed Development Area and the off-site improvements through implementation of operation-related LID technologies, hydromodification management techniques, BMPs, and pretreatment, along with preparation of a SWPPP with associated BMPs designed to control construction-related erosion and pollutants. These measures would protect water quality as required by the San Francisco Bay Basin Plan. In addition, the proposed new development at the Project Site must comply with the requirements of the Suisun Marsh Protection Plan (described above in the Regulatory Framework section), which is designed to protect water quality in the Suisun Marsh. Furthermore, the Solano County Element of the Suisun Marsh Local Protection Program (described above in the Regulatory Framework section) includes development controls that are designed to protect water quality, particularly as related to Ledgewood Creek, which flows through the Project site. These development controls are enforced through a variety of Solano County Ordinances and the Solano County Zoning Code. Though the Project proposes annexation to the City of Suisun City and development consistent with City standards, Ledgwood Creek is regulated by the County through the Suisun Marsh Protection Program – both off-site and on-site.

Compliance with applicable standards, ordinances, and regulations would ensure that development of the proposed 93-acre Development Area and construction and operation of the proposed off-site improvements would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and this impact would be **less than significant**. (Potential surface water and groundwater quality impacts from existing hazardous materials sites are evaluated in Section 4.7, "Hazards and Hazardous Materials," and would be less than significant.)

Proposed Managed Open Space Area

Most of the approximately 487-acre Project Site is used for cattle grazing, and has been in use as grazing land since at least the 1930s. Approximately 393 acres of the Project Site would be proposed as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Existing uses (i.e., cattle grazing) may continue within the Managed Open Space area. As discussed in detail in the "Environmental Setting," a variety of surface water drainage ways are present throughout the Project Site, all of which discharge to Peytonia Slough, Suisun Marsh, and Grizzly/Suisun Bay. Cattle grazing can have adverse effects on water quality from fecal bacterial contamination (such as *E. coli*) and nutrient over-enrichment (particularly nitrogen from urine and feces). In addition, if pastures are grazed too heavily, a loss of plant matter can occur and the soil can become compacted from trampling, both of which may result in increased erosion and sediment transport. However, when properly implemented, BMPs as recommended by local soil and water conservation districts, cooperative agricultural extension services such as U.C. Rangelands, and the U.S. and California Natural Resources Conservation Services, can substantially reduce the potential for water quality degradation. These BMPs fall

under several broad categories, including balancing stocking rates with forage production, distributing grazing and waste across the landscape, managing fertilizer and pesticide applications, and installing fencing to keep cattle away from riparian zones (Tate and Roche 2016). Cattle grazing is an existing condition, and the Project does not propose to expand or increase this activity.

As described in Chapter 3, "Project Description" and Section 4.3, "Biological Resources," grazing on the Project Site will be planned and managed consistent with (1) the Project's managed open space strategy and biological resource mitigation requirements, and (2) applicable requirements of the Suisun Marsh Protection Plan and associated BCDC permit conditions. Furthermore, as described in Chapter 3, "Project Description" and Section 4.3, "Biological Resources," mitigation wetlands are proposed to be constructed within the proposed Managed Open Space area of the Project Site, both within the eastern portion of the Annexation Area and within the proposed Managed Open Space area located south of Cordelia Road in the vicinity of Suisun Marsh. These activities would be required to be consistent with permit conditions stipulated by the U.S. Army Corps of Engineers, San Francisco Bay Regional Water Quality Control Board, and the San Francisco Bay Conservation and Development Commission and will also be required to be consistent with mitigation imposed within Section 4.3 of this EIR, "Biological Resources," including requirements that would avoid adverse hydrological and water quality impacts. See Section 4.3 for more detail.

Impact 4.8-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge*. The proposed Project would not include drilling of any new groundwater wells. Development of approximately 66 acres of new impervious surfaces at the approximately 487-acre Project Site would result in a decrease of only approximately 13.5 percent of the existing pervious surfaces that are currently available for groundwater recharge. Therefore, this impact would be* ***less than significant****.*

Potable water for the proposed new urban development at the Project Site would be supplied by SID. Water supplied by SID for urban uses is obtained from surface water, from Lake Berryessa via the Solano Project (through a contract with the U.S. Bureau of Reclamation). Because the proposed Project would not include drilling new groundwater wells, and because SID would have sufficient surface water supplies to serve the proposed Project through the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement executed in 2022 (Kjeldsen, Sinnock, and Neudeck, Inc. 2022), the proposed Project would not substantially decrease groundwater supplies, and this impact would be **less than significant**.

The Suisun-Fairfield Valley Groundwater Basin is a low priority basin as designated by DWR (2020), and therefore a groundwater sustainability plan is not required nor are there any plans to prepare one. SID considers that the groundwater basin has generally stable groundwater levels (Davids Engineering, Inc. 2018). The new urban infrastructure with impervious surfaces (e.g., buildings, roads, parking areas) in the proposed Development Area would result in a reduction in the amount of rainfall that would otherwise percolate through the soil and result in groundwater recharge. It should be noted that soil in the proposed Development Area is rated by NRCS (2022) as Hydrologic Group C, which has a relatively slow permeability rate. Nevertheless, groundwater recharge within the proposed 93-acre Development Area does currently occur under existing conditions. The proposed Project would result in new impervious surfaces over 66 acres of the approximately 93-acre proposed Development Area. However, the remaining approximately 393 acres of the Project Site would continue to be available for groundwater recharge through rainwater percolation, because this area of the Project Site would be Managed Open Space. The new 66 acres of impervious surfaces would represent only an approximately 13.5

percent decrease in the area available for groundwater recharge at the Project Site. Therefore, the proposed Project would not substantially interfere with groundwater recharge, and this impact would be **less than significant**.

Impact 4.8-3: Substantially Alter Drainage Patterns or Add Impervious Surfaces Resulting in Increased Erosion or Siltation. *Construction and grading activities in the Project Site and the proposed off-site improvements could result in excess runoff, soil erosion, and stormwater discharges of suspended solids and increased turbidity. Such activities could mobilize other pollutants from Project construction sites as contaminated runoff to on-site and ultimately off-site drainage channels, which could degrade existing water quality. Construction activities that are implemented without proper controls could violate water quality standards or cause direct harm to aquatic organisms. However, with implementation of grading, erosion control, and stormwater pollutant laws, regulations, and permit conditions; and compliance with the Suisun Marsh Protection Plan, this impact would be less than significant.*

Proposed Development Area and Off-Site Improvements

Ground disturbance associated with construction activities in the approximately 93-acre proposed Development Area and the proposed off-site improvements could increase erosion and sedimentation that could result in degradation of waterways and conflict with beneficial uses, water quality objectives, and standards established in the San Francisco Bay Basin Plan. In addition, accidental spills of construction-related contaminants (e.g., fuels, oils, paints, solvents, cleaners, concrete) could also occur during construction, thereby degrading water quality. Construction dewatering also has the potential to impact water quality if proper dewatering procedures are not followed and water is improperly stored and disposed of (and treated prior to discharge, if necessary).

Many construction-related wastes have the potential to 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. Development within the approximately 93-acre proposed Development Area and the proposed off-site improvements would include substantial earth-disturbing activities (i.e., cut and fill, vegetation removal, grading, trenching, movement of soil) that could expose disturbed areas and stockpiled soils to winter rainfall and stormwater runoff. Most of the proposed Development Area and the off-site improvement areas are composed of Hydrologic Group C and D soils, which have a slow to very slow infiltration rate and a therefore a high to very high stormwater runoff rate, respectively (see Table 4.7-1 in Section 4.5, “Geology, Soils, Minerals, and Paleontological Resources”). Furthermore, areas of exposed or stockpiled soils could be subject to wind or water erosion, allowing temporary discharges of sediment into the storm drain system, and ultimately to Pennsylvania Ave Creek, Ledgewood Creek, Peytonia Slough, and Suisun Marsh.

Several existing regulations as described above in Section 4.8.2, “Regulatory Framework,” would apply to the proposed Development Area and the off-site improvement areas and would be implemented to reduce or avoid impacts related to erosion, sedimentation, and water quality degradation during construction. For example, Chapter 15.12 of the Suisun City Municipal Code addresses erosion and sediment control under the City’s Grading Ordinance. Project applicants must obtain grading permits that include submittal of an erosion, sediment, and runoff control plan, which includes the land treatment, structural measures, and timing requirements that would be implemented at the Project Site to effectively minimize soil erosion and sedimentation. The runoff control plan must also indicate the calculated runoff from the site under pre- and post-development conditions, using City drainage standards. The runoff control plan must demonstrate that peak runoff from the site would not increase after development and must include all necessary measures to ensure this result to the satisfaction of the City engineer. In addition, Suisun City Municipal Code Chapter 15.12, Sections 15.12.100 through 15.12.230,

contain a suite of measures that must be implemented at the Project Site which are specifically designed to control erosion and sediment transport, and protect water quality during construction. Suisun City is a participant in the Suisun Marsh Local Protection Plan, and the above sections in the City's Municipal Code, along with a variety of Suisun City General Plan Policies listed previously (such as PHS-5.1, OSC-3.4, among others) that are implemented through existing regulations would reduce construction-related erosion and protect water quality downstream in the Suisun Marsh.

Projects that disturb more than 1 acre of land must comply with the requirements in the SWRCB *General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activitie*s (Order WQ 2022-0057-DWQ) (SWRCB 2022b). The SWRCB general permit contains a numeric, two-part, risk-based analysis process. It also identifies the need to address hydromodification (stream channel modification and alterations in the natural hydrology of a watershed that result from changes in land cover/land use), and requires LID controls to more closely mimic the pre-developed hydrologic condition. The SWPPP must include a site map and a description of construction activities, and must identify the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants. In Suisun City, project applicants are required to comply with the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012). In addition, the City encourages applicants for new and redevelopment projects to review and incorporate the following guidance from the BASMAA: *Start at the Source: Design Guidance Manual for Stormwater Quality Protection* (BASMAA 1999), and *Using Site Design Techniques to Meet Development Standards for Stormwater Quality* (BASMAA 2003). Implementing the treatment and preventative measures contained in these publications, as required by the City during the permitting process, would ensure that appropriate BMPs for erosion and sediment control relating to construction activities and stormwater runoff (such as mulch, re-seeding, straw wattles, check dams, sediment traps, silt fencing, sediment basins, placement of rip rap under drain outfalls, and stabilizing construction entrances and exits) are implemented. A SWPPP must also identify the BMPs that will be employed to prevent soil erosion and discharge of other construction-related pollutants, such as petroleum products, solvents, paints, and cement, that could contaminate nearby water resources. All NPDES permits also have inspection, monitoring, and reporting requirements to ensure that BMPs are implemented according to the SWPPP and are effective at controlling discharges of stormwater-related pollutants. Source controls, treatment controls, and site planning measures are typical types of BMPs. The general permit also requires dischargers to consider the use of post-construction permanent BMPs that would remain in service to protect water quality throughout the life of the project.

For off-site improvements in Caltrans rights-of-way, construction stormwater control and treatment BMPs would be designed and implemented in accordance with the *Construction Site Best Management Practices (BMPs) Manual* (Caltrans 2017), which incorporates the SWRCB's requirements contained in the Caltrans Construction NPDES Permit (SWRCB 2017) and the CWA. To comply with the Caltrans Construction NPDES Permit, a SWPPP must be prepared and implemented if 1 acre or more of soil would be disturbed; if the disturbance would encompass less than 1 acre, a WPCP must be implemented. Design and implementation of stormwater control and treatment BMPs as required by the Caltrans BMP Manual would ensure that construction of improvements to Caltrans rights-of-ways would comply with SWRCB NPDES permit requirements to avoid adverse impacts on water quality.

Construction dewatering would require a Project-specific permit from the San Francisco Bay RWQCB and consultation to determine the specific permit terms, disposal methods, and/or the types of treatment in the case of contaminated soil or groundwater. Adherence to permit terms would reduce potential water quality degradation resulting from construction dewatering activities. Compliance with of the regulatory controls discussed above,

which include implementation of a SWPPP with site-specific BMPs, preparation of a SWPPP or WPCP with associated construction and operation BMPs for off-site improvements in Caltrans rights-of-way, Suisun City Municipal Code requirements and the Suisun Marsh Local Protection Plan, and the FSURMP's *Stormwater C.3 Guidebook*, would appropriately control erosion and sedimentation from alteration of drainages in the proposed Development Area and the proposed off-site improvement areas. Therefore, this impact would be **less than significant.**

Proposed Managed Open Space Area

Drainage patterns would not be substantially altered in the proposed Managed Open Space Area because the Project proposes long-term open space management of this area, and no development is proposed. Furthermore, as discussed in detail in Impact 4.8-1, activities related to wetlands mitigation will be required to be consistent with permit conditions stipulated by the U.S. Army Corps of Engineers, San Francisco Bay Regional Water Quality Control Board, and the San Francisco Bay Conservation and Development Commission and will also be required to be consistent with mitigation imposed within Section 4.3 of this EIR, "Biological Resources," including requirements that would avoid adverse hydrology and water quality impacts. See Section 4.3 for more detail. Potential impacts related to erosion and siltation in the Managed Open Space area from alteration of existing drainages would be **less than significant.**

Impact 4.8-4: Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Exceed Storm Drainage Systems, Result in Increased Flooding, or Impede or Redirect Flood Flows. *Buildout of the proposed Project would increase the amount of impervious surfaces, thereby increasing surface runoff. This increase in surface runoff would result in an increase in both the total volume and the peak discharge rate of stormwater runoff, and therefore could result in greater potential for erosion, sedimentation, hydromodification, and on- and off-site flooding. Furthermore, proposed on-site and off-site development would be located within FEMA 100-year floodplains, and therefore could impede or redirect flood flows. However, through required compliance with stormwater and floodplain laws, regulations, and permit conditions, this impact would be less than significant.*

Proposed Development Area and Off-Site Improvements

Buildout of the proposed Development Area and the off-site improvements would include development of new impervious surfaces on undeveloped land. The addition of approximately 66 acres of new impervious surfaces in the proposed approximately 93-acre Development Area would increase the peak discharge rate of stormwater runoff and could result in erosion, sedimentation, and on-site or downstream flooding. Increased peak flow rates have the potential to exceed drainage system capacities, exacerbate erosion in overland flow and drainage swales and creeks, and result in downstream sedimentation. Sedimentation, in turn, could increase the rate of deposition in natural receiving waters and reduce conveyance capacities, resulting in an increased risk of flooding. Erosion of upstream areas and related downstream sedimentation typically leads to adverse changes to water quality and hydrology.

The City's Regulatory Floodplain includes FEMA's 100-year flood hazard zones. The addition of impervious surfaces and drainage infrastructure from urbanization results in increased runoff volumes and dry weather flows, increased frequency and number of runoff events, and increased long-term cumulative duration of flows, as well as increased peak flows. Exhibit 4.8-2 shows the proposed land uses in the proposed Development Area in relationship to the FEMA floodplain classifications. All of the proposed Development Area is within a FEMA

100-year floodplain hazard area. Most of the proposed Development Area is within Zone AO; the proposed Development Area east of Pennsylvania Avenue is classified as Zone AE.

Under the NPDES MS4 Phase II General Permit for stormwater discharge, project applicants must comply with the FSURMP to protect and improve stormwater quality. The FSURMP requires that measures for long-term BMPs that protect water quality and control runoff flow be incorporated into new development and substantial redevelopment projects. The proposed Project is required to design and implement water quality and runoff controls per the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012). In addition, the City encourages applicants for new and redevelopment projects to review and incorporate the following guidance from the BASMAA: *Start at the Source: Design Guidance Manual for Stormwater Quality Protection* (BASMAA 1999), and *Using Site Design Techniques to Meet Development Standards for Stormwater Quality* (BASMAA 2003). These publications contain site-specific design and treatment measures that can be implemented at project sites to reduce post-construction runoff and control urban runoff pollution in compliance with of the MS4 permit through the incorporation of BMPs, LID, and hydromodification management techniques. This includes the requirement to treat stormwater runoff through evapotranspiration, infiltration, stormwater harvesting and reuse, or biotreatment. Hydromodification management requires regulated projects to slow and minimize the amount of runoff so that there is no net-increase in post-construction runoff flow rate compared to the pre-construction value. In addition, a SWPPP would be required in compliance with the NPDES Construction General Permit and would include BMPs to avoid construction-related erosion and sedimentation on- or off-site.

As also required by the MS4 Permit, the City has adopted a GSI Plan that includes general design and construction guidelines, including standard specifications and details, for incorporating GSI components into projects within the City. The GSI Plan incorporates (in Appendix B) the Design Guidebook developed by the cities of Fairfield, Suisun City, and Vallejo to reflect the best local and national GSI planning and design practices. The Project Site is located in an area identified by the plan for implementation of Decentralized BMPs, which drain small areas and infiltrate runoff or attenuate pollutants near their source. Examples include (but are not limited to) bioretention, infiltration features, or permeable pavement.

Operational stormwater control for off-site improvements in Caltrans rights-of-way would be regulated by the Caltrans Operational NPDES Permit (SWRCB 2022c), and must incorporate the requirements of Caltrans' S*torm Water Quality Handbooks, Project Planning and Design Guide (PPDG)* (Caltrans 2019).

The City's Creekside Development Ordinance (Suisun City Municipal Code Title 15, Chapter 15.12, Section 15.12.230) requires that whenever development is proposed for an area within 300 feet of the centerline of a designated watercourse, a detailed plan of the proposed development must be submitted to the City for approval. The plan must include the proposed placement of drainage outflows and associated drainage facilities, which must be designed so as to eliminate or minimize increases in the rate and amount of stormwater discharge.

In all areas of special flood hazards, including the Project Site, the standards set forth in the City's Floodplains and Flood Damage Prevention Ordinance (Municipal Code Chapter 15.08, Article II) Sections 15.08.410 through 15.08.470 are required. The standards control filling, grading, dredging, and other development which may increase flood damage; and prevent or regulate the construction of flood barriers that would unnaturally divert flood waters or which may increase flood hazards in other areas. Per Municipal Code Section 15.08.370, the project applicant must apply for a development permit for construction in FEMA flood zones, with approval by the City's floodplain administrator. The permit application must include plans showing elevations of proposed

structures and the elevations of areas proposed for materials and equipment storage; the proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures; and the proposed elevation in relation to mean sea level to which any nonresidential structure will be floodproofed (among other requirements). The permit application must also include certification from a registered civil engineer or architect that the nonresidential floodproofed building meets the City's floodproofing criteria (Section 15.08.430[B]). Per Suisun City Ordinance No. 729, Section 15-08.430, the lowest floor of each building must be elevated above the highest adjacent grade to a height equal to or exceeding the depth number specified in feet on the FEMA FIRM plus one-half-foot of freeboard. As stated in the Master Drainage Plan, the Project's finished floor grades would meet these specifications as required by the City Ordinance (Morton and Pitalo 2021). Municipal Code Section 15.08.420 also requires that within FEMA flood zones AH or AO (which includes most of the proposed Development Area), adequate drainage paths must be provided around structures on slopes to guide floodwaters around and away from proposed structures.

The Project applicant has prepared a Drainage Master Plan (Morton and Pitalo 2021) (Appendix D). Drainage from proposed building roofs and parking lots would be routed into bioretention facilities for infiltration and treatment prior to discharge to the on-site detention basins. The proposed drainage plan is shown in Exhibit 3-7 in Chapter 3, "Project Description." The Drainage Master Plan demonstrates a "decentralized" approach that is consistent with the City's *Green Stormwater Infrastructure Design Guidebook* (discussed above in the Regulatory Framework section). The bottom of the on-site detention basins would also be constructed as a bioretention facility. The inlet pipes to the detention basins would likely be below the gravity discharge elevation. Therefore, a storm drain lift station would be installed at each basin location prior to discharge to the public main or existing drainage ditch/channel. LID features may include disconnected roof drains and disconnected pavement. The proposed on-site detention basin volumes are based on the 100-year, 24-hour storm event with outflows restricted to 95 percent of pre-development flows or less (as required by the City). The Drainage Master Plan demonstrates incorporation of stormwater design and treatment measures for the proposed Development Area as required by the FSURMP *Stormwater C.3 Guidebook* (FSURMP 2012). The Drainage Master Plan includes hydraulic, floodplain, hydrologic, and water quality analyses for the proposed development. The modeling results contained in the Drainage Master Plan demonstrate that the proposed Project as designed, includes appropriate stormwater runoff design features, properly sized stormwater drainage features, and appropriate stormwater quality treatment features so that the new impervious surfaces would not increase peak discharge rate of stormwater runoff and would not result in erosion, sedimentation, and on-site or downstream flooding. Furthermore, Appendix H to the Drainage Master Plan includes a Stormwater Control Plan that would be implemented at the Project Site. A Stormwater Control Operation and Maintenance Plan would be submitted to the City for approval along with the Project's construction drawings. The Master Drainage Plan demonstrates compliance with all of the regulatory controls and requirements discussed above. Therefore, although new development in the proposed Development Area would alter drainage patterns and add impervious surfaces, the new development would not exceed storm drainage system capacity, result in increased flooding, or impede or redirect flood flows, and this impact would be **less than significant.**

Proposed Managed Open Space Area

Drainage patterns would not be altered in the proposed managed open space area because no development would occur. Minor grading in the Managed Open Space Area related to the creation of new wetlands would have no effect on flood flows or storm drainage systems. Furthermore, as discussed in detail in Impact 4.8-1, activities related to wetlands mitigation will be required to be consistent with permit conditions stipulated by the U.S. Army

Corps of Engineers, San Francisco Bay Regional Water Quality Control Board, and the San Francisco Bay Conservation and Development Commission and will also be required to be consistent with mitigation imposed within Section 4.3 of this EIR, "Biological Resources," including requirements that would avoid adverse hydrology and water quality impacts. See Section 4.3 for more detail. The proposed activities within the Managed Open Space area would not alter drainage patterns or add impervious surfaces that would exceed storm drainage systems, result in increased flooding, or impede or redirect flood flows, and there would be **no impact.**

Impact 4.9-5: Risk Release of Pollutants from Inundation in a Tsunami, Seiche, or Flood Hazard Zone*. Construction materials would be temporarily stored in FEMA flood zones and in Suisun City-designated flood zones. However, because the City's floodplain administrator must review and approve all plans for materials storage in a flood zone, and may impose permit conditions such as installation of a temporary dike or berm to protect construction storage areas as appropriate, this impact would be* ***less than significant****.*

The Project Site and the proposed off-site improvement areas are not in a tsunami inundation zone (California Emergency Management Agency et al. 2022). The nearest large waterbody with potential for seiche is Grizzly Bay/Suisun Bay, approximately 6.5 miles south of the Project Site and the off-site improvement areas, and approximately 10 feet lower in elevation; therefore, the potential for inundation of Project-related construction storage areas from a seiche is low.

Construction activities within the approximately 93-acre proposed Development Area and the proposed off-site improvement areas could result in short-term, temporary storage of materials in FEMA flood hazard zones AO and AE, designated as the city's secondary FP-2 and tertiary FP-3 floodplain zones, respectively. Inundation of temporary construction material storage areas during a flood could result in downstream transport of pollutants, thereby degrading water quality. However, development in flood zones is subject to the Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), and requires a permit from the city's floodplain administrator. The permit application must include plans illustrating the location(s) that are designated for temporary construction-related storage of materials and equipment, which the City's floodplain administrator must review and approve. The floodplain administrator may require the construction of temporary berms or dikes around the construction materials/equipment storage areas, to ensure sufficient protection from flood flows, if warranted.

Because the City's floodplain administrator would review and approve all planned locations for storage of construction materials and equipment, and would impose appropriate permit terms and conditions such as the requirement for installation of temporary berms or dikes around storage areas if necessary, this impact is considered **less than significant**.

Impact 4.8-6: Conflict with a Water Quality Control Plan or Sustainable Groundwater Management Plan*. Compliance with existing laws, regulations, ordinances, and policies related to water quality control ensures that the Project would not conflict with a water quality control plan. There is no* groundwater sustainability plan *for the groundwater basin within which the Project Site is located, and since the proposed Project would not involve drilling of new groundwater wells and would result in only a 13.5 percent reduction in pervious surfaces available for groundwater recharge, the Project would not substantially reduce groundwater sustainability in the Suisun-Fairfield Valley Groundwater Basin and this impact would be* ***less than significant****.*

For the reasons described in Impact 4.8-1 above, the Project's compliance with existing laws, regulations, ordinances, and policies related to water quality control, which are required by law, ensures that the proposed

Project would not conflict with the *Water Quality Control Plan (Basin Plan) for the San Francisco Bay Basin* (San Francisco Bay RWQCB 2023). As described in Impact 4.8-2 above, a groundwater sustainability plan for the Suisun-Fairfield Valley Groundwater Basin is not required nor are there any plans to prepare one; therefore, the proposed Project would not conflict with a sustainable groundwater management plan. As further described in Impact 4.8-2, because there are no plans to drill a new groundwater well for water supply, and because the proposed Project would only result in an approximately 13.5 percent reduction in pervious surfaces that provide for existing groundwater recharge at the Project Site, the proposed Project would not substantially decrease groundwater supplies or interfere with groundwater recharge, and therefore would not substantially reduce groundwater sustainability in the Suisun-Fairfield Valley Groundwater Basin. Therefore, this impact would be **less than significant**.

4.9 LAND USE AND PLANNING, INCLUDING AGRICULTURE RESOURCES, POPULATION, AND HOUSING

4.9.1 ENVIRONMENTAL SETTING

PROJECT SITE LAND USES

The Project Site consists of approximately 487 acres of land area in unincorporated Solano County, California, west of the Suisun City. The Project Site is bounded to the east by the Union Pacific Railroad and to the north by SR 12. The western perimeter of the Project Site is bounded by the eastern edge of Ledgewood Creek in the northern portion of the site and Orehr Road in the southern portion of the Project Site. To the south, the Project Site meets the Suisun Marsh. See Exhibit 3-1 in Chapter 3, "Project Description," for the Project Site's location within the region, and Exhibit 3-2 in Chapter 3 for a more detailed depiction of the Project Site within the local vicinity.

The Project Site is currently agricultural grazing land and undeveloped open space. Cattle graze throughout the northern portion of the Project Site. Various utilities (e.g., telephone, power, natural gas lines) exist along Pennsylvania Avenue and Cordelia Road, but there are no known utility improvements or irrigation within the Project Site other than a raw water line bisecting the northern portion of the Project Site that is owned by the City of Vallejo.

Located near the center of the Project parcels, but not within the Project Site, are two commercial businesses operating near the intersection of Pennsylvania Avenue and the California Northern Railroad: (1) Kings of Auto/U-Haul, located at 1001 South Pennsylvania Avenue, consists of an auto repair shop and a U-Haul rental shop, and (2) Nor Cal Concrete, a concrete contractor, is immediately south of Kings of Auto. A homeless encampment exists within the northeastern corner of the Project Site, within a parcel that is within the city limits of Suisun City.

An approximately 5-acre parcel (APN 0032-020-040) is east of Pennsylvania Avenue and adjacent to the Project Site. The Project does not propose any change of use or any physical change of any kind to this property.[1]

SURROUNDING LAND USES

The city of Fairfield southern city limit is on the opposite side of SR 12, north of the Project Site. Existing uses in this portion of Fairfield include single-family residences, offices, and light industrial uses. East of the Union Pacific Railroad tracks that are adjacent to the eastern perimeter of the Project Site is Downtown Suisun City and the Suisun City waterfront, which is developed with a variety of commercial, residential, assembly, repair, and retail land uses. To the west of the Project Site, across Ledgewood Creek, are industrial warehouse and office uses. Undeveloped land is to the west and south of the Project Site, including Suisun Marsh to the south.

1 The land area within the Annexation Area – 161 acres – includes a 5-acre property east of Pennsylvania Avenue that is not a part of the Project Site. The acreage is included in the total Annexation Area since annexation of this property would be required to avoid an unincorporated "island."

AGRICULTURAL RESOURCES

The California Department of Conservation's Important Farmland classifications—Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance—recognize the land's suitability for agricultural production by considering the 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. Together, Important Farmland and Grazing Land are defined by the California Department of Conservation as "Agricultural Land" (California Public Resources Code, Sections 21060.1 and 21095).

According to the Solano County Important Farmland map, published by the California Department of Conservation's Division of Land Resource Protection, the Development Area is designated as Grazing Land and the Managed Open Space area is designated as Grazing Land and Other Land (California Department of Conservation 2018).

Williamson Act

Under the California Land Conservation Act of 1965, also known as the Williamson Act and explained further in Section 3.2.3, Regulatory Framework, local governments can enter into contracts with private property owners to protect land (within agricultural preserves) for agricultural and open space purposes. No lands are under Williamson Act contract on the Project Site or the off-site improvement areas.

Agricultural Zoning

The northern portion of the Development Area is zoned by Solano County as Exclusive Agriculture 40 Acres (A-40). The purpose of the A-40 zoning designation is to preserve agriculture, including allowing agricultural-related support uses, excluding incompatible uses, and protecting the viability of the family farm. The zoning regulations allow a secondary dwelling and, for farms with larger acreage, permit a reasonable number of farm labor housing on or near the farming activity. Allowable land uses include crop production, grazing, pastured livestock, wineries, one primary dwelling, and one secondary dwelling.

POPULATION

Suisun City's total population increased from 28,111 in 2010 to 29,119 in 2020, which is a 3.5-percent increase over this 10-year period (Placeworks 2022). The California Department of Finance estimates that the population of Suisun City was 28,896 as of January 2022, or an approximately 2.8-percent increase compared to the 2010 population and a 0.8-percent decrease compared to the 2020 population (California Department of Finance 2022).

The population in Suisun City is estimated to increase to 33,700 by 2040 (City of Suisun City 2015). This represents an increase of approximately 16.6 percent over the 2022 estimated population. Suisun City's expected population increase is higher than that of the other jurisdictions in the county with the exception of Fairfield and Vacaville, which are higher (City of Suisun City 2015).

HOUSING

The California Department of Finance estimates that Suisun City's total number of housing units increased from 9,450 in 2010 to 9,523 in 2022, or an approximately 1.2-percent increase over this 10-year period. Suisun City has

the lowest vacancy rate in the county at 2.4 percent, which can indicate a shortage of housing and high competition for available housing (California Department of Finance 2022, Placeworks 2022).

Suisun City has the largest household size in the County at 3.11 persons per household (California Department of Finance 2022). Approximately 85 percent of the housing units in 2022 were attached and detached single-family homes (California Department of Finance 2022).

LABOR FORCE

According to the U.S. Census Bureau, Suisun City had 15,687 employed civilians in the labor force in 2021 (U.S. Census Bureau 2021). The largest employment sector for Suisun City residents, with 21.8 percent of the total, is educational, health, and social services followed by the retail trade with 14.4 percent and manufacturing with 9.8 percent (U.S. Census Bureau 2021).

Unemployment

The unemployment rate reflects individuals 16 years or older, not members of the Armed Services, and not in institutions such as prisons, mental hospitals, or nursing homes. The unemployment rate in Solano County was lower than the statewide rate at 5.4 percent. In 2021, Suisun City's unemployment rate was 5.6 percent, which was slightly greater than Solano County (Placeworks 2022).

Jobs/Housing Relationship

A jobs-to-housing ratio is a calculation of the number of jobs per housing units that are available in a given area. A low jobs/housing ratio describes a housing-rich community with fewer available jobs for residents, while a high ratio describes a jobs-rich area with more jobs available for residents. The labor force in Suisun City is approximately 15,687, as noted above, and, as reported by the United States Census Bureau for 2020, the total number of jobs located in Suisun City is 3,118 (U.S. Census Bureau 2020d). This total number of jobs was likely affected by the COVID pandemic – the total number of jobs in the city in 2010 was estimated to be 4,190 (City of Suisun City 2010). Regardless, Suisun City has a deficit of jobs compared to employed residents.

In a community with a low jobs/housing ratio, working-age residents are more likely to need to commute to work, which, depending on their mode of travel, can contribute to regional congestion and air pollution and can increase individual time lost, stress, and travel costs. Improving the balance between the type and number of local jobs and the occupations and size of the local labor force can enhance quality of life and improve environmental conditions.

The balance of jobs and housing can be driven by the adequacy of supply of housing of the types and costs to house workers employed in a defined geographic area, such as a community, a city, or other subregion. Alternatively, a jobs/housing balance could focus more on the 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. In order to maximize the environmental benefits of a jobs/housing balance, there needs to be a nexus between the types and costs of housing proposed to be located

near jobs to be provided, the education/skills required by those jobs relative to the local labor force, and the income levels associated with those jobs.

Beyond the locational relationship between jobs and housing, there is also an important relationship between jobs and workers. Housing has long been used as a proxy for workers and worker residences. In reality, the number of workers per household varies widely across the regions based on a variety of demographic factors (such as age and education/skills) and different housing types have the capacity for accommodating different numbers of workers. Additionally, areas with "good" jobs-housing balance may still result in longer commutes for workers, if available housing in the area is unaffordable to workers filling local jobs.

Even with a numeric balance between the number of local jobs and the local labor force, 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. The number of workers per household varies, and different types of housing accommodate different numbers of workers. In addition, the ratio depends on the geographic region used for the computation. A city with all residences on one side and all employment on the other side would have an acceptable numeric jobs-housing balance but a substantial amount of commuting. In a different scenario, workers with a substantially longer commute that is still within the city are counted, whereas workers that travel short distances outside of the city are not. Finally, employment necessarily concentrates in specific areas. Warehouses or industrial areas are usually not intermixed with housing. However, the jobs-ratio balance can provide some useful information for planning purposes.

Finally, no simplistic numeric formula can capture the complex human decision-making process of where to live and where to work. For those households who have choices regarding employment and housing, lifestyle factors (good schools, community amenities and culture, available housing types, etc.) can outweigh the convenience of living closer to work.

Based on data from the U.S. Census Bureau, 92 percent of workers living in Suisun City commuted to work by car (U.S. Census Bureau 2021). The most recent Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LODES) data reported by the U.S. Census reports approximately 3.4 percent of city residents are employed and live within the city while 96.6 percent commute to jobs outside of the city (U.S. Census Bureau 2020a). Approximately 85 percent of local jobs within the city are filled by employees from outside of the city, mainly from the cities of Fairfield and Vacaville (U.S. Census Bureau 2020b, c).

The predominance of residential uses in Suisun City is reflected in the City's jobs/housing ratio of 0.41, as most of the city's residents commute to jobs in Fairfield, Vacaville, and Travis AFB (Placeworks 2022). While approximately 96.6 percent of Suisun City residents commute outside of the city for work, it is likely that many of these individuals are commuting to the AFB or into Fairfield as 49.6 percent of employed residents in Suisun City live within 10 miles of their place of employment (Placeworks 2022).

Plan Bay Area 2050 Growth Pattern identifies the plan's projected household and job growth for the region out to the year 2050. Household and job projections were developed on regional, county, and sub-county levels to reach 2023-2031 regional housing needs assessment requirements, and includes estimates for northern Solano County, which includes Suisun City, Dixon, Fairfield, and Vacaville. Plan Bay Area 2050 estimates that the jobs/housing balance for northern Solano County would be 1.2 by 2050, indicating a near balance between jobs and housing (Association of Bay Area Governments [ABAG] 2021).

4.9.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

There are no federal plans, policies, regulations, or laws related to land use and planning that apply to the proposed Project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Cortese-Knox-Hertzberg Local Government Reorganization Act (AB 743)

The Cortese-Knox Local Government Reorganization Act (sec. 56000 et. seq. of the California Government Code) is the framework within which proposed city annexations are considered. This law sets forth the functions for a LAFCO, which are agencies that were created by state legislation to ensure that changes in local governmental organization occur in a manner that provides efficient and good-quality services and preserves open space land resources. In 1963, the California Legislature established LAFCOs in each county and gave them regulatory authority over local agency boundary changes. In the 1970s, the legislature recognized the connection between decisions concerning governmental organization and the issues of urban sprawl and loss of prime agricultural land. In response to these concerns, LAFCOs were charged with implementing changes in governmental organization in a manner that preserves agricultural and open space land resources, as well as provides the delivery of services. In 2000, the Cortese-Knox-Hertzberg Act was further amended as a result of AB 2838.

LAFCOs apply the policies and provisions of the Cortese-Knox-Hertzberg Act to decisions regarding annexations, incorporations, reorganizations, and other changes in government organization. LAFCOs are responsible for reviewing, approving, modifying, and approving or disapproving changes in organization to cities and special districts, including annexations, detachments, new formations, and incorporations. LAFCOs must, by law, perform municipal service reviews and update spheres of influence for each independent local governmental jurisdiction within their countywide jurisdiction.

California Important Farmland Inventory System and Farmland Mitigation and Monitoring Program

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

The Department of Conservation Farmland Mapping and Monitoring Program 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 (DOC 2023):

- **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. The Solano County Board of Supervisors has determined no Farmland of Local Importance will be designated in the county.

- **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.

- **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. In Stanislaus County, Other Land is further divided into five subcategories: Rural Residential Land, Semi-Agricultural and Rural Commercial, Vacant and Disturbed Land, Defined Animal Agriculture, Nonagricultural and Natural Vegetation.

Important Farmland is classified by the 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" (Public Resources Code Sections 21060.1 and 21095, and CEQA Guidelines Appendix G).

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Plan Bay Area 2050

Plan Bay Area 2050 is a long-range regional plan for the nine-county San Francisco Bay Area, adopted by ABAG and the Metropolitan Transportation Commission (MTC) in October 2021. Plan Bay Area originally was developed out of the California Sustainable Communities and Climate Protection Act of 2008 (California Senate Bill 375), which requires each of the state's 18 metropolitan areas, including the Bay Area, to reduce greenhouse gas emissions from cars and light-duty trucks. Thirty-five strategies comprise the plan to improve housing, the economy, transportation, and the environment across the Bay Area's nine counties — Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. These strategies are public policies or set of investments that can be implemented in the Bay Area at the city, county, regional, or state level over the next 30 years (ABAG 2021).

The Development Area is identified by the Plan Bay Area 2050 as a Priority Production Area (PPA) (ABAG 2021). PPAs are defined as locally identified places for job growth in middle-wage industries like manufacturing, logistics, or other trades (ABAG 2021). An area must be zoned for industrial use or have a predominantly industrial use, at least one-half mile from a major rail commute hub, and be located in a jurisdiction with a certified housing element to be defined as a PPA (ABAG 2023).

Solano Local Agency Formation Commission

Solano LAFCO is responsible for determining whether an annexation is consistent with the LAFCO objectives and policies of ensuring that services would be available to new development within proposed annexation areas; avoiding premature conversion of farmland; and ensuring planned, logical, and orderly patterns of urban growth. Future annexation of lands within Suisun City's SOI into the City's jurisdiction would need to be approved by Solano LAFCO. The City is required to coordinate with LAFCO during the annexation process to ensure that municipal services are provided to newly annexed areas. The following Solano LAFCO mandatory standards are applicable to the proposed Project (Solano LAFCO 2019):

- **Mandatory Standard 1: Consistency with Sphere of Influence Boundaries.** An area proposed for change of organization or reorganization shall be within the affected agency's Sphere of Influence. An application for change of organization or reorganization for lands outside an adopted Sphere of Influence may be considered concurrently with a request for amendment to the Sphere of Influence, at LAFCO's discretion.

- **Mandatory Standard 2: Change of Organization and Reorganization to the Limits of the Sphere of Influence (SOI) Boundaries.** Annexation to the limits of the SOI boundary shall not be allowed if the proposal includes land designated for open space use by the affected city's general plan for city change of organization or reorganization or County General Plan for district change or organizations or reorganization unless such open space logically relates to existing or future needs of the agency. Open space uses which may be located within agency limits include but are not limited to community and city-wide parks, recreational facilities, permanently protected open space lands, reservoirs, and storm water detention basins.

- **Mandatory Standard 3: Consistency with Appropriate City General Plan, Specific Plan, Area-Wide Plan, and Zoning Ordinance.** An application for a city change of organization or reorganization which involves the conversion of open space lands to urban use shall be denied by LAFCO if the proposed conversion is not consistent with appropriate city plans (general plans, specific plans, area-wide plans and associated zoning ordinance). The determination of consistency shall be the responsibility of the affected agency, and shall be met by a resolution approved by the agency council certifying that the proposed change of organization or reorganization meets all applicable consistency requirements of State Law, including internal consistency between the agency's adopted plans and the zoning ordinance. In the event that plan consistency is contested, LAFCO shall retain the discretion to determine the consistency question and may require additional environmental information.

- **Mandatory Standard 5: Requirement for Pre-Approval.** Prior to approval by LAFCO of a city change or organization or reorganization, the affected agency shall have approved, a specific plan, pre-zoning, or an equivalent providing similar detail of information on the proposed land use for the affected territory and where the change of organization or reorganization process is clearly described. Prior to approval by LAFCO of a district change of organization or reorganization, the affected agency shall pass a resolution supporting the proposal.

- **Mandatory Standard 6: Effect on Natural Resources.** An application for annexation shall describe the amount of land involved, and the land, water, air, and biological resources affected, including topography, slope, geology, soils, natural drainages, vegetative cover, and plant and animal populations. Effects to be covered include those which will be both positive and negative and the means proposed to offset potential negative impact. LAFCO shall certify that provisions of the Solano LAFCO Environmental Guidelines for the Implementation of the California Environmental Quality Act have been complied with.

- **Mandatory Standard 7: Establishing Proposal Boundaries, Map and Geographic Description Requirements, Other Required Map Exhibits.** This Standard sets forth guidelines for establishing the boundaries of proposals. The Legislature has delegated the authority to determine the boundary of any proposal to local LAFCOs. The purpose of this Standard is to assure planned, orderly, and efficient patterns of urban growth by when possible, avoid annexing or detaching portions of parcels, avoid conditions that would make the annexation of adjacent parcels difficult at a later date, and avoid excluding parcels that are necessary to promote efficient patterns of urban growth. Inconsistencies with any of these requirements need to be thoroughly explained and justified.

- **Mandatory Standard 8: Likelihood of Significant Growth and Effect on Other Incorporated or Unincorporated Territory.** Prior to approving an annexation, LAFCO shall make a determination that the proposed conversion of open space lands to urban use is justified by probable urban growth within a 10 year-period of time. A determination on the likelihood of significant growth justifying the conversion shall be based on analysis of local and regional demand for the proposed use.

Solano County General Plan

The Solano County General Plan (Solano County 2008, last updated 2015) designates the northern portion of the Project Site, generally north of Cordelia Road and the California Northern Railroad as Urban Industrial and the southern portion of the Project Site as Marsh, with a Resource Conservation Overlay. The Project proposes to annex the northern portion of the Project Site to the City of Suisun City. With respect to the southern portion of the Project Site, the Marsh land use designation in the County's General Plan "[p]rovides for protection of marsh and wetland areas…[p]ermits aquatic and wildlife habitat, marsh-oriented recreational uses, agricultural activities compatible with the marsh environment and marsh habitat, educational and scientific research, educational facilities supportive of and compatible with marsh functions, and restoration of historic tidal wetlands" (Solano County 2008, page LU-19).

City of Suisun City General Plan

The City of Suisun City 2035 General Plan (City of Suisun City 2015 establishes the overall amount, character, and location of development, as well as preservation and natural resource conservation, economic development, transportation, safety, public facilities and services, and housing in the city over the long term. The following policies and actions would apply to the proposed Project.

Land Use

- **Policy LU-4.1:** The City will support the provision of facilities, services, or infrastructure only in areas that are planned for development. The City will not induce growth by supporting the provision of services or infrastructure in areas that are not planned for development under the General Plan.

- **Policy LU-4.2:** The City will only allow annexation of land that is on or adjacent to lands with available urban services.
- **Policy LU-4.4:** Annexation requests shall provide studies requested by Solano Local Agency Formation Commission.

Economic Development

- **Policy ED-3.1:** The City will encourage development that improves the balance between local jobs and housing, including new commercial and industrial development, home-based businesses, business incubators, and other uses that produce high-quality local jobs.
- **Policy ED-3.3:** The City will place greater emphasis on attracting skilled production businesses that match the skills of Suisun City's workforce.

City of Suisun City Municipal Code

The City of Suisun City Municipal Code regulates land use, buildings, public rights-of-way, and other proposed physical changes within the city. The Zoning Code, Title 18 of the Municipal Code, is the primary implementation tool for the City General Plan. The Municipal Code would apply to the Development Area after annexation.

4.9.3 Environmental Impacts and Mitigation Measures

Methodology

Evaluation of the potential impacts of the proposed Project related to land use and planning, including agricultural resources, population, housing, and employment was based on a review of the following planning documents:

- *Solano County General Plan* (Solano County 2008),
- *City of Suisun City General Plan* (City of Suisun City 2015),
- *City of Suisun City 2023-2031 Housing Element* (Placeworks 2022),
- *Solano County Local Agency Formation Commission Standards and Procedures* (Solano LAFCO 2019), and
- *Plan Bay Area 2050* (ABAG 2021).

Additional background information on population, housing, and employment was obtained from California Department of Finance and the United States Census Bureau.

The evaluation of potential impacts on agricultural resources was based on a review of the Department of Conservation Important Farmland map and Williamson Act Contract map for Solano County (Department of Conservation 2018). 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 is generally considered a significant impact under CEQA.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to land use and planning, agricultural and forestry resources, and population and housing if it would:

- physically divide an established community;
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect;
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract;
- conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g]);
- result in the loss of forestland or conversion of forestland to nonforest use;
- involve other changes in the existing environment that, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use;
- induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or
- displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

ISSUES NOT DISCUSSED FURTHER

Physically Divide an Established Community—There are no residential land uses within the Project Site or the off-site improvement areas. The nearest established community is located 0.2 mile north of the Development Area, north of the SR 12. The proposed Project does not include any linear features or other physical features that would create a barrier, divide, or separate adjacent uses. The proposed Project would improve Pennsylvania Avenue and Cordelia Road along the Project frontages and construct a northbound right turn lane on northbound Pennsylvania Avenue and SR 12. These roadway improvements would not divide established communities near the Project Site and off-site improvement area. Supporting underground utilities, including water, wastewater, electricity, natural gas, and telecommunications, would be installed on-site or within public rights-of-way. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland—The Project Site and off-site improvement areas are designated by the Solano County Important Farmland map as Grazing Land (California Department of Conservation 2018). Grazing Land is not considered Important Farmland under CEQA (Public Resources Code Sections 21060.1 and 21095 and CEQA Guidelines Appendix G). Therefore, the

proposed Project would not convert Important Farmland to nonagricultural uses. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Conflict with Existing Zoning for an Agricultural Use—The northern portion of the Development Area is zoned by Solano County as Exclusive Agriculture 40 Acres (A-40). The Project proposes to pre-zone and annex approximately 161 acres of land (referred to as the 'Annexation Area') into the City of Suisun City. The Project proposes an amendment to the City's General Plan Land Use Diagram so that the General Plan's Commercial Mixed Use and Open Space land use designations are consistent with the proposed Development Area and Managed Open Space area proposed as a part of the Project. Approximately 93.4 acres of the Annexation Area would be pre-zoned as Commercial Services & Fabricating (CSF), and the remaining Annexation Area would be pre-zoned as Open Space (OS) or within roadway rights-of-way. The CFS zoning would accommodate light manufacturing, research and development, warehousing, and accessory office space. The OS zoning would allow agriculture, resource protection and restoration, and resource-related recreation. With approval of the proposed Project, annexation of the Development Area into the City of Suisun City, and associated zoning changes, development of the proposed Project would not conflict with zoning for agricultural use. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Conflict with Existing Williamson Act Contract— No lands are under Williamson Act contract on the Project Site or the off-site improvement areas. Therefore, implementing the proposed Project would not conflict with an existing Williamson Act contract. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production—The Project Site and the off-site improvement areas are not zoned as forestland, timberland, or a Timberland Production Zone. Thus, the proposed Project would not conflict with existing zoning for, or cause rezoning of, forestry resources. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Result in the Loss of Forest Land or Conversion of Forest Land to Non-Forest Use—The Project Site and the off-site improvement areas do not contain timberland as defined by Public Resources Code Section 4526 or contain 10 percent native tree cover that would be classified as forestland under Public Resources Code Section 12220(g). Thus, the proposed Project would not result in conversion of forest land to non-forest use. Therefore, **no impact** would occur, and this issue is not addressed further in this EIR.

Displace Substantial Numbers of People or Existing Housing—There are no residences within the Project Site or within the off-site improvement areas. Therefore, the proposed Project would not displace substantial numbers of people or existing housing that would necessitate the construction of replacement housing elsewhere. Therefore, **no impact** would occur, and this impact is not evaluated further in this EIR.

IMPACT ANALYSIS

Impact 4.9-1: Conflict with Any Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect. *Implementation of the proposed Project would not conflict with plans, policies, or regulations in a way that would generate any adverse physical impacts beyond those addressed in detail in the environmental*

sections of this Draft EIR (e.g., agriculture, air quality, biological resources, cultural resources, etc.). Therefore, this impact is considered ***less than significant****.*

The Project proposes to annex and pre-zone approximately 161 acres of the approximately 487-acre Project Site into the City of Suisun City (see Exhibit 3-4 in Chapter 3). The proposed Development Area would be on approximately 93 acres within this Annexation Area. The remaining portion of the Annexation Area would be in public rights-of-way and in Managed Open Space.[2] The portion of the Project Site south and southeast of the California Northern Railroad and Cordelia Road is outside the City's SOI, is not proposed for development or any SOI change or annexation, and would be proposed as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement within unincorporated Solano County. Consistent with General Plan Policy LU-4.4, studies prepared for the proposed Project, as well as this Draft EIR will be submitted to Solano LAFCO, and Solano LAFCO will require consistency with their policies before approval of annexation.

The area of the Project Site proposed for development, shown in Exhibit 3-5 as proposed for the Commercial Mixed Use General Plan land use designation, would be pre-zoned as CSF as part of the annexation process. With approval of the proposed Project, approval of the proposed General Plan amendment, annexation of the Development Area into the City of Suisun City, and associated zoning changes, development of the proposed Project would not conflict with the City's General Plan or zoning.

With respect to the relationship between the proposed Project and other plans (the City's General Plan, the County's General Plan, Play Bay Area, etc.), policy inconsistencies are not physical effects on the environment under CEQA unless it relates to a physical impact on the environment that is significant in its own right. While EIRs must discuss inconsistencies between the proposed Project and applicable plans, plan consistency is not generally a CEQA issue.[3] For an impact to be considered significant under this threshold, any inconsistency would also need to result in a significant adverse change in the environment not already addressed in the other resource sections of this EIR. Specific impacts and Project consistency issues associated with other resource and issue areas are addressed in each technical section of this EIR, as appropriate. These technical sections provide a detailed analysis of other relevant physical environmental effects that could result from implementation of the proposed Project and identify mitigation measures, as necessary, to reduce impacts. Implementation of the proposed Project would not conflict with adopted City General Plan policies or other land use plan, policy, or regulation that would generate any adverse physical impacts beyond those addressed in detail in the environmental sections of this Draft EIR (agriculture, air quality, biological resources, cultural resources, etc.). Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.9-2: Induce Substantial Population Growth. *The Project does not propose housing that would generate new residents in the city. Development of approximately 1.28 million square feet of building space could indirectly lead to some population growth by creating 1,275 new local jobs. However, based on 2022 estimates, the city had a jobs to housing ratio of*

2 The Project Site also includes a 4.5-acre parcel northeast of the proposed Annexation Area, southeast of the intersection of SR 12 and the UPRR line; this parcel is within the City's current SOI and therefore not proposed for annexation but is included in the overall Project Site and the total area to be maintained as Managed Open Space.

3 "The issue of whether a proposed project is consistent with a county's general plan is not a CEQA issue…" (*The Highway 68 Coalition v. County of Monterey, et al.* [6th Dist. 2017] Cal.App.5th).

0.41, which indicates a predominance of residential uses and less jobs potentially available to workers. The proposed Project supports the City's goals to create opportunities to generate jobs and attract new employment-creating industries to Suisun City. Furthermore, the proposed Project contributes to meeting the Plan Bay Area 2050's goal of a 1.2 jobs/housing balance for North Solano County by improving the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas. New and expanded infrastructure would be planned to meet demands for new development and would not create additional utility capacity in the Development Area beyond what would be necessary to serve the proposed Project. Therefore, the proposed Project would not induce substantial planned or unplanned population growth. This impact is ***less than significant****.*

A project's impacts caused by inducing substantial unplanned population growth are analyzed based on the following three inquiries: (1) does the project induce unplanned population growth (direct or indirect), (2) is that growth substantial, and (3) does this substantial unplanned growth result in significant adverse environmental impacts.

Indirect growth can result from many factors, but typical causes are the extension of roads and infrastructure or increases in infrastructure capacity; the approval of so-called leapfrog development, in which urban development is approved in a satellite area and this spurs development of the land between the satellite area and the urban edge; or the approval of significant uses or an imbalance of uses which result in a regional draw of people and/or services. The proposed Development Area is adjacent to the existing city limits and within the existing Sphere of Influence of the City. The factors most relevant to the proposed Development Area are the extension of utility infrastructure and new employment opportunities. These issues are evaluated below.

The proposed Project would include development of currently undeveloped areas, which would result in infrastructure being extended into these locations. The proposed Project would improve Pennsylvania Avenue and Cordelia Road along the Project frontages and construct a northbound right turn lane on northbound Pennsylvania Avenue and SR 12. These roadway improvements would accommodate the increased traffic generated by the proposed Project. The new and expanded infrastructure is designed to meet demands of the proposed Project, and would not create additional utility capacity in the Development Area beyond what would be necessary to serve the proposed Project. Therefore, off-site roadway improvements and extension of this utility infrastructure would not induce unplanned growth.

The Project does not propose housing that would generate new residents in the city. However, the Project proposes development of approximately 1.28 million square feet of building space on approximately 93 acres of land area (Development Area). This development could indirectly encourage population growth by creating 1,275 new jobs (EPS 2021). Based on 2022 estimates, the City had a jobs-to-housing ratio of 0.41, which indicates a predominance of residential uses and less jobs potentially available to local resident-workers. The most recent LODES data reported by the U.S. Census reports approximately 96.6 percent of City residents commute to jobs outside of the city and 85 percent of local jobs within the city are filled by employees from outside of the city, mainly from the cities of Fairfield and Vacaville (U.S. Census Bureau 2020b, c). The proposed Project supports the City's goals to create opportunities to generate jobs and attract new employment-creating industries to Suisun City. Furthermore, as stated above, the Plan Bay Area 2050 jobs/housing balance for northern Solano County would be 1.2 by 2050, indicating a near balance between jobs and housing (ABAG 2021). The proposed Project contributes to this goal by improving the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas. Furthermore, the Development Area is identified by the Plan Bay Area 2050 as a PPA, which are defined as

locally identified places for job growth in middle-wage industries like manufacturing, logistics, or other trades (ABAG 2021).

Population and employment growth associated with buildout of the proposed Project are not, in and of themselves, an environmental impact under CEQA. However, CEQA treats as potentially significant the direct and indirect impacts associated with unplanned population growth, such as new housing, employment, and increased travel demand that requires additional roadways and other transportation infrastructure and the associated air pollutant emissions and traffic noise, impacts related to public facilities and utilities expansions needed to serve new growth, and other impacts, each of which is addressed in the technical sections of this EIR. These technical sections provide analysis of relevant environmental effects of implementing the proposed Project. The indirect effects associated with the proposed Project's potential for inducing additional population and employment growth are also discussed in Chapter 7 of this EIR, "Other CEQA Considerations."

The foregoing analysis demonstrates that the proposed Project would not directly or indirectly induce substantial unplanned growth that could lead to significant environmental impacts not already detailed throughout the environmental topic specific sections of this EIR; therefore, the impact is considered **less than significant**.

Mitigation Measures

No mitigation measures are required.

4.10 NOISE AND VIBRATION

This section includes a description of ambient noise conditions, a summary of applicable regulations related to noise and vibration, and an analysis of the potential impacts resulting from the implementation of the proposed Project. Mitigation measures are recommended, as necessary, to reduce potentially significant noise and vibration impacts.

Potential impacts to sensitive wildlife species from Project-related noise and vibration are evaluated as part of the overall consideration of potential impacts to biological resources in Section 4.3 of this EIR, "Biological Resources."

4.10.1 ENVIRONMENTAL SETTING

ACOUSTIC FUNDAMENTALS

Noise is sound that is loud, disagreeable, unexpected, or unwanted. Sound, as described in more detail below, is mechanical energy transmitted in the form of a wave because of a disturbance or vibration, and as any pressure variation in air that the human ear can detect.

Sound Properties

A sound wave is introduced into a medium (air) by a vibrating object. The vibrating object (e.g., vocal cords, the string and sound board of a guitar, the diaphragm of a radio speaker) is the source of the disturbance that moves through the medium. Regardless of the type of source that creates the sound wave, the particles of the medium through which the sound moves are vibrating in a back-and-forth motion at a given frequency (pitch).[1] A commonly used unit for frequency is cycles per second, called hertz (Hz).[2]

A wave is an energy transport phenomenon that transports energy along a medium. The amount of energy carried by a wave is related to the amplitude (loudness) of the wave. A high-energy wave is characterized by high amplitude; a low-energy wave is characterized by low amplitude. The amplitude of a wave refers to the maximum amount of displacement of a particle from its rest position. The energy transported by a wave is directly

[1] The frequency of a wave refers to how often the particles vibrate when a wave passes through the medium. The frequency of a wave is measured as the number of complete back-and-forth vibrations of a particle per unit of time. If a particle of air undergoes 1,000 longitudinal vibrations in 2 seconds, then the frequency of the wave would be 500 vibrations per second.

[2] Each particle vibrates as a result of the motion of its nearest neighbor. For example, the first particle of the medium begins vibrating at 500 Hz and sets the second particle of the medium into motion at the same frequency (500 Hz). The second particle begins vibrating at 500 Hz and sets the third particle into motion at 500 Hz. The process continues throughout the medium; hence each particle vibrates at the same frequency, which is the frequency of the original source. A guitar string vibrating at 500 Hz will set the air particles in the room vibrating at the same frequency (500 Hz), which carries a sound signal to the ear of a listener that is detected as a 500-Hz sound wave. The back-and-forth vibration motion of the particles of the medium would not be the only observable phenomenon occurring at a given frequency. Because a sound wave is a pressure wave, a detector could be used to detect oscillations in pressure from high to low and back to high pressure. As the compression (high-pressure) and rarefaction (low-pressure) disturbances move through the medium, they would reach the detector at a given frequency. For example, a compression would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Similarly, a rarefaction would reach the detector 500 times per second if the frequency of the wave were 500 Hz. Thus, the frequency of a sound wave refers not only to the number of back-and-forth vibrations of the particles per unit of time, but also to the number of compression or rarefaction disturbances that pass a given point per unit of time. A detector could be used to detect the frequency of these pressure oscillations over a given period of time. The period of the sound wave can be found by measuring the time between successive high-pressure points (corresponding to the compressions) or the time between successive low-pressure points (corresponding to the rarefactions). The frequency is simply the reciprocal of the period; thus, an inverse relationship exists so that as frequency increases, the period decreases, and vice versa.

proportional to the square of the amplitude of the wave. This means that a doubling of the amplitude of a wave is indicative of a quadrupling of the energy transported by the wave.

Sound and the Human Ear

Because of the ability of the human ear to detect a wide range of sound-pressure fluctuations, sound-pressure levels are expressed in logarithmic units called decibels (dB) to avoid a very large and awkward range in numbers. The sound-pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold (Caltrans 2013). Use of this logarithmic scale reveals that the total sound from two individual sources, each measured at 65 A-weighted decibels (dBA), is 68 dBA, not 130 dBA; that is, doubling the source strength increases the sound pressure by 3 dBA.

Because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. A dBA scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for compensation is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale is used to regulate environmental noise. Typical indoor and outdoor noise levels are presented in Exhibit 4.10-1.

With respect to how humans perceive and react to changes in noise levels, a 1-dBA increase is imperceptible, a 3-dBA increase is barely perceptible, a 6-dBA increase is clearly noticeable, and a 10-dBA increase is subjectively perceived as approximately twice as loud (Caltrans 2013), as presented in Table 4.10-1.[3]

Table 4.10-1. Subjective Reaction to Changes in Noise Levels of Similar Sources

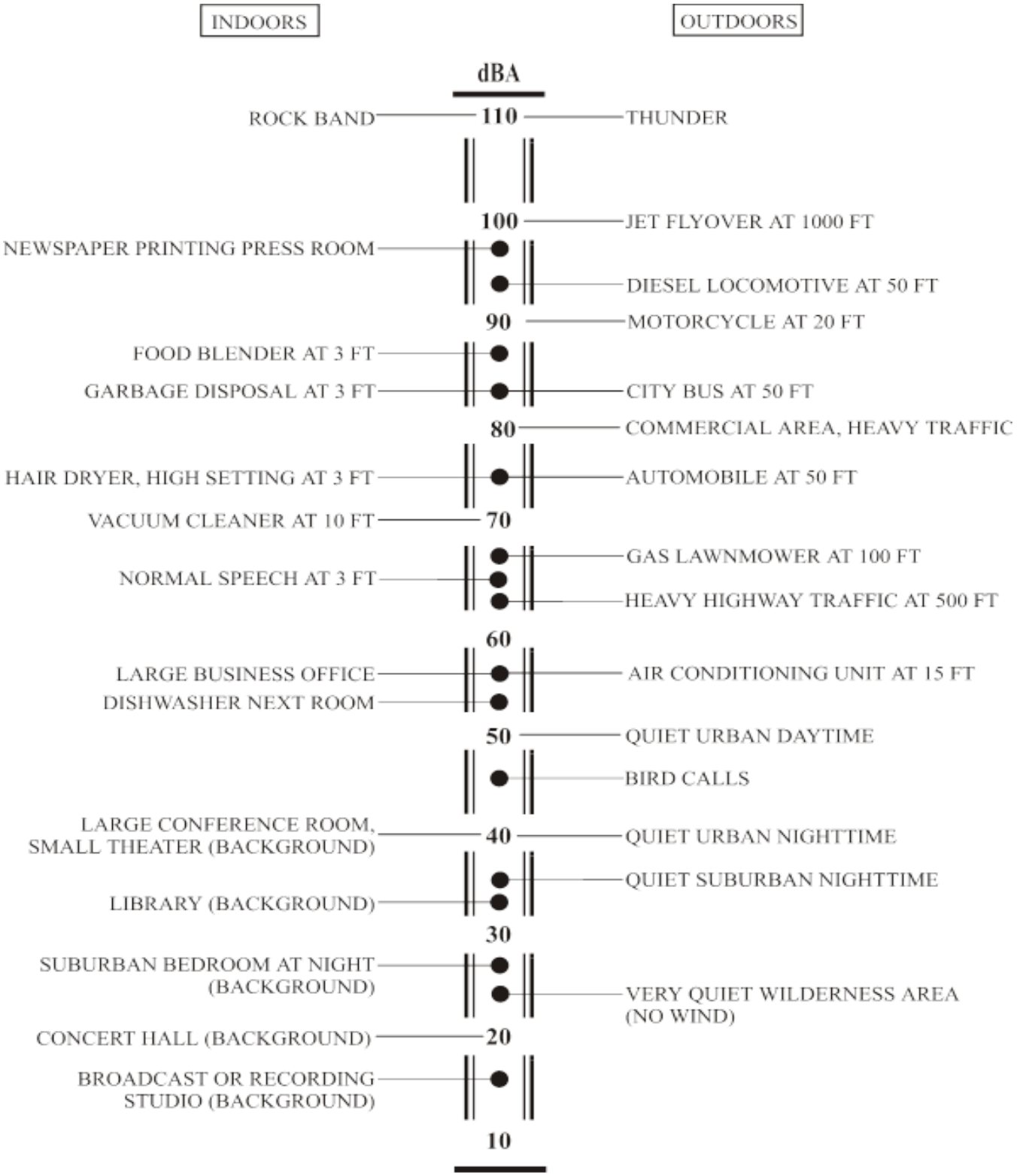
Change in Level, dBA	Subjective Reaction	Factor Change in Acoustical Energy
1	Imperceptible (except for tones)	1.3
3	Just barely perceptible	2.0
6	Clearly noticeable	4.0
10	About twice (or half) as loud	10.0

Note: dBA = A-weighted decibels
Source: Caltrans 2013

Sound Propagation and Attenuation

As sound (noise) propagates from the source to the receptor, the attenuation, or manner of noise reduction in relation to distance, is dependent on surface characteristics, atmospheric conditions, and the presence of physical barriers. The inverse-square law describes the attenuation caused by the pattern in which sound travels from the source to the receptor. Sound travels uniformly outward from a point source in a spherical pattern with an attenuation rate of 6 dBA per doubling of distance (dBA/DD). However, from a line source (e.g., a road), sound travels uniformly outward in a cylindrical pattern with an attenuation rate of 3 dBA/DD. The characteristics of the surface between the source and the receptor may result in additional sound absorption and/or reflection.

[3] Table 4.10-1 was developed on the basis of the reactions of test subjects to changes in the levels of steady-state pure tones or broadband noise and to changes in levels of a given noise source. It is probably most applicable to noise levels in the range of 50–70 dBA, as this is the usual range of voice and interior noise levels.



Notes:
dBA = A-weighted decibels
Source: Caltrans 2013

Exhibit 4.10-1. Typical Noise Levels

Atmospheric conditions such as wind speed, temperature, and humidity may affect noise levels. The presence of a barrier between the source and the receptor may also attenuate noise levels. The actual amount of attenuation depends on the size of the barrier and the frequency of the noise. A noise barrier may be any natural or human-made feature such as a hill, tree, building, wall, or berm (Caltrans 2013).

All buildings provide some exterior-to-interior noise reduction. A building constructed with a wood frame and a stucco or wood sheathing exterior typically provides an approximate exterior-to-interior noise reduction of 25 dB with its windows closed, and 15 dB with its windows open (EPA 1974).

Noise Descriptors

The selection of a proper noise descriptor for a specific source depends on the spatial and temporal distribution, duration, and fluctuation of the noise. The noise descriptors most often encountered when dealing with traffic, community, and environmental noise are defined below (Caltrans 2013).

- **L_{max} (Maximum Noise Level):** The maximum instantaneous noise level during a specific period of time. The L_{max} may also be referred to as the "peak (noise) level."
- **L_{min} (Minimum Noise Level):** The minimum instantaneous noise level during a specific period of time.
- **L_{eq} (Equivalent Noise Level):** The energy mean (average) noise level. The instantaneous noise levels during a specific period of time in dBA are converted to relative energy values. From the sum of the relative energy values, an average energy value is calculated, which is then converted back to dBA to determine the L_{eq}. In noise environments that are determined by major noise events, such as aircraft overflights, the L_{eq} value is heavily influenced by the magnitude and number of single events that produce the high noise levels.
- **L_{dn} (Day-Night Noise Level):** The 24-hour L_{eq} with a 10-dBA "penalty" for noise events that occur during the noise-sensitive hours between 10:00 p.m. and 7:00 a.m. In other words, 10 dBA 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 at night is a potential source of disturbance with respect to normal sleeping hours.
- **CNEL (Community Noise Equivalent Level):** Similar to the L_{dn} described above, but with an additional 5-dBA "penalty" added to noise events that occur during the noise-sensitive hours between 7:00 p.m. and 10:00 p.m., which are typically reserved for relaxation, conversation, reading, and television. When the same 24-hour noise data are used, the reported CNEL is typically approximately 0.5 dBA higher than the L_{dn}.
- **SENL (Single-Event [Impulsive] Noise Level):** A receiver's cumulative noise exposure from a single impulsive noise event, which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value. SENLs typically represent the noise events used to calculate the L_{eq}, L_{dn}, and CNEL.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. 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 correlates well with community response to noise.

Negative Effects of Noise on Humans

Negative effects of noise exposure include physical damage to the human auditory system, interference, and disease. Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels. Traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Gradual and traumatic hearing loss both may result in permanent hearing damage. In addition, noise may interfere with or interrupt sleep, relaxation, recreation, and communication. Although most interference may be classified as annoying, the inability to hear a warning signal may be considered dangerous. Noise may also be a contributor to diseases associated with stress, such as hypertension, anxiety, and heart disease. The degree to which noise contributes to such diseases depends on the frequency, bandwidth, and level of the noise, and the exposure time (Caltrans 2013).

Fundamental Noise Control Options

Any noise problem is generally composed of three basic elements: the noise source, a transmission path, and a receiver. The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (L_{dn}, L_{eq}, or L_{max}); the location of the sensitive receiver (inside or outside); and the time that the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local accessibility, safety, and aesthetic standards, as well as practical structural and economic limits. Fundamental noise control options are described below.

Setbacks

Noise exposure may be reduced by increasing the distance between the noise source and the receiving use. Setback areas can, for example, take the form of open space, frontage roads, recreational areas, and storage yards. The available noise attenuation from this technique is limited by the characteristics of the noise source but is generally about 4–6 dBA.

Barriers

Shielding by barriers can be obtained by placing walls, berms, or other structures (such as buildings) between the noise source and the receiver. The effectiveness of a barrier depends on blocking the line of sight between the source and receiver; effectiveness is improved when the sound must travel a longer distance to pass over the barrier than if it were traveling in a straight line from source to receiver. 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.

Barrier effectiveness 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. 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.[4] Earth, in the form of berms or the face of a depressed area, is also an effective barrier material.

There are practical limits to the noise reduction provided by barriers. For vehicle traffic or railroad noise, a noise reduction of 5–10 dBA may often be reasonably attained. A 15-dBA noise reduction is sometimes possible, but a 20-dBA noise reduction is extremely difficult to achieve. Barriers usually are provided in the form of walls, berms, or berm/wall combinations. The use of an earth berm in lieu of a solid wall may provide up to 3 dBA 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 sometimes preferred for aesthetic reasons.

Site Design

Buildings can be placed on a project site to shield other structures or areas from areas affected by noise, and to prevent an increase in noise level caused by reflections. The use of one building to shield another can significantly reduce a project's overall noise control costs, particularly if the shielding structure is insensitive to noise.

Building Façades

When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building façades. Standard construction practices provide a noise reduction of 10–15 dBA for building façades with open windows and a noise reduction of approximately 25 dBA when windows are closed. Thus, an exterior-to-interior noise reduction of 25 dBA can be obtained by requiring that building design include adequate ventilation systems, which allows windows to remain closed under any weather condition.

Where greater noise reduction is required, acoustical treatment of the building façade is necessary. Reducing relative window area 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 by using double or staggered stud walls, or mounting interior walls on resilient channels. Noise control for exterior doorways is provided by reducing door area, using solid-core doors, and by acoustically sealing door perimeters with suitable gaskets. Roof treatments may include the use of plywood sheathing under roofing materials.

Vegetation

Trees and other vegetation are often thought to provide significant noise attenuation. However, approximately 100 feet of dense foliage (so that no visual path extends through the foliage) is required to achieve a 5-dBA attenuation of traffic noise (Caltrans 2013). Thus, the use of vegetation as a noise barrier should not be considered a practical method of noise control unless large tracts of dense foliage are part of the existing landscape.

Vegetation can be used to acoustically "soften" intervening ground between a noise source and a receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance. Planting trees

[4] For maximum effectiveness, barriers must be continuous and relatively 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 provides sufficient transmission loss. Satisfaction of the above criteria requires substantial and well-fitted barrier materials, placed to intercept the line of sight to all significant noise sources.

and shrubs also offers aesthetic and psychological value, and it may reduce adverse public reaction to a noise source by removing the source from view, even though noise levels will be largely unaffected. The effects of vegetation on noise transmission are minor and are primarily limited to increased absorption of high-frequency sounds and to reducing adverse public reaction to the noise by providing aesthetic benefits.

Vibration Fundamentals

Vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structureborne noise. Similar to noise, groundborne vibration and groundborne noise can be generated from construction and operational sources. If vibration levels are high enough, groundborne vibration has the potential to damage structures, cause cosmetic damage (e.g., crack plaster), or disrupt the operation of vibration-sensitive equipment. Groundborne vibration and groundborne noise can also be a source of annoyance to individuals who live or work close to vibration-generating activities. Groundborne noise is the noise generated by the indoor movement of room surfaces, such as walls, resulting from groundborne vibration.

Vibration Descriptors

As is the case with airborne sound, groundborne vibrations may be described by amplitude and frequency. Vibration levels are usually expressed as a single-number measure of vibration magnitude in terms of velocity or acceleration, which describes the severity of the vibration without the frequency variable. Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean square (RMS), as in RMS vibration velocity. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV and RMS are normally described in inches per second (in/sec). PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (FTA 2018).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a period of 1 second. Like airborne sound, the RMS velocity is often expressed in decibel notation, as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018). This is based on a reference value of 1 microinch per second (μin/sec).

Vibration Sources

Sources of groundborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, or transient, or random. Continuous vibrations result from operating factory machinery, vibratory pile drivers, large pumps, horizontal directional drilling, and compressors. Transient vibrations are generated by explosions, blasting, impact pile driving, and wrecking balls. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Construction activities can generate groundborne vibrations, which can pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018). Heavy construction operations can cause substantial groundborne vibration in proximity to the source. The highest vibration levels are generated by impact equipment or heavy equipment, such as pile drivers or vibratory rollers, respectively.

The primary vibration sources associated with transportation include heavy truck and bus traffic along roadways and train traffic along rail lines. Vehicle traffic, including heavy trucks traveling on a highway, rarely generates vibration amplitudes high enough to cause structural or cosmetic damage. In some cases, however, heavy trucks traveling over potholes or other discontinuities in the pavement have caused vibration high enough to result in complaints from nearby residents; these complaints typically can be resolved by smoothing the roadway surface. Freight trains, commuter trains, and light rail trains can also be sources of ground vibration.

Effects of Vibration

The effects of groundborne vibration include movement of building floors, rattling of windows, shaking of items that sit on shelves or hang on walls, and rumbling sounds. In extreme cases, vibration can damage buildings, although this is not a factor for most projects. Human annoyance from groundborne vibration often occurs when vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance can be well below the damage threshold for normal buildings.

Vibrations transmitted through the ground during construction equipment operations or transportation system operations may annoy people and detrimentally affect structures and sensitive devices. Where construction vibration does cause structural damage, it is through direct damage and/or vibration-induced settlement. Structural damage depends on the frequency of the vibration at the structure, as well as the condition of the structure and its foundation. Human annoyance by vibration is related to the number and duration of events. The more events or the greater the duration, the more annoying it will be to humans.

Table 4.10-2 displays the reactions of people and the effects on buildings that continuous vibration levels produce. The annoyance levels shown in Table 4.10-2 should be interpreted with care since vibration may be found to be annoying at much lower levels than those shown, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to vibration complaints, even when there is very little risk of actual structural damage.

Table 4.10-2. Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structures
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Virtually no risk of damage to normal buildings
0.3	Strongly perceptible to Severe	Threshold at which there is a risk of damage to newer residential structures
0.5	Severe – Vibration considered unpleasant	Threshold at which there is a risk of damage to newer residential structures

Notes: in/sec = inches per second; PPV = peak particle velocity
Source: Caltrans 2020

EXISTING NOISE ENVIRONMENT

Sensitive Receptors

Noise-sensitive land uses are those uses where quiet is an essential element of their intended purpose. This typically would include residences, schools, hospitals, nursing homes, retirement residences, places of worship, libraries, and sometimes parks, historic sites, cemeteries, and other places where low interior noise levels are essential.

For the most part, surrounding uses are not noise sensitive. The city of Fairfield's southern city limit is on the opposite side of SR 12, north of the Project Site. Existing uses in this portion of Fairfield include single-family residences, offices, and light industrial uses. The nearest noise and vibration-sensitive uses to the north of the Project Site are single-family residences located approximately 500 feet (north of SR 12), from the northern Project boundary.

East of the Union Pacific Railroad tracks that are adjacent to the eastern perimeter of the Project Site is Downtown Suisun City and the Suisun City waterfront, which is developed with a variety of commercial, residential, assembly, repair, and retail land uses. The nearest noise and vibration-sensitive uses east of the Project Site are single-family residences located approximately 200 feet east of the eastern Project boundary.

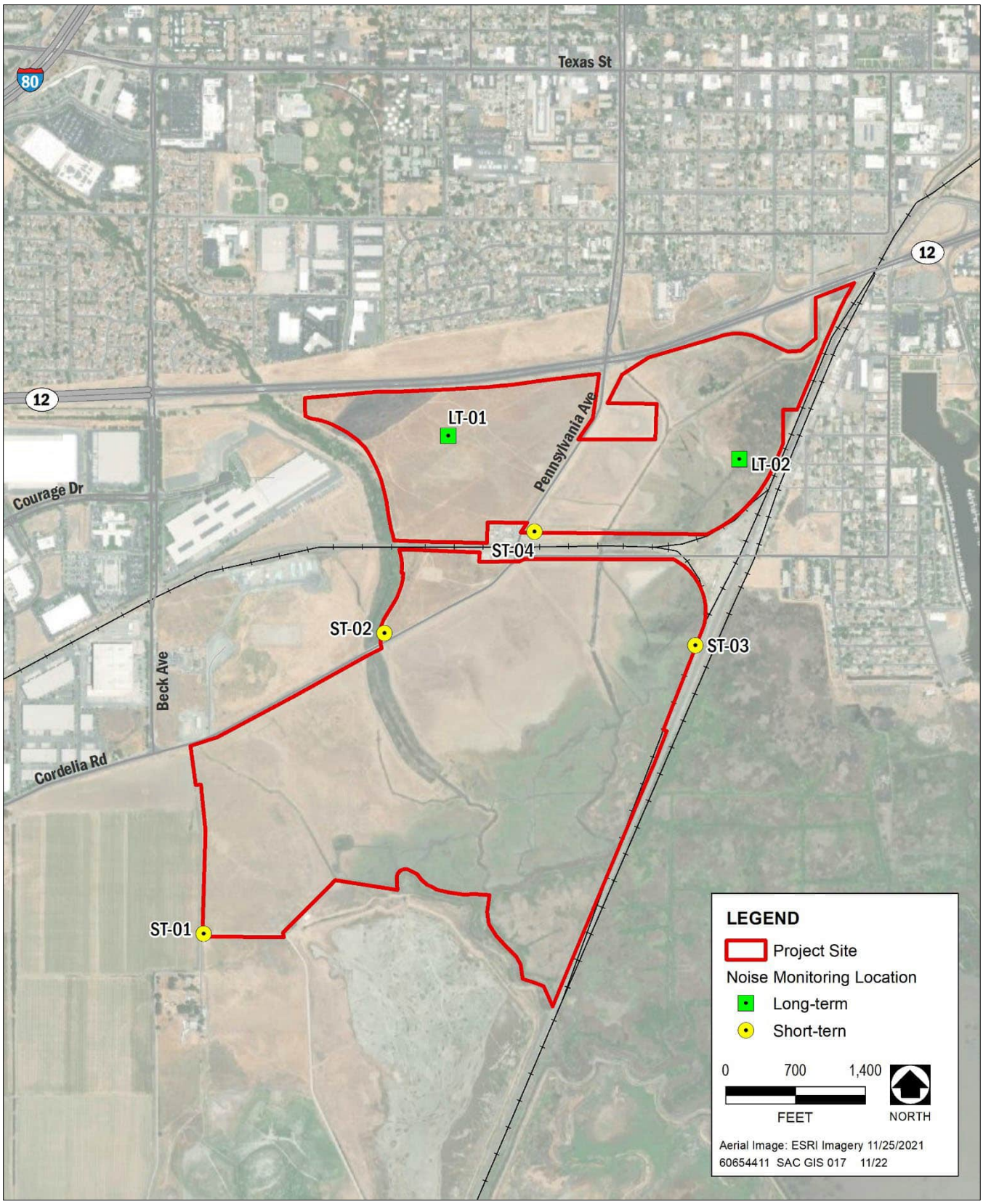
West of the Project Site, across Ledgewood Creek, are industrial warehouse and office uses. The nearest vibration-sensitive uses (the industrial warehouse and office buildings) to the west of the Project Site are approximately 300 feet from the western Project boundary. Undeveloped land is to the west and south of the Project Site, including Suisun Marsh to the south. The nearest noise and vibration-sensitive use from the southern Project boundary is a single-family residence located along Orehr Road, approximately 700 feet from the southern Project boundary.

Community Noise Survey

A community noise survey was conducted on May 21st through May 25th, 2021, to document the existing noise environment at various locations within the proposed Project area. The dominant noise source identified during the ambient noise survey was traffic from the State Route 12 along the northern boundary of the proposed Project Site. Other noise sources include Pennsylvania Avenue and Cordelia Road/Cordelia Street adjacent to the Project Site, more distant traffic along Beck Avenue to the west, and commuter and freight rail activity along the Union Pacific railway east of the Project Site.[5]

Community noise survey locations are shown in Exhibit 4.10-2. The L_{eq}, and L_{max} values were taken at each ambient noise measurement location presented in Table 4.10-3. During the survey, average daytime ambient noise levels ranged from 50 dB to 77 dB L_{eq}, with maximum noise levels that ranged from 58 dB to 101 dB L_{max}.

[5] Measurements of noise levels were taken in accordance with ANSI standards. Continuous 24-hour, long-term monitoring of noise levels was conducted at three locations in the City using Larson Davis Laboratories (LDL) Model 820 sound-level meters. The sound-level meters were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The equipment used meets all pertinent specifications of the ANSI for Type 1 sound-level meters (ANSI S1.4-1983 [R2006]).



Source: AECOM 2022

Exhibit 4.10-2. Noise Monitoring Locations Map

Table 4.10-3. Summary of Measured 24-hour Long Term Ambient Noise Levels, dBA

Site	Location	Date	L_{dn}	Daytime (7 a.m.–10 p.m.) $L_{eq} \setminus L_{max}$	Nighttime (10 p.m.–7 a.m.) $L_{eq} \setminus L_{max}$
LT-1	Northern Project Site	5/21/21 – 5/22/21	60.8	57.3 \ 68.5	53.6 \ 67.6
LT-1	Northern Project Site	5/22/21 – 5/23/21	60.5	56.0 \ 68.6	53.7 \ 68.6
LT-1	Northern Project Site	5/23/21 – 5/24/21	61.6	55.8 \ 67.9	55.1 \ 68.8
LT-1	Northern Project Site	5/24/21 – 5/25/21	63.4	58.7 \ 72.7	56.7 \ 71.0
LT-2	Eastern Project Site	5/21/21 – 5/22/21	61.7	53.5 \ 74.2	55.5 \ 79.1
LT-2	Eastern Project Site	5/22/21 – 5/23/21	59.2	53.3 \ 71.3	52.7 \ 72.1
LT-2	Eastern Project Site	5/23/21 – 5/24/21	59.8	53.0 \ 70.8	53.5 \ 75.1
LT-2	Eastern Project Site	5/24/21 – 5/25/21	61.8	56.6 \ 78.4	55.1 \ 77.0
ST-1	Southern Project Site	5/25/21	--	49.6 \ 58.2	--
ST-2	Southwestern Project Site	5/25/21	--	60.0 \ 81.5	--
ST-3	Eastern Project Site	5/25/21	--	72.2 \ 99.2	--
ST-4	Middle Project Site	5/25/21	--	77.3 \ 101.4	--

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; L_{eq} = the equivalent hourly average noise level; L_{max} = maximum noise level.
Monitoring locations correspond to those depicted in Exhibit 4.10-2.
Source: Data collected by AECOM 2021

Existing Noise Sources

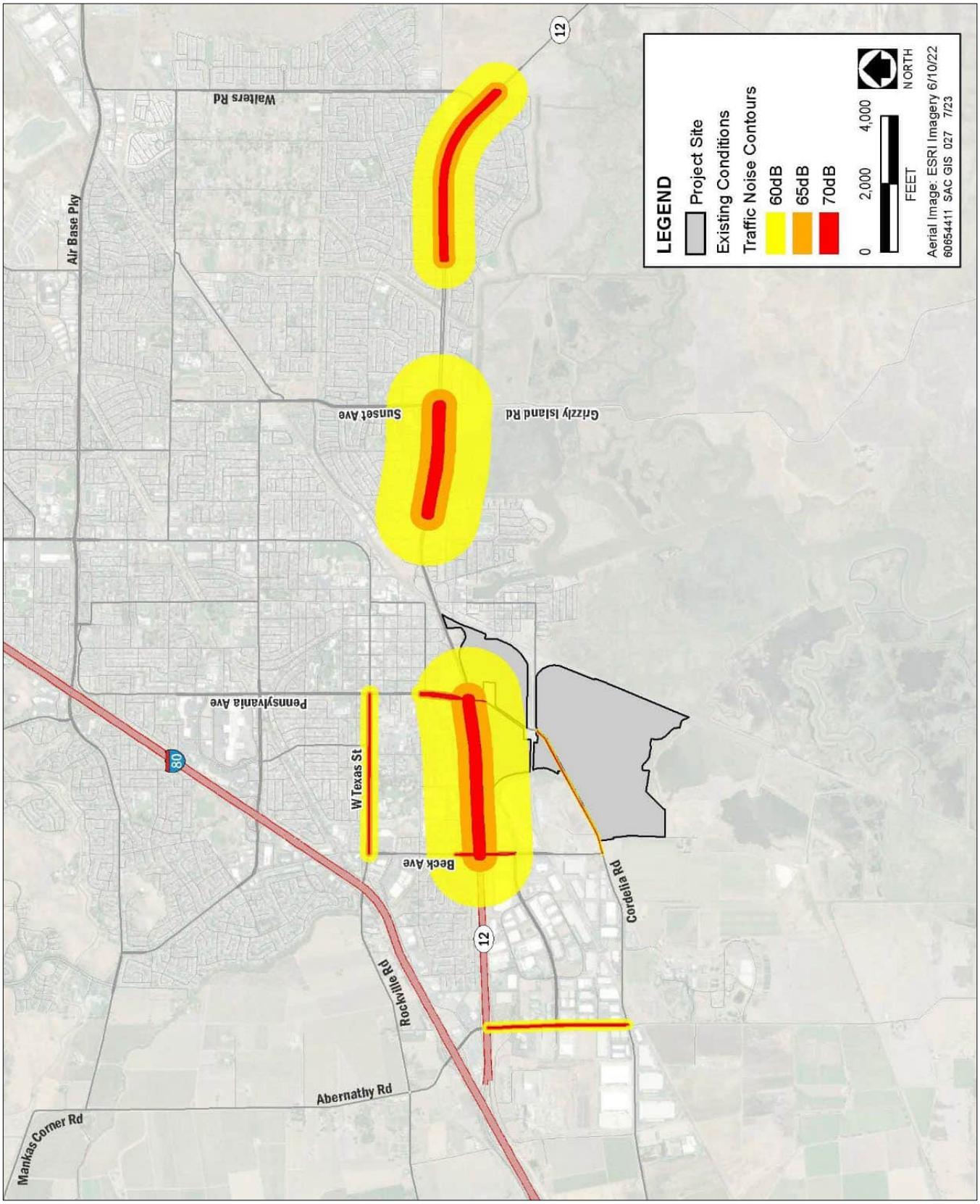
Roadways

The proposed Project Site is bounded by State Route 12 (SR 12) to the north, Pennsylvania Avenue to the east, Cordelia Road to the south, and Ledgewood Creek to the west. Regional access to the site is primarily provided by SR 12 via Pennsylvania Avenue. Local access is provided by Pennsylvania Avenue and Cordelia Road.

Existing vehicle traffic noise levels in the Project area were modeled using the Federal Highway Administration (FHWA 1978) Highway Traffic Noise Prediction Model (FHWA-RD-77-108)[6] and traffic data was used from the traffic study for the proposed Project (Fehr & Peers 2022).

Table 4.10-4 summarizes the modeled traffic noise levels, provides noise levels at 50 feet from the centerline of roadways, and lists distances from the roadway centerlines to the 60 dB, 65 dB, and 70 dB L_{dn} traffic noise contours. Exhibit 4.10-3 shows the traffic noise contours for roadways within the vicinity of the Project area. These traffic noise modeling results are based on existing average daily traffic (ADT) volumes. As shown in Table 4.10-4, the location of the 60 dB L_{dn} contour ranges from 53 to 1,531 feet from the centerline of the modeled surface street roadways. The extent to which noise-sensitive uses in the area are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to noise.

[6] The FHWA model is based on CALVENO reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receptor, and ground attenuation factors.



Source: AECOM 2023

Exhibit 4.10-3. Existing Roadway Noise Contours

Table 4.10-4. Summary of Modeled Levels of Existing Traffic Noise and Distance (feet) from Roadway Centerline to L_{dn} Contour

Roadway Segment	From	To	L_{dn} (dB) 50 Feet	Distance to 70 dB Contour	Distance to 65 dB Contour	Distance to 60 dB Contour
Chadbourne Road	SR-12	Cordelia Road	65	15	48	152
Beck Avenue	SR-12	North of SR-12	66	21	65	206
Beck Avenue	SR-12	South of SR-12	63	11	34	109
West Texas Street	Beck Avenue	Pennsylvania Avenue	67	26	82	258
SR-12	Beck Avenue	Pennsylvania Avenue	75	153	484	1,531
Cordelia Road	Beck Avenue	Pennsylvania Avenue	60	5	17	53
Pennsylvania Avenue	SR-12	North of SR-12	67	26	83	262
Pennsylvania Avenue	SR-12	South of SR-12	62	8	25	79
SR-12	Marina Boulevard	Grizzly Island Road	75	151	476	1,506
SR-12	Emperor Drive	Walters Road	72	86	273	862

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level, SR = State Route.
Source: Data modeled by AECOM in 2023

Railways

There are two railroad lines that operate in the vicinity of the Project Site. The California Northern Railroad (CFNR) operates 24 miles of the Schellville Sub line from Suisun City to Schellville. The Schellville Sub-line enters Suisun City from the west and parallels Cordelia Street. The CFNR line traverses the area in an east-west direction from the Union Pacific Railroad (UPRR) line to the west. The CFNR Schellville Sub-line operates approximately 6 daily train trips through Suisun City (Suisun City 2023). UPRR operates the Overland Route, in the city. The UPRR Overland Route traverses the northern boundary of the city and the western edge of the city's downtown area, carrying both freight and commuter passenger trains. The UPRR Overland Route extends to the west to Oakland and to the east to Chicago. Based on noise measurements gathered along the UPRR Overland Route line, approximately 43 daily train trips occur through Suisun City. These train trips include Amtrak operations and freight transportation. The 60 dB L_{dn} contour extends out approximately 361 feet from the center of the tracks, while the 65 dB L_{dn} contour is at approximately 168 feet. Single-event train pass bys were measured at 108 feet from the UPRR track centerline (Suisun City 2010).

The California Northern Railroad is oriented west to east, horizontally dividing the Project Site and meeting with the Union Pacific Railroad tracks at the eastern perimeter of the Project Site. The Project Site is bounded to the east by the Union Pacific Railroad.

4.10.2 REGULATORY FRAMEWORK

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

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Although not directly applicable to the proposed Project, the research that supported the development of federal community noise standards is broadly applicable in understanding human response to different noise levels and is summarized below for the reader's edification.

U.S. Environmental Protection Agency Noise Control Act

The Federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that would jeopardize public health or welfare.[7] Although the U.S. Environmental Protection Agency (EPA) was given a major role in disseminating information to the public and coordinating federal agencies, each federal agency retains authority to adopt noise regulations pertaining to agency programs.[8]

In 1974, in response to the requirements of the federal Noise Control Act, the EPA identified indoor and outdoor noise level limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor and indoor noise exposure limits of 55 dB L_{dn} and 45 dB L_{dn}, respectively, are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. The sound-level criterion identified to protect against hearing damage in commercial and industrial areas is 70 dB 24-hour L_{eq} (both outdoors and indoors).

The EPA's Office of Noise Abatement and Control was established to coordinate federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at lower levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred to state and local governments.

U.S. Department of Housing and Urban Development Noise Abatement and Control

The U.S. Department of Housing and Urban Development (HUD) has established guidelines for evaluating noise impacts on residential projects seeking financial support under various grant programs (HUD 2013), as summarized below:

- **Acceptable $\leq$ 65 dB.** Sites are generally considered acceptable for residential use if they are exposed to outdoor noise level of 65 dB L_{dn} or less.
- **Normally Unacceptable 65-75 dB.** Sites are considered "normally unacceptable" if they are exposed to outdoor noise levels of 65-75 dB L_{dn}.
- **Unacceptable > 75 dB.** Sites are considered "unacceptable" if they are exposed to outdoor noise levels above 75 dB L_{dn}.

The HUD goal for the interior noise levels in residences is 45 dB L_{dn} or less.

[7] The U.S. Environmental Protection Agency (EPA) was given the responsibility for providing information to the public regarding identifiable effects of noise on public health and welfare, publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety, coordinating federal research and activities related to noise control, and establishing federal noise emission standards for selected products distributed in interstate commerce. The Noise Control Act also directed that all federal agencies comply with applicable federal, State, interstate, and local noise control regulations.

[8] The EPA can, however, require other federal agencies to justify their noise regulations in terms of the Noise Control Act policy requirements.

Federal Aviation Administration Airport Noise Compatibility Planning

14 CFR Part 150, "Airport Noise Compatibility Planning" prescribes the procedures, standards, and methodology to be applied to airport noise compatibility planning activities. Noise levels below 65 dB L_{dn} are normally considered to be acceptable for noise-sensitive land uses.

Federal Highway Administration Procedures for Abatement of Highway Traffic Noise and Construction Noise Regulations

FHWA regulations (23 CFR 772) specify procedures for evaluating noise impacts associated with federally funded highway projects and determining whether these impacts are sufficient to justify funding noise abatement. The FHWA noise abatement criteria are based on worst hourly L_{eq} sound levels, not 24-hour average values (e.g., L_{dn} or CNEL). The worst-hour L_{eq} criteria for residential, educational, and healthcare facilities are 67 dB outdoors and 52 dB indoors. The worst-hour L_{eq} criterion for commercial and industrial areas is 72 dB (outdoors).

Federal Transit Administration Transit Noise and Vibration Impact Assessment

Federal Transit Administration (FTA) procedures for the evaluation of noise from transit projects are specified in the document entitled, "Transit Noise and Vibration Impact Assessment" (FTA 2018). The FTA Noise Impact Criteria address the following categories:

- **Category 1:** Buildings or parks, where quiet is an essential element of their purpose.
- **Category 2:** Residences and buildings where people normally sleep. This includes residences, hospitals, and hotels where nighttime sensitivity is assumed to be of utmost importance.
- **Category 3:** Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, churches, and active parks.

The L_{dn} noise level descriptor is used to characterize noise exposure for residential areas (Category 2). For other noise-sensitive land uses, such as outdoor amphitheaters and school buildings (Categories 1 and 3), the maximum hourly L_{eq} during the facility's operating period is used. Noise impacts are identified based on absolute predicted noise levels and increases in noise associated with the subject project.

With respect to vibration, the range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. The background vibration-velocity level in residential areas is usually approximately 50 VdB. Groundborne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018).

U.S. Department of Transportation and U.S. EPA Vibration Guidelines

To address the human response to groundborne vibration, the FTA of the U.S. Department of Transportation has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These include 65 VdB referenced to 1 μin/sec and based on RMS velocity amplitude for land uses where low ambient vibration is essential for interior operations (e.g., hospitals, high-tech manufacturing, laboratory facilities); 80 VdB for

residential uses and buildings where people normally sleep; and 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices) (FTA 2018).

Standards have also been established to address the potential for groundborne vibration to cause structural damage to buildings. These standards were developed by the Committee of Hearing, Bio Acoustics, and Bio Mechanics (CHABA) at the request of the U.S. Environmental Protection Agency (FTA 2018). For fragile structures, CHABA recommends a maximum limit of 0.25 in/sec PPV (FTA 2018).

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

In 1971, the State required cities and counties to include noise elements in their general plans (Government Code Section 65302 et seq.). The State of California General Plan Guidelines (Office of Planning and Research 2017) identify guidelines for the noise elements of local general plans, including a sound level/land-use compatibility chart. The noise element guidelines identify the "normally acceptable" range of noise exposure for low-density residential uses as less than 60 dB L_{dn}, and the "conditionally acceptable" range as 55-70 dB L_{dn}. The "normally acceptable" range for high-density residential uses is identified as below 65 dB L_{dn}, and the "conditionally acceptable" range is identified as 60-70 dB L_{dn}. For educational and medical facilities, levels below 70 dB L_{dn} are considered "normally acceptable," and levels of 60-70 dB L_{dn} are considered "conditionally acceptable." For office and commercial land uses, levels below 70 dB L_{dn} are considered "normally acceptable," and levels of 67.5–77.5 dB L_{dn} are considered "conditionally acceptable." Overlapping noise level ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations. The State's guidance for land use/noise compatibility is summarized in Table 4.10-5.

Table 4.10-5. Land Use Noise Compatibility Guidelines, Community Noise Exposure (CNEL/L_{dn}, dBA)

Land Use Category	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; dBA = A-weighted decibels; L_{dn} = day-night average noise level.

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.

Source: OPR 2017

In 1984, State noise element provisions were revised to "recognize" guidelines prepared by the Office of Noise Control of the California Department of Health Services and to analyze and quantify, "to the extent practicable, as determined by the legislative body," noise from the following sources: highways and freeways; primary arterials and major local streets; passenger and freight online railroad operations and ground rapid transit systems; commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and other ground facilities and maintenance functions related to airport operation; local industrial plants, including, but not limited to, railroad classification yards; and other ground stationary noise sources identified by local agencies as contributing to the community noise environment. As noted in the draft update to the General Plan Guidelines, the Office of Planning and Research notes that the Department of Health Services Office of Noise Control no longer exists, and the guidelines have been incorporated into the General Plan Guidelines for Noise Elements (OPR 2017).

California Department of Transportation

For the protection of fragile, historic, and residential structures, Caltrans recommends for highway construction analysis a threshold of 0.2 in/sec PPV for normal residential buildings and 0.08 in/sec PPV for old or historically significant structures (Caltrans 2020). These standards are more stringent than the recommended guidelines established by the FTA, presented above. Table 4.10-6 shows the general thresholds for structural responses to vibration levels.

Table 4.10-6. Structural Responses to Vibration Levels, Peak Vibration Threshold (in/sec PPV)

Structure and Condition	Peak Vibration Threshold (in/sec PPV) Transient Sources	Peak Vibration Threshold (in/sec PPV) Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Notes: in/sec = inches per second; PPV = peak particle velocity
Source: Caltrans 2020

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

HEALTH AND SAFETY ELEMENT OF THE EXISTING SOLANO COUNTY GENERAL PLAN

The criteria contained within the Health and Safety Element of the existing Solano County General Plan (Solano County 2008) is used for the purposes of evaluating noise impacts from new projects in Solano County.

Policies

- **HS.I-62:** When reviewing new development proposals:
    - Require noise abatement measures to ensure that noise levels will not exceed those indicated in Table 4.10-7.

- Require buffering between noise-sensitive land uses and noise sources unless a detailed noise analysis is conducted, and noise abatement measures can be taken to reduce noise to acceptable levels as shown in Table 4.10-7.

- Where development projects produce or are affected by, non-transportation-related noise, require the inclusion of project features that will enable the project to achieve acceptable levels specified in Table 4.10-7, as measured at outdoor activity areas of existing and planned noise-sensitive land uses.

- Require noise mitigation to reduce construction and other short-term noise impacts as a condition of approval for development projects by applying the performance standards outlined in Table 4.10-7. The total noise level resulting from new sources and ambient noise shall not exceed the standards in Table HS-4, as measured at outdoor activity areas of any affected noise-sensitive land use except:

  – If the ambient noise level exceeds the standard in Table 4.10-7, the standard becomes the ambient level plus 5 dB.

  – Reduce the applicable standards in Table 4.10-7 by 5 dB if they exceed the ambient level by 10 or more dB.

- Under the conditions outlined below, require acoustical studies to be prepared as part of the development review process to ensure adequate analysis of proposed development and incorporation of noise-reducing features in project designs. Acoustical studies with appropriate noise abatement measures will be required for all discretionary projects where any of the following conditions apply:

  – The project is located within the existing or future 60 dB CNEL transportation noise contours as measured at outdoor activity areas of noise-sensitive land uses.

  – The project will cause future traffic volumes to exceed 5,000 average daily trips on any roadway that fronts residential, institutional, and open space land uses or will cause traffic volume to increase by 25 percent or more, on any of these roadways.

  – The project will introduce noise or vibration sources associated with mechanical equipment operations, entertainment, maintenance, and facility operations.

  – The project is a proposed residential use in the vicinity of existing and proposed commercial and industrial areas.

  – The project is proposed in an area where existing noise levels exceed acceptable levels in Table 4.10-7 as measured in outdoor activity areas of noise-sensitive land uses.

- Where it is not possible to reduce noise levels in outdoor activity areas to 60 dB or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB may be allowed, provided that all available exterior noise level reduction measures have been implemented.

► **HS.I-64:** Promote the use of berms, landscaping, setbacks, or architectural design for noise abatement, in addition to conventional wall barriers, to enhance aesthetics and minimize pedestrian barriers.

► **HS.I-66:** Locate industrial and other noise-generating land uses away from noise-sensitive land uses and/or require substantial noise sources to be completely enclosed within buildings or structures.

Table 4.10-7. Noise Standards for New Uses Affected by Traffic and Railroad Noise - Public Health and Safety Chapter of the Solano County General Plan [Table HS-4]

New Land Use	Sensitive Outdoor Area–L_{dn}	Sensitive[1] Interior Area–L_{dn}	Notes
All Residential	65	45	2
Transient Lodging	65	45	2,3
Hospitals & Nursing Homes	65	45	2, 3, 4
Theaters & Auditoriums	---	35	3
Churches, Meeting Halls Schools, Libraries, etc.	65	40	3
Office Buildings	65	45	3
Commercial Buildings	---	50	3
Playgrounds, Parks, etc.	70	---	---
Industry	65	50	3

Notes: dBA = A-weighted decibels; L_{dn} = day-night average noise level
1 Interior-noise-level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in closed positions.
2 If these uses are affected by nighttime railroad passages, the potential for sleep disturbance shall be addressed,
3 Where there are no sensitive exterior spaces proposed for these uses, only the interior-noise level standard shall apply.
4 Hospitals are often noise-generating uses. The exterior-noise-level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
Source: Solano County 2008.

Daytime noise standards are typically set at noise levels that would not annoy or impede human interaction or function in outdoor activity areas. Nighttime noise standards are typically set to result in acceptable noise levels that would not interfere with sleep for most people inside a building with windows closed. In general, noise standards are designed to prevent annoyance or sleep disruption in sensitive members of the public. Table 4.10-7 provides acceptable outdoor and interior noise levels for land uses. Table 4.10-8 defines noise performance standards for non-transportation noise sources.

Table 4.10-8. Non-Transportation Noise Standards - Average (dBA L_{eq}) / Maximum (L_{max})[1] - Public Health and Safety Chapter of the Solano County General Plan [Table HS-5]

Receiving Land Use	Outdoor Area Daytime	Outdoor Area Nighttime	Interior[2] Day & Night	Notes
All Residential	55 / 75	50 / 70	35 / 55	---
Transient Lodging	55 / 75	---	35 / 55	3
Hospitals & Nursing Homes	55 / 75	---	35 / 55	4, 5
Theaters & Auditoriums	---	---	30 / 50	5
Churches, Meeting Halls, Schools, Libraries, etc.	55 / 75	---	35 / 60	5
Office Buildings	60 / 75	---	45 / 65	5
Commercial Buildings	---	---	45 / 65	5
Playgrounds, Parks, etc.	65 / 75	---	---	5
Industry	60 / 80	---	50 / 70	5

Notes: --- = not applicable; L_{eq} = equivalent or energy-averaged sound level; L_{max} = Highest root-mean-square sound level measured over a given period of time.
1 The standards shall be reduced by 5 dBA for sounds consisting primarily of speech or music, and for recurring impulsive sounds. If the existing ambient noise level exceeds the standards, then the noise level standards shall be increased at 5-dBA increments to encompass the ambient.
2 Interior-noise-level standards are applied within noise-sensitive areas of the various land uses, with windows and doors in closed positions.
3 Outdoor activity areas of transient lodging facilities are not commonly used during nighttime hours.
4 Hospitals are often noise-generating uses. The exterior-noise-level standards for hospitals are applicable only at clearly identified areas designated for outdoor relaxation by either hospital staff or patients.
5 The outdoor activity areas of these uses (if any), are not typically utilized during nighttime hours.
Source: Solano County 2008.

Solano County Code

The County Code contains 60 references to noise under various sections: Agriculture (Section 2.2), Animals (Section 4), Miscellaneous Offences (Section 18), Parks and Recreation (Section 19), and Zoning (Section 28). The County's intent is to maintain quiet in those areas which exhibit low noise levels and to implement programs aimed at reducing noise in those areas within the County where noise levels are above acceptable limits. The code provides regulations that establish the required ambient noise levels and maximum allowable noise levels based on the land use. The Solano County Code, Chapter 28, Land Use Regulations, includes standards to control excessive noise and vibration in the unincorporated County.

Article II. Noise Restrictions

Section 28.1.20 General Noise Restrictions

a) It is unlawful for any person to willfully or negligently make or continue, or cause to be made or continued, any noise or sound which exceeds the allowed decibel level identified in this chapter or which is offensive to persons of normal sensitivities.

Section 28.1-30 Interior Noise Standards

a) The interior noise standards for residential dwelling units within residential zones or areas for noise generated by sources outside the dwelling unit are presented in Table 4.10-9.

Table 4.10-9. Noise Level Permissible by Receiving Land Use - [Table 28.1-30] of Solano County Noise Ordinance

Receiving Land Use	Time Interval	Allowable Interior Noise Level (dBA)
Residential	7 p.m. – 7 a.m.	45
Residential	7 a.m. – 7 p.m.	55

Notes: dBA = A-weighted decibel.
Source: Solano County 2017.

b) Noise from any source on a property within a residential zone or area shall not cause the noise level measured inside a dwelling unit on a neighboring property to exceed the noise standard specified in Table 4.10-9 for a cumulative period of more than 5 minutes in any hour.

Section 28.1- 40 Exterior Noise Standards

a) The maximum permissible sound levels by receiving land use shall apply:

   1) The exterior noise standards for residential and agricultural zones or areas are presented in Table 4.10-10.

   2) If the measured ambient noise level at the time of a complaint investigation exceeds the identified permissible noise level for that zone, the allowable noise standard shall be the ambient noise level.

   3) Except as provided in subsection (b) of Section 28.1-30, noise from any source shall not cause the noise level measured on a property in an agricultural or residential zone or area to exceed the exterior noise levels specified in Table 4.10-10 or in subsection (2), whichever is greater, for a period of more than 5 minutes in any hour.

Table 4.10-10. Exterior Noise Standards - [Table 28.1-40] of Solano County Noise Ordinance

Receiving Land Use	Noise Level (dBA) 7 a.m. – 7 p.m.	Noise Level (dBA) 7 p.m. – 7 a.m.
Agricultural	55	50
Residential	55	50

Notes: dBA = A-weighted decibel.
Source: Solano County 2017.

Section 28.1-50 Specific Noise Regulations

In addition to the standards established in Sections 28.1-30 and 28.1-40, noise created by specific activities shall be subject to the following additional regulations.

a) Construction or Demolition

1) Construction and demolition activities within a residential district or within a radius of 500 feet are allowed only during the times specified in Table 4.10-11.

2) Except as set forth in subsection (5) of this section, the noise created by construction activity shall not cause:

a. The noise level to exceed the noise standards specified in Table 4.10-10 of this chapter, for the land use where the measurement is taken, plus 20 dBA, for a period of more than 2 minutes; or

b. A maximum noise at the receiving property line of more than 90 dBA at any time.

3) Any construction that exceeds noise levels established in Sections 28.1-30 or 28.1-40 shall occur between the hours of 9 a.m. and 4 p.m., Monday through Friday.

4) Construction or demolition activity during the times otherwise prohibited by this section may be allowed as described in this subsection if it is found to be in the public interest.

a. A request for such allowance shall be in writing and shall set forth in detail facts showing that the public interest will be served by the grant of such allowance.

b. If the allowance is being requested in connection with construction or demolition activities to be undertaken in connection with a land division, use permit, or other discretionary entitlement, the request shall be submitted as part of the application for such entitlement and shall be acted upon by the official or decision-making body taking action on such application, after considering the recommendation of the noise control officer.

c. If the allowance is being requested in connection with a building permit, demolition permit, or grading permit and is not in connection with a discretionary entitlement, the request shall be considered and acted on by the noise control officer before the construction or demolition permit has been issued.

Table 4.10-11. Time Limits for Noise Associated with Commercial Construction Activities - [Table 28.1-50] of Solano County Noise Ordinance

Day of Week	Time Frame
Monday–Friday	7 a.m. – 6 p.m.
Saturday	8 a.m. – 5 p.m.
Sunday	Not allowed
Federal Holidays	Not allowed

Source: Solano County 2017.

Section 28.1-60 Exemptions

a) The following activities and noise sources are exempt from the provisions of this chapter:

1) Emergency sirens.

2) Any operation or action required to respond to an emergency.

3) Emergency construction or maintenance work conducted by public agencies or their contractors which is necessary to maintain the health and safety of the public.

4) Agricultural activities.

5) Those commercial and industrial operations in existence prior to the date of adoption of the ordinance codified in this chapter, if in compliance with local zoning statutes, shall be granted a five-year period from the date of adoption within which to comply with the provisions of this chapter. If, at the end of the five years, it can be shown that compliance with the provisions in this chapter constitutes a hardship in terms of technical and economic feasibility, a waiver may be requested following procedures established in Section 28.1-80 of this code until such time as compliance may be affected.

6) Any activity which regulation thereof has been preempted by state or federal law.

CITY OF SUISUN CITY GENERAL PLAN

Public Health and Safety Element

- **Policy PHS-1.1:** Large-scale commercial land uses that could require 50 or more large truck trips per day shall route truck traffic to SR 12 or Arterials and avoid Collectors and Local Streets.
- **Policy PHS-1.2:** New development shall be designed to disperse vehicular traffic onto a network of fully connected smaller roadways.
- **Policy PHS-1.3:** Industrial and other noise-generating land use should be located away from noise-sensitive land uses or should use noise attenuation methods, such as enclosing substantial noise sources within buildings or structures, using muffling devices, or incorporating other technologies designed to reduce noise levels.
- **Policy PHS-1.4:** The City will use all feasible means to reduce the exposure of sensitive land uses to excessive noise levels and mitigate where noise levels exceed those specified in Table 4.10-12.

Table 4.10-12. Maximum Allowable Noise Exposure from Transportation Noise Sources at Noise-Sensitive Land Uses- [Table 9-1] of City of Suisun City Public Health and Safety Element

Land Use	Outdoor Activity Area–L_{dn}	Interior Spaces–L_{dn}	Interior Spaces–L_{eq}
Residential	60	45	---
Residential (in Downtown Waterfront Specific Plan Area or other Mixed-Use Designations)	70	45	---
Transient Lodging	60	45	---
Hospitals, Nursing Homes	60	45	---
Theaters, Auditoriums, Music Halls	---	---	35
Churches, Meeting Halls	60	---	40
Office Buildings	---	---	45
Schools, Libraries, Museums	60	---	45
Playgrounds, Neighborhoods	70	---	---

Notes: --- = not applicable; dBA = A-weighted decibels; L_{dn} = day-night average noise level L_{eq} = equivalent or energy-averaged sound level
Noise-sensitive land uses include schools, hospitals, rest homes, long-term care, mental care facilities, residences, and other similar land uses. Outdoor activity areas are considered to be the portion of a noise-sensitive property where outdoor activities would normally be expected (i.e., patios of residences and outdoor instructional areas of schools). Outdoor activity areas for the purposes of this element do not include gathering spaces alongside transportation corridors or associated public rights-of-way. Where development projects or roadway improvement projects could potentially create noise impacts, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design. Such analysis shall be the financial responsibility of the applicant and be prepared by a qualified person experienced in the fields of environmental noise assessment and architectural acoustics. Mitigation strategies shall include site planning and design over other types of mitigation.
Source: City of Suisun City 2023.

- **Policy PHS-1.5:** It is the City's policy to allow outdoor transportation noise levels for residential uses in mixed-use land use designations, including the Downtown Waterfront Specific Plan Area, of up to 70 dBA L_{dn} and this level of noise exposure will not be considered a significant impact for the purposes of California Environmental Quality Act review.

- **Policy PHS-1.7:** The City should coordinate with Union Pacific and the Public Utilities Commission to replace at-grade railroad crossings with Federal Railroad Administration-approved quiet zone rated crossing systems designed to reduce or eliminate the use of rail horn blasts within the City, as funding is available.

- **Policy PHS-1.8:** Soundwalls are prohibited as a method for reducing noise exposure that could be addressed through other means, such as site design, setbacks, earthen berms, or a combination of these techniques.

- **Policy PHS-1.9:** New developments shall implement feasible noise mitigation to reduce construction noise and vibration impacts. Projects that incorporate feasible mitigation will not be considered by the City to have significant impacts for the purposes of the California Environmental Quality Act review.

- **Policy PHS-1.10**: Public events, such as school sporting events, festivals, and other similar community and temporary events are exempt from the noise standards outlined in this Element.

- **Program PHS-1.1:** Reduce Noise Exposure for Noise-Sensitive Land Uses. Development of noise-sensitive land uses in areas with existing noise from mobile, stationary, or agricultural sources will be reviewed and conditioned according to the City's noise policies. Projects that could expose noise-sensitive uses will be required to incorporate feasible mitigation to address potentially significant noise effects. Methods may include but are not limited to: traffic calming, site planning that orients noise-sensitive outdoor gathering areas away from sources, buffering, sound insulation, and other methods deemed effective by the City. Development projects that are affected by non-transportation-related noise shall be mitigated to achieve

acceptable levels specified in Table 4.10-13, as measured at outdoor activity areas of existing and planned noise-sensitive land uses. If existing noise levels exceed acceptable levels in Table 4.10-13 as measured at outdoor activity areas of noise-sensitive land uses, then:

- Where existing exterior noise levels are between 60 and 65 dBA in outdoor activity areas of noise-sensitive uses, an increase of 3 dBA or greater is considered significant and requires mitigation to achieve acceptable levels.

- Where existing exterior noise levels are greater than 65 dBA in outdoor activity areas of noise-sensitive uses, an increase of 1.5 dBA or greater is considered significant and requires mitigation to achieve acceptable levels.

- Where it is not possible to reduce noise in outdoor activity areas to 60 dBA or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dBA may be allowed, provided that feasible exterior noise level reduction measures have been implemented.

- The City will identify regional, state, and federal sources of funding to make improvements that would attenuate noise as experienced by existing noise-sensitive land uses, where feasible.

Table 4.10-13. Noise Level Performance Standards for New Projects Affected By, or Including, Non-Transportation Noise Sources - [Table 9-2] of City of Suisun City Public Health and Safety Element

Noise Level Descriptor	Daytime (7 am – 10 pm)	Nighttime (10 pm – 7 am)
Hourly L_{eq}	60 dBA	45 dBA
L_{max}	75 dBA	65 dBA

Notes: dBA = A-weighted decibel; L_{eq} = equivalent or energy-averaged sound level; L_{max} = Highest root-mean-square sound level measured over a given period of time.
Each of the noise levels specified shall be lowered by five dBA for simple tone noises, noises consisting primarily of speech, or music, or for recurring impulsive noises. These noise level standards do not apply to residential units established in conjunction with industrial or commercial uses (e.g., caretaker dwellings).
Source: City of Suisun City 2015.

- **Program PHS-1.2:** Review and Conditioning of Noise-Generating New Uses. New developments that generate noise will be reviewed and feasible mitigation will be required to reduce effects on existing noise-sensitive land uses. Methods may include, but are not limited to: operating at less noise-sensitive parts of the day, better distribution of vehicle traffic to avoid large volumes on any one street, traffic calming, buffering, sound insulation, and other methods deemed effective by the City. The maximum noise level resulting from new sources and ambient noise shall not exceed the standards in Table 4.10-13, as measured in outdoor activity areas of any affected noise-sensitive land use except:

  - If the ambient noise level exceeds the standard in Table 4.10-13, the standard becomes the ambient level plus 5 dBA.

  - Reduce the applicable standards in Table 4.10-14 by 5 decibels if they exceed the ambient level by 10 or more decibels.

  - The City shall exempt all school-related events and City-sponsored events from noise standards outlined in this chapter.

Table 4.10-14. Noise Level Performance Standards for Non-Transportation Noise Sources - [Table 9-3] of City of Suisun City Public Health and Safety Element, Maximum Exterior Noise Level Standards (dBA)[2]

Cumulative Duration of a Noise Event[1] (Minutes)	Daytime[3,5]	Nighttime[4,5]
30-60	50	45
15-30	55	50
5-15	60	55
1-5	65	60
0-1	65	60

Notes: dBA = A-weighted decibel.
1 Cumulative duration refers to the time within any one-hour period.
2 Noise level standards measured in dBA.
3 Daytime = Hours between 7:00 a.m. and 10:00 p.m.
4 Nighttime = Hours between 10:00 p.m. and 7:00 a.m.
5 Each of the noise level standards specified may be reduced by 5 dBA for tonal noise (i.e., a signal which has a particular and unusual pitch) or for noises consisting primarily of speech or for recurring impulsive noises (i.e., sounds of short duration, usually less than one second, with an abrupt onset and rapid decay such as the discharge of firearms).
Source: City of Suisun City 2015.

- **Program PHS-1.3** Train Quiet Zone. The City will coordinate with Union Pacific Railroad, the Federal Railroad Administration, and the City of Fairfield to establish a Quiet Zone. As funding is available, the City will collaborate with other agencies to improve crossings with appropriate technologies to implement the Quiet Zone. The City will coordinate with Union Pacific to reduce or eliminate the use of horns in noise-sensitive areas of the community with the installation of alternative crossing devices.

- **Program PHS-1.5** Construction Noise and Vibration Reduction Measures. The City will require new developments proposing construction adjacent to existing noise-sensitive uses or close enough to noise-sensitive uses that relevant performance standards could be exceeded to incorporate feasible mitigation to reduce construction noise exposure. This may include additional limits on the days and times of day when construction can occur, re-routing construction equipment away from adjacent noise-sensitive uses, locating noisy construction equipment away from noise-sensitive uses, shrouding or shielding impact tools, use of intake and exhaust mufflers and engine shrouds, construction of acoustic barriers (e.g., plywood, sound attenuation blankets), pre-drilling holes for placement of piles or non-impact pile driving where piles would be needed, and other feasible technologies or reduction measures necessary to achieve the City's relevant performance standards.

- **Policy PHS-2.1** New developments that propose vibration-sensitive uses within 100 feet of a railroad or heavy industrial facility shall analyze and mitigate potential vibration impact, as feasible.

- **Policy PHS-2.2** New developments that would generate substantial long-term vibration shall provide analysis and mitigation, as feasible, to achieve velocity levels, as experienced at habitable structures of vibration-sensitive land uses, of less than 78 vibration decibels.

City of Suisun City Noise Ordinance

Presently, the City does not have an adopted noise ordinance. Instead, there are policies in the 2035 General Plan which encourage the discussion and ultimate adoption of noise regulations.

In Title 15, "Buildings and Construction," there are regulations relative to construction work hours, but no regulations that generally address noise or other activities that generate noise or could be considered a nuisance. Absent an adopted ordinance that addresses more comprehensive issues, the Police Department is limited in what they can do in response to citizen complaints.

15.04.075 - Construction work hours.

It shall be the responsibility of anyone engaging in construction or demolition work to restrict the hours of work activity on the site as follows.

a. No construction equipment shall be operated nor any outdoor construction, non-residential projects, or repair work shall be permitted within 600 feet from any occupied residence except during the hours of 7:00 a.m. to 8:00 p.m., Monday through Friday, and 8:00 a.m. to 8:00 p.m., on Saturday and Sunday.

b. Construction work hours on residential projects shall be from 7:00 a.m. to 8:00 p.m.

c. A request for an exception to the permitted construction hours and days may be granted by the chief building inspector for emergency work, to offset project delays due to inclement weather, for 24-hour construction projects, or other similar occurrences.

d. City projects determined by the director of public works to be emergencies shall be exempt from these provisions.

e. For construction work hours for earthwork, trenching, concrete, or paving see Section 15.12.320.

f. Interior work which would not create noise or disturbance noticeable to a reasonable person of normal sensitivity in the surrounding neighborhood shall not be subject to these restrictions.

CITY OF FAIRFIELD GENERAL PLAN

While the City of Fairfield General Plan is not directly relevant to the proposed Project, which proposes development within Suisun City and Solano County, this information is presented for context and understanding of the City of Fairfield's expectation for noise environment for areas within the city of Fairfield.

- **Policy HS 9.1.** Ground transportation noise: The compatibility of proposed projects with existing and future noise levels due to ground transportation noise sources shall be evaluated by comparison to Table HS-1 where the existing or future noise level from ground transportation noise sources is determined to exceed the standards of Table HS-1. Noise levels in outdoor activity areas and interior spaces shall be mitigated to the levels shown in Table HS-1.

- **Policy HS 9.3.** Non-transportation noise: Noise created by new non-transportation noise sources shall be mitigated so as not to exceed the interior and exterior noise level standards of Table HS-2. Where proposed non-transportation noise sources are likely to produce noise levels exceeding the performance standards of Table HS-2, an acoustical analysis shall be required as part of the environmental review process so that noise mitigation may be included in the project design.

- **Policy HS 9.4.** Non-transportation noise: New development of noise-sensitive land uses shall not be allowed where the noise level due to non-transportation noise sources will exceed the standards of Table HS-2. Where noise-sensitive land uses are proposed in areas exposed to existing or projected exterior non-transportation noise levels exceeding the performance standards of Table HS-2, an acoustical analysis shall be required so that noise mitigation may be included in the project design.

- **Policy HS 9.5.** All acoustical analyses required by the Noise Component of the Health and Safety Element shall:

  - Be the responsibility of the applicant.

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

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

  - Estimate existing and projected (20 years) noise levels in terms of L_{dn} and/or the standards of Table HS-2, and compare those levels to the policies of this Element.

  - Recommend appropriate mitigation to achieve compliance with the adopted policies and standards of this Element. Where the noise source in question consists of intermittent single events, the report must address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

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

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

- **Policy HS 9.6.** The City shall utilize procedures for project review and issuance of building permits to ensure that noise mitigation measures identified in an acoustical analysis are implemented in the project design.

- **Policy HS 9.7.** The City shall require monitoring of compliance with the standards of the Noise Element after completion of projects where noise mitigation measures have been required.

- **Policy HS 9.10.** The City shall periodically review and update the Noise component of the Health and Safety Element to ensure that noise exposure information and policies are consistent with changing conditions within the community and with noise control regulations or policies enacted after the adoption of the Element.

- **Policy HS 9.11.** The City shall require all development projects to mitigate noise impacts associated with construction activities.

- **Policy HS 9.13.** The City may adopt a citywide noise ordinance to address excessive noise. The noise ordinance may include special standards for residential development near the Fairfield-Vacaville Train Station and for new mixed-use projects that exceed the exterior noise standards included in Table HS-1 [Table 4.10-15] and Table HS-2 [Table 4.10-16].

Table 4.10-15. Maximum Allowable Noise Exposure to Ground Transportation Noise Sources - [Table HS-1] of City of Fairfield Health and Safety Element

Land Use	Outdoor Activity Area [a] – L_{dn}	Interior Spaces–L_{dn}	Interior Spaces [b] – L_{eq}
Residential	60[c]	45	---
Transient Lodging	60[c]	45	---
Hospitals, Nursing Homes	60[c]	45	---
Theaters, Auditoriums, Music Halls	---	---	35
Churches, Meeting Halls	60[c]	---	40
Office Buildings	---	---	45
School, Libraries, Museums	---	---	45
Playgrounds, Neighborhoods	70	---	---

Notes: --- = not applicable; CNEL = Community Noise Equivalent Level; dBA = A-weighted decibels; L_{dn} = day-night average noise level; L_{eq} = equivalent or energy-averaged sound level

a. Where the location of outdoor activity areas is unknown, the exterior noise-level standard shall be applied to the property line of the receiving land use.
b. As determined for a typical worst-case hour during periods of use.
c. Where it is not possible to reduce noise in outdoor activity areas to 60 dB L_{dn}/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise-level reduction measures have been implemented and interior noise levels are in compliance with this table.

Source: City of Fairfield 2004.

Table 4.10-16. Noise Level Performance Standards for New Projects Affected By, or Including, Non-Transportation Noise Sources - [Table HS-2] of City of Fairfield Health and Safety Element

Land Use	Noise Level Descriptor	Exterior Noise-Level Standard, dBA (Applicable at Property Line) Daytime (7 am – 10 pm)	Exterior Noise-Level Standard, dBA (Applicable at Property Line) Nighttime (10 pm – 7 am)	Interior Noise-Level Standard, dBA Daytime (7 am – 10 pm)	Interior Noise-Level Standard, dBA Nighttime (10 pm – 7 am)
Residential	L_{eq}	50	45	40	35
	L_{max}	70	65	60	55
Transient Lodging, Hospitals, Nursing Homes	L_{eq}	---	---	40	35
	L_{max}	---	---	60	55
Theaters, Auditoriums, Music Halls	L_{eq}	---	---	35	35
Churches, Meeting Halls	L_{eq}	---	---	40	40
Office Buildings	L_{eq}	---	---	45	---
Schools, Libraries, Museums	L_{eq}	---	---	45	---
Playgrounds, parks	L_{eq}	65	---	---	---

Notes: --- = not applicable; dBA = A-weighted decibel; L_{eq} = equivalent or energy-averaged sound level; L_{max} = Highest root-mean-square sound level measured over a given period of time.

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

Source: City of Fairfield 2004.

City of Fairfield Noise Ordinance

Section 25.1403 Noise Standards.

It is unlawful for any person to create any noise at any location in the City of Fairfield that results in exposure to other properties in the vicinity that exceeds the levels of Table 25.1401 (Table 4.10-16 above), except as otherwise provided for in this ordinance.

Section 25.1404 Specific Prohibition

Construction activities - Operating or permitting the operation of any tools or equipment used in construction, grading or demolition works between the hours of 10:00 p.m. and 7:00 a.m. except by written permission of the Director of Public Works.

Section 25.1405 Exemptions.

Sound or noise emanating from the following sources and activities are exempt from the provisions of this ordinance:

F. Portable or stationary emergency generators used to provide backup power during a power outage or an emergency, or as required for routine testing of the generator. Portable and stationary emergency generators must not exceed 70 dBA during full speed diagnostics and normal operations when measured at 21 feet with no loads, must comply with all requirements of the California Fire Code as amended by the City, and must comply with setback requirements pursuant to Section 25.30.6 of this Code. Installations of stationary emergency generators shall require a building permit and must comply with the screening requirements in Section 25.30.3. Testing of generators shall be limited to the hours of 7:00 a.m. and 10:00 p.m. on any day and limited to the duration specified by the manufacturer's recommendations. For the purpose of this subsection, an "emergency" means any city, county, or state declared emergency, or any interruption of utility power due to preventive utility shut-off measures or due to damage to utility infrastructure from accidents, earthquakes, fires, floods, storms, winds, or other acts.

H. Any activity related to the construction, development, manufacture, maintenance, testing, or operation of any aircraft engine, or of any weapons system or subsystems which are owned, operated, or under the jurisdiction of the United States.

Section 25.1406 Noise Standards for New Development Projects.

The following noise standards shall apply to proposed development projects, unless otherwise specifically indicated otherwise in this ordinance.

Section 25.1407 Non-transportation Noise.

Noise created by new non-transportation noise sources shall be mitigated so as not to exceed the interior and exterior noise level standards of Table 25.1401 (Table 4.10-15 above). Where a proposed project includes non-transportation noise sources that are likely to produce noise levels exceeding the performance standards of Table 25.1401 (Table 4.10-15 above) or where a proposed project is likely to be exposed to existing non-transportation noise sources exceeding the standards of Table 15.1401 (Table 4.10-15 above), an acoustical analysis shall be required so that noise mitigation may be included in the project design.

Section 25.1408 Ground Transportation.

The compatibility of proposed projects with existing and future noise levels due to ground transportation noise sources shall be evaluated in comparison with Table 25.1402 (Table 4.10-16 above). Where a proposed project is likely to be exposed to ground transportation noise sources exceeding the performance standards of Table 25.1402, an acoustical analysis shall be required so that noise mitigation may be included in the project design.

4.10.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

METHODOLOGY

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

To assess the impacts of potential short-term construction noise on future sensitive receptors, the sensitive receptors and their relative exposure to the impacts were identified. The construction noise and vibration could be generated if there were development within the vicinity of the Project Site or off-site improvement areas. Construction noise was predicted by using the Federal Highway Construction Noise Model (RCNM, FHWA 2006). The emission noise levels referenced, and the usage factors were based on the Federal Highway Administration Roadway Construction Noise Model. Construction vibration was estimated using Federal Transit Noise and Vibration Impact Assessment methodology (FTA 2018). Groundborne vibration impacts were qualitatively assessed based on existing documentation (e.g., vibration levels produced by specific construction equipment operations) and the distance of sensitive receptors from the given source. The noise and vibration levels of the specific construction equipment that would be used and the resulting noise levels where sensitive receptors are located were calculated.

Traffic noise modeling was conducted based on average daily traffic volumes forecasted by the transportation analysis conducted to support this EIR. This is discussed in more detail in Section 3.14, "Transportation." The FHWA RD 77-108 was used to calculate traffic noise levels along affected roadways, based on the trip distribution estimates as discussed in Section 4.12, "Transportation." The proposed Project's contribution to the existing traffic noise levels along area roadways was determined by comparing the predicted noise levels at a reference distance of 100 feet from the roadway centerline for the baseline, baseline conditions with the addition of Project-generated traffic, and cumulative conditions with and without Project-generated traffic.

Potential noise impacts from long-term (operation-related) stationary sources were assessed based on existing documentation (e.g., equipment noise levels) and site reconnaissance data. This analysis also included an evaluation of noise-generating uses that could affect noise-sensitive receptors near the proposed Project area. As noted in the introduction of this section, potential impacts to wildlife species from Project-related noise and vibration are evaluated in Section 4.3 of this EIR, "Biological Resources."

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to noise and vibration if it would:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies*: (Solano County Policies HS.P-49, HS.P-61, and HS.P-62 for Transportation Noise Sources, and Policies HS.P-48, HS.P-49, HS.P-51, HS.P-52, HS.P-62 and HS.P-64 through HS.P-67 for Non-Transportation Noise Sources),* (Table 4.10-7 *for Transportation Noise Sources and* Table 4.10-8 *for Non-*

Transportation Noise Sources, and Section 28.1.20 through Section 28.1.60 of the County of Solano Code for Construction Noise); City of Suisun City Policies PHS-1.1 through PHS 1.5 for Transportation Noise Sources, and Policies PHS-1.8 through PHS 1.10 for Non-Transportation Noise Sources), (Table 4.10-12 *for Transportation Noise Sources and* Table 4.10-14 *for Non-Transportation Noise Sources, and Title 15, "Buildings and Construction of the City of Suisun City Noise Ordinance); City of Fairfield Policy HS-9.1 for Transportation Noise Sources, and Policies HS-9.3 and HS 9.4 for Non-Transportation Noise Sources),* (Table 4.10-15 *for Transportation Noise Sources and* Table 4.10-16 *for Non-Transportation Noise Sources, and Section 25.1403 through Section 25.1408 of the City of Fairfield Noise Ordinance);*

- Generation of excessive groundborne vibration or groundborne noise levels *(Vibration impacts would be significant if vibration levels would exceed the Caltrans-recommended standard of 0.2 in/sec PPV with respect to the prevention of structural damage for normal buildings or FTA's maximum-acceptable vibration standard of 80 VdB with respect to human response (i.e., annoyance) at nearby vibration-sensitive land uses, such as residences)*; (*City of Suisun City Program PHS-1.5, Goal PHS-2, and Policies PHS-2.1 and PHS-2.2);*.

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure for people residing or working in the project area to excessive noise levels *(Significant if the proposed Project would expose people to excessive noise levels from an airport or private airstrip, or if located within the 60 dB L_{dn}/CNEL contour of any airport).* (*City of Suisun City Policy PHS-1.6).*

ISSUES NOT DISCUSSED FURTHER

- **Excessive Noise from an Airport**—Future development would not expose people to excessive noise levels from an airport or private airstrip. The nearest airport to the Project Site would be the Travis Air Force Base (AFB) which is located approximately four miles to the northeast of the Project Site. Because the proposed Project area would not be located in an area exposed to excessive aircraft-generated noise levels (e.g., not within the 60 dB L_{dn}/CNEL contour of any airport), there would be **no impact** related to aircraft noise, and therefore this issue is not discussed further in this EIR.

IMPACT ANALYSIS

Impact 4.10-1: Temporary, short-term exposure of sensitive receptors to construction noise. *Short-term construction source noise levels could exceed the applicable City standards at nearby noise-sensitive receptors. In addition, if construction activities were to occur during more noise-sensitive hours, construction source noise levels could also result in annoyance and/or sleep disruption to occupants of existing and proposed noise-sensitive land uses and create a substantial temporary increase in ambient noise levels. This impact would be* ***significant****.*

Construction of the Development Area would be phased, subject to market conditions. Construction would typically occur 5 days per week, Monday through Friday, between the hours of 7 a.m. and 8 p.m. On-site construction activities would include site clearing, excavation and fill, grading, utility trenching, foundation and building construction, paving, and architectural coatings. Additional off-site construction activities will include utility trenching and installation and roadway improvements. Phase 1 of construction would take approximately 9 months and include site preparation, grading, utility trenching for the entire Project Site and off-site improvements. Phase 1 initial site work will be followed by Phase 2 development that will include construction of Buildings A and B/C and the related on-site parking and circulation and stormwater improvements, as shown on Exhibit 3-2. The remainder of the Development Area, including Buildings D, E, F, and G would be constructed

during Phase 3. Each of Phases 2 and 3 would take approximately 10 months. Wetland construction, primarily in the form of rough and fine grading, would also occur during this time in the Managed Open Space area, as shown on Exhibit 3-7.

Residences and businesses located adjacent to areas of construction activity could be exposed to Project construction noise from on-site construction activity or from off-site construction activity associated with infrastructure improvements. These off-site infrastructure improvements could be for existing roadway improvements, utilities, or water connections. Construction noise impacts primarily result when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise-sensitive land uses, or when construction durations last over extended periods of time.

Major noise-generating construction activities could include site grading and excavation, installation of infrastructure, building erection, paving, and landscaping. The highest construction noise levels are typically generated during grading and excavation and lower noise levels typically occur during building construction.

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

Without feasible noise control, large pieces of earth-moving equipment, such as graders, excavators, and dozers, generate maximum noise levels of 85 dBA to 90 dBA at a distance of 50 feet (refer to Table 4.10-17) (EPA 1971: 11). Typical hourly average construction-generated noise levels are about 80 dBA to 85 dBA, measured at a distance of 50 feet from the site during busy construction periods. It is possible that pile driving could occur during the proposed Project construction. This type of construction activity could produce noise levels of approximately 95 dB at 50 feet.

Noise from localized point sources (such as construction sites) typically decreases by 6 dB to 7.5 dB with each doubling of distance from source to receptor. The existing intervening ground type at the Project Site is currently soft and attenuates noise due to absorption; therefore, an attenuation rate of 7.5 dB per doubling of distance was assumed and accounted for in construction operation noise level predictions. The nearest noise and vibration-sensitive uses to the Project Site are single-family residences located approximately 500 feet (north of SR 12 within the city of Fairfield limit) from the northern Project boundary; approximately 200 feet (east of the railway within the city of Suisun City limit) from the eastern Project boundary; approximately 300 feet from the western Project boundary; and approximately 700 feet (along Orehr Road within the Solano County limit) from the southern Project boundary. Table 4.10-18 presents Project-related construction noise at the nearest noise-sensitive uses.

Table 4.10-17. 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: — = no data; dB = A-weighted decibels
Noise levels are for equipment fitted with properly maintained and operational noise control devices, per manufacturer specifications.
Source: FTA 2018

Table 4.10-18. Project-Related Construction Noise (dBA) at Nearest Noise-Sensitive Land Uses

Source of Construction Noise	Distance (feet)	Typical Construction Noise - L_{eq}	Including Pile Driving Noise - L_{eq}
From Utilities (Potentially within the County and City Limits)	50	85	95
From Northern Boundary (City of Fairfield)	500	60	70
From Eastern Boundary (City of Suisun City)	200	70	80
From Southern Boundary (County of Solano)	700	56	66

Notes: dBA = A-weighted decibels; L_{eq} = equivalent or energy-averaged sound level.
Source: Calculated by AECOM 2022.

Permitted hours of construction and applicable thresholds in Solano County, City of Suisun City, and the City of Fairfield are described above in Section 4.10.2 and summarized in Table 4.10-19, below. As seen, the County of Solano exempts daytime construction noise from applicable standards. However, if construction activities occur during the more noise-sensitive evening and nighttime hours, due to the potential necessity of continuous activity for specific components to maintain structural integrity, Project-generated noise levels could exceed nighttime exterior and interior noise standards of 55 dB L_{eq} and 45 dB L_{eq}, respectively, at the nearest noise-sensitive receptors.

Table 4.10-19. Permitted Hours of Construction and Applicable Construction and Operation Thresholds in Solano County, City of Suisun City, and City of Fairfield

Thresholds	Solano County	City of Suisun City	City of Fairfield
Monday through Friday	Permitted from 7 a.m. to 6 p.m.	Permitted from 7:00 a.m. to 8:00 p.m.	Permitted from 7:00 a.m. to 10:00 p.m.
Saturdays	Permitted from 8 a.m. to 5 p.m.	Permitted from 8:00 a.m. to 8:00 p.m.	Not specified.
Sundays	Not allowed.	8:00 a.m. to 8:00 p.m.	Not specified.
Holidays	Not allowed.	Not specified.	Not specified.
Applicable Residential Thresholds (Construction Equipment) – Beyond Permitted Hours	55 /50 L_{eq}. Interior Daytime/Nighttime 55 / 45 L_{eq}. (as shown in Table 4.10-9. Interior Noise Level Permissible by Receiving Land Use) & 55 /50 L_{eq}. Exterior Daytime/Nighttime (as shown in Table 4.10-10. Exterior Noise Standards	Table 4.10-14. Noise Level Performance Standards for Non-Transportation Noise Sources	Table 4.10-16. Noise Level Performance Standards for Non-Transportation Noise Sources
Applicable Residential Thresholds (Construction Traffic) – Beyond Permitted Hours	Not specified.	Table 4.10-14. Noise Level Performance Standards for Non-Transportation Noise Sources	Table 4.10-15. Maximum Allowable Noise Exposure from Transportation Noise Sources at Noise-Sensitive Land Uses
Applicable Residential Thresholds (Operation) - Transportation	65 L_{dn} - Sensitive Outdoor Area & 45 L_{dn} - Sensitive Interior Area (as shown in Table 4.10-7. Noise Standards for New Uses Affected by Traffic and Railroad Noise).	Table 4.10-12. Maximum Allowable Noise Exposure from Transportation Noise Sources at Noise-Sensitive Land Uses	Table 4.10-15. Maximum Allowable Noise Exposure from Transportation Noise Sources at Noise-Sensitive Land Uses
Applicable Residential Thresholds (Operation) – Non-Transportation	55 /50 L_{eq}. Outdoor Area Daytime/Nighttime 35 / 55 L_{eq}. Interior Day & Night (as shown in Table 4.10-8. Non-Transportation Noise Standards).	Table 4.10-13 and Table 4.10-14. Noise Level Performance Standards for Non-Transportation Noise Sources.	Table 4.10-16. Noise Level Performance Standards for Non-Transportation Noise Sources.

Notes: L_{dn} = day-night average noise level; L_{eq} = the equivalent hourly average noise level
Source: Solano County 2017, City of Suisun City 2015, and the City of Fairfield2004.

As shown in Table 4.10-18, Project-related construction noise range from 57 dBA to 85 dBA (under typical construction activities), and from 66 dBA to 95 dBA (with pile driving). These noise levels exceed the applicable thresholds summarized in Table 4.10-19 when construction occurs beyond permitted hours. Therefore, the

construction of on-site and off-site of the proposed Project facilities could expose existing off-site sensitive receptors to equipment noise levels that exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels. This would be a **significant** impact.

Mitigation Measures

Mitigation Measure 4.10-1a: Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors.

The Project applicant(s) and their primary contractors for engineering design and construction of all Project phases shall ensure that the following requirements are implemented at each worksite during Project construction to avoid and minimize construction noise effects on sensitive receptors. The Project applicant(s) and primary construction contractor(s) shall employ noise-reducing construction practices. Measures that shall be used to limit noise shall include the measures listed below:

- Noise-generating construction operations shall be limited to the hours between 7 a.m. and 6 p.m. Monday through Friday, and between 8 a.m. and 5 p.m. on Saturdays (conservatively assuming the hours based on Solano County's permitted hours of construction).
- Noisy construction equipment and equipment staging areas shall be located as far as possible from nearby noise-sensitive land uses.
- All construction equipment shall be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. Equipment engine shrouds shall be closed during equipment operation.
- All motorized construction equipment shall be shut down when not in use to prevent idling.
- Individual operations and techniques shall be replaced with quieter procedures (e.g., using welding instead of riveting, mixing concrete off-site instead of on-site).
- Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators) as planned phases are built out and future noise-sensitive receptors are located within 250 feet of future construction activities.
- Written notification of construction activities shall be provided to all noise-sensitive receptors located within 800 feet of typical construction activities and 2,000 feet of pile driving activity. The notification shall include anticipated dates and hours during which construction activities are anticipated to occur and contact information, including a daytime telephone number, for the Project representative to be contacted in the event that noise levels are deemed excessive. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) shall also be included in the notification.
- To the extent feasible and necessary to reduce construction noise levels consistent with applicable policies, acoustic barriers (e.g., lead curtains, sound barriers) shall be constructed to reduce construction-generated noise levels at affected noise-sensitive land uses. The barriers shall be designed to obstruct the line of sight between the noise-sensitive land use and on-site construction equipment.

- When future noise-sensitive uses are within close proximity to prolonged construction noise, noise-attenuating buffers such as structures, truck trailers, or soil piles shall be located between noise sources and future residences, as feasible, to shield sensitive receptors from construction noise.

Significance after Mitigation

With implementation of Mitigation Measure 4.10-1a, construction would be limited to daytime hours, for which associated noise levels are considered exempt from the provisions of applicable standards established by the City and the County. On-site and off-site impacts from temporary, short-term exposure of sensitive receptors to increased equipment noise from the Project would be reduced. With enforcement of the above mitigation measure and existing noise regulations, future development in the proposed Project Site and off-site improvements would be designed to minimize potential impacts. For example, when installed properly, acoustic barriers can reduce construction noise levels by approximately 8–10 dB (EPA 1971). This mitigation measure would reduce potential impacts. However, it is not possible to demonstrate that this would avoid significant construction noise impacts in every case. There is no additional feasible mitigation. The impact is considered **significant and unavoidable.**

Impact 4.10-2: Temporary, short-term exposure of sensitive receptors to increased traffic noise levels from Project construction. *Future development would result in temporary increases in on- and off-site roadway traffic noise associated with Project construction. Construction-generated traffic could expose sensitive receptors to noise levels along on- and off-site roadways that would not exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels. This impact would be less than significant.*

Future development would result in an increase of traffic volumes due to the addition of construction-generated traffic associated with on-site future development and off-site infrastructure improvements. Construction-generated traffic on the local roadway network was analyzed based on a maximum construction-related traffic volume of 500 vehicles daily and assuming eight hours of construction period per, the Project would result in 63 construction vehicles per hour. As such, all materials would be transported using the local roadway network, thus increasing traffic volumes along affected roadway segments.

To examine the effect of Project-generated traffic increases, traffic noise levels associated with the proposed Project were calculated for roadway segments in the vicinity of the proposed Project area studied under the Transportation Section of this EIR. Traffic noise levels were modeled using the FHWA-RD-77-108 under existing conditions, with and without construction traffic. Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths.

Table 4.10-20 summarizes the modeled traffic noise levels for existing and existing plus construction conditions at 50 feet from the centerline of roadways. Project-related construction traffic increases accounted for a 0.1 to 0.5 dB increase in short-term traffic noise levels. Thus, implementation of the proposed Project would not result in a substantial temporary or periodic increase in ambient noise levels in the vicinity of the proposed Project area associated with construction traffic. As a result, this impact would be **less than significant**.

Table 4.10-20. Summary of Modeled Levels of Existing Traffic Noise and Distance (feet) from Roadway Centerline to L_{dn} Contour

Roadway Segment	Segment Location	Existing, L_{eq} (dB) 50 Feet	Existing plus Construction, L_{eq} (dB) 50 Feet	Increase dB
Chadbourne Road	From SR-12 to Cordelia Road	68.5	68.8	0.2
Beck Avenue	From SR-12 to North of SR-12	69.1	69.3	0.2

Roadway Segment	Segment Location	Existing, L_{eq} (dB) 50 Feet	Existing plus Construction, L_{eq} (dB) 50 Feet	Increase dB
Beck Avenue	From SR-12 to South of SR-12	67.1	67.4	0.3
West Texas Street	From Beck Avenue to Pennsylvania Avenue	69.7	69.9	0.2
SR-12	From Beck Avenue to Pennsylvania Avenue	76.2	76.3	0.1
Cordelia Road	From Beck Avenue to Pennsylvania Avenue	66.9	67.3	0.3
Pennsylvania Avenue	From SR-12 to North of SR-12	69.4	69.6	0.2
Pennsylvania Avenue	From SR-12 to South of SR-12	64.8	65.4	0.5
SR-12	From Marina Boulevard to Grizzly Island Road	76.1	76.2	0.1
SR-12	From Emperor Drive to Walters Road	74.1	74.2	0.1

Notes: dB = A-weighted decibels; Notes: L_{eq} = equivalent or energy-averaged sound level; SR = State Route.
Source: Data modeled by AECOM in 2023.

Mitigation Measures

No mitigation measures are required.

Impact 4.10-3: Temporary, short-term exposure of sensitive receptors to potential groundborne noise and vibration from Project construction. *Future development could expose sensitive receptors to groundborne noise and vibration levels that exceed applicable standards that could cause human disturbance or damaged structures. Construction could cause a temporary, short-term disruptive vibration if construction activities were to occur near sensitive receptors. This impact would be significant.*

Construction activities associated with future development have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used, the location of construction activities relative to sensitive receptors, the operations/activities involved, and the construction material of buildings housing affected vibration-sensitive uses. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The type and density of soil can also affect the transmission of energy. Table 4.10-21 provides vibration levels at 25 feet for impact and heavy construction equipment, in terms of PPV (for structural damage) and VdB (for human annoyance).

Table 4.10-21. Typical Vibration Levels for Construction Equipment

Equipment	PPV at 25 Feet (in/sec)	Approximate L_v at 25 Feet
Pile Driver (Impact) - Upper Range	1.518	112
Pile Driver (Impact) - Typical	0.644	104
Pile Driver (Sonic) - Upper Range	0.734	105
Pile Driver (Sonic) - Typical	0.170	93
Vibratory Roller	0.21	94
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Truck	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58
Significance Threshold	0.2/0.08 [1]	80

Notes: in/sec = inches per second; Lv = the velocity level in decibels referenced to 1 microinch per second and based on the root mean square velocity amplitude; PPV = peak particle velocity
[1] For normal residential buildings and for buildings more susceptible to structural damage, respectively.
Sources: FTA 2018, Caltrans 2020.

Construction vibration would occur during the construction of the proposed Project and equipment operation on the proposed Project Site and during the transport of construction equipment and materials to and from the site.

New development should minimize vibration impacts to adjacent uses during construction based on Caltrans vibration standards. A vibration limit of 0.20 in/sec PPV will be used to minimize the potential for cosmetic damage in buildings of normal conventional construction. A vibration level of 80 VdB will be used to evaluate human response to groundborne vibration levels.

The required construction equipment is not known at this time, but could possibly include pile drivers, loaded trucks, bulldozers, and vibratory roller. According to the FTA, vibration levels associated with the use of such equipment would range from approximately 0.003 in/sec PPV (referenced to 1 μin/sec and based on the root mean square velocity amplitude) and 58 VdB for a vibratory roller to 1.518 in/sec PPV and 112 VdB for a pile driver, at 25 feet, as shown in Table 4.10-21. Typical construction equipment, loaded trucks, jackhammers, and bulldozers, generate vibration levels that decrease quickly over distance, and pile driving activities generate significantly more vibration energy and require more distance for it to decrease the vibration levels. If construction activities were to occur during more noise-sensitive hours, vibration from construction sources could annoy and/or disrupt the sleep of occupants of existing and proposed residences and expose persons to excessive groundborne vibration or groundborne noise levels.

The vibration-sensitive uses (buildings) nearest to the Project Site are residential uses approximately 350 feet to the west, approximately 550 feet to the north, approximately 200 feet to the east, and approximately 650 feet to the south from the proposed Project area boundaries. The majority of the construction activities would take place farther from the nearest noise-sensitive uses; most would occur in the central portion of the site where the buildings would be constructed. At distances of 200 to 650 feet, the vibration generated by Project construction equipment would result in 45 to 60 VdB and 0.001 to 0.004 in/sec PPV, respectively for a bulldozer (the heaviest equipment). The vibration levels from vibratory roller operation would result in 52 to 67 VdB and 0.002 to 0.009 in/sec PPV, at distances of 200 to 650 feet, respectively. The vibration generated by the pile driver would result in 62 to 77 VdB and 0.005 to 0.17 in/sec PPV. These levels would be below the criteria of 80 VdB, and above 0.2 in/sec PPV recommended for older building structures by Caltrans. However, for the existing commercial buildings located in the middle of the Project Site to the west of the intersection of Pennsylvania Avenue and Cordelia Street, the vibration levels due to construction would exceed the thresholds of building damage, conservatively assuming these structures would occur to be within 100 feet for the pile driver, and within 45 feet for vibratory rollers. Therefore, short-term construction of the Project would exceed the threshold for structural damage and would expose persons to or generate excessive ground-borne noise or vibration. For these reasons, this impact associated with groundborne noise or vibration from proposed Project construction would be **potentially significant**.

Long-term Project operations of the proposed Project would not include any major new sources of groundborne noise or vibration. Maintenance vehicles and delivery trucks would be restricted to existing and improved public roadways, and the anticipated number of trips generated would not have the potential to substantially increase vibration levels at adjacent land uses. Therefore, this impact associated with groundborne noise or vibration from proposed Project operations would be **less than significant.**

Mitigation Measures

Mitigation Measure 4.10-2a: Implement Measures to Reduce Groundborne Noise and Vibration Levels at Sensitive Receptors during Pile Driving Activities.

The Project applicant and contractor(s) for engineering design and construction of all proposed Project components and offsite improvements shall ensure that the following controls are implemented to minimize or avoid construction vibration effects on sensitive receptors:

- Place stationary construction equipment as far as possible from vibration sensitive uses.
- Use smaller construction equipment when practical, particularly smaller vibratory rollers that are as small as practicable, or that have an adjustable vibratory force feature.
- Locate loading areas, staging areas, stationary noise, vibration-generating equipment, etc., as far as feasible from sensitive receptors.
- Prohibit the use of vibratory rollers near the existing structures.
- If vibratory rollers are required to be used and need to be used within 110 feet of structures, the contractor must use a vibratory roller whose vibratory force can be turned down or turned off.
- A disturbance coordinator shall be designated and this person's contact information shall be posted in a location near the Project Site that is clearly visible to the nearby receivers most likely to be disturbed. The director would manage complaints and concerns resulting from activities that cause vibrations. The severity of the vibration concern should be assessed by the disturbance coordinator, and if necessary, evaluated by a professional with construction vibration expertise.
- The pre-existing condition of all buildings within a 500-foot radius within the immediate vicinity of proposed pile driving activities shall be recorded in the form of a preconstruction survey. The preconstruction survey shall determine conditions that exist before construction begins for use in evaluating the damage caused by construction activities. Fixtures and finishes within a 500-foot radius of construction activities susceptible to damage shall be documented (photographically and in writing) before construction. All damage will be repaired to its pre-existing condition.
- Vibration monitoring shall be conducted before and during pile driving operations occurring within 500 feet of the sensitive receptors. Every attempt shall be made to limit construction-generated vibration levels in accordance with Caltrans recommendations during pile driving and impact activities in the vicinity of the historic structures.
- Pile driving required within a 500-foot radius of sensitive receptors should use alternative installation methods, where possible (e.g., pile cushioning, jetting, predrilling, cast-in-place systems, resonance-free vibratory pile drivers). This would reduce the number and amplitude of impacts required to seat the pile.

Significance after Mitigation

Implementation of Mitigation Measure 4.10-2a would substantially limit the effects of groundborne vibration on sensitive receptors. Pile driving construction would be conducted at least 500 feet from vibration-sensitive receptors, or use alternative methods when within 500 feet from a vibration-sensitive receptor. Therefore, Project-generated groundborne noise and vibration levels would be reduced to below the impact threshold levels.

The impact is considered **less than significant with mitigation.**

Impact 4.10-4: Long-term transportation noise levels at existing noise-sensitive receivers. *Future development would result in an increase in vehicle trips and train trips, which would result in a noticeable (3 dB or greater) increase in transportation noise along one roadway segment in and within the vicinity of the proposed Project area. Therefore, this impact would be less than significant.*

Vehicular Traffic Noise

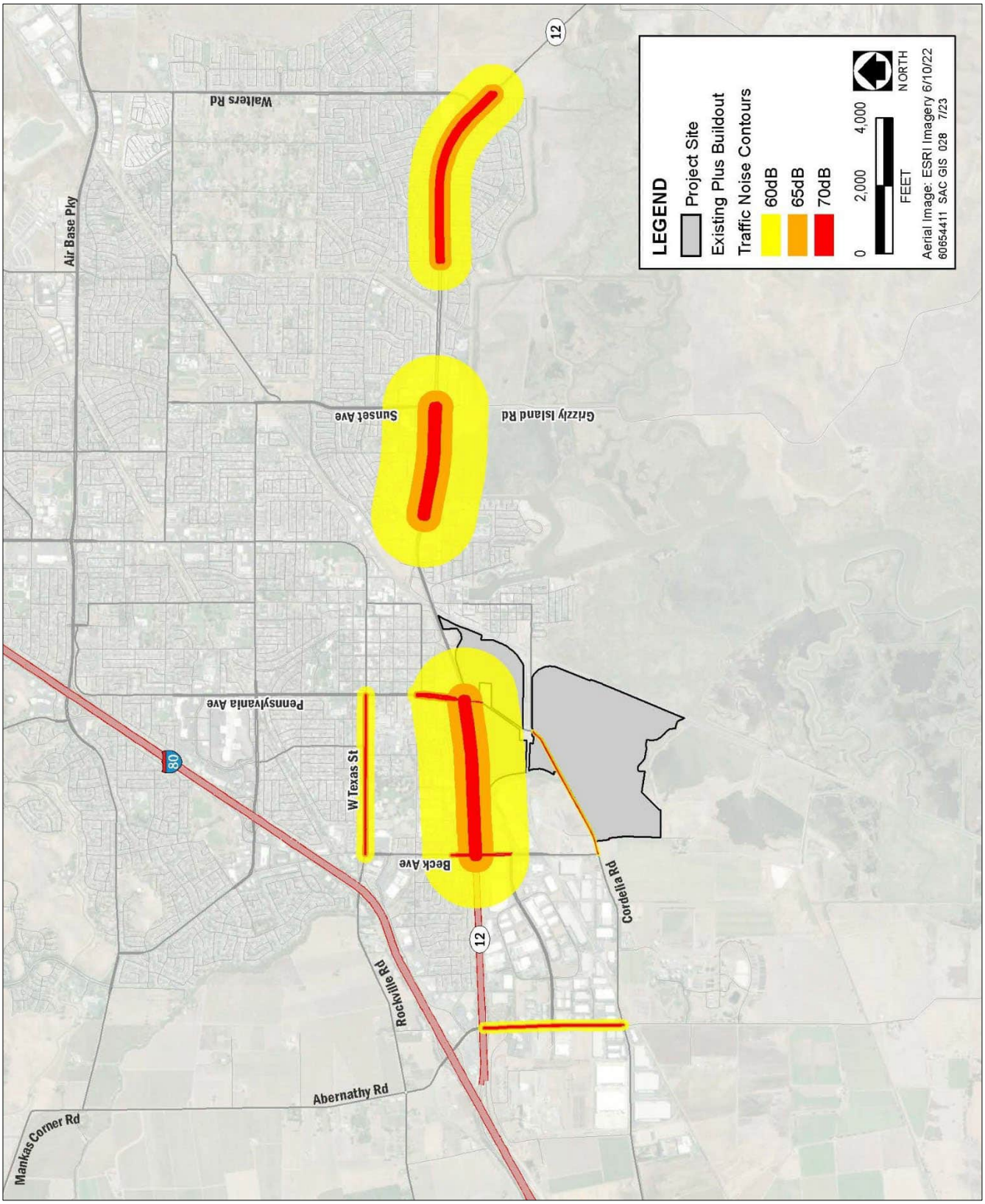
Operations of the proposed Project would result in an increase in traffic volumes on the local roadway network and, consequently, an increase in noise levels from traffic sources along affected roadway segments. To assess the impact of Project-generated traffic increases, traffic noise levels associated with the proposed Project were calculated for roadway segments in the Project study area using the FHWA-RD-77-108. Traffic noise levels were modeled under existing and future conditions, with and without Project implementation. ADT volumes and the distribution were obtained from the traffic study for the proposed Project. Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths. Refer to Appendix E of this EIR for complete modeling inputs and results.

The proposed Project's contribution to the existing and future traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without Project-generated traffic. Table 4.10-22 summarizes the modeled traffic noise levels at 50 feet from the centerline of affected roadway segments in the vicinity of the proposed Project Site. Exhibit 4.10-4 illustrates traffic noise contours for existing plus Project conditions. Modeled increases that would be considered substantial, an increase of 3 dBA, in comparison to existing no Project conditions are indicated in bold. Modeled roadway noise levels assume no natural or artificial shielding between the roadway and the receptor.

As shown in Table 4.10-22, the modeling conducted shows that future development, in addition to existing conditions, would result in traffic noise level increases ranging from 0.1 dBA to 0.5 dBA L_{dn}, compared to noise levels without the Project. As seen, traffic generated under existing and future conditions by the proposed Project would not contribute to a substantial increase in future traffic noise conditions along one Project area roadway. Therefore, long-term noise levels from Project-generated traffic sources would not result in a substantial permanent increase in ambient noise levels (an increase of 3 dBA or greater) under existing and future conditions. As a result, this impact would be **less than significant**.

Train Noise

The California Northern Railroad line is oriented west to east, horizontally dividing the Project Site and meeting with the Union Pacific Railroad tracks at the eastern perimeter of the Project Site. The Project Site is bounded to the east by the Union Pacific Railroad line.



Source: AECOM 2022

Exhibit 4.10-4. Existing Plus Project Roadway Noise Contours

Table 4.10-22. Predicted Traffic Noise Levels, Existing Plus Project Conditions, L_{dn} at 50 Feet, dB

Roadway Segment	Segment Location	No Project	Plus Project	Net Change	Significant Impact?
Chadbourne Road	From SR-12 to Cordelia Road	68.5	68.8	0.2	No
Beck Avenue	From SR-12 to North of SR-12	69.1	69.3	0.2	No
Beck Avenue	From SR-12 to South of SR-12	67.1	67.4	0.3	No
West Texas Street	From Beck Avenue to Pennsylvania Avenue	69.7	69.9	0.2	No
SR-12	From Beck Avenue to Pennsylvania Avenue	76.2	76.3	0.1	No
Cordelia Road	From Beck Avenue to Pennsylvania Avenue	66.9	67.3	0.3	No
Pennsylvania Avenue	From SR-12 to North of SR-12	69.4	69.6	0.2	No
Pennsylvania Avenue	From SR-12 to South of SR-12	64.8	65.4	0.5	No
SR-12	From Marina Boulevard to Grizzly Island Road	76.1	76.2	0.1	No
SR-12	From Emperor Drive to Walters Road	74.1	74.2	0.1	No

Notes: dB = A-weighted decibels; L_{dn} = day-night average noise level; SR = State Route
a There is no existing noise-sensitive use along this segment of the roadway.
Source: AECOM 2023

Single-event train pass-bys were measured at 108 feet from the Union Pacific Railroad track centerline (Suisun City 2010). Based on noise measurements gathered along the Union Pacific Railroad Overland Route line, approximately 43 daily train trips occur through Suisun City. These train trips include Amtrak operations and freight transportation. The 60 dB L_{dn} contour extends out approximately 361 feet from the center of the tracks, while the 65 dB L_{dn} contour is at approximately 168 feet.

The proposed Project may result in a one additional rail trip per day. This number of train trips would not increase overall day-night noise level in the area. Also, the new train trips due to the Project, would conceptually reduce traffic trips associated with truck transport of goods to the site. As a result, this impact would be **less than significant**

Impact 4.10-5: Long-term non-transportation noise levels at existing noise-sensitive receivers. *Future development would result in an increase in stationary and non-transportation noise sources. These non-transportation noise sources could exceed the applicable noise standards (hourly L_{eq} dBA) and result in a substantial increase in ambient noise levels. Therefore, this impact would be* ***significant****.*

The proposed Project, as described in Section 3.2.1, proposes development of approximately 1.28 million square feet of building space on approximately 93 acres of land area (Development Area) and approximately 393 acres of permanently Managed Open Space. The Development Area would encompass three separate Planning Areas (1, 2, 3) and consist of six buildings, as summarized in Table 3-1 and Table 3-2, and Exhibit 3-6. The Development Area within the proposed Project Site would accommodate light manufacturing, research and development, warehousing, and accessory office space. The long-term operation of these uses could result in non-transportation noise from, but not limited to, the following potential sources:

- landscape and building maintenance activities (e.g., hand tools, power tools, lawn and garden equipment);
- mechanical equipment (e.g., pumps, generators heating, ventilation, and cooling systems);
- garbage collection;
- parking lots; and
- commercial, office, and industrial activities.

The OS zoning of the Managed Open Space portion of the Project Site would accommodate agriculture, resource protection and restoration, and resource-related recreation. However, the Managed Open Space areas would be managed to protect the existing habitat and also to provide for mitigation of development impacts, and noise-generating activities associated with uses such as agriculture or recreation would be minimal.

Potential Long-Term Project-Generated Stationary Source Noise

Landscape and Building Maintenance Activities

Landscape maintenance activities include the use of leaf blowers, power tools, and gasoline-powered lawn mowers, which could result in intermittent noise levels that range from approximately 88.3 dB at 6.5 feet, respectively. Based on an equipment noise level of 88.3 dB, the use of such equipment, assuming a noise attenuation rate of 6 dB per doubling of distance from the source, would result in exterior noise levels of approximately 70.1 dB at 50 feet. Although such activities would likely occur during the daytime hours, the exact hours and locations are unknown at this time. Such activities are intermittent and would occur during the daytime, which is a less noise-sensitive time of day. The use of such equipment is not so frequent that applicable daily noise standards or maximum single-event noise standards would be exceeded for noise-sensitive land uses. This impact would be **less than significant**.

Mechanical HVAC Equipment

HVAC equipment is often mounted on rooftops, located on the ground, or located within mechanical equipment rooms. The noise sources could take the form of fans, pumps, air compressors, and chillers. Packaged rooftop units contain all necessary mechanical equipment, such as fans, pumps, condensers, and compressors, within a single enclosure. AECOM has measured noise levels from HVAC systems at 70 dBA L_{eq} at a distance of 6 feet. This would result in a noise level of 52 dBA at a distance of 50 feet. Noise levels from commercial HVAC equipment can reach 100 dBA at a distance of 3 feet; this would result in a noise level of 76 dBA at a distance of 50 feet (EPA 1971). However, as described in "Project Description," HVAC systems would be enclosed and/or shielded to reduce exterior noise levels. Noise from mechanical equipment associated with the operation of the proposed Project is required to comply with the California Building Standards Code requirements pertaining to noise attenuation.

The closest off-site noise-sensitive land uses in the vicinity of the Project Site are single-family residences located approximately 200 feet east of the Project Site from the boundary of the Project Site and HVAC would be farther away (200 feet to 300 feet) assuming the HVAC would be located in the center of a rooftop of buildings within the Development Area. Furthermore, the HVAC systems would be enclosed and/or shielded to reduce exterior noise, which would reduce the HVAC noise at least by 15 dB (EPA 1974). Based on the cooling capacity of the packaged systems and their locations with respect to sensitive uses, noise levels for mechanical HVAC systems would be less than 50 dBA L_{eq} at the nearest noise-sensitive receptors to the Development Area. Therefore, HVAC equipment would not exceed the City's performance standard of 55 dB L_{eq} for noise-sensitive land uses affected by non-transportation noise during the daytime period, and would not result in a substantial permanent increase (more than 3–5 dB) in ambient noise levels in the Project vicinity above levels existing without the proposed Project. This impact would be **less than significant**.

Garbage Collection Activities

Garbage collection activities (e.g., emptying large refuse dumpsters, possibly multiple times per week, and the shaking of containers with a hydraulic lift), could result in instantaneous maximum noise levels of approximately 89 dB L_{max} at 50 feet. Such activities are anticipated to be very brief, intermittent, and would occur during daytime hours, which are considered to be less noise-sensitive times of the day. Garbage collection activities are infrequent, and therefore would not be expected to exceed daily noise standards. Noises would typically emanate from public rights-of-way, which would normally be separated from outdoor gathering spaces associated with residential uses. Noise associated with garbage collection would not be expected to create single-event noise that would be substantially disruptive to daily activities or cause sleep disturbance. This impact would be **less than significant**.

Parking Lots

Parking lots and parking structures include noise sources such as vehicles entering/exiting the lot, alarms/radios, and doors slamming. The proposed Project would introduce approximately 416 new parking stalls at the nearest proposed Project building (Building A) on the north side of the Project Site approximately 500 feet from adjacent noise-sensitive residential uses to the north across SR 12. Based on previous noise measurements, the sound exposure level (SEL) associated with a parking event is approximately 71 dB SEL at 50 feet. Assuming that each parking stall adjacent to residential uses were to fill and empty (416 parking events total) during the peak hour, parking noise level is predicted to be 62 dBA L_{eq} at 50 feet, 50 dBA L_{eq} at 200 feet, and 42 dBA L_{eq} at 500 feet from the center of the parking stalls. The closest off-site noise-sensitive land uses in the vicinity of the Project Site are single-family residences located approximately 200 feet east of the Project Site from the boundary of the Project Site. Existing ambient noise levels at the residential uses to the north of the Project Site were measured at 56 to 59 dBA L_{eq}, represented by LT-1. Therefore, noise levels associated with parking would not be distinguishable from the existing ambient noise levels. As a result, this impact would be **less than significant**.

Light Manufacturing, Research and Development, Warehousing, and Accessory Office Space Activities

Light manufacturing, research and development, warehousing, and accessory office space noise sources include loading dock activities, air circulation systems, delivery areas, and the operation of trash compactors and air compressors. Such activities could result in intermittent noise levels of approximately 91 dB L_{max} at 50 feet (79 dB L_{max} at 200 feet) (EPA 1971) and high single-event noise levels from backup alarms from delivery trucks during the more noise-sensitive hours of the day. Neither the exact hours of operation nor the location of such potential noise sources is known at this time. Thus, land-use related noise levels could exceed the applicable standards at existing and proposed noise-sensitive receptors, especially if such activities were to occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning) and create a substantial increase in ambient noise levels at existing noise-sensitive receptors located approximately at 200 feet. Therefore, this impact would be **potentially significant**.

The proposed Project would introduce new sources of noise to the site. Thus, this impact would be considered **significant**.

Mitigation Measures

Mitigation Measure 4.10-3a: Implement Measures to Reduce Potential Exposure of Sensitive Receptors to Non-Transportation Source–Generated Noise.

To reduce potential long-term exposure of sensitive receptors to noise generated by Project-related non-transportation noise sources, the Project applicant or contractor(s) for all Project phases shall implement the below measures to assure maximum reduction of Project interior and exterior noise levels from operational activities. The City shall evaluate individual facilities for compliance with the City Noise Ordinance and policies contained in the City's General Plan at the time that tentative subdivision maps and improvements plans are submitted. All Project elements shall comply with City noise standards.

- The proposed land uses shall be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, and generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible from or shielded from nearby noise-sensitive land uses.

- Air conditioning units shall be shielded to reduce operational noise levels at adjacent dwellings or designed to meet City noise standards. Shielding may include the use of fences or partial equipment enclosures. To provide effectiveness, fences or barriers shall be continuous or solid, with no gaps, and shall block the line of sight to windows of neighboring dwellings.

- To the extent feasible, residential land uses located within 2,500 feet of and within the direct line of sight of major noise-generating commercial uses (e.g., loading docks and equipment/vehicle storage repair facilities,) shall be shielded from the line of sight of these facilities by construction of a noise barrier. To provide effectiveness, noise barriers shall be continuous or solid, with no gaps, and shall block the line of sight to windows of neighboring dwellings.

- Routine testing and preventive maintenance of emergency electrical generators shall be conducted during the less sensitive daytime hours (i.e., 7:00 a.m. to 6:00 p.m.). All electrical generators shall be equipped with noise control (e.g., muffler) devices in accordance with manufacturers' specifications.

- On-site landscape maintenance equipment shall be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications.

- For maintenance areas located within 500 feet of noise-sensitive land uses, the operation of on-site landscape maintenance equipment shall be limited to the least noise-sensitive periods of the day, between the hours of 7 a.m. and 6 p.m.

Significance after Mitigation

Compliance with the applicable City Noise Ordinance and implementation of additional mitigation measures for the control of non-transportation source noise as identified above in Mitigation Measure 4.10-3a would reduce non-transportation source noise levels. Restricting noise-generating activities to daytime hours as outlined in the City's Noise Control Ordinance would reduce the potential for noise impacts at sensitive receptors. Achievable noise reductions from fences or barriers can vary but typically range from approximately 5 to 10 dBA, depending

on construction characteristics, height, and location. The impact is considered **less than significant with mitigation.**

4.11 PUBLIC SERVICES AND RECREATION

The proposed Project would not increase the population in the Project area such that there would be physical environmental effects related to schools, parks, other public facilities (i.e., libraries), or recreation facilities. However, the proposed Project would develop new land uses that could potentially result in an increase demand for fire and police protection services. Therefore, this section focuses on fire and police protection providers that would serve the Project Site. Impacts are evaluated in relation to the actions needed to provide the services that could potentially lead to physical environmental effects.

4.11.1 ENVIRONMENTAL SETTING

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

Suisun Fire Protection District

The Suisun Fire Protection District (FPD) provides fire suppression, prehospital emergency medical, initial hazardous materials and technical rescue, fire prevention, and related services to a resident population of approximately 2,700 over approximately 140 square miles of the unincorporated areas of Solano County. The Suisun FPD provides services from two fire station facilities with a combination of paid and volunteer personnel:

- 4965 Clayton Road, Fairfield (Station 32)
- 445 Jackson Street, Fairfield (Station 33)

One engine is staffed from 8:00 a.m. to 4:30 p.m. Monday through Friday at Station 33 with the Fire Chief and a full-time paid Firefighter. Station 32 is staffed as needed by on-call volunteer personnel. Additional response staffing, including after hours and weekends, is provided by an on-call duty chief and a cadre of 32 on-call volunteer firefighters.

Suisun City Fire Department

The Suisun City Fire Department would provide fire protection services to the 93-acre Development Area after annexation of this area into the city limits. The Suisun City Fire Department is an All-hazards/All-risk Fire Department that covers the 4.5 square miles that encompass the boundaries of the City of Suisun City. The department operates out of one fire station located at 621 Pintail Drive in Suisun City, approximately 2.9 miles northeast of the Project Site.

The Fire Department is a combination agency staffed with both full-time and volunteer fire personnel. The department currently operates three Type 1 fire engines, one Type 3 fire engine, one Ladder Truck, three command vehicles, one Type 5 fire engine, and two Zodiac rescue boats (Suisun City Fire Department 2022). In the event of a large-scale fire, the Suisun City Fire Department would request mutual aid from the City of Fairfield. It is estimated that the two fire departments could deliver 14 on-duty career personnel (Citygate Associates 2022).

The Suisun City Fire Department is an Advanced Life Support level department, supported by Medic Ambulance for medical transport services. Suisun City Fire Department Station is staffed 24 hours a day, 7 days a week. In 2021, the department responded to 3,377 calls for service, including 227 fire calls (Suisun City Fire Department 2022).

In a Needs Assessment Study by Fitch & Associates (2020), the study indicated the fire station facility has several non-compliant code issues. The assessment also identified the fire station facilities are too small for the required activities that are conducted at the site and within the buildings that are present. The Suisun City Fire Department has identified a need for a second fire station to better serve residents by meeting the City's General Plan Policy CFS-2.1 to achieve an emergency response time of five minutes or less.

POLICE PROTECTION

Suisun City Police Department

The Suisun City Police Department (SCPD) provides law enforcement services to the city and would provide services to the 93-acre Development Area after annexation. The police station is located at 701 Civic Center Boulevard, approximately 1.5 miles east of the Project Site, as measured along the transportation network. Additionally, the Constable Anson Burdick Center, located at 1101 Charleston Street, is a Police Department Substation located approximately 5 miles northeast of the Project Site.

The SCPD, as of June 2023, has 39 full time authorized personnel that consist of a chief of police, two commanders, one police support services manager, five police sergeants, 16 patrol officers, 1 community service officer, two detectives, 10 dispatchers, and one evidence technician; and one part time administrative assistant (Roth, pers. comm., 2023). The SCPD prepared a *Police Department Staffing and Facility Assessment* to comprehensively study the SCPD's future staffing and facility needs to maintain appropriate levels of service (Matrix Consulting Group 2021). The assessment recommended that by 2030 a total of 22 patrol officers would be required to adequately respond to calls for service (Matrix Consulting Group 2021).

The city is divided into three patrols areas, or beats. The beat system is focused primarily on decreasing crime, improving the community's quality-of-life, and increasing department accountability. Each beat is assigned four sworn police officers and one police sergeant who is responsible for analyzing all police activities within the beat; coordinating with assigned officers, residents, and other stakeholders; and accomplishing short-term and long-term problem solving (SCPD 2022b). The 93-acre Development Area is adjacent to Beat 3 (SCPD 2022b).

In 2020, dispatch handled 11,444 calls to 911 for police, fire, and medical emergencies, and the SCPD patrol unit responded to 26,555 calls for service that resulted in 910 arrests and 895 citations (SCPD 2020). In 2020, the SCPD received a total of 865 Priority One calls, and the average response time to these calls was 5 minutes and 30 seconds (Roth, pers. comm., 2023).

4.11.2 REGULATORY FRAMEWORK

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to public services are applicable to the proposed 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 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.

California Fire Code

The California Fire Code (CFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code 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 and are incorporated into the City's building code.[1]

The proposed Project would be required to incorporate CFC requirements. These standards address access road length, dimensions, and finished surfaces for firefighting equipment; security gate design requirements; fire hydrant placement; fire flow availability and requirements; and plan submittal requirements.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Solano County General Plan

The Solano County General Plan Health and Safety Element (Solano County 2008, last amended 2015) does not contain any policies related to public services and recreation that are applicable to the proposed Project, because construction and operational activities that could increase demand for public services and recreation would not occur in the Managed Open Space area that would remain in the unincorporated county.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015) includes the following policies related to public services that apply to the proposed Project.

Community Facilities and Services Element

- **Policy CFS-1.1:** New developments will be required to demonstrate, to the satisfaction of the City Engineer, that existing services and utilities can accommodate the increased demand generated by the subject project or that project conditions would adequately mitigate for impacts associated with addition demand.
- **Policy CFS-2.1:** The City will strive to achieve an emergency response time of five minutes or less.
- **Policy CFS-2.2:** New developments will be required to design, and the City will maintain streets that facilitate acceptable emergency access and response times.

[1] 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 3,000 gallons per minute for commercial/office and light industrial (3-hour duration).

- **Policy CFS-2.3:** New developments shall be designed, constructed, and equipped consistent with requirements of the California Fire Code to reduce fire risk.
- **Policy CFS-2.4:** The City will promote and support community-based crime prevention programs as an important augmentation to the provision of professional police services.
- **Policy CFS-2.5:** The Police Department should review development proposals and provide recommendations that would ensure adequate access and community surveillance.
- **Policy CFS-2.6:** The Fire Department should review development proposals and provide recommendations that would ensure adequate emergency access, fire suppression equipment, and other features that reduce fire risk.

Public Health and Safety Element

- **Policy PHS-12.2:** The City will require that new development and redevelopment projects ensure adequate water flow for fire suppression, as required by the Building Department.

City of Suisun City Municipal Code

Fees for New Construction

Chapter 3.16, "Fees for New Construction," of Title 3 establishes a uniform procedure for fairly allocating the cost of the public improvements. The fees ensure that new development pays its fair share for capital improvements as identified in the General Plan including land acquisition and construction of public buildings and other facilities. The fees are automatically adjusted annually on July 1st and are increased or decreased from the amount then applicable by the same percentage as the percentage of increase or decrease in construction costs between March 1, of the calendar year, based on the Engineering News-Record Construction Costs Index.

4.11.3 Environmental Impacts and Mitigation Measures

Methodology

Impacts related to public services attributable to the proposed Project were identified by comparing existing service capacity and facilities against future demand associated with Project implementation and identifying reasonably foreseeable service and facilities expansion required to serve the proposed Project.

Evaluation of potential public services impacts was based on a review of the City of Suisun City General Plan and additional background information on current services, staffing, and equipment obtained through consultation and review of information from appropriate agencies.

Thresholds of Significance

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to public services and recreation if it would:

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

    - fire protection;
    - police protection;
    - schools;
    - parks; or
    - other public facilities;

- increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

- include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

ISSUES NOT DISCUSSED FURTHER

Increased Demand for Schools, Parks, or Other Public Facilities — The proposed Project would not increase the population in the Project area as a result of new housing. The City does not have any evidence that employment opportunities created by the proposed Project would indirectly increase the population such that there would be the need for new or physically altered schools, parks, and other public facilities, the construction or operation of which could generate any adverse significant environmental impact (see Section 4.9, "Land Use and Planning, Including Agricultural Resources, Population, and Housing," and Chapter 7, "Other CEQA Considerations," for further discussion of population growth). **No impact** related to schools, parks, or other public facilities would occur and this issue is not evaluated further in this EIR.

Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities — The proposed Project would not increase the population in the Project area as a result of new housing. It is anticipated that employment opportunities created by the proposed Project would not substantially increase the population such that there is an increase the use of existing neighborhood and regional parks or other recreational facilities that results in substantial physical deterioration of the facility (see Section 4.9, "Land Use and Planning, including Agricultural Resources, Population, and Housing," and Chapter 7, "Other CEQA Considerations," for further discussion of growth inducement). **No impact** to existing parks and recreational facilities would occur and this issue is not evaluated further in this EIR.

Construction or Expansion of Recreational Facilities — The Project does not include construction of new or expansion of existing recreational facilities. Thus, **no impact** would occur, and this issue is not evaluated further in this EIR.

IMPACT ANALYSIS

Impact 4.11-1: Increased Demand for Fire Protection Facilities, Services, and Equipment. *Implementation of the proposed Project would increase the demand for Suisun City Fire Department facilities and services. The Project applicant would be required to incorporate all California Fire Code and California Health and Safety Code requirements into Project designs. Incorporation of all State and local requirements into Project designs would reduce the dependence on the Suisun City Fire Department equipment and personnel by reducing fire hazards. Therefore, the proposed Project would not require*

new fire protection facilities or the expansion of existing fire protection facilities to maintain acceptable service ratios, response times, or other performance objectives for fire protection services that would lead to any adverse physical environmental impact. This impact would be less than significant.

After annexation, fire protection services to the Annexation Area would be provided by the Suisun City Fire Department. The department operates out of one fire station located at 621 Pintail Drive in Suisun City, approximately 2.9 miles northeast of the Project Site. As discussed above, in the event of a large-scale fire, the Suisun City Fire Department would request mutual aid from the City of Fairfield. It is estimated that the two fire departments could deliver 14 on-duty career personnel (Citygate Associates 2022).

The City requires new developments to demonstrate, to the satisfaction of the City Engineer, that existing services can accommodate the increased demand generated by a project or that project conditions would adequately mitigate for impacts associated with addition demand (City General Plan Policy CFS-1.1). City General Plan Policy PHS-12.2 requires new development ensure adequate water flow for fire suppression; as discussed in Section 4.13 of this Draft EIR, "Utilities and Service Systems," the Project proposes two tie-ins from this existing transmission main to supply fire and potable water and meet CFC requirements for fire flow of 3,000 gallons per minute for commercial/office and light industrial (3-hour duration). As required by City General Plan Policy CFS-2.6, the Suisun City Fire Department would review the proposed Project designs and provide recommendations that would ensure adequate emergency access, fire suppression equipment, and other features that reduce fire risk. In addition, the proposed Project would be subject to Section 3.16, Fees for New Construction, of the Suisun City Municipal Code, which establishes a fee for new construction to meet the City's current and future needs for capital improvements, including land acquisition and construction of public buildings and other facilities. Payment of the fee would offset the cost of police service demands associated with the proposed Project. The Project would also be required to be a part of a Community Facilities District designed by the City to fund additional public services and facilities.

The Project applicant would be required to incorporate all CFC and California Health and Safety Code requirements, including fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, and hazardous materials storage and use, into Project designs. Incorporation of all State and local requirements into Project designs would reduce the dependence on the Suisun City Fire Department equipment and personnel by reducing fire hazards. Citygate Associates reviewed the proposed Project site plan and determined that within incorporation of automatic sprinklers with adequately engineered water fire flows, adequate emergency site access, and separation of the warehouses from adjoining parcels, would reduce the potential for a large-scale fire (Citygate Associates 2022).

Therefore, the proposed Project would not require new fire protection facilities or the expansion of existing fire protection facilities to maintain acceptable service ratios, response times, or other performance objectives for fire protection services, and this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.11-2: Increased Demand for Police Protection Facilities, Services, and Equipment. *Implementation of the proposed Project would increase the demand for Suisun City Police Department facilities and services. The proposed Project would not adversely affect Suisun City Police Department response times or other performance objectives because Project applicants would pay the Fees for New Construction per Section 3.16 of the Suisun City Municipal Code to ensure police protection equipment and facilities are provided to meet increased demand for police protection services. Incorporation of*

security measures into Project designs would reduce the need for police protection services by reducing the potential for crime. Therefore, the proposed Project would not result in the construction of new police protection facilities or the expansion of existing police protection facilities that cause adverse physical environmental effect, and this impact would be less than significant.

After annexation of the 93-acre Development Area, police facilities and services would be provided by the SCPD. The SCPD is located at 701 Civic Center Boulevard, approximately 1.5 miles east of the Project Site, as measured along the transportation network.

The City requires new developments to demonstrate, to the satisfaction of the City Engineer, that existing services can accommodate the increased demand generated by a proposed project or that project conditions would adequately mitigate for impacts associated with addition demand (City General Plan Policy CFS-1.1). As required by General Plan Policy CFS-2.5, SCPD would review the final site plan to ensure the proposed Project provides adequate access and surveillance. In addition, the proposed Project would be subject to Section 3.16, Fees for New Construction, of the Suisun City Municipal Code, which establishes a fee for new construction to meet the City's current and future needs for capital improvements, including land acquisition and construction of public buildings and other facilities. Payment of the fee would offset the cost of police service demands associated with the proposed Project.

It is anticipated that employment opportunities created by the proposed Project would not substantially increase the population. In addition, because the proposed Project does not include development of new housing, the proposed Project would not generate new residents that require additional SCPD staffing. The proposed Project would not affect SCPD response times or other performance objectives because Project applicants would pay the Fees for New Construction per Section 3.16 of the Suisun City Municipal Code to ensure police protection equipment and facilities are provided to meet increased demand for police protection services, and additional revenue generated through incorporation of the Project in a Community Facilities District would be available for new personnel. Incorporation of security measures into Project designs, such as security gates, security guard shacks at each access point, parking lot illumination, on-site security patrols, and fencing would reduce the need for police protection services by reducing the potential for crime. Therefore, the proposed Project would not result in the construction of new police protection facilities or the expansion of existing police protection facilities that cause adverse physical environmental effect, and this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

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4.12 TRANSPORTATION AND CIRCULATION

4.12.1 ENVIRONMENTAL SETTING

This section provides a discussion of the existing conditions related to transportation and traffic around and within the vicinity of the Project Site.

ROADWAY NETWORK

Regional and local roadways serving the Project Site are described below.

Regional Access

- I-680 is a freeway extending north to Fairfield and south to San Jose through Concord and Pleasanton. I-680 is accessible from the Project Site via SR-12 and I-80.
- I-80 is a freeway extending west to San Francisco via the Bay Bridge, and east through Berkeley and Sacramento, into Nevada and beyond. I-80 is accessible from the Project Site via SR-12.
- SR-12 is an east-west freeway directly north of the Project Site extending west to I-80 and east over the Sacramento River and beyond. There are two travel lanes in each direction in the Project study area. SR-12 can be accessed via Pennsylvania Avenue from the Project Site.

Local Access

- Pennsylvania Avenue is a north-south street along the eastern boundary of the Project Site, extending from I-80 to Cordelia Road and Cordelia Street. Pennsylvania provides one travel lane in each direction south of SR-12 and provides two travel lanes in each direction with a landscaped median north of SR-12. The proposed Project driveways would connect to Pennsylvania Avenue. The posted speed limit is 40 miles-per-hour (mph).
- Cordelia Road/Cordelia Street is an east-west street that extends from Main Street in Suisun City to I-680. Cordelia Street is east of Pennsylvania Avenue and Cordelia Road is west of Pennsylvania Avenue. Both Cordelia Road and Cordelia Street provide one travel lane in each direction. The posted speed limit is 45 mph.
- Beck Avenue is a north-south street west of the Project Site, extending from I-80 to Cordelia Road. Beck Avenue provides two travel lanes in each direction with a median north of the railroad line and one travel lane in each direction with a center left-turn lane south of the railroad. The posted speed limit is 40 mph.
- Chadbourne Road is a north-south street west of the Project Site, extending beyond the northern and southern boundaries of the city of Fairfield. Chadbourne Road provides two travel lanes in each direction with landscaped medians north of Cordelia Road and one travel lane in each direction south of Cordelia Road. The posted speed limit is 40 mph.
- West Texas Street is an east-west street north of the Project Site, extending from I-80 to Pennsylvania Avenue. West Texas Street becomes Texas Street east of Pennsylvania Ave and later turns into the north-south oriented North Texas Street. West Texas Street provides two travel lanes in each direction and a center two-way left-turn lane. The posted speed limit is 35 mph.

TRANSIT SYSTEM

Transit service providers in the vicinity of the Project Site include Fairfield and Suisun Transit (FAST), Solano County Transit (SolTrans), and Amtrak. FAST provides local bus service in the city of Fairfield and the city of Suisun City. SolTrans provides intercity bus service. Amtrak provides regional rail service. Existing transit services near the Project Site are shown in Exhibit 4.12-2 and described below.

Bus Services

FAST is the primary bus service provider in Fairfield and Suisun City with destinations throughout the two cities. Route 1, Route 5, and Route 7 operate in the vicinity of the Project Site. All three routes terminate at the Fairfield Transportation Center and have connecting services to SolanoExpress, SolTrans, and Amtrak. SolanoExpress Blue Line and Green Express Line and SolTrans Red Line provide express intercity and commuter bus service between Solano County and Contra Costa County. Table 4.12-1summarizes the characteristics of the FAST and SolTrans routes operating in the Project area.

Table 4.12-1. FAST and SolTrans Transit Routes in Project Vicinity of the Project Site

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency (Minutes)
FAST	1	Local	Fairfield Transportation Center to Fairfield Walmart	West Texas Street & Pennsylvania Avenue	Monday-Friday: 6:00 AM to 7:55 PM Saturday: 9:00 AM to 4:55 PM	30
FAST	5	Local	Fairfield Transportation Center to Suisun City Senior Center	Pennsylvania Avenue & Woolner Avenue	Monday-Friday: 5:30 AM to 7:40 PM Saturday: 9:30 AM to 4:20 PM	60
FAST	7	Local	Fairfield Transportation Center to Cordelia Library	Beck Avenue & Courage Drive	Monday-Friday: 6:00 AM to 6:55 PM Saturday: 10:00 AM to 4:20 PM	60
FAST (Solano Express)	Blue	Intercity/ Commuter	Walnut Creek BART to Sacramento Valley Station	Fairfield Transportation Center	Monday-Friday: 4:20 AM to 8:30 PM Saturday: 7:55 AM to 7:50 PM	30
FAST (Solano Express)	Green Express	Intercity/ Commuter	Suisun City/Fairfield Amtrak to El Cerrito del Norte BART	Fairfield Transportation Center	Monday-Friday: 4:10 AM to 8:55 PM	30

Agency	Route	Type	Termini	Closest Stop	Hours of Operation[1]	Peak Frequency (Minutes)
SolTrans	Red	Intercity/ Commuter	Suisun City/Fairfield to El Cerrito del Norte BART	Fairfield Transportation Center	Monday-Friday: 4:30 AM to 12:00 AM Saturday: 7:00 AM to 10:00 PM Sunday: 9:00 AM to 10:00 PM	60

Table Notes

1. Time rounded to 5 minutes.

Source: FAST Transit and SolTrans, accessed August 2021.

Amtrak

Amtrak provides medium and long-distance intercity rail service throughout the contiguous United States. The Capitol Corridor route provides regional service from San Jose to Auburn-Conheim, passing through Suisun City with headways between 30 and 60 minutes. The nearest Amtrak station to the Project Site is the Suisun-Fairfield Train Station, located approximately 1.5 miles east of the Project Site at Main Street, south of SR-12.

PEDESTRIAN NETWORK

Pedestrians facilities such as sidewalks, multi-use paved trails, and unpaved recreational trails are provided in the cities of Fairfield and Suisun City. Existing pedestrian facilities in the vicinity of the Project Site are shown on Exhibit 4.12-3. Continuous sidewalks are provided in developed areas of the cities. Pedestrian activity is concentrated primarily in the downtown area, particularly near the Suisun-Fairfield Train Station, shopping centers on Lotz Way and Sunset Avenue, and public facilities including schools and Suisun City Library. In 2020, there were 134 miles of sidewalk and approximately 173 miles of potential sidewalk coverage throughout the city. Crosswalks with pedestrian pushbuttons are provided at major signalized intersections. Pedestrians can also make use of paths adjacent to SR-12 around Suisun Slough Channel.

The developing area south of SR-12 between Hale Ranch Road and Pennsylvania Avenue have discontinuous pedestrian facilities. The Suisun City Active Transportation Plan and Fairfield Active Transportation Plan identified pedestrian facilities to close sidewalk gaps in this area. Specific locations within the vicinity of the Project Site include:

- Cordelia Street: 1.01-mile segment between Pennsylvania Avenue and Main Street
- SR-12: 0.17-mile segment between Marina Boulevard and Marina Center
- Pennsylvania Avenue: 0.44-mile segment between Empire Street and Kansas Street
- Cordelia Road: 3.13-mile segment between Hale Ranch Road and Pennsylvania Avenue

BICYCLE NETWORK

Bicycle facilities are separated into four classes:

- Class I (Bicycle Path) facilities are located off-street and can serve both bicyclists and pedestrians.
- Class II (Bicycle Lanes) facilities provide dedicated space for bicyclists within the paved street width using striping and appropriate signage.
- Class III (Bicycle Routes) facilities are installed along streets that do not provide sufficient width for dedicated Class II bicycle lanes. The street is designated as a bicycle route, where bikes and cars share the road using on-street markings and signage, which inform drivers to expect bicyclists.
- Class IV (Cycletrack/Protected Bicycle Lanes) facilities are for the exclusive use of bicycles and require a vertical element that serves as a barrier separating the bikeway and adjacent vehicular traffic.

Suisun City Class I bicycle paths are provided adjacent to SR-12 between Main Street and Walters Road east of the Project Site. The facility north of SR-12 is called Central County Bikeway and the facility south of SR-12 is called Grizzly Island Trail. Another Class I facility is provided in Fairfield, the Fairfield Linear Park Trail, along I-80 between the Solano Community College to Travis Boulevard. Class II bicycle lanes are provided on Beck Avenue between Cadenasso Drive and SR-12. Class III bicycle facilities are provided on West Texas Street and North Texas Street. These facilities are within the vicinity of the Project Site but do not serve as direct routes to the Project Site as no bicycle facilities exist along the Project Site frontages. Exhibit 4.12-4 illustrates the existing and proposed bicycle facilities in the vicinity of the Project Site.

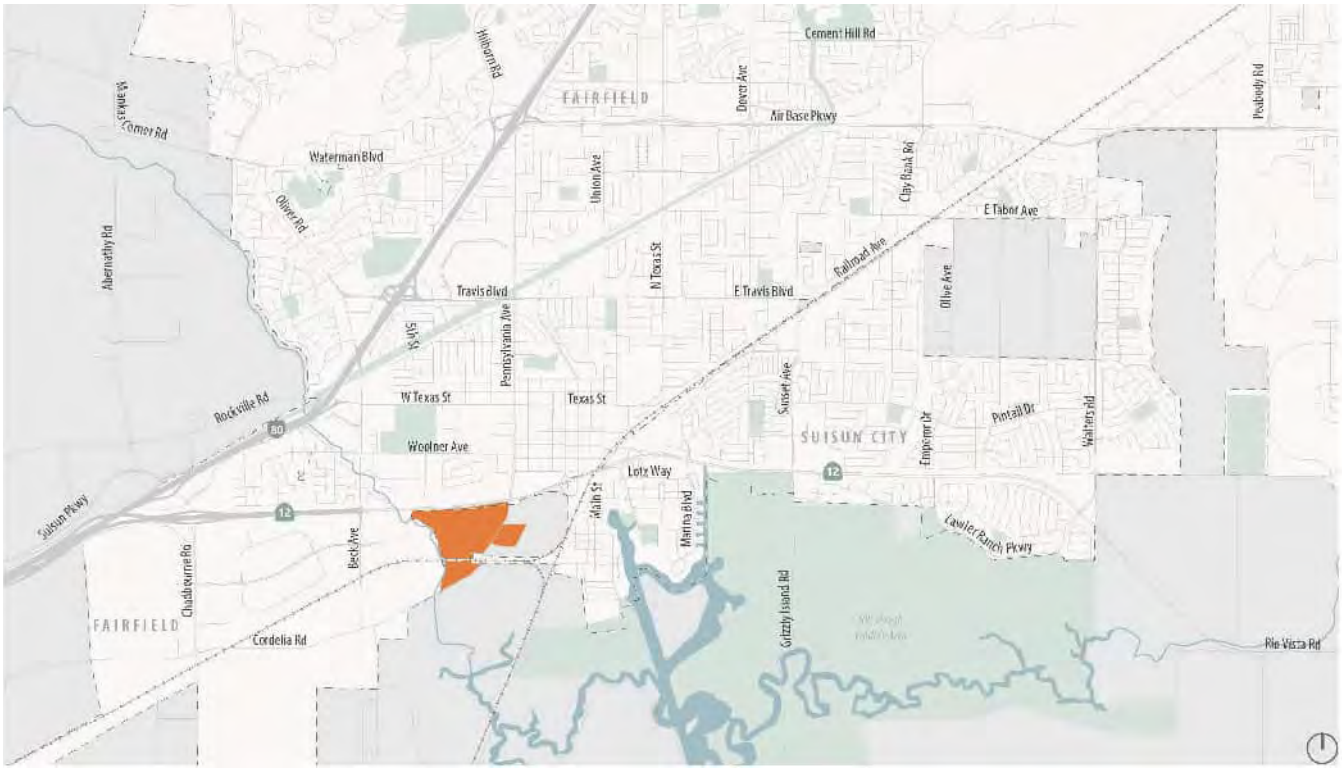
The Fairfield and Suisun City Active Transportation Plans propose the following bikeway projects in the Project area:

- Class I facilities
  - SR-12 between Beck Avenue and Illinois Street (Fairfield)
- Class II facilities
  - Main Street between Cordelia Street and the Central County Bikeway as part of the Downtown Access Bikeway project, including the removal of parking on one side of the street to close the gap to FAST Transit and Amtrak and to connect to one MTC Priority Development Area (Suisun City)
  - Pennsylvania Avenue between Woolner Avenue and West Texas Street (Fairfield)
  - Beck Avenue between SR-12 and California Northern Railroad (Fairfield)
  - Cordelia Road between Hale Ranch Road and Beck Avenue (Fairfield)
- Class III facilities
  - Cordelia Road between Beck Avenue and Pennsylvania Avenue (Fairfield)

- Cordelia Street between Pennsylvania Avenue and Waterfront Path (Suisun City)
- West Texas Street between Pennsylvania Avenue and Jefferson Street (Fairfield)
- Chadbourne Road between Fairfield Linear Park and Cordelia Road (Fairfield)

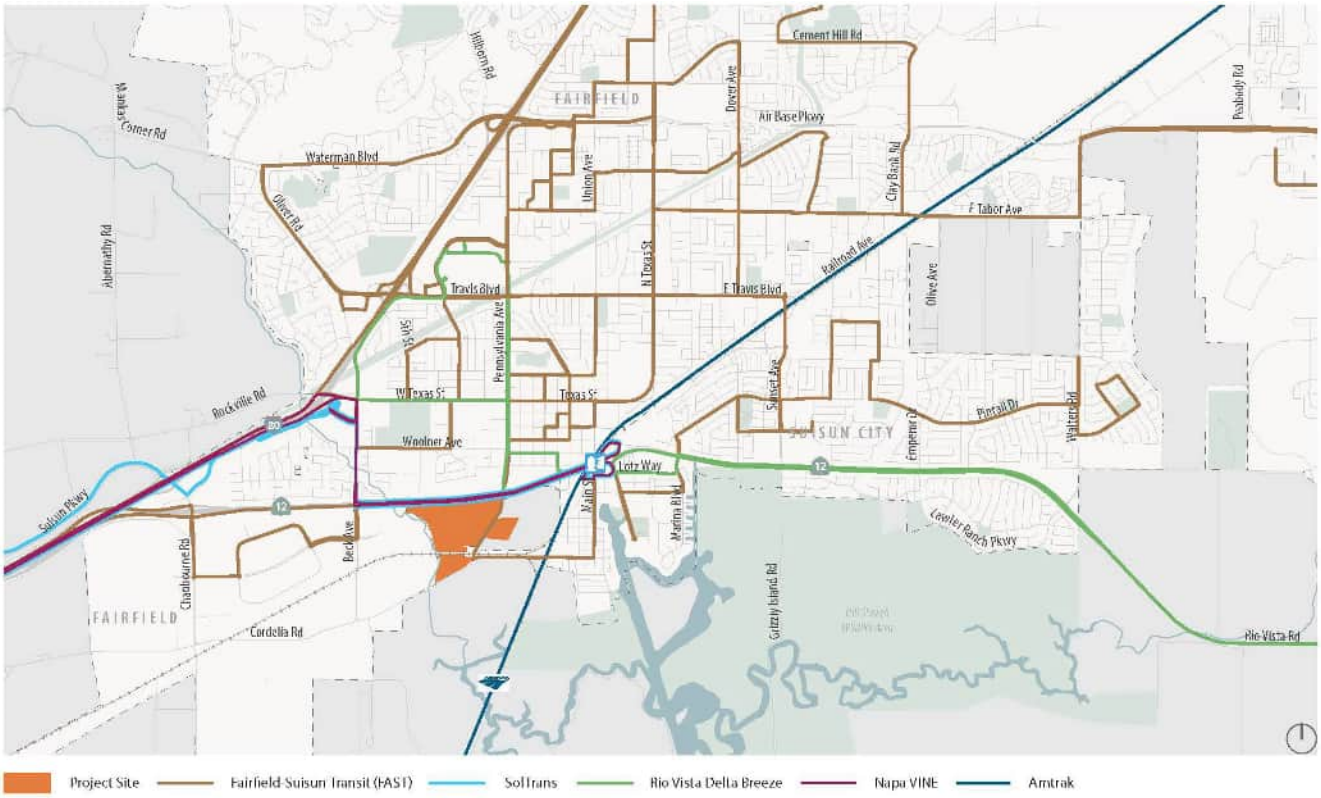
► Class IV facilities

- West Texas Street between Beck Avenue and Pennsylvania Avenue (Fairfield)



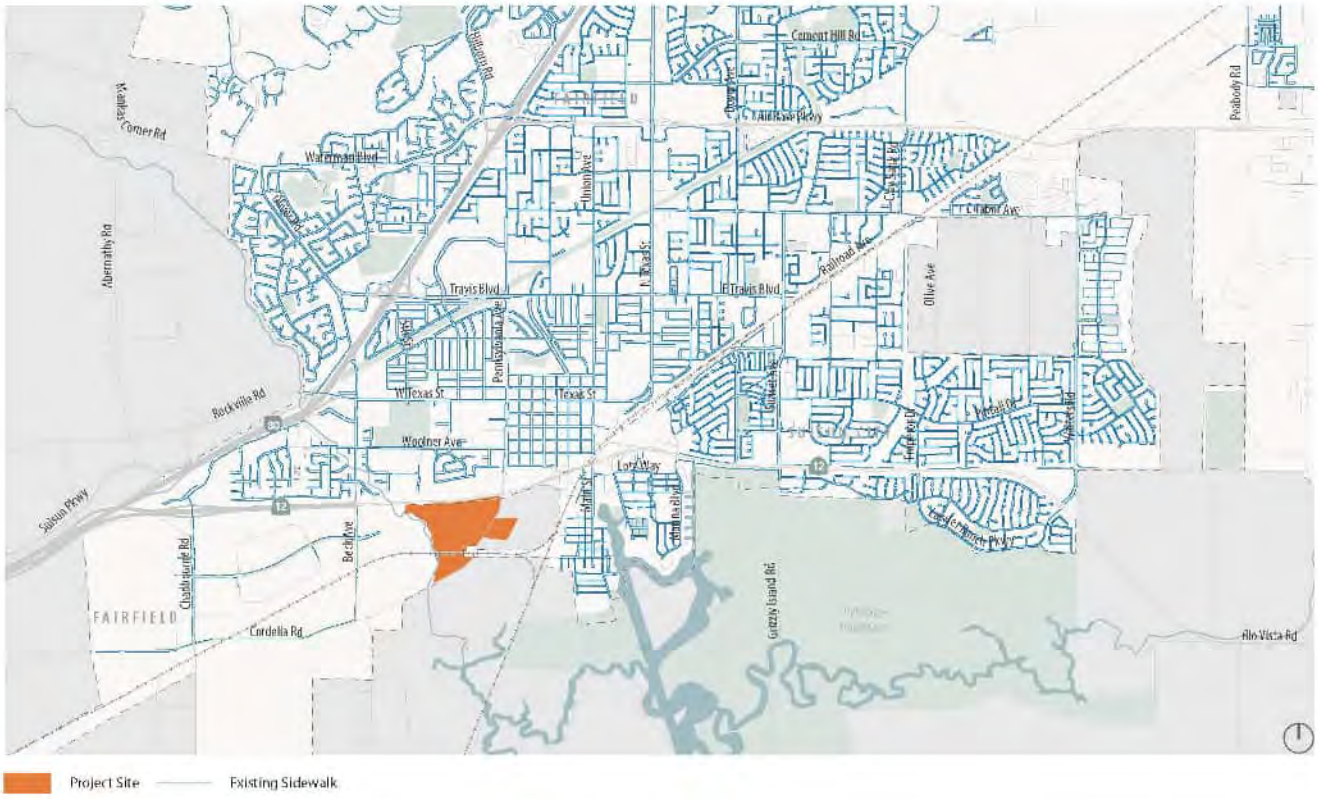
Source: Fehr & Peers

Exhibit 4.12-1. Project Site Vicinity



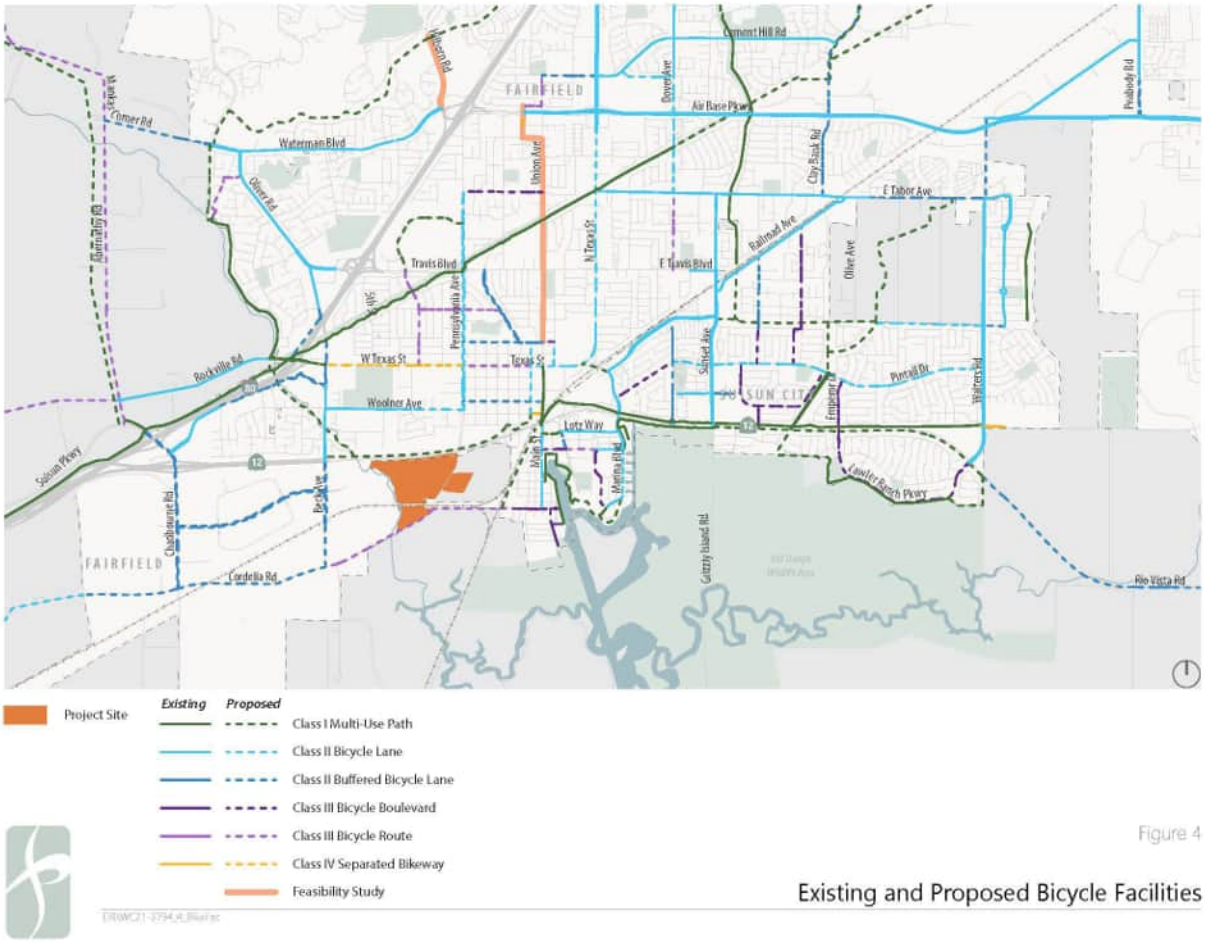
Source: FAST and SolTrans

Exhibit 4.12-2. Existing Transit Services



Source: Fehr & Peers

Exhibit 4.12-3. Existing Pedestrian Facilities



Source: Suisun City General Plan, Suisun City Active Transportation Plan, City of Fairfield General Plan, and City of Fairfield Active Transportation Plan

Exhibit 4.12-4. Existing and Planned Bicycle Network

4.12.2 REGULATORY FRAMEWORK

FEDERAL REGULATIONS

Americans with Disabilities Act of 1990

The Americans with Disabilities Act of 1990 (revised 2010) is a landmark civil rights law that prohibits discrimination based upon disability. Titles I, II, III, and V of the act have been codified in Title 42 of the United States Code, beginning at Section 12101. Title III prohibits discrimination on the basis of disability in "places of public accommodation" (businesses and non-profit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Appendix 4.13-A to Part 36 (Standards for Accessible Design), which establishes minimum standards for ensuring accessibility for persons with a disability when designing and constructing a new facility or altering an existing facility, including roadways, parking lots, and sidewalks. Examples of key guidelines include detectable warnings for pedestrians when entering traffic where there is no curb, a clear zone of 48 inches for the pedestrian travel way, and a vibration-free zone for pedestrians.

STATE REGULATIONS

California Department of Transportation

Caltrans has authority over the State highway system, including freeways, interchanges, and arterial routes. Caltrans operates and maintains State highways in Suisun City and Fairfield. The Vehicle Miles Traveled-Focused Transportation Impact Study Guide (May 20, 2020) provides information that Caltrans used to review impacts on State highway facilities for consistency with Senate Bill (SB) 743.

State Transportation Improvement Program

The California Transportation Commission administers transportation programming, which is the public decision-making process that sets priorities and funds projects that have been envisioned in long-range transportation plans. The California Transportation Commission commits expected revenues for transportation projects over a multi-year period. The State Transportation Improvement Program is a multi-year capital improvement program for transportation projects both on and off the State highway system. The State Transportation Improvement Program is funded with revenues from the State Highway Account and other funding sources. State Transportation Improvement Program programming typically occurs every two years.

California Transportation Plan 2050

The California Transportation Plan 2050 was adopted in 2021. The plan, which is overseen by Caltrans, serves as a blueprint for California's transportation system, as defined by goals, policies, and strategies to meet the State's future mobility needs. The goals defined in the plan fall into three categories: social equity, prosperous economy, and quality environment. Each goal is tied to performance measures. In turn, members from regional and metropolitan planning agencies report these performance measures to Caltrans (State of California 2007).

ASSEMBLY BILL 32 (AB 32) AND SENATE BILL 375 (SB 375)

With the passage of Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, the State of California committed itself to reducing greenhouse gas (GHG) emissions to 1990 levels by 2020. The California Air

Resources Board (CARB) is coordinating a response to comply with AB 32. In 2008, CARB defined its 1990 baseline level of emissions. On December 11, 2008, CARB adopted its Proposed Scoping Plan for AB 32. This scoping plan included the approval of SB 375 as the means for achieving regional transportation-related GHG targets. In 2011, CARB completed its major rulemaking for reducing GHG emissions. Rules on emissions, as well as market-based mechanisms such as the cap-and-trade program, took effect on January 1, 2012.

SB 375 provides guidance regarding curbing emissions from cars and light trucks to help the State comply with AB 32. There are four major components to SB 375. First, SB 375 requires regional GHG emissions targets. CARB's Regional Targets Advisory Committee will guide the adoption of targets to be met by 2020 and 2035 for each Metropolitan Planning Organization (MPO) in the state. These targets, which MPOs may propose themselves, must be updated every eight years in conjunction with the revision schedule of the housing and transportation elements of local general plans. Second, MPOs are required to create a Sustainable Communities Strategy (SCS) that provides a plan for meeting regional targets. The SCS and the Regional Transportation Plan (RTP) must be consistent, including action items and financing decisions. If the SCS does not meet the regional target, the MPO must produce an Alternative Planning Strategy that details an alternative plan for meeting the target. Third, SB 375 requires regional housing elements and transportation plans to be synchronized on 8-year schedules. In addition, Regional Housing Needs Assessment allocation numbers must conform to the SCS. If local jurisdictions are required to rezone land as a result of changes in the housing element, rezoning must take place within three years of adoption of the housing element. Finally, MPOs must use transportation and air emissions modeling techniques that are consistent with the guidelines prepared by the California Transportation Commission. Regional Transportation Planning Agencies, cities, and counties are encouraged, but not required, to use travel demand models that are consistent with California Transportation Commission guidelines. The adopted RTP, per SB 375 (Plan Bay Area), is discussed below.

COMPLETE STREETS (AB 1358)

AB 1358, also known as the California Complete Streets Act of 2008, requires cities and counties to include "complete street" policies in their general plans. These policies address the safe accommodation of all users, including bicyclists, pedestrians, motorists, public transit vehicles and riders, children, the elderly, and persons with disabilities. These policies can apply to new streets, as well as the redesign of corridors.

SENATE BILL 743 (SB 743)

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of the revised California Environmental Quality Act (CEQA) Guidelines (December 28, 2018), level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA effective July 1, 2020. LOS measures the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day, while the new metric VMT measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled.

In other words, SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts on drivers to measuring the impact of driving. Land use projects with one or more of the following characteristics would have lesser VMT impacts:

- Higher land use densities

- Mix of project uses
- Support of a citywide jobs-housing balance (i.e., provide housing in a job-rich area, or vice versa)
- Proximity to the core of a region
- Proximity to high-quality transit service
- Location in highly walkable or bikeable areas

This shift in transportation impact criteria is intended to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation. Specific to SB 743, Section 15064.3(c) of the revised CEQA Guidelines states that, "a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide." However, Public Resources Code Section 21099(b)(2) states that, "upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the Guidelines."

Although the Governor's Office of Planning and Research (OPR) provides recommendations for adopting new VMT analysis guidelines, lead agencies maintain discretion over analysis methodology, significance thresholds, feasible mitigation, and findings.

REGIONAL REGULATIONS

Metropolitan Transportation Commission

Metropolitan Transportation Commission (MTC) is the regional transportation planning, coordinating, and financing agency for the nine-county Bay Area, including Solano County. It is the federally designated metropolitan planning organization (MPO) for the Bay Area region. MTC is responsible for preparing the Regional Transportation Plan (RTP), a comprehensive blueprint for the development of mass transit, highway, airport, seaport, railroad, bicycle, and pedestrian facilities. The RTP is a 20-year plan that is updated every 3 years to reflect new planning priorities and changing projections of future growth and travel demand. The long-range plan must be based upon a realistic forecast of future revenues, and the transportation projects taken must help improve regional air quality. MTC also screens requests from local agencies for State and federal grants for transportation projects to determine compatibility with the RTP.

Plan Bay Area 2050

Plan Bay Area 2050 is overseen by MTC and the Association of Bay Area Governments (ABAG) and was adopted. It serves as the region's Sustainable Community Strategy (SCS) and the 2050 RTP (preceded by RTP 2040), integrating transportation and land use strategies to manage GHG emissions and plan for future population growth. The RTP and SCS include policies that call for shifting more travel demand to transit and accommodating growth along transit corridors in Priority Development Areas. In October 2021, Plan Bay Area 2050 was adopted by ABAG and MTC. Major projects included in Plan Bay Area 2050 include high-speed rail along the Caltrain corridor, per-mile tolling on selected congested freeways, and improvements to local and express bus services.

Plan Bay Area identifies Priority Production Areas (PPAs), which are places for job growth in middle-wage industries like manufacturing, logistics or other trades. Areas north of Cordelia Road and the railroad line operated by the California Northern Railroad are in a PPA (ABAG/MTC 2022). Economic Strategies in Plan Bay Area include: "EC6. Retain and invest in key industrial lands. Implement local land use policies to protect key industrial lands, identified as Priority Production Areas, while funding key infrastructure improvements in these areas" (ABAG/MTC 2021).

Bay Area Air Quality management District

The Bay Area Air Quality Management District is the regional agency with the authority to develop and enforce regulations for the control of air pollution throughout the Bay Area. The Clean Air Plan is the district's plan for reducing the emissions of air pollutants that combine to produce ozone. The Bay Area Air Quality Management District has published guidelines for the purpose of evaluating the air quality impact of projects and plans.

On-road motor vehicles are the largest source of air pollution in the Bay Area. To address the impact of vehicles, the California Clean Air Act requires air districts to adopt, implement, and enforce transportation control measures.

Solano County General Plan

The Solano County General Plan (Solano County 2008) was adopted in November 2008. The State of California requires every city and county to prepare a general plan to guide the growth and development of the region. The General Plan includes policies related to land use and circulation, housing, recreation, conservation and open space, noise, environmental hazards, and historic resources. These topics are addressed within individual elements of the General Plan with goals, objectives, and a policy framework. Since the traffic-generating components of the proposed Project and offsite improvements would be developed in the City of Suisun City, Solano County's policies do not directly apply to the proposed Project.

Solano County Active Transportation Plan

The Solano Countywide Active Transportation Plan was approved in May 2020 as the Solano Active Transportation Element of the County Comprehensive Transportation Plan (CTP). The Plan provides a framework to help the Solano Transportation Authority (STA) improve active transportation conditions throughout Solano County. The cities of Fairfield and Suisun City have individual plans that include existing inventory, recommended project lists, and priorities for near-term action for both pedestrian and bicycle infrastructure. The goal of this plan is to provide guidance to STA and local jurisdictions to help people of all ages and abilities feel comfortable walking and bicycling in their communities.

LOCAL REGULATIONS

City of Suisun City General Plan

The City General Plan (City of Suisun City 2015) serves as a guiding policy document for the development of the City. The Suisun City 2035 General Plan was adopted in 2015 and consists of three volumes: Policy Document, Technical Background Reports, and Environmental Impact Report. Relevant General Plan policies include:

- **Policy T-1.6 Safe Transportation System:** The City will design and operate streets and intersections to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities

- **Policy T-1.9 New Infrastructure:** New roads, intersections, and access points should be designed in accordance with City standards and avoid introducing any hazardous conditions.

- **Policy T-2.3, 2.4, 2.7 Connection to Downtown Area:** New Developments shall be highly connected internally and connected with adjacent developed areas; Support improvements to connect existing gaps in transportation system and to improve regional connectivity with connections to Fairfield, SR-12, and I-80 that reduce trip lengths and provide redundant routes for emergency responders.

- **Policy T-3.6 Travel Demand Management for New Developments:** New developments that would accommodate 100 full- or part-time employees or more are required to incorporate feasible travel demand management strategies, such as contributions to transit, bike, and pedestrian improvements; flextime and telecommuting; a carpool program; parking management, cash out, and pricing; or other measures, as appropriate, to reduce travel demand.

- **Policy T-3.7 GHG Reduction:** The City will support regional goals to reduce per-capita GHG emissions reductions from automobiles and light-duty trucks in a way that also promotes 2035 General Plan objectives.

CITY OF FAIRFIELD GENERAL PLAN

The City General Plan (City of Fairfield 2015) is a policy document divided into individual elements for topics including land use and circulation. The Plan is a comprehensive general plan that serves as the City's primary guide for long-term development. The Circulation Element of the General Plan addresses goals and policies for a balanced and multi-modal circulation system with roadway development, road safety, public transit, pedestrian and bicycle facilities, and transportation systems management. Since the proposed Project would be developed in the City of Suisun City, the City of Fairfield's policies do not directly apply to the proposed Project.

4.12.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section describes the impact analysis related to transportation and traffic for the proposed Project, describing the methods used to determine the impacts of the proposed Project and listing the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, as applicable.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of the CEQA Guidelines and local guidance, the proposed Project would be considered to have a significant effect if it would result in any of the conditions listed below.

Appendix G of the CEQA Guidelines:

- Conflict or inconsistency with CEQA Guidelines Section 15064.3, subdivision (b), concerning VMT.

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Potential to cause inadequate emergency access.

Supplemental Local Guidance:

- Inadequate pedestrian or bicycle facilities to connect to the area circulation system.
- Substantial increase in transit riders that could not be adequately served by existing transit services.

These criteria are described in more detail in the following sections.

IMPACT ANALYSIS

Impact 4.12-1 Near-Term Vehicle-Miles Traveled (VMT). *The proposed Project home-based work VMT per employee is above 85 percent of the City-wide average.* Therefore, this impact would be potentially significant.

The City of Fairfield travel demand model, which includes Fairfield and Suisun City, was used to analyze the Project's impact on VMT.[1] Using Caltrans and Federal Highway Administration model validation standards, the model was calibrated and validated to 2019 pre-pandemic conditions and finalized in year 2020 (herein referred to as the "year 2020 model"). The year 2020 model network and land use in the Project vicinity were confirmed to reflect existing roadway network and land uses.

Impacts are identified based on the Project's VMT compared against a percentage of a baseline value of VMT. The VMT analysis was conducted consistent with the Suisun City VMT-based CEQA thresholds. Based on the Suisun City thresholds, the proposed Project impact was evaluated against two criteria: (1) a project would result in a significant impact if it would generate an average home-based work VMT per employee that is greater than 85 percent of the citywide average, and (2) if the threshold is exceeded, the project's VMT impact could still be found to be less-than-significant if it did not cause the total citywide VMT to increase. The average home-based work VMT per employee metric in the first criterion evaluates the VMT for all employee trips that travel between home and work. Trips related to non-commute economic activity (i.e. goods deliveries, customer visits, etc.) would not be captured in this metric. The focus of this metric is on passenger vehicle commute trips as being the primary component of VMT for most employment-focused land uses. The total citywide VMT metric in the second criterion evaluates all VMT (for all trip purposes by all users) that occurs within a geographic boundary. Since the proposed Project is expected to generate truck traffic, which is not captured by the average home-based work passenger vehicle commute metric in the first criterion, this total citywide VMT metric includes all vehicle trips. This metric is used to understand whether a project causes trips to shorten and thereby result in a net decrease in area-wide VMT.

Based on the model runs, the citywide average home-based work daily VMT per employee is 14.8, and the 85 percent citywide average threshold is 12.6. The Project is expected to result in 14.2 home-based work daily VMT

[1] The City of Fairfield Model was adjusted to ensure the model vehicle trip generation for the project was consistent with ITE trip generation estimate for the project of 2,310 daily trips.

per employee, which is 1.6 VMT greater than the threshold. The Project would also increase total citywide daily VMT by approximately 10,000. Therefore, this impact would be **potentially significant**. The VMT analysis results are summarized in the Table 4.12-2.[2]

Table 4.12-2. Existing and Existing Plus Project Daily VMT Results

	Criterion 1: Home-Based Work VMT per Employee	Criterion 2: Total Citywide VMT
No Project Value	14.8	472,000
Threshold Value	12.6[1]	472,000[2]
Project Value	14.2	482,000
Change between Threshold and Project Value	+1.6	+10,000
Change as % of Threshold Value	+12.7%	+2.1%

VMT = vehicle miles traveled

Table Notes

1. Represents 85 percent of the citywide average home-based work VMT per employee.
2. Represents the total citywide VMT.

Mitigation Measures

Mitigation Measure 4.12-1: Transportation Demand Management (TDM) Plan.

Prior to issuance of building permits, the Project applicant shall develop a TDM Plan for the proposed Project, including any anticipated phasing, and shall submit the TDM Plan to the City for review and approval. The TDM Plan shall identify trip reduction strategies, as well as mechanisms for funding and overseeing the delivery of trip reduction programs and strategies. The TDM Plan shall be designed to achieve the trip reduction, as required to reduce the commute trip VMT per employee from 14.2 to 12.6, consistent with an 11.3-percent reduction. The analysis prepared to support the TDM Plan shall demonstrate that the selected reduction measures will achieve the necessary VMT reduction.

Based on research in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (GHG Handbook), Table 4.12-3 describes feasible measures for the Project's TDM Plan aimed to reduce Project-generated trips. The GHG Handbook calculates maximum VMT reduction based on a project's land use type and locational context. The proposed Project is considered a commercial project type in a suburban setting.[3] A 11.3-percent reduction is potentially achievable with implementation of the measures listed below.

Table 4.12-3. TDM Plan

TDM Measure	Description	Maximum VMT Reduction[1]
Commute Trip Reduction Marketing	Designate a TDM Coordinator to plan, implement, and manage commute programs. The TDM Coordinator shall share	4.00 precent

[2] VMT forecasts presented in this assessment do not consider some foreseeable travel changes, including increased use of transportation network companies, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the federal and State legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupancy vehicles on the roadway. Additionally, the VMT forecasts are based on a model that was developed using data reflecting travel conditions before COVID-19; the effects of COVID-19 may be a near-term suppression in travel activity based on reduced economic output and could permanently modify travel habits.

[3] *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (GHG Handbook), California Air Pollution Control Officers Association, 2021.

	information via regular emails, bulletin postings, challenges, or events on resources and incentives to encourage employees to use alternative modes of travel to work. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving, such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.	
Ridesharing Program	Implement a ridesharing program and establish a permanent transportation management association with funding requirements for employers. Ridesharing encourages carpooled vehicle trips in place of single-occupied vehicle trips, thereby reducing the number of trips, VMT, and GHG emissions. Ridesharing must be promoted through a multi-faceted approach. Examples include the following: • Designating a certain percentage of desirable parking spaces for ridesharing vehicles. • Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles. • Providing an app or website for coordinating rides, or promoting the use of the existing free ridematch program at merge.511.org for the Bay Area. The larger the pool of participants, the more effective the program will be.	4.00 percent
Subsidized or Discounted Transit Program – Work Trips Only	Provide subsidized or discounted, or free transit passes for employees. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions.	0.84 percent
End-of-Trip Bicycle Facilities	Install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.	2.50 percent
Employer-Sponsored Vanpool	Implement an incentive to use vanpool services. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting. The mode shift from long-distance, single-occupied vehicles to shared vehicles reduces overall commute VMT, thereby reducing GHG emissions. Provide an app or website for coordinating rides, or promote the use of the existing free ridematch program at merge.511.org for the Bay Area. The larger the pool of participants, the more effective the program will be.	3.76 percent
Total VMT Reduction (with multiplicative dampening)	**Not applicable.**	**14.3 percent**[2]

Table Notes

1. VMT reduction can range based on the level of effort in promoting and implementing the TDM strategies. A site operator doing just the bare minimum would result in lower VMT reduction, and a site operator willing to promote and invest heavily in TDM programs is expected to achieve the maximum VMT reduction. The reductions and measures are not additive but complementary of one another.

2. The values in the Maximum VMT Reduction column cannot be purely added for a total VMT reduction as effectiveness is reduced or capped when measures are combined. Multiplicative dampening considers the reduced or capped effectiveness of combined measures based on national research used to develop the calculations in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook)*. The Total VMT Reduction value was calculated with multiplicative dampening.

As part of the TDM Plan, the Project applicant/contractor(s) shall monitor and report its effectiveness at reducing home-based work VMT per employee. Tenant/s shall submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, the daily vehicle trips generated by the Project, and length of the trips being generated by the Project. The report shall be prepared by an independent City-approved transportation planning/engineering firm. The TDM Coordinator will provide information to the firm to monitor implementation effectiveness of the approved TDM Plan. To assess the TDM Plan's commute trip reductions, a baseline daily driveway count of vehicle trips shall be conducted before implementation of the TDM Plan and compared to the driveway count after one year of TDM Plan implementation. If the monitoring report shows that there was at least 11.3 percent commute trip VMT reduction, then the TDM Plan is presumed to effectively mitigate the Project impact on VMT. If the monitoring report shows that the TDM Plan does not reduce commute trip VMT by at least 11.3 percent, then the transportation planning/engineering firm shall assess for financial penalties for non-compliance and provide guidance for TDM Plan modification to achieve the VMT reduction goal.

Additionally, if the initial TDM Plan strategies do not reduce commute trip VMT by at least 11.3 percent, the Project shall incorporate additional TMD strategies, such as the following to increase TDM effectiveness in the future:

- Provide enhancements to bus service to the Project site area during peak commute times in coordination with FAST and SolTrans (not quantifiable at this time as future coordination with FAST and SolTrans is required and has not occurred)
- Compliance with a future City VMT/TDM ordinance (not quantifiable at this time as the City does not have a VMT/TDM ordinance)
- Participation in a future City VMT fee program (not quantifiable at this time as the City does not have a VMT fee program)

Significance after Mitigation

Implementation of Mitigation Measure 4.12-1 is expected to reduce the Project-generated VMT to a level of **less-than-significant with mitigation** by implementing a TDM Plan and regularly monitoring its effectiveness through annual reports to the City to ensure VMT reductions are met**.**

Impact 4.12-2 Vehicle System. *The proposed driveway lengths and turn angles, lack of directional markers and signs, and mix of vehicular and rail activity pose potentially hazardous conditions for vehicles.* Therefore, this impact would be potentially significant.

The Project Site plan provides 11 vehicular driveways along Pennsylvania Avenue and Cordelia Road, as shown on Exhibit 4.12-5. The driveway specifications are summarized in Table 4.12-4. Driveways #1 and #2 only provide passenger car access, and all other driveways provide access for cars and trucks. A typical passenger car takes up about 25 feet in queue at a driveway and a typical semitrailer is about 65 feet. All driveways except for #7, #9, and #10 can hold at least two passenger vehicles (about 50 feet) in the driveway throat. Only driveway #7 can hold at least one truck with the current proposed throat length, and all other driveways that provide truck

access do not have enough throat length for a truck. Not having enough throat length to store driveway queues can lead to spillback onto the on-site circulation system and create potentially hazardous conflicts between vehicles, bicyclists, and pedestrians. Three out of the eleven driveways meet the public road at a perpendicular angle. The driveways that do not meet the public road at a perpendicular angle pose potential sight distance issues and create potentially hazardous conditions for vehicles, bicyclists, and pedestrians. About half of the on-site drive aisles do not have perpendicular geometries which pose potentially hazardous vehicular maneuvers and hazardous conditions for on-site vehicles, bicyclists, and pedestrians.

Table 4.12-4. Driveway Specifications

Driveway #	Approximate Throat Length (feet)	Approximate Driveway Width (feet)	Vehicle Type Access	Driveway Angle to Meet Public Road
1	25	25	Passenger cars only	Perpendicular
2	25	25	Passenger cars only	Not perpendicular
3	15	40	Passenger cars and trucks	Not perpendicular
4	25	35	Passenger cars and trucks	Perpendicular
5	35	35	Passenger cars and trucks	Perpendicular
6	35	40	Passenger cars and trucks	Perpendicular
7	120	50	Passenger cars and trucks	Not perpendicular
8	30	30	Passenger cars and trucks	Perpendicular
9	60	40	Passenger cars and trucks	Perpendicular
10	60	35	Passenger cars and trucks	Perpendicular
11	40	35	Passenger cars and trucks	Perpendicular

Table Notes:
The length and width are rounded to the nearest 5.

There are no directional markers provided on the site plan. All driveways are assumed to be full access driveways and all drive aisles are wide enough to provide bidirectional travel. A full access driveway at #1, #2, and #9 could pose potentially hazardous conditions for vehicles. Driveway #1 is about 200 feet away from the intersection of Pennsylvania Avenue and SR-12. Vehicles making a left into the site may not have adequate sight distance of oncoming traffic. The curve of the public road at driveways #2 and #9 may cause sight distance issues. Currently, the existing public roadway system does not provide adequate turn lanes for safe access of Project driveways. The California Northern Railroad (CFNR) crosses Pennsylvania Avenue and divides the Project site. Warning equipment and gate arms are currently provided at the Pennsylvania Avenue crossing. The proposed rail spurs extend north and south of the CFNR onto the Project site. The northern spur cuts into the parking lot, and the southern spur is directly behind a row of trailer parking stalls. The direct mix of rail and vehicular activity on the site could lead to circulation conflicts and potentially hazardous conditions for vehicles. Therefore, this impact would be **potentially significant.**

Mitigation Measures

Mitigation Measure 4.12-2: Vehicle System Improvements

Prior to issuance of building permits, the Project shall provide site plans that include the following on-site and off-site vehicle system improvements to minimize hazardous conditions.

- Driveway access improvements.
  - The Project Site tenant has yet to be determined, and thus the exact operations are still unknown. The Project shall design each driveway width and throat length appropriate for the vehicle types expected to be served. For passenger vehicle access only, provide at least 10 feet driveway width for each direction of travel and a throat length of at least 50 feet to hold the approximate length of two vehicles. For driveways that serve trucks, provide at least 15 feet driveway width for each direction of travel and a throat length that can hold at least one of the longest expected trucks to access the site.
  - Combine driveways #1 and #2 to a single right-in right-out only driveway 300 feet south of the Pennsylvania Avenue and SR-12 intersection. This would improve the sight distance of drivers exiting the driveway and reduce vehicular conflicts with northbound vehicles on Pennsylvania Avenue.
  - Connect the northernmost parking lot accessible by driveways #1 and #2 to the vehicle system of Building B-C. This would improve on-site connectivity and circulation. Vehicles that want to make a left turn in and out from the northernmost parking would use driveway #3.
  - Orient all driveways to be perpendicular to the public road for improved sight distance and vehicle maneuvers.
- On-site circulation improvements.
  - Orient drive aisles to be perpendicular to the extent feasible for improved sight distance and vehicle maneuvers.
  - Add directional markers (e.g., signs or painted strips) for on-site circulation guidance and efficiency.
  - At the rail spurs, prohibit vehicles from crossing tracks with the use of signs or physical barriers and remove the adjacent parking spaces.
- Off-site vehicle system improvements.
  - The Suisun City General Plan plans to widen Pennsylvania Avenue and Cordelia Road from a two-lane road to a four-lane road. Coordinate with the City to determine the roadway cross section.
  - For vehicle system efficiency and improved safety, add a center two-way left-turn lane between driveways #3 and #11 for vehicle deceleration and acceleration when making left-turns into and out of the Project driveways.

Significance after Mitigation

Implementation of Mitigation Measure 4.12-2 would improve on-site and off-site vehicle system circulation and not have adverse impacts on the vehicle system by providing sufficient on-site driveway storage to minimize potential spillback on the off-site roadway network, designing driveways with adequate sight distance to allow drivers to safely exit the site, installing effective warning and separation equipment to bring attention to vehicle and rail mixed activity areas, and striping or posting signage to direct on-site circulation.

The proposed Project site plan will be adjusted prior to City approval to show adequate driveway throat depths. On Cordelia Road, the center driveway serving Building F will need to be reconfigured. Proposed Project site plan will be revised to combine Driveways #1 and #2 and to improve internal circulation. No adjustment is needed to the orientation of the driveways, as all are shown as perpendicular. No adjustment is needed to the orientation of the drive aisles, as they are shown as perpendicular and parallel to the proposed buildings to the extent possible. The Project applicant will be required to add directional markers (e.g., signs or painted strips) for on-site circulation. The impact to the vehicle system would be **less-than-significant with mitigation**.

Impact 4.12-3 Transit System. *The Project is not expected to increase transit demand at a level that would exceed local commute transit vehicle capacities or conflict with existing or planned transit facilities.* Therefore, this impact would be less-than-significant.

Fixed route bus service operates in the vicinity of the Project Site. The closest bus stop is FAST Route 5 approximately 0.6-mile north of the Project Site at Pennsylvania Avenue and Woolner Avenue and the FAST Route 7 bus stop approximately 0.75-mile west of the Project Site at Beck Avenue and Courage Drive. Based on the Suisun City commute patterns, about 90 percent of commute trips are by car.[4] Suisun Microtransit is a service from the City of Suisun City that offers door-to-door transit service within Suisun City limits and important destinations in the city of Fairfield, including Fairfield Transportation Center, David Grant Medical Facility (Travis Air Force Base), Solano County Government Center, Sutter Medical Campus, NorthBay Medical Center, Kaiser Medical Offices, Ole Health Clinic, DaVita Dialysis Center, and Health and Human Social Services Center. Suisun Microtransit offers service Monday through Friday, from 7:00 AM until 7:00 PM, excluding holidays. It is unlikely that the Project would generate large amounts of new demand for the transit services and facilities that serve the area to a level that would exceed the current local commute transit vehicle capacities. The Project is not expected to conflict with existing or planned transit facilities as there are no existing or planned transit facilities at the Project site or frontages that would be interrupted or impacted. Therefore, this impact would be **less-than-significant.**

Mitigation Measures

No mitigation measure required.

Impact 4.12-4 Pedestrian and Bicycle Systems. *The Project is expected to increase pedestrian and bicycle activity and the increased activity would be incompatible with the existing transportation infrastructure for pedestrians and bicyclists by exposing users to potential hazards.* Therefore, this impact would be potentially significant.

The existing transportation network along the Project Site frontages on Pennsylvania Avenue and Cordelia Road do not provide pedestrian or bicycle facilities. Pedestrian and bicycle facilities are provided in and around the developed parcels near the Project Site. The closest major intersection is at SR-12 and Pennsylvania Avenue,

4 Solano County Active Transportation Plan: Suisun City.

adjacent the northeast corner of the proposed development area. This signalized intersection provides actuated pedestrian pushbuttons and signals, a marked crosswalk on the east leg for north-south travel, and a marked crosswalk on the southern leg for east-west travel. The north-south crosswalk connects the Project area south of SR-12 to Fairfield residential and commercial development north of SR-12 on Pennsylvania Avenue. The east-west crosswalk provides pedestrians the option of walking on either the east or west side of Pennsylvania Avenue south of SR-12. Pedestrians traveling south on Pennsylvania Avenue on the east side can continue on Cordelia Road along the Project Site frontage. Pedestrians traveling southbound on the west side of Pennsylvania Avenue can access Planning Area 3 and continue east on Cordelia Street toward Suisun City. Other nearby sidewalks are located on Cordelia Street west of West Street, Beck Avenue, north of Cordelia Road, and Cordelia Road east of Beck Avenue. The closest existing bicycle facility is the Central County Bikeway, a Class I bicycle path in Suisun City providing east-west travel along SR-12 between Walters Road and the Suisun/Fairfield Amtrak Station at Main Street.

The Suisun City and Fairfield Active Transportation Plans propose to build bicycle facilities that directly connect to the Project Site frontages at the following locations:

- SR-12 between Beck Avenue and Illinois Avenue
- Cordelia Road between Beck Avenue and Pennsylvania Avenue
- Cordelia Street between Pennsylvania Avenue and Waterfront Path

A portion of workers are expected to use transit, walk, or bike to and from the Project Site. The Project Site plan does not provide pedestrian or bicycle facilities along Pennsylvania Avenue or Cordelia Road to connect to existing and planned facilities. Inadequate pedestrian and bicycle facilities and connections to the existing pedestrian and bicycle network and transit stations would expose pedestrian and bicyclists to hazardous conditions. The Suisun City and Fairfield General Plans include policy goals of safe and accessible multimodal system and infrastructure. Therefore, the Project's impact on pedestrians and bicyclists would be **potentially significant.**

Mitigation Measures

Mitigation Measure 4.12-3: Provide adequate pedestrian and bicycle facilities and improvements along Project Site frontages and on-site

In accordance with Suisun City requirements and design standards, the Project shall provide adequate pedestrian and bicycle facilities along Project Site frontages and on-site to improve the pedestrian and bicycle transportation conditions.

- Pedestrian Facilities List.
  - Continuous sidewalks of at least five feet at the Project Site frontages along both sides of Cordelia Road and Pennsylvania Avenue.
  - Physical barriers between Planning Area No. 1 and Planning Area No. 3 to designed to prevent jaywalking. Use signs to direct pedestrians to the nearby crosswalks.

- High visibility crosswalks at the Pennsylvania Avenue and Cordelia Road/Cordelia Street intersection.
- Adequate pedestrian-scale lighting along Project Site frontages and on-site.
- On-site markings or signage to notify drivers of pedestrians traveling between off-site pedestrian facilities or on-site parking facilities and building access points.
- At the rail spurs, prohibit bicyclists from crossing tracks with the use of signs or physical barriers.

- Bicycle Facilities List.
  - Continuous bicycle facilities of at least four feet at the Project Site frontages along both sides of Cordelia Road and Pennsylvania Avenue with even surface pavement, appropriate signage, delineation, and other features to improve the bicycle transportation conditions.
  - Bicycle parking facilities near the site access points.
  - On-site markings or signage to notify drivers of bicyclists traveling between bicycle parking facilities and building access points.
  - At the rail spurs, prohibit bicyclists from crossing tracks with the use of signs or physical barriers.

Significance after Mitigation

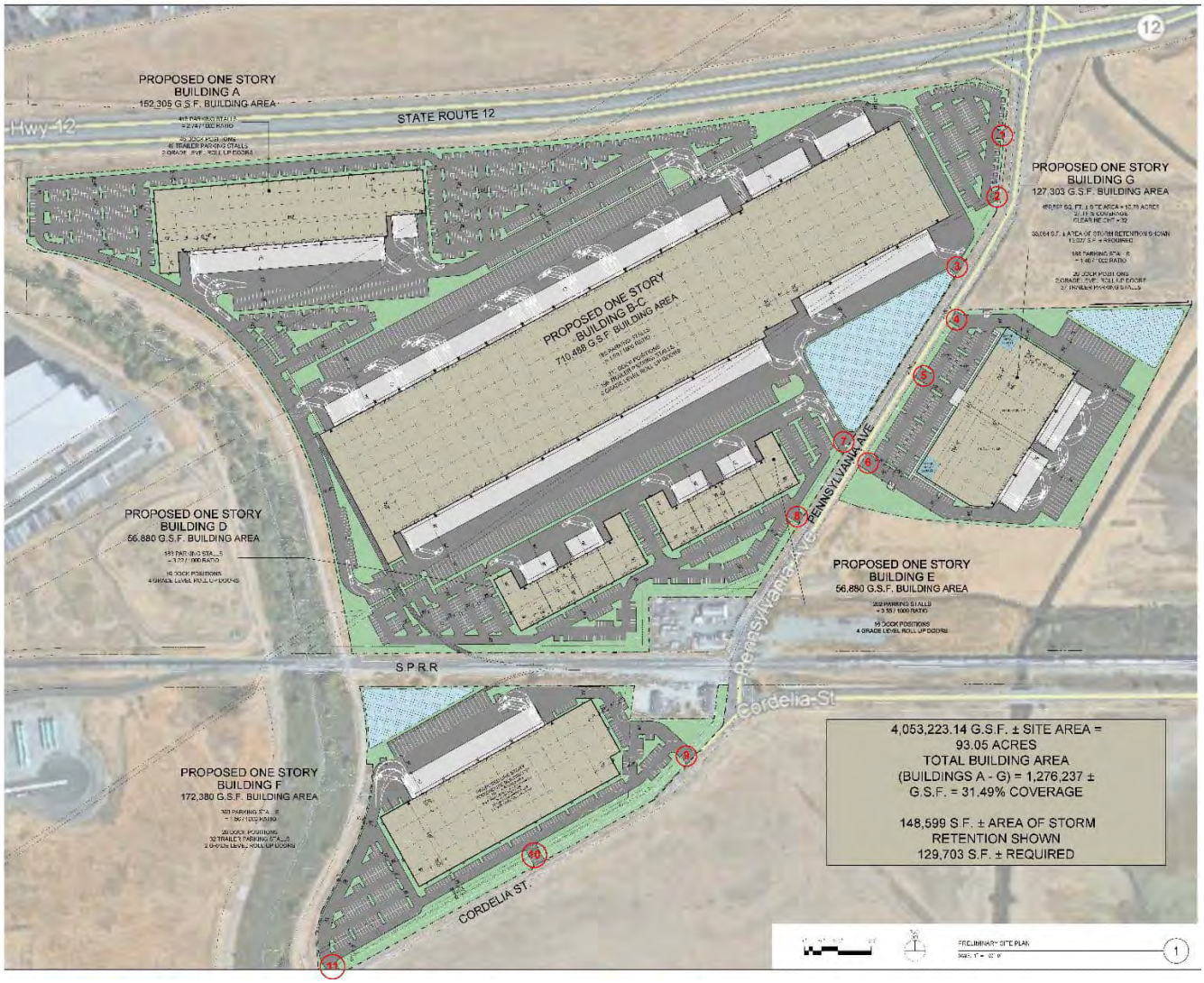
Implementation of Mitigation Measure 4.12-3 would improve on-site and Project area pedestrian and bicycle transportation conditions by providing adequate facilities to connect to the existing and future multimodal transportation network. This impact would be **less-than-significant with mitigation**.

Impact 4.12-5 Emergency Access. *The Project proposes multiple ingress, egress, and on-site circulation paths around buildings. Therefore, this impact would be less-than-significant.*

The Project proposes a complete on-site circulation network with multiple ingress and egress. The final site plan must be approved by the Suisun City Fire Department to ensure the emergency access routes meet requirements to facilitate the safe movement of emergency vehicles. This impact would be **less-than-significant.**

Mitigation Measures

No mitigation measure required.



Source: RMW Architecture Interiors and Fehr & Peers

Exhibit 4.12-5. Project Site Plan

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4.13 UTILITIES AND SERVICE SYSTEMS

4.13.1 ENVIRONMENTAL SETTING

Currently, there are no known utility improvements or irrigation within the Project Site other than a raw water line bisecting the northern portion of the Project Site that is owned by the City of Vallejo. Utilities and service systems would be provided to the proposed Project by the Suisun-Solano Water Authority (SSWA), the City of Suisun City, and Fairfield-Suisun Sewer District (FSSD), and Pacific Gas & Electric. The following discussion provides an overview of these utility service providers.

WATER SUPPLY

The Project Site is located adjacent to the SSWA service area. SSWA is a joint powers authority between the City of Suisun City and the Solano Irrigation District under an Implementation Agreement entered into in 1990. The SSWA receives water supplies from the U.S. Bureau of Reclamation's Solano Project and the California Department of Water Resource's State Water Project. SSWA receives Solano Project supplies from its two parties, Suisun City and Solano Irrigation District (SID). Contract entitlements for each agency are summarized in Table 4.13-1.

Table 4.13-1. SSWA Existing (2020) and Projected (2025–2045) Water Supplies (acre-feet per year)

Water Supply Source	2020	2025	2030	2035	2040	2045
Solano Project under contract with Suisun City	521	521	521	521	521	521
Solano Project under contract with Solano Irrigation District[1]	652	170	148	146	137	131
State Water Project under contract with Suisun City[2]	0	424	424	424	424	424
Total Supply	**1,173**	**1,115**	**1,093**	**1,091**	**1,082**	

Notes:

[1] Solano Irrigation District is under contract with SSWA to provide Solano Project water to meet water demands of new development after full utilization of City of Suisun City's allocated supplies.

[2] The Suisun City State Water Project allocation is not currently being diverted and treated by SSWA as no infrastructure is in place to convey water to the Cement Hill Water Treatment Plant.

Source: Maddaus Water Management 2023: Tables 6.8 and 6.9

Currently, Suisun City is unable to directly utilize the State Water Project entitlement due to a lack of a connection to the SSWA water treatment plant (Maddaus Water Management 2023; Kjeldsen, Sinnock & Neudeck, Inc. [KSN] 2022). While the entire Suisun City Solano Project allocation is delivered to SSWA, only a small portion of SID's total Solano Project allocation (141,000 acre-feet per year [afy]) is delivered to SSWA. A joint powers agreement between SID and Suisun City ensures that water will be provided from the SID water supplies to SSWA to ensure sufficient water supplies to meet demands after full utilization of Suisun City's allocated supplies (Maddaus Water Management 2023).

The SSWA's *Urban Water Management Plan* (UWMP) (Maddaus Water Management 2023) addresses water supply and demand issues, water supply reliability, water conservation, and water shortage contingencies within the SSWA's service area. Table 4.13-2 provides data from the UWMP that identifies surface water supply and demand within SSWA's service area from 2025 to 2045 in normal, single-dry, and multiple-dry years (excluding

the proposed Project). According to the UWMP, as shown in Table 4.13-2, water supplies and demands within the SSWA service area would be the same during normal, single-dry, and multiple-dry years. As also shown in Table 4.13-2, SSWA would have water supplies that meet demands in all water years.

Table 4.13-2. Comparison of SSWA Water Supply and Demand in Normal, Single-Dry, and Multiple-Dry Years, 2025–2045 (acre-feet per year)

Water Year Type	2025	2030	2035	2040	2045
Normal Year Supply	1,115	1,093	1,091	1,082	1,076
Normal Year Demand	1,115	1,093	1,091	1,082	1,076
Single-Dry Year Supply	1,115	1,093	1,091	1,082	1,076
Single-Dry Year Demand	1,115	1,093	1,091	1,082	1,076
Multi-Year Drought					
Year 1 Supply	1,115	1,093	1,091	1,082	1,076
Year 1 Demand	1,115	1,093	1,091	1,082	1,076
Year 2 Supply	1,115	1,093	1,091	1,082	1,076
Year 2 Demand	1,115	1,093	1,091	1,082	1,076
Year 3 Supply	1,115	1,093	1,091	1,082	1,076
Year 3 Demand	1,115	1,093	1,091	1,082	1,076
Year 4 Supply	1,115	1,093	1,091	1,082	1,076
Year 4 Demand	1,115	1,093	1,091	1,082	1,076
Year 5 Supply	1,115	1,093	1,091	1,082	1,076
Year 5 Demand	1,115	1,093	1,091	1,082	1,076

Source: Maddaus Water Management 2022: Tables 7.2, 7.3, and 7.4

WATER SUPPLY INFRASTRUCTURE

Currently, there are no public water supply facilities within the Project Site. While there is an existing 36-inch transmission main in Cordelia Road and Pennsylvania Avenue owned by City of Fairfield, the Project does not propose to connect to this transmission main. The proposed Project will connect to an existing 12-inch distribution water main in Cordelia Street, approximately 2,800 feet east of the intersection of Cordelia Street and Pennsylvania Avenue. From the points of connection at each Planning Area, the public 12-inch waterline will become private with new backflow prevention assemblies at each point of connection.

WASTEWATER COLLECTION, AND CONVEYANCE, TREATMENT FACILITIES

The Project Site is not currently within, but is proposed to be annexed to the FSSD. The City of Suisun City and FSSD jointly operate and maintain the wastewater collection system that serves the city. The City, along with the City of Fairfield and Travis Air Force Base, is a "satellite collection system" to FSSD, and owns and operates 74 miles of 10-inch and smaller gravity sewers within its service area (City of Suisun City 2022a).

The FSSD wastewater collection system includes approximately 82 miles of sewer pipelines, including about 67 miles of gravity sewers ranging from 12 to 48 inches in diameter and 15 miles of force mains ranging from 4 to 48 inches. The system includes four major wastewater pump stations (Cordelia, Central, Suisun, and Inlet), three other trunk system pump stations, and seven other smaller wastewater lift stations (Woodard & Curran 2020a). The four major pump stations discharge directly into the Fairfield-Suisun Subregional Wastewater Treatment Plant (WWTP) headworks. Nine smaller lift stations discharge to gravity sewers within the four major drainage

basins (FSSD 2019). Within the vicinity of the Project Site, a 27-inch sewer main is located at the intersection of Beck Avenue and Cordelia Road.

Suisun City and its Planning Area are located within the FSSD's Suisun Basin and are served by Suisun Pump Station and three smaller lift stations: Lawler I Lift Station, Lawler II Lift Station, and Crystal Lift Station. Wastewater is conveyed from these lift stations to the Suisun Pump Station. Each of the FSSD's pump stations are equipped with Supervisory Control and Data Acquisition monitoring and controls. Each station has a backup control for pump operation and several other operational features to increase reliability and decrease the chances of pump station failure (FSSD 2019). Table 4.13-3 summarizes the pumping capacity of these pump and lift stations.

The 36-inch Suisun force main passes through the Central Pump station site where the 36-inch and 48-inch force mains are joined in a junction vault. The force mains are interchangeable in the junction vault, but the standard configuration is for Suisun pump station to use the 48-inch force main from the junction vault to the treatment plant (FSSD 2019). The Central-Suisun force main configuration provides a contingency option should one of the force mains fail or be damaged. The Suisun Pump Station flow will divert by gravity to Central Pump Station during in the event of an extended pump station outage. Central Pump Station has adequate capacity to handle dry weather flows for both Suisun and Central drainage basins. As shown on Table 4.13-3, the Suisun pump station has a firm pumping capacity of 33 million gallons per day (mgd).

Table 4.13-3. Fairfield-Suisun Sewer District Pump and Lift Stations and Existing Pumping Capacity

Pump/Lift Station[1]	Firm Pumping Capacity (mgd)
Lawler Ranch I Lift Station	0.36
Lawler Ranch II Lift Station	1.1
Crystal Lift Station	0.5
Suisun Pump Station	33

Notes: mgd = million gallons per day

[1] Pump stations discharge directly into the Fairfield-Suisun Subregional Wastewater Treatment Plan headworks while lift stations discharge to gravity sewers within drainage basins.

Source: FSSD 2019, Woodard & Curran 2020a

According to the FSSD 2020 Wastewater Collection System Master Plan Update (2020 FSSD Master Plan Update) (Woodard & Curran 2020a), the existing peak dry-weather flow to the Suisun pump station is 6.5 mgd and the anticipated future peak dry-weather dry weather flow would be 15.6 mgd. Wastewater flows generated by the proposed Project were not included in the 2020 FSSD Master Plan Update (Morton & Pitalo 2022).

The 2020 FSSD Master Plan Update performed a hydraulic analysis to evaluate system performance and capacity deficiencies. The 2020 FSSD Master Plan specified that a capacity deficiency should be identified under the following conditions:

- Any modeled surcharging under peak dry-weather flow.
- Any modeled overflow or surcharge reaching within 5 feet of ground under 10-year design storm peak wet-weather flow, or any modeled overflow under 20-year storm peak wet-weather flow.

- Pump stations were considered capacity deficient if the design storm peak wet-weather flow with the largest pumping unit out of service (i.e., firm capacity) resulted in upstream overflows or backwater surcharge reaching within 5 feet of the ground.

The 2020 FSSD Master Plan Update did not identify any pump station or infrastructure deficiencies in the vicinity of the Project Site (Woodard & Curran 2020a).

Fairfield-Suisun Subregional Wastewater Treatment Plant

Wastewater flows collected from FSSD pump stations are ultimately transported into the Fairfield-Suisun Subregional WWTP located on Chadbourne Road south of Cordelia Road in Fairfield. The Fairfield-Suisun Subregional WWTP has current design capacity of 23.7 mgd average dry-weather flow and 52.9 peak wet-weather flow. The WWTP currently treats 16.1 mgd average dry-weather flow (Woodard & Curran 2020a). In the long term, the 2020 FSSD Master Plan Update estimates that at buildout of the FSSD service area, the average daily flow could reach 23.0 mgd (Woodard & Curran 2020a). Wastewater flows generated by the proposed Project were not included in the FSSD sewer system master plan since it was developed prior to the Project being proposed, but Project demands are analyzed and reported in this document and the Project's sewer study and master plan (Morton & Pitalo 2022).

Wastewater is treated to an advanced secondary level, which is feasible for recycled water use. Most of the water is discharged into Boynton Slough, southeast of the treatment plant, with a portion of the wastewater recycled for irrigation, marsh enhancement, and in-plant uses (Woodard & Curran 2020a).

SOLID WASTE

Solano Garbage, a division of Republic Services, is the current franchise that provides weekly solid waste collection and disposal services to residents and businesses in Suisun City. Non-recyclable waste is transported to the Potrero Hills Landfill, located at 3675 Potrero Hills Lane. In 2020, the City disposed of a total of 16,236 tons of solid waste (CalRecycle 2020).

The Potrero Hills Landfill is a 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, green materials, and agricultural debris. According to CalRecycle, the Potrero Hills Landfill has a maximum permitted throughput of 4,330 tons per day (tpd) and has a total maximum permitted capacity of 83.1 million cubic yards. The Potrero Hills Landfill has a remaining capacity of approximately 13.9 million cubic yards and a closure date of February 14, 2048 (CalRecycle 2022).

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.[1] For 2020, the target solid waste generation rate for Suisun City was 32.8 pounds per day (ppd) per employee, and the actual measured generation rate was 28.8 ppd per employee, which is less than the target solid waste generation rate (CalRecycle 2020).

[1] 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.

Electricity & Natural Gas

Three existing natural gas pipelines are present within and adjacent to the Project Site. One traverses the Project Site in a southwest to northeasterly direction, paralleling Cordelia Road and Pennsylvania Avenue. A second traverses the northwest corner of the Project Site from SR 12 and southwest toward and in alignment with Meyer Way west of the Project Site. A third parallels the Union Pacific Railroad.

Electricity and natural gas service for the proposed Project would be provided by Pacific Gas and Electric. Service laterals would be extended to Project buildings from existing facilities along Pennsylvania Avenue and Cordelia Road. On-site electrical transmission infrastructure and natural gas lines would be installed underground, between 18 and 24 inches deep.

4.13.2 REGULATORY BACKGROUND

FEDERAL PLANS, POLICIES, REGULATIONS AND LAWS

No federal plans, policies, regulation, or laws pertaining to utilities and service systems are applicable to the proposed Project.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

Senate Bill 610

The State of California has enacted legislation that is applicable to the consideration of larger projects under CEQA. SB 610 (Chapter 643, Statutes of 2001; Section 21151.9 of the Public Resources Code and Section 10910 et seq. of the Water Code) requires the preparation of "water supply assessments" for large developments (i.e., more than 500 dwelling units or nonresidential equivalent; shopping centers or business establishments employing more than 1,000 persons or having more than 500,000 square feet of floor space; commercial office buildings employing more than 1,000 persons or having more than 250,000 square feet of floor space; or industrial, manufacturing, processing plants, or industrial parks planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area). Because the Project proposes approximately 1.28 million square feet of building space, a water supply assessment is required.

These assessments, prepared by "public water systems" responsible for serving project areas, address whether existing and projected water supplies are adequate to serve the project, while also meeting existing urban and agricultural demands and the needs of other anticipated development in the service area in which the project is located. If the UWMP did not account for the project's water demand, or if the public water system has no UWMP, the project's WSA must discuss 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, including agricultural and manufacturing uses.

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 is the result of two pieces of legislation, AB 939 and SB 1322, and 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 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. In addition to many programs and incentives, 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 RWQCB also regulate waste disposal (the latter regulated solid waste prior to CalRecycle). In Solano County, the County is responsible for municipal solid waste management planning and compliance efforts required by CalRecycle.

California Green Building Standards Code

The standards included in the 2022 California Green Building Standards Code (CALGreen Code) (Title 24, Part 11 of the California Code of Regulations) became effective on January 1, 2023. The CALGreen Code was developed to enhance the design and construction of buildings, and the use of sustainable construction practices, through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality (California Building Standards Commission 2021). The most significant efficiency improvements to the residential standards in the 2022 CALGreen Code include improvements for attics, walls, water heating, and lighting and standards for residential plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) to reduce indoor demand for potable water.

Chapters 4 and 5 of the 2022 CALGreen Code requires residential and nonresidential developments to comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient Landscape Ordinance, whichever is more stringent. Both chapters require all residential and nonresidential construction contractors to reduce construction waste and demolition debris by 65 percent. 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. In addition, the 2022 CALGreen Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

Assembly Bill 341

In an effort to reduce greenhouse gas emissions from disposing of recyclables in landfills, AB 341 requires local jurisdictions to implement commercial solid waste recycling programs. Businesses that generate four cubic yards or more of solid waste per week or multifamily dwellings of five units or more must arrange for recycling services. In order to comply with AB 341, jurisdictions' commercial recycling programs must include education, outreach, and monitoring of commercial waste generators and report on the process to CalRecycle. Jurisdictions may enact mandatory commercial recycling ordinances to outline how the goals of AB 341 will be reached. For businesses to comply with AB 341, they must arrange for recyclables collection through self-haul, subscribing to

franchised haulers for collection, or subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable source separation.

Assembly Bill 1826

In order to further reduce greenhouse gas emissions from disposing of organics materials in landfills, AB 1826 requires businesses to recycle their organic waste beginning on April 1, 2016, depending on the amount of solid waste they generate per week. Similar to AB 341, jurisdictions are required to implement an organic waste recycling program that includes the education, outreach and monitoring of businesses that must comply. Organic waste refers to food waste, green waste, landscaping and pruning waste, nonhazardous wood waste, and food-soiled paper that is mixed with food waste.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Solano County General Plan

The Solano County General Plan (Solano County 2008) does not contain any policies related to utilities and service systems that are applicable to the proposed Project, because Project-related activities would be limited to the construction and monitoring of mitigation wetlands within the Managed Open Space area, which would remain in the unincorporated county.

City of Suisun City Municipal Code

Title 8, Chapter 8.08 (Solid Wastes)

City Municipal Code Title 8, Chapter 8.08 provides waste collection requirements for all developments in the City. The guidelines provide information for designing trash sites that will be used by building occupants in new developments. Property owners are required to have available and utilize receptacles of an adequate size and in sufficient numbers to contain without overflowing, all the solid wastes generated within the designated removal period.

Title 8, Chapter 8.10 (Recyclable Materials)

City Municipal Code Title 8, Chapter 8.10 provides recycling requirements for all developments in the City. The guidelines provide information for designing recycling sites that will be used by building occupants in new developments.

Title 20, Chapter 20.04 (Water Efficient Landscape Requirements)

The Water Efficient Landscape Requirements (City Municipal Code Title 20, Chapter 20.04) outlines provisions for water management practices and water waste prevention for existing landscapes. It also specifies the requirements for planning, designing, installing, maintaining, and managing water-efficient landscapes in new construction and rehabilitated projects. Recycled water systems for irrigation are allowed, provided they comply with code requirements.

City of Suisun City General Plan

The Suisun City General Plan (City of Suisun City 2015) includes the following policies related utilities that apply to the proposed Project.

Community Facilities and Services

- **Policy CFS-6.1:** New developments will be required to demonstrate the availability of adequate water supply and infrastructure, including during multiple dry years and adequate fire flow pressure, prior to approval.
- **Policy CFS-6.4:** New developments shall include water conservation technologies, such as low-flow toilets, efficient clothes washers, and efficient water-using industrial equipment, in accordance with State law.
- **Policy CFS-7.2:** New developments will be required to contribute on a fair-share basis toward implementation of system improvements, as determined by the City Engineer.
- **Policy CFS-7.3:** The City will encourage the use of recycled water for outdoor irrigation, toilet flushing, fire hydrants; commercial and industrial processes, carwashes, concrete batching, laundromats; dust control; parks and other landscaped areas, and other appropriate water-intensive uses. New developments that include recycled water systems should enjoy proportionally lower development impact fees.
- **Policy CFS-9.2:** New developments will be required to demonstrate adequate capacity to accommodate solid waste demand, including processing, recycling, transportation, and disposal.
- **Policy CFS-9.5:** New developments and significantly remodeled existing uses will be required to incorporate convenient exterior storage areas for solid waste, recyclables, and green waste.

4.13.3 Environmental Impacts and Mitigation Measures

Methodology

Impacts are evaluated in relation to increased demand for utilities and services associated with the proposed Project and actions needed to provide the infrastructure that could potentially lead to physical environmental effects. Section 4.6 of this EIR, "Greenhouse Gas Emissions and Energy," addresses energy resources and demand.

The Managed Open Space area would not result in an increased demand for water supplies or wastewater treatment or generate solid waste. Impacts related to utilities and service systems attributable to the 93-acre Development Area were identified by comparing existing service capacity and facilities against future demand associated with proposed Project implementation and identifying reasonably foreseeable service and facilities expansion required to serve the proposed Project. When possible, a quantitative comparison was used to determine future demand.

Evaluation of potential utilities and service systems impacts was based on a review of the engineering information and the following planning documents:

- *City of Suisun City General Plan* (City of Suisun City 2015),
- *Suisun-Solano Water Authority Urban Water Management Plan* (Maddaus Water Management 2016),

- *Water Supply Assessment – Logistics and Highway 12 Logistics Center Projects* (KSN 2022),
- *Fairfield-Suisun Sewer District Wastewater Collection System Master Plan Update* (Woodard & Curran 2020a),
- *Fairfield-Suisun Sewer District Sewer System Management* Plan (FSSD 2019),
- *City of Suisun City Sewer System Management Plan* (City of Suisun City 2014), and
- *Sewer Master Plan for Highway 12 Logistics Center (Suisun Gentry)* (Morton & Pitalo 2022).

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the CEQA Guidelines, the proposed Project would have a significant impact related to utilities and service systems if it would:

- require or result in the relocation or construction of new or expanded water, wastewater treatment facilities, or storm water drainage, electrical power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects;
- not have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure or otherwise impair the attainment of solid waste reduction goals; or
- not comply with federal, State, or local management and reduction statutes and regulations related to solid waste.

IMPACT ANALYSIS

Impact 4.13-1: Require or Result in the Relocation of or the Construction of New or Expanded Utilities and Service Systems Facilities, the Construction of Which Could Cause Significant Environmental Effects. *The 93-acre Development Area would require the construction of electrical, natural gas, water, and wastewater facilities. Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure to serve the 93-acre Development Area are analyzed throughout the various environmental topic specific sections of this EIR in conjunction with overall development in the Project Site. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Development Area beyond what is comprehensively analyzed throughout this EIR. Therefore, this impact would be* ***less than significant****.*

The 93-acre Development Area would require the construction of new or expanded electrical, natural gas, water, and wastewater facilities. The following discussion identifies future on-site and off-site utilities and service systems required to serve the proposed Development Area and the potential for construction of new or expanded systems to cause significant environmental effects. Impacts related to stormwater management facilities are addressed in Section 4.8, "Hydrology and Water Quality." The off-site SR 12 roadway improvements and Managed Open Space area do not include new or expanded utilities and service systems.

Electrical and Natural Gas

Electricity and natural gas service for the Project Site would be provided by Pacific Gas and Electric Company. Service laterals would be extended to Project buildings from existing facilities along Pennsylvania Avenue and Cordelia Road. On-site electrical transmission infrastructure and natural gas lines would be installed underground and would generally follow the alignment of the internal roadway network.

Water System Facilities

The proposed Project would receive domestic water service through connection to an existing 12-inch water main in Cordelia Street, approximately 2,800 feet east of the intersection of Cordelia Street and Pennsylvania Avenue. The new public 12-inch water line would then be extended north along Pennsylvania Avenue to serve the proposed Development Area (Exhibit 3-9).

The City requires new developments to demonstrate the availability of adequate infrastructure prior to project approval (Policies CFS-1.1 and CFS-6.1 of the City General Plan). The City is implementing this policy through the review of the proposed Project, including this EIR – the applicant has been required to, and has provided infrastructure master plans showing required infrastructure necessary to support the proposed Project and is required to construct this infrastructure or contribute on a pro-rata basis to the construction of this infrastructure. In addition, infrastructure improvements would be installed concurrent with construction of roadways, wherever feasible (Policy CFS-1.5 of the City General Plan).

Wastewater Collection and Conveyance Facilities

The proposed wastewater system includes the on-site private sewer pipe system, one on-site private pump station, and an off-site public combination force main and gravity line in Cordelia Road. The proposed on-site sewer system serving Planning Areas 1 and 2 would be designed using a gravity-fed system. The general pattern of sewer discharge will be from north to south. The sewer service from Planning Area 3 will be brought cross Pennsylvania Avenue and combine with the Planning Area 1 sewer system via gravity line. The combined Planning Area 1 and 3 on-site sewer mains will then cross under the Union Pacific Railroad tracks and right-of-way and combine with the Planning Area 3 on-site sewer line until it reaches Cordelia Road at the southwest corner of Planning Area 2 frontage. At this location, an on-site private sewer lift station will be constructed to pump sewer flows via an off-site force main and gravity sewer line along Cordelia Road to the intersection with Beck Avenue, approximately 2,700 feet west, at which location the wastewater line will tie into the FSSD facilities at an existing sanitary sewer manhole and 15-inch sewer main owned and operated by the FSSD (see Exhibit 3-9 in Chapter 3). A force main would be attached to the side of the existing Ledgewood Creek bridge in order to convey sewer flows from the Project pump station to the west side of Ledgewood Creek.

Because the Project Site is not within the City limits, wastewater flows generated by the proposed Project were not included in the 2020 FSSD Master Plan Update (Morton & Pitalo 2022). In December 2020, a technical memorandum for the proposed Project was prepared by Woodard & Curran to assess the sewer impacts on the existing FSSD system and whether the Project would cause system deficiencies. Based on the results of the modeling, the proposed Project would not trigger any new capacity deficiencies and would not exacerbate any existing capacity deficiencies (Woodard & Curran 2020b).

The City requires new developments to demonstrate the availability of infrastructure (Policy CFS-1.1 of the City General Plan) and contribute its fair share portion for funding new infrastructure facilities (Policy CFS-7.2 of the City General Plan). The City is implementing this policy through the review of the proposed Project, including this EIR – the applicant has been required to, and has provided infrastructure master plans showing required infrastructure necessary to support the proposed Project and is required to construct this infrastructure or contribute on a pro-rata basis to the construction of this infrastructure. In addition, design and construction of sewer pipelines 10 inches or less in diameter would be required to meet the design standards identified in the City's Sewer System Management Plan (City of Suisun City 2014).

Conclusion

Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure, to serve the 93-acre Development Area are analyzed throughout the various environmental topic specific sections of this EIR in conjunction with overall development in the Project Site. The placement of these utilities has been considered in the other sections of this EIR, such as Section 4.2, "Air Quality," Section 4.3, "Biological Resources," Section 4.4, "Cultural Resources," Section 4.8, "Hydrology and Water Quality," and other sections that specifically analyze the potential impacts from the development of the Project Site. Where necessary, these sections include mitigation measures that would reduce or avoid the impacts of developing infrastructure on the physical environment. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Development Area beyond what is comprehensively analyzed throughout this EIR. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.13-2: Increased Demand for Water Supplies. *The 93-acre Development Area would increase demand for SSWA water supplies. With implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement and annexation of the Project Site, the Project WSA concluded water supply is projected to be sufficient to meet demands of the proposed Project and existing and planned development in SSWA's service area in normal, single-dry, and multiple-dry years. Therefore, this impact would be* ***less than significant****.*

The proposed Managed Open Space area would not require water supplies. Water supply for the 93-acre Development Area would be provided by SSWA. The City outlines specific requirements to ensure water supplies are available to meet demands created by new development. These requirements include demonstrating water supplies are available to accommodate new development, including during multiple-dry years and adequate fire flow pressure, prior to approval (Policy CFS-6.1 of the City General Plan). The City has required a Water Supply Assessment (WSA) for this Project to implement the General Plan policy related to short- and long-term water supply, and SSWA has published Design Standards, Standard Specifications, and Standard Details that include fire flow requirements. In addition, the City requires new developments to include water conservation technologies and efficient water-using industrial equipment, in accordance with State law (Policy CFS-6.4 of the City General Plan). The sources of SSWA's water supplies, along with projected supply and demand within the SSWA service area boundary (which currently does not include the Project Site) through the year 2045 are presented in SSWA's UWMP and are shown in Tables 4.13-1 and 4.13-2, above. As shown therein, SSWA determined that it would have sufficient water supplies to meet demand in all water year types through the year 2045, within its service area boundary. However, SID, which supplies water to SSWA, was not able to confirm

that it would have surplus water available to meet the demand from new development on land outside its service area boundaries.[2]

Therefore, SID commissioned a WSA for the proposed Project which is provided in Appendix F of this Draft EIR. The WSA estimated that the water demand for the 93-acre Development Area would be 105 afy (KSN 2022).[3] The current available water supplies, with expectation of increased SID irrigation demands, together with the severe multiple year (2012–2016) drought, and uncertainty regarding reliability of State Water Project North Bay Aqueduct water supplies during severe droughts, highlighted the need to further evaluate SSWA water supply options (KSN 2022). The Second Amendment to the Implementation/Lease Agreement between the City of Suisun City and Solano Irrigation District, effective August 16, 2022, provides for a path forward to implement a point of transfer for the State Water Project water transfer. In addition, one SSWA regulatory requirement for water service, as outlined in the Second Amendment to the Implementation Agreement, is that "new land is to be "…annexed into the Joint Service Area before water can be made available." Therefore, the WSA concluded that with implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement and annexation of the Project Site into the SSWA service area, SSWA's water supply would be sufficient to meet the demands of the proposed Project and existing and planned development in SSWA's service area in normal, single-dry, and multiple-dry years (KSN 2022). Therefore, this impact would be **less than significant**.

Impact 4.13-3: Increased Demand for Wastewater Treatment Facilities. *Wastewater generated by the proposed Project would be conveyed off site to Fairfield-Suisun Subregional WWTP for treatment. The proposed Project-related wastewater flows (0.128 mgd) would not result in an increase in wastewater flows that exceed the current disposal capacity of 23.7 mgd average dry-weather flow. Therefore, the Fairfield-Suisun Subregional WWTP would have adequate capacity to serve the Project's estimated demand, in addition to its existing commitments. This impact would be less than significant.*

The proposed Managed Open Space area would not include activities that would generate wastewater. Buildout of the 93-acre Development Area would result in new land uses that would generate additional wastewater that increases demand for wastewater treatment at the Fairfield-Suisun Subregional WWTP. The 2020 FSSD Master Plan (Woodard & Curran 2020a) estimates a base wastewater flow unit flow factor for industrial uses of 0.1 gallon per day per square foot. Based on approximately 1.28 million square feet of building area, the proposed Project would generate an estimated 128,000 gpd, or 0.128 mgd, of average dry-weather flow. The 2020 FSSD Master Plan did not include any wastewater flows from the proposed Project because the Project Site is outside of the city limits. As stated above, a technical memorandum for the proposed Project was to assess the sewer impacts on the existing FSSD system. The technical memorandum noted that the type of uses may generate somewhat lower flows than typical industrial uses assumed in the 2020 FSSD Master Plan; the unit flow factor should therefore be considered a conservative estimate of potential wastewater generation (Woodard & Curran 2020b).

Wastewater generated by the proposed Project would be conveyed off site to Fairfield-Suisun Subregional WWTP for treatment. The Fairfield-Suisun Subregional WWTP has a maximum average dry-weather design

[2] SID engaged a consultant reevaluate its water supply and water demands in 2015 (see Appendix C in the WSA). The analysis demonstrated that SID's agricultural and urban water demand would exceed its Solano Project entitlement with shortages ranging from 7,000 afy to 27,000 afy. It was also noted that SID has future water supply contract commitments to urban areas in Solano County scheduled to increase from 18,976 afy to 34,929 afy in 2024 (KSN 2022).

[3] This water supply demand does not reflect 2022 CALGreen Code (Title 24, Part 11 of the California Code of Regulations) requirements to reduce indoor demand for potable water by 20 percent and to reduce landscape water usage by 50 percent or water conservation measures that may be implemented by future development.

treatment capacity of 23.7 mgd and the current average dry weather flow is approximately 16.1 mgd (Woodard & Curran 2020a). The proposed Project-related wastewater flows (0.128 mgd) would not result in an increase in wastewater flows that exceed the current disposal capacity of 23.7 mgd average dry-weather flow. Therefore, the Fairfield-Suisun Subregional WWTP would have adequate capacity to serve the Project's estimated demand, in addition to its existing commitments. This impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

Impact 4.13-4: Increased Generation of Solid Waste in Excess of Capacity and Compliance with Solid Waste Statutes and Regulations. *The proposed Project would be required to comply with all federal, State, and local solid waste statues and regulations. The Potrero Hills Landfill has sufficient landfill capacity available to accommodate solid-waste disposal needs of the proposed Project. Therefore, the proposed Project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reductions goals or other federal, state, and local management and reduction status and regulations. This impact would be* ***less than significant****.*

The proposed wetland construction within the Managed Open Space area would not generate and construction and demolition debris; all excavated materials are proposed to be reused on-site. In addition, the proposed Managed Open Space area would not include operational activities that would generate solid waste. Construction of the proposed Development Area and off-site SR 12 improvements would result in site clearing and the generation of various construction-period wastes, including scrap lumber, scrap finishing materials, various scrap metals, and other recyclable and nonrecyclable construction-related wastes. The CALGreen 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. 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 2022). In addition, the CALGreen Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

In addition, the City requires all new construction to comply with its Construction and Demolition Debris Recycling Program (City of Suisun City 2022b). Materials required to be recycled include scrap metal, inert materials (concrete, asphalt paving, bricks, etc.), corrugated cardboard, wooden pallets, and clean wood waste. A Waste Management Plan must be completed before issuance of building permits to identify waste that would be generated by a project, estimated tonnage of waste that would be recycled, as well as the proposed recycling and hauling methods (City of Suisun City 2022b). During construction, a waste log must be maintained at the Project site and submitted to the City at Project completion documenting the actual diversion tonnage.

The City provides recycling programs, such as curbside recycling of paper, plastics, and bottles, to reduce the volume of solid waste transported to landfills. City General Plan Policy CFS-9.2 requires new developments to demonstrate adequate capacity to accommodate solid waste demand, including processing, recycling, transportation, and disposal and City General Plan Policy CFS-9.5 requires new development to incorporate convenient exterior storage areas for solid waste, recyclables, and green waste. The City has implemented the requirement to demonstrate capacity through this EIR and the City implements policy related to solid waste through Chapter 8.08 of the Municipal Code, Solid Wastes.

After construction, the off-site SR 12 improvement areas would not generate solid waste. The proposed Project would have approximately 1,275 employees on a daily basis (Economic & Planning Systems 2021). CalRecycle estimated Suisun City had a 2020 solid-waste disposal generation rate of 28.8 ppd per employee (CalRecycle 2020). Based on this generation rate, the proposed Project could generate 18.4 additional tons of solid waste per day (above existing conditions).[4] This estimate is conservative (high) because recycling and waste diversion reduces this amount and is likely to increasingly reduce the waste stream that is sent to landfills in the future as more restrictive regulations require diversion of larger fractions of the waste stream.

Solid waste in Suisun City is transported by Solano Garbage and disposed of at the Potrero Hills Landfill. According to CalRecycle, the Potrero Hills Landfill has a maximum permitted throughput of 4,330 tpd and has a total maximum permitted capacity of 83.1 million cubic yards (CalRecycle 2022). The Potrero Hills Landfill has a remaining capacity of approximately 13.9 million cubic yards and an anticipated closure date of February 14, 2048 (CalRecycle 2022). Therefore, the Potrero Hills Landfill has sufficient existing remaining capacity to accept the anticipated increase in solid waste generated by the proposed Project (18.4 tpd).

The proposed Project would be required to comply with all federal, State, and local solid waste statues and regulations, including compliance with the CALGreen Code, the City's the Construction and Demolition Debris Recycling Program, Sections 8.08 (Solid Wastes) and 8.10 (Recyclable Materials) of the Suisun City Municipal Code, AB 341 (commercial recycling programs), AB 1826 (mandatory commercial organics recycling), and other City recycling programs. Implementation of these codes and programs would reduce the volume of solid waste disposed of at the Potrero Hills Landfill and ensure sufficient landfill capacity would be available to accommodate solid-waste disposal needs for the proposed Project. Therefore, the proposed Project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reductions goals or other federal, State, and local management and reduction status and regulations. Therefore, impacts related to increased generation of solid waste would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

[4] Based on CalRecycle's estimated 2020 annual per capita disposal rate of 28.8 pounds per employee per day and an estimated 1,275 employees, approximately 36,720 pound per day of solid waste would be generated per day, which equates to 18.4 tpd (CalRecycle 2020).

5 CUMULATIVE IMPACTS

5.1 INTRODUCTION

This section provides an analysis of the cumulative impacts of the proposed Project and Alternative 2 considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the CEQA Guidelines. Alternatives to the proposed Project, including Alternative 2, are analyzed in Chapter 6, "Alternatives," of this EIR.

Cumulative impacts are defined in CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines Section 15355[b]).

Consistent with CEQA Guidelines Section 15130(a), the discussion of cumulative impacts in this 2022 RDEIR focuses on significant and potentially significant cumulative impacts. CEQA Guidelines Section 15130(b), in part, provides the following:

> The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness, and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact.

5.2 APPROACH

5.2.1 CUMULATIVE PROJECTS CONSIDERED

The CEQA Guidelines Section 15130(b)(1) identifies two basic methods for establishing the cumulative environment in which a proposed project is to be considered:

- List method—A list of past, present, and probable future projects producing related or cumulative impacts.
- Plan method—A summary of projections contained in adopted general plans or related planning documents, or in a prior environmental document that has been adopted or certified, which described or evaluated regional or areawide conditions contributing to the cumulative impact.

The cumulative analysis for this EIR primarily uses the plan method. The relevant plans that inform the cumulative context with regard to planned development include the buildout of the City of Suisun City General Plan and City of Fairfield General Plan. More focused consideration of Project-specific cumulative projects also taken into consideration, as appropriate to inform the cumulative context in this EIR, include contemplation of development of the adjacent light industrial/warehousing area in the City of Fairfield and in the County that

would occur west of the proposed Project site, as well as consideration of the proposed Suisun Logistics Center in unincorporated Solano County within the eastern boundary of the City of Suisun City Sphere of Influence.

Throughout this chapter of the EIR, the aggregated past, present, and future projects that are embodied within the City of Suisun City General Plan and City of Fairfield General Plan, and that are used to assess the presence of cumulative impacts are referred to as "the related projects."

5.2.2 GEOGRAPHIC CONTEXT

Cumulative impacts may occur over different geographic areas depending upon the resource area being considered. The cumulative analyses for each topic area below describe the geographic scope (e.g. immediate Project vicinity, city, county, watershed, or air basin). The geographic area considered depends on the topic that is being analyzed. For example, in assessing aesthetic impacts, only development within the vicinity of the proposed Project Site would contribute to a cumulative visual effect because the Project Site is only visible within the vicinity of the site. In assessing air quality impacts, development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions are the best tool for determining the cumulative effect.

5.3 CUMULATIVE IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects that may occur from Project implementation, when considered in combination with the other past, present, and future projects as catalogued within relevant plans, for each of the environmental topic areas evaluated in detail in this EIR.

Project-level impacts that were determined to result in a conclusion of "no impact" would not contribute to cumulative impacts, and therefore are not the focus of the cumulative impact analysis presented below. This cumulative analysis conforms with Section 15130 of the CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project alone."

5.3.1 AESTHETICS

In order for a cumulatively significant impact related to adverse effects on scenic vistas or degradation of visual character or quality to occur, one or more of the related projects considered in this cumulative analysis must be located within the viewshed of the Project Site. There is only one related project within the viewshed of the Project Site: the 71 single-family residential units proposed in Suisun City on the north side of Cordelia Street at the site of the former Crystal Middle School, east of the UPRR, and adjacent to the east end of the Project's new water supply line.

SCENIC VISTAS

As described in the Community Character and Design Element of the City's 2035 General Plan, Suisun City's proximity to Suisun Marsh, the Vaca Mountains, Cement Hill, and the Coastal Range, provides for scenic views (City of Suisun City 2015a). The City's 2035 General Plan EIR found that future development projected under the General Plan would involve land use changes that could permanently alter and block some views of the Suisun

Marsh, the Coastal Range, Cement Hill, the Potrero Hills, and the Vaca Mountains, and found this impact to be **cumulatively significant and unavoidable** (City of Suisun City 2015b).

In the vicinity of the Project Site, scenic vistas of the mountains to the west and north are available to public viewers in the form of motorists traveling on local streets including School Street, Morgan Street, and Cordelia Street. Scenic vistas of these mountains are available from the west edge of existing development in Suisun City immediately east of the Project Site, including the site of the proposed 71-unit residential project looking west. If the residential development on Cordelia Street were to include two-story buildings, scenic vistas to the west would be blocked from that area of Suisun City's existing development. Thus, the proposed 71-unit residential project considered in this cumulative analysis could result in significant and unavoidable impacts related to scenic vistas. Scenic vistas of these mountains are also available from the Project Site and SR 12 to motorists traveling on Cordelia Street, Pennsylvania Avenue, Cordelia Road, and SR 12 westbound (see photographs shown in key viewpoints in Section 4.1, "Aesthetics"). Continuation of existing open space/grazing land uses on 393 acres of the Project Site would preserve most of the existing views. Because the proposed buildings would be developed approximately 0.6 mile to the west, motorists traveling westbound on SR 12 would still have views of the Coast Ranges and the Howell Mountains. Furthermore, the site design at the Project Site would provide a line-of-sight corridor from north to south for motorists along Pennsylvania Avenue that would provide limited views of Cement Hill and the Vaca Mountains to the north in accordance with City General Plan Policies CCD-3.3 and CCD-6.3. However, under the proposed Project, scenic views to the north at the Project Site from Key Community Gateway 2 and from Viewpoint 10 along Cordelia Street would be blocked by proposed buildings and landscaping, and scenic views from Key Community Gateway 3 to the southwest would also be blocked. Scenic views of the Coast Ranges, Howell Mountains, Vaca Mountains, Cement Hill, and the Potrero Hills would still be available from all of these viewpoints at the Project Site looking in other directions. Because fewer buildings and landscaping would be installed under Alternative 2, an additional line-of-sight viewpoint corridor would be maintained from Key Community Gateway 3 looking southwest and southeast from Pennsylvania Avenue as compared to the proposed Project. The loss of scenic vistas from Key Community Gateway 2 would still occur under Alternative 2. Therefore, implementation of the proposed Project or Alternative 2 would represent a **cumulatively considerable contribution to the significant cumulative impact** related to scenic vistas. There are no feasible mitigation measures that would preserve scenic vistas from these locations while still allowing development to proceed under the proposed Project or Alternative 2. This cumulative impact is **significant and unavoidable**.

VISUAL CHARACTER

The City's 2035 General Plan EIR found that future development contemplated under the General Plan would involve land use changes that would substantially change visual conditions because open viewsheds, including views of agricultural landscapes, would be replaced with urban development. Although the City determined that it will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of future site-specific environmental impact analysis, the City determined as part of the 2035 General Plan EIR that the cumulative changes from past, present, and future urban development on visual character would be **cumulatively significant and unavoidable** (City of Suisun City 2015b).

Implementation of the proposed Project or Alternative 2 in conjunction with the related 71-unit potential residential project considered in this cumulative analysis would introduce new development within the Project

Site and the adjacent parcel to the east. However, the areas immediately west, north, and east of the Project Site are already urbanized with industrial, commercial, and residential development in the cities of Fairfield and Suisun City. Development of the proposed Project or Alternative 2 would visually change less than one-quarter of the Project Site (i.e., 93 or 51 acres, respectively, of the 487-acre Project Site). Construction activities would be short-term and temporary, are a common sight in the nearby developed areas of Fairfield and Suisun City (through which motorists are passing before they arrive at the Project Site), and would be scattered across the Project Site and the 71-unit residential project site considered in this cumulative analysis during each phase of construction. Operation of the proposed Project or Alternative 2 would change the visual character of a small portion of the existing open space along the urban fringe through the introduction of new buildings and associated parking areas and urban landscaping. The proposed 71-unit residential project would be visually consistent with existing surrounding residential development in Suisun City, and the proposed Project or Alternative 2 would be visually consistent with existing adjacent industrial development to the west and north. Most of the existing visual character of the Project Site would be preserved under both the proposed Project and Alternative 2. There are no outstanding examples of visual character at the Project Site, which consists of flat, rural (non-urbanized) land used for cattle grazing. As stated in Suisun City General Plan Policy CCD-6.4, the City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis. A Planned Unit Development (PUD) has been prepared for City review to establish the land use, zoning, development standards, and regulations for development of the Project Site consistent with General Plan community design policies (RMW Architecture et al. 2023). Development at the Project Site would be required by the City through the PUD process to demonstrate consistency with City General Plan community design policies, and would be required to comply with the City Municipal Code, Development Guidelines for Architecture and Site Planning, and Architectural Review requirements through review, revisions, and conditioning of the proposed Project and PUD, as well as Alternative 2. Therefore, the proposed Project or Alternative 2 would have a **less than cumulatively considerable contribution** to the significant cumulative impact associated with adverse changes in visual character or quality.

LIGHT AND GLARE

The Project area is urbanized, and is not a “dark sky” area. The past, present, and reasonably foreseeable future development in the Project area already contributes substantially to nighttime lighting and skyglow effects. This is a **significant cumulative** impact.

The proposed Project and Alternative 2 would result in additional nighttime lighting and skyglow effects from the proposed development. Implementation of Mitigation Measure 4.1-3 would reduce the potentially significant impacts from nighttime lighting, glare, and skyglow effects associated with the proposed Project and Alternative 2 to the maximum extent feasible because an exterior lighting plan would be prepared for City review and approval and implemented. However, even with implementation of this mitigation measure, the proposed commercial and light industrial development on the Project Site and Alternative 2 site would contribute to regional nighttime skyglow effects. No additional feasible mitigation measures are available. Therefore, the proposed Project or Alternative 2 would result in a **cumulatively considerable contribution** to this significant and unavoidable cumulative impact related to nighttime skyglow effects.

5.3.2 AIR QUALITY

Regional air quality effects are inherently cumulative in nature. The nonattainment status of regional pollutants results from multiple sources in the air basin, both past and present. No single project would be sufficient in size to result in nonattainment of regional air quality standards. The potential for the Proposed project or Alternative 2 to result in significant criteria air pollutant emissions, and therefore a cumulatively considerable contribution to nonattainment criteria pollutants, is addressed under Impacts 4.2-1, 4.2-2, and 4.2-3 (refer to Section 4.2 of this EIR for details). Therefore, no separate cumulative criteria air pollutant analysis is required. The following cumulative impact discussion for air quality focuses on exposure to $PM_{2.5}$ and TACs.

Table 5-1 summarizes the Bay Area Air Quality Management District (BAAQMD) project-level cumulative health risk and hazard thresholds for cancer, non-cancer chronic, and annual averaged $PM_{2.5}$ concentrations (BAAQMD 2023). Cumulative impacts in excess of the thresholds identified in Table 5-1, would be a cumulatively considerable health risk contribution and would result in a significant cumulative impact.

Table 5-1. BAAQMD Project-level Cumulative Health Risk and Hazard Thresholds

Health Risk	Cumulative Threshold
Cancer Risk	100 in a million
Non-Cancer Chronic Risk	10.0 Hazard Index
Annual Average $PM_{2.5}$ Concentration	0.8 $\mu g/m^3$

Source: BAAQMD 2023

As discussed in Section 5.3 of Appendix B of this EIR, a quantified analysis of cumulative impacts for annual $PM_{2.5}$ concentrations and excess cancer risk at the maximally exposed individual sensitive receptors was conducted. For this cumulative air quality analysis, the aggregation of health impacts from the proposed Project sources and existing sources were determined for resident, worker, student, and child sensitive receptors. Screening tools provided by the Bay Area Air Quality Management District were used to inform existing on-road mobile and railway sources. Since the project-level individual impact analysis identified the need for mitigation, the cumulative analysis incorporated that mitigation for the proposed Project.

Cumulative annual $PM_{2.5}$ concentrations are all well below (less than 35 percent) of the cumulative threshold at each of the proposed project's maximally exposed individual sensitive receptors (i.e., resident, worker, student, and child). Cumulative excess cancer risk is highest for the maximally exposed individual residential receptor of 19.42 in a million. For worker, student and child, the maximally exposed receptors were all below 10 in a million. Non-cancer chronic cumulative impacts are all well below the threshold for all sensitive receptors.

Based on this quantitative analysis of cumulative air quality impacts, the cumulative impact is **less than cumulatively considerable with mitigation**.

Odors are a localized impact. The type of facilities that are considered to result in other emissions such as those leading to objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food processing facilities (BAAQMD 2017a). No such uses are present in the vicinity of the proposed Project site. Therefore, there is **no significant cumulative** impact related to odor.

5.3.3 BIOLOGICAL RESOURCES

The geographic scope for this analysis of cumulative impacts of the Project on biological resources includes the Suisun Marsh, the city of Suisun City, the city of Fairfield, and other nearby areas of Solano County.

As described for the cumulative scenario presented in the City of Suisun City 2035 General Plan Final Environmental Impact Report (City of Suisun City 2015b), past development and land conversion, including urban development, agriculture, roads, and water projects, has resulted in substantial regional losses of natural habitat, including vernal pool (i.e., valley floor grasslands), freshwater and saline emergent wetlands, riparian habitats, and natural waterways. These habitat losses have contributed to the decline of a number of special status plant and wildlife species that are dependent on these habitats and the overall effect of land use conversion on native plants, animals, and habitats has been substantially adverse. The combination of past, present, and reasonably foreseeable future development, including land use conversion described under the Solano County and City of Suisun City general plans, would result in a **significant cumulative** impact to valley floor grasslands, wetlands, and special status species associated with these habitats.

Although many future projects proposed in the County would be required to mitigate substantial impacts on biological resources, it may not be possible to mitigate all of these impacts in a manner that results in no net loss within the County and region because there is a finite amount of land and habitat available for compensation of unavoidable losses. Furthermore, as development progresses across the landscape, remaining habitats become more and more fragmented and vulnerable to habitat degradation, due to the indirect effects of surrounding development. Many transportation, commercial, residential, and industrial projects are proposed and underway for the Fairfield/Suisun City area. Recently completed projects within Fairfield and Suisun City have reduced the area's usefulness as a wildlife corridor and future projects would further reduce this function. Therefore, it can be expected that the net loss of native habitat for plants and wildlife, agricultural lands, and open space areas that support important biological resources in Solano County and the nearby region will continue. However, based on the adopted General Plans, development within Suisun City and Fairfield would focus development in existing developed areas while requiring mitigation, including preserving and maintaining large open habitat landscapes connected to surrounding natural habitats. Regardless, this is a **significant cumulative** impact.

Implementation of the proposed Project or Alternative 2 would result in potentially significant impacts from the loss and degradation of habitat for special-status plants, including Contra Costa goldfields; loss of habitat for special status wildlife, including Swainson's hawk and potentially for burrowing owl; loss of federally protected wetlands; loss of upland refugia for marsh dependent species; degradation of adjacent riparian habitat; disturbance to nest sites; and potential indirect effects from construction and operations on wildlife in adjacent areas. While many of these potential impacts would be avoided or mitigated at no net loss, as described in Section 4.4, "Biological Resources," particularly under Alternative 2 (e.g., loss of rare plant habitat, wetlands, nest sites), others would be reduced and minimized, leaving potential residual impacts from a net loss of total grassland cover in the region, including upland refugia, degradation of adjacent riparian habitat from further development encroachment, and temporary displacement or harassment of wildlife during construction. While these impacts from the proposed Project or Alternative 2 would contribute to historic and ongoing losses of biological resources in Solano County and the Suisun Marsh region, implementation of the mitigation measures described in Section 4.4, "Biological Resources," would result in a **less than cumulatively considerable contribution** to significant cumulative biological resources impacts under both the proposed Project and Alternative 2.

5.3.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

The geographic scope for the analysis of cumulative effects of the Project on built environment historical resources and historic-era archaeological cultural resources is the Suisun Marsh, the city of Suisun City, the city of Fairfield, and other nearby areas of Solano County and for precontact archaeological resources and human remains, it is the ethnographic territory of the Patwin.

Any past, present, and reasonably foreseeable projects within the geographic scope of cumulative effects would be regulated by applicable federal, state, and local regulations; however, continued urbanization of the region in accordance with applicable land use plans, as well as those approved and proposed development projects, could result in the disturbance of cultural resources, which includes built environment historical resources, archaeological resources, and human remains. Therefore, the related projects considered in this cumulative analysis could result in a **significant cumulative impact** to cultural and tribal cultural resources.

As discussed in Section 4.4, "Cultural and Tribal Cultural Resources," implementing the proposed Project or Alternative 2 would not result in impacts on built environment historical resources and therefore would not combine to create considerable changes in and cumulative effects on the built-environment historical resources. Therefore, there would be **no cumulative impacts** related to built environment historical resources from the proposed Project or Alternative 2, and this issue is not addressed further in this cumulative analysis.

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, burial site, or built-environment historical resource has the potential to affect 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. Due to the nature of built environment historical resources, archaeological cultural resources, and tribal cultural resources, adverse impacts are site-specific and need to be determined on a project-by-project basis. The Suisun City General Plan includes relevant policies and programs for projects that involve grading, excavation, and potentially other ground-disturbing activities which could disturb or damage as-yet-undiscovered archaeological cultural resources or human remains (Policy OSC-5.1, Policy OSC-5.2, and Program OSC-5.1). These policies and programs are implemented through mitigation measures imposed on the proposed Project in this EIR.

As discussed in Section 4.4, "Cultural and Tribal Cultural Resources," ground disturbance in the Development Area, off-site infrastructure improvement areas, and areas proposed for the creation of mitigation wetlands within the proposed Managed Open Space Area could affect precontact or historic-era archaeological cultural resources, and this impact would be potentially significant. Implementation of Mitigation Measure 4.4-2 would reduce potentially significant impacts to cultural resources to less than significant. It is possible that unknown human remains could be discovered through ground-disturbing construction activities associated with the proposed Project and the impact would be potentially significant. Implementation of Mitigation Measure 4.4.3 would reduce potentially significant impacts to human remains to less than significant. Since the proposed Project or Alternative 2 impact to precontact or historic-era archaeological resources from implementation of the proposed Project or Alternative 2 would be reduced to less than significant, and since Alternative 2 involves a reduced level of earth disturbance, the proposed Project and Alternative 2 impacts to cultural and tribal cultural resources would be **less than cumulatively considerable**.

Cumulative projects in the ethnographic territory of the Patwin, which includes the Yocha Dehe Wintun Nation, would have the potential to result in a cumulative impact associated with the loss of tribal cultural resources through development activities. These projects would be regulated by applicable federal, state, and local regulations; however, the loss of tribal cultural resources on a regional level may not be adequately mitigated through preservation in place, particularly when preservation in place would make projects infeasible, and because the potential to discover previously unknown tribal cultural resources exists. Therefore, the cumulative destruction of significant tribal cultural resources from projects within the ethnographic territory of the Patwin may result in a **potentially significant cumulative impact** on tribal cultural resources. The Suisun City General Plan includes relevant policies and programs for projects that involve grading, excavation, and potentially other ground-disturbing activities which could disturb or damage as-yet-undiscovered human remains or tribal cultural resources (Program OSC-5.1). These policies and programs are implemented through mitigation measures imposed on the proposed Project in this EIR.

The City of Suisun contacted traditionally and culturally affiliated California Native American tribal representatives on May 14, 2021 that had requested notice of projects where AB 52 applies within the City. The City requested any information regarding tribal cultural resources (as defined by Public Resources Code 21074) within the Project Site so that this information can be incorporated into Project planning.

The only response was in a letter dated May 19, 2021 from the Yocha Dehe Wintun Nation's Cultural Resources Department stated that after review of the Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Development Area. Based on the information provided, the Tribe has concerns that the Project could impact known cultural resources, and highly recommend including cultural monitors during development and ground disturbance, including Cultural Sensitivity Training prior to all ground disturbance activities. Additionally, they requested that the City incorporate Yocha Dehe Wintun Nation's Treatment Protocol into the mitigation measures for the City's environmental document, provide the Tribe with a copy of the same, and continue to consult with the Tribe.

The California NAHC Sacred Lands File records search response on April 9, 2021, indicated that no Native American resources on file at the NAHC fall within the Project Site or the Alternative 2 site. However, during AB 52 consultation, the Yocha Dehe Wintun Nation's Cultural Resources Department stated that, after review of the proposed Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Project area (including the Alternative 2 site). It is possible that construction of the proposed Project or Alternative 2 could affect existing or previously undiscovered tribal cultural resources. With implementation of Mitigation Measures 4.4-2, 4.4-3, and 4.4-4a through 4.4-3d, which would be applicable to Alternative 2 in the same manner as the proposed Project, the contribution of the proposed Project or Alternative 2 to cumulative tribal cultural resources would be reduced through the identification, preservation, or culturally appropriate treatment of discovered resources. Thus, the contribution of the proposed Project or Alternative 2 to substantial effects related to archaeological and tribal cultural resources, including human remains, would be **less than cumulatively considerable**.

5.3.5 GEOLOGY AND SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

The geographic scope for the cumulative analysis of the geology and soils consists of the southwestern margin of the Sacramento Valley and the northeastern margin of the San Francisco Bay Area.

As discussed in detail in Section 4.5, "Geology, Soils, Minerals, and Paleontological Resources" and Chapter 6, "Alternatives," the proposed Project and Alternative 2 would result in **no impact** to mineral or paleontological resources, and therefore these topics are not evaluated further in this cumulative analysis.

The Project region has historically been seismically active. The related projects considered in this cumulative analysis could be exposed to hazards from strong seismic ground shaking, as well as hazards from construction in unstable or expansive soils. However, the related projects would be subject to the design and engineering requirements of the California Building Standards Code, which include an analysis of seismic ground shaking, slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. The California Building Standards Code also regulates the analysis of expansive soils for foundations and grading work. The California Building Standards Code requires that measures to reduce damage from seismic effects and expansive/unstable soils be incorporated in structural design. Application of the California Building Standards Code to the related projects considered in this cumulative analysis would avoid a significant cumulative impact.

The new buildings proposed in the Development Area under both the proposed Project or Alternative 2 would also be subject to hazards from strong seismic ground shaking, and hazards from construction in unstable or expansive soils. A Geotechnical Engineering Report was prepared by Mid Pacific Engineering, Inc. (2020), which contains recommendations to address seismic and geologic hazards for the proposed Project in the Development Area. These same recommendations would be applicable to construction in the Development Area under Alternative 2. The recommendations in the geotechnical report are consistent with the California Building Standards Code, and would be incorporated as a part of the design of the proposed Project or Alternative 2 to reduce seismic and geologic hazards. Therefore, the proposed Project or Alternative 2 would result in **less than cumulatively considerable contribution** to cumulative impacts related to seismic and geologic hazards.

Implementation of the related projects considered in this cumulative analysis involve substantial earthmoving activities that would disturb soils and could result in soil erosion, if not properly controlled. All of the cumulative projects, including Caltrans projects, that disturb 1 acre or more are required by law to prepare a Storm Water Pollution Prevention Plan (SWPPP) and implement site-specific Best Management Practices (BMPs) that are specifically designed to prevent construction-related erosion. Caltrans projects that disturb less than 1 acre are required to prepare and implement a Water Pollution Control Program (WPCP). The related projects would also be required to obtain grading permits from the applicable jurisdictions (i.e., City of Suisun City, Solano County, or City of Fairfield), which require submittal of a soils report and a geotechnical report, along with detailed grading plans for review and approval, showing how erosion would be reduced. Permit conditions would be imposed by the applicable jurisdiction (such as straw wattles and watering of the soil surface during construction) to reduce potential erosion impacts. Furthermore, off-site improvements to SR 12 (or improvements to any other state highway that may be necessary for the other cumulative projects considered in this analysis) are under the jurisdiction of Caltrans and must be conducted in accordance with Caltrans' Construction BMP Manual, which contains specific requirements to comply with SWRCB erosion and water quality permit terms and conditions. Application of these existing stormwater and erosion control requirements to the related projects considered in this cumulative analysis would avoid a significant cumulative impact.

Implementation of the proposed Project or Alternative 2 would result in earthmoving activities within the Development Area, as well as minor grading for installation of new wetlands in the Managed Open Space Area.

These earthmoving activities would disturb soils and could result in soil erosion, if not properly controlled. However, as described above for the related projects, the Project applicant for proposed Project or Alternative 2, and Caltrans for the off-site SR 12 improvements under the proposed Project, would be required to prepare a SWPPP and implement BMPs specifically designed to prevent construction-related erosion. In addition, a grading permit from the City, including plans demonstrating how erosion would be controlled, would be required for the proposed Project and Alternative 2. Therefore, the proposed Project or Alternative 2 would result in **less than cumulatively considerable contributions** to cumulative impacts related to soil erosion.

5.3.6 GREENHOUSE GAS EMISSIONS AND ENERGY

Greenhouse gases (GHGs) typically persist in the atmosphere for extensive periods time—long enough to be dispersed throughout the globe and result in long-term global impacts that contribute to climate change. As such, the proposed Project would not, by itself, result in climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. Accordingly, GHG emissions are inherently cumulative.

Sections 4.6 and 6.5.6, "Greenhouse Gas Emissions and Energy," provide detailed analyses of this cumulative impact for the proposed Project and Alternative 2, respectively. As explained in more detail in Sections 4.6 and 6.5.6, because GHG emissions generated by the proposed Project or Alternative 2 would exceed the GHG efficiency threshold, implementation of the proposed Project or Alternative 2 could result in the generation of GHG emissions at a level that may have a significant impact on the environment and conflict with State GHG emission targets adopted for the purpose of reducing the emissions of GHGs. This impact is **potentially cumulatively considerable**.

Implementation of Mitigation Measures 4.6-1a through 1m would reduce the generation of long-term operational GHG emissions of the proposed Project or Alternative 2 as well as align the long-term operations of the proposed Project or Alternative 2 with the actions for new commercial development identified in the Final 2022 Scoping Plan update for carbon neutrality. Mitigation Measure 4.-1n further reduces the proposed Project's impacts related to the generation of GHG emissions, as it requires the purchase and retirement of GHG emissions credits based on protocols approved by ARB, consistent with Section 95972 of Title 17 of the California Code of Regulations. Mitigation Measure 4.6-also requires the Project applicant to provide documentation demonstrating that the mitigation credits are real, additional, quantifiable, verifiable, enforceable, permanent, and consistent with the standards set forth in Health and Safety Code Section 38562, subdivisions (d)(1) and (d)(2). Mitigation Measure 4.6-1n would ensure that the Project's GHG emissions efficiency would be consistent with that of the State SB 32 regulatory GHG emissions reduction target for 2030 and with the State AB 1279 regulatory GHG emissions reduction target for 2045 over the long-term operations of the Project. Therefore, with implementation of Mitigation Measures 4.6-1a through 1n, the generation of GHG emissions associated with the proposed Project would not result in a substantial contribution to the significant impact of climate change or conflict with an applicable plan, policy, or regulation adopted for the purposes of reduction GHG emissions. However, the City cannot guarantee the availability of emissions credits meeting the standards detailed in Mitigation Measures 4.6-1n presented in Section 4.6 of this EIR. Therefore, the proposed Project or Alternative 2 would result in a substantial contribution to the significant impact of climate change. There is no additional feasible mitigation. This impact is **cumulatively considerable and unavoidable**.

Energy efficiency or the lack of energy efficiency is not itself an environmental impact, though it could potentially be an indicator of an environmental effect. All adverse environmental effects related to the proposed Project's energy demand are evaluated throughout the environmental topic-specific sections of this EIR and this chapter.

Solano County and the cities within the county implement general plans 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; promote land uses and patterns that would not cause wasteful, inefficient, and unnecessary consumption of energy; and ensure adequate electricity and natural gas and related distribution systems are available to meet energy demands. Developments within other parts of the region, as with the City, are required to implement Building Energy Efficiency Standards (Title 24 of the California Code of Regulations) and other applicable regulations. Therefore, there is **no significant cumulative impact** related to land uses and patterns that cause wasteful, inefficient, and unnecessary consumption of energy.

5.3.7 HAZARDS, HAZARDOUS MATERIALS, AND WILDFIRE

The geographic scope for this cumulative analysis related to hazards, hazardous materials, and wildfire consists of the Project Site, Alternative 2 Site, and the local surrounding area.

As discussed in detail in Section 4.7, "Hazards, Hazardous Materials, and Wildfire," there would be **no impact** related to wildfire attributable to the proposed Project and for the same reasons articulated in Section 4.7 of this EIR, there would be no impact attributable to Alternative 2. Therefore, this topic is not evaluated further in this cumulative analysis.

The related projects considered in this cumulative analysis would involve routine transport use and disposal of hazardous materials, the potential for accidental spills of hazardous materials, and airport safety hazards for public-use airports. However, the projects considered in the cumulative analysis are site-specific and therefore would not combine to create cumulatively significant impacts in and of themselves. Although the proposed Project or Alternative 2 would result in an increase in routine use, transportation, and disposal of hazardous materials, as well as public airport hazards, existing federal, State, and local regulations create and enforce standards for these activities regardless of the amount or scale of use and therefore **no significant cumulative impact** would occur.

The related projects considered in this cumulative analysis could result in construction within a Cortese-listed site or other known hazardous materials site. However, in those cases, environmental site assessments that are specific to each project are required, results would be reported to the Solano County Department of Environmental Health Services, and coordination with the SWRCB and/or DTSC would occur prior to the start of construction activities as required by state and local laws and regulations. Federal, State, and local regulations create and enforce standards for activities at known hazardous materials sites regardless of the amount or scale of use, and therefore the related projects would result in no cumulative impact. Although the proposed Project or Alternative 2 would result in construction within the area of potential effects from off-site known hazardous materials, the appropriate on-site hazardous materials reports have been prepared, which detail the results of soil and groundwater sampling. These reports demonstrated that the proposed Project would not expose new construction workers, employees, or the environment to existing off-site hazardous materials. Therefore, the proposed Project or Alternative 2 would **not result in a cumulatively considerable contribution** to this cumulative impact.

The related projects considered in this cumulative analysis could result in construction along State highways regulated by Caltrans, which has formal procedures that are followed to reduce human health and ecological risks from the handling of disposal of hazardous materials and the reuse of soils contaminated with aerially-deposited lead. Earthmoving activities for improvements associated with the related projects could result in human health and ecological risks from exposure to known hazardous materials (e.g., underground pipelines containing fuel, persistent agricultural chemicals in soil, etc.). However, in those cases, environmental site assessments that are specific to each project are required, results would be reported to the Solano County Department of Environmental Health Services, and coordination with the SWRCB and/or DTSC would occur prior to the start of construction activities as required by state and local laws and regulations. Federal, State, and local regulations create and enforce standards for activities at known hazardous materials sites regardless of the amount or scale of use, and therefore the related projects would result in no cumulative impact. The proposed Project or Alternative 2 could result in human health and ecological risks from exposure to known hazardous materials (e.g., underground pipelines containing fuel, and metals/herbicide exposure along railroad tracks) that are present in the Project area during construction activities. However, implementing Mitigation Measures 4.9-3a and 4.9-3b would reduce the impacts of hazards associated with improvements under the proposed Project or Alternative 2 to a less-than-significant level. Hazardous materials impacts would be site-specific. Implementation of the proposed Project or Alternative 2 in conjunction with development of the related projects would not present a public health and safety hazard to people or the environment, and therefore the proposed Project or Alternative 2 would result in **no significant cumulative impact**.

Many of the related projects considered in this cumulative analysis would result in roadway improvements that could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing services. Therefore, the related projects would result in a significant impact. Construction of the proposed Project or Alternative 2 would result in the need for off-site roadway improvements that could also result in short-term lane closures and increased slow-moving construction truck traffic that could temporarily reduce emergency response times. Implementing Mitigation Measure 4.9-5 would ensure that the roadway work associated with the proposed Project or Alternative 2 does not increase emergency response times or impede existing emergency services. Furthermore, none of the related projects would involve roadway work at the same locations as the proposed Project or Alternative 2. Implementation of the proposed Project or Alternative 2 (with mitigation measures incorporated) in conjunction with development of the related projects would not present a hazard related to emergency vehicle response times or access, and therefore the proposed Project or Alternative 2 would be **less than cumulatively considerable with mitigation**.

5.3.8 HYDROLOGY AND WATER QUALITY

The geographic scope for this cumulative analysis related to hydrology and water quality consists of the San Francisco Bay hydrologic region.

Construction-Related Degradation of Water Quality or Interference with Implementation of the Basin Plan

Water quality in the Project region is under the jurisdiction of the San Francisco Bay RWQCB, which is charged with protecting beneficial uses of surface water and groundwater as identified in the *Water Quality Control Plan for the San Francisco Bay Basin* (Basin Plan) (San Francisco Bay RWQCB 2023). Construction activities associated with the projects considered in this cumulative analysis would create the potential for soil erosion and

sedimentation of drainage systems, both within and downstream of each project site and any associated off-site improvement areas. The construction processes may also result in accidental release of pollutants to surface waters, along with groundwater. Soil erosion and accidental spills of hazardous materials could result in downstream sedimentation and degradation of water quality. However, as discussed in detail in Subsection 4.10.2, "Regulatory Framework," the related projects considered in this cumulative analysis would be required by law to prepare and implement a SWPPP as required by the SWRCB's Construction General Permit with appropriate BMPs (such as source control, revegetation, and erosion control) at each project site and any associated off-site improvement areas, and to prepare grading plans and implement City of Suisun City or City of Fairfield permit terms, to maintain surface and groundwater quality conditions in adjacent receiving waters. Projects that involve improvements within Caltrans rights-of-way must comply with the Caltrans Construction NPDES Permit and implement the requirements of the Caltrans Construction Site BMP Manual (Caltrans 2017). Therefore, the related projects considered in this cumulative analysis would have no significant cumulative impact.

The proposed Project or Alternative 2 would also create the potential for soil erosion and sedimentation of drainage systems, both within and downstream of each Project Site and the associated off-site improvement areas. The construction processes may also result in accidental release of pollutants to surface waters (such as Ledgewood Creek and Pennsylvania Avenue Creek), along with groundwater. However, the proposed Project or Alternative 2 would also be required to adhere to the same applicable requirements designed to prevent water quality degradation including SWPPPs with BMPs, along with City grading permit terms, as discussed above. Therefore, temporary, short-term construction of the proposed Project or Alternative 2 would result in **less than cumulatively considerable contributions** to cumulative impacts from degradation of water quality or interference with implementation of the Basin Plan.

Operational Degradation of Water Quality or Interference with Implementation of the Basin Plan

The related projects considered in this cumulative analysis would change the long-term potential for contaminant discharges because new impervious surfaces would be developed, and thus there would be a potential for the cumulative projects to cause or contribute to increased long-term discharges of urban contaminants (e.g., oil and grease, fuel, trash, pesticides, fertilizers). However, all project applicants are required to comply with the Solano County Regional MS4 Permit, which regulates operational water quality. Projects that involve improvements within Caltrans rights-of-way must comply with the Caltrans Operational NPDES Permit and the Caltrans PPDG Handbook (Caltrans 2019). All of the projects considered in this cumulative analysis must incorporate site-specific design and treatment measures that would be implemented to reduce post-construction runoff and control urban runoff pollution in compliance with the MS4 permit (or the Caltrans Operational NPDES Permit for Caltrans work) through the incorporation of BMPs, LID, and hydromodification management techniques. This includes the requirement to treat stormwater runoff through evapotranspiration, infiltration, stormwater harvesting and reuse, or biotreatment. Therefore, the related projects considered in this cumulative analysis would have no significant cumulative impact.

The proposed Project or Alternative 2 would result in new impervious surfaces from buildings, roads, and parking areas within the Development Area. Therefore the proposed Project or Alternative could cause or contribute to increased long-term discharges of urban contaminants such as oil and grease, fuel, trash, pesticides, and fertilizers. A Drainage Master Plan for the proposed Project has been prepared, which demonstrates incorporation of stormwater design and treatment measures for the proposed Development Area as required by the Fairfield-Suisun Urban Runoff Management Program (FSURMP) *Stormwater C.3 Guidebook* (FSURMP 2012) per the

Solano County MS4 permit. The locations and sizes of detention basins and LID features for Alternative 2 have also been developed consistent with City and FSURMP standards. Therefore, the proposed Project or Alternative 2 would result in a **less than cumulatively considerable contribution** to cumulative impacts from operational degradation of water quality or interference with implementation of the Basin Plan.

Exceedance of Drainage Systems Resulting in Hydromodification or Flooding

Potential changes to the hydrologic and geomorphic processes in a watershed as a result of impervious surfaces and exceedance of drainage infrastructure capacity from urbanization include increased runoff volumes and dry weather flows, increased frequency and number of stormwater runoff events, increased long-term cumulative duration of flows, as well as increased peak flows. Exceedance of drainage infrastructure capacity results in hydromodification, which intensifies the erosion and sediment transport process, and often leads to changes in stream channel geometry, and streambed and streambank properties, which can result in degradation and loss of riparian habitat, and downgradient sediment deposition. In addition, operational stormwater discharges, if not properly detained, could exceed drainage system capacity resulting in flooding. However, all of the related projects considered in this cumulative analysis must prepare drainage plans in compliance with the FSURMP to protect and improve stormwater quality. The FSURMP requires that measures for long-term BMPs that protect water quality and control runoff flow be incorporated into new development and substantial redevelopment projects. All projects are required to design and implement water quality and runoff controls per the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012). Drainage Master Plans for all of the projects considered in this cumulative analysis must include hydraulic, floodplain, hydrologic, and water quality analyses for each site-specific proposed development. Projects that involve improvements within Caltrans rights-of-way must comply with the Caltrans Operational NPDES Permit (SWRCB 2022) and implement the operational stormwater controls specified in the Caltrans PPDG Handbook (Caltrans 2019). Stormwater modeling results contained in plans must demonstrate that the projects as designed include appropriate stormwater runoff design features, properly sized stormwater drainage features, and appropriate stormwater quality treatment features so that the new impervious surfaces would not increase peak discharge rate of stormwater runoff and would not result in erosion, sedimentation, and on-site or downstream flooding. Therefore, implementation of the related projects considered in this cumulative analysis would avoid a significant cumulative impact.

A Drainage Master Plan has been prepared for the proposed Project (Morton Pitalo 2021). The locations and sizes of detention basins and LID features for Alternative 2 have also been developed based on City and FSURMP requirements. Drainage from proposed building roofs and parking lots would be routed into bioretention facilities for infiltration and treatment prior to discharge to the on-site detention basins. The bottom of the on-site detention basins would also be constructed as a bioretention facility. LID features may include disconnected roof drains and disconnected pavement. The proposed on-site detention basin volumes are based on the 100-year, 24-hour storm event with outflows restricted to 95 percent of pre-development flows or less (as required by the City). The Drainage Master Plan demonstrates incorporation of stormwater design and treatment measures for the proposed Development Area as required by the FSURMP *Stormwater C.3 Guidebook* (FSURMP 2012). Furthermore, a draft Stormwater Control Plan, that would be finalized and approved by the City, has been prepared for the proposed Project to control operational stormwater runoff and quality. A similar Stormwater Control Plan would be prepared for Alternative 2, as required by the City. Therefore, the proposed Project or Alternative 2 would result in a **less than cumulatively considerable contribution** to cumulative impacts associated with exceedance of stormwater drainage systems resulting in hydromodification and flooding.

Impedance or Redirection of Flood Flows and Risk Release of Pollutants from Inundation

All of the cumulative projects considered in this analysis that would be located within Federal Emergency Management Agency (FEMA) 100-year floodplains require compliance with the City of Suisun City or City of Fairfield Flood Damage Prevention Ordinance. These ordinances require individual project applicants to apply for a development permit for construction in FEMA flood zones, with approval by the city's floodplain administrator. The permit application must include plans showing elevations of proposed structures and the elevations of areas proposed for materials and equipment storage; proposed floodproofing; and include certification from a registered civil engineer or architect that the floodproofed buildings would meet the city's floodproofing criteria. In addition, adequate drainage paths must be provided around structures on slopes to guide floodwaters around and away from proposed structures. The site-specific permits each contain terms and conditions that are designed to reduce flood damage at each project site. In Suisun City, the permit application must include plans illustrating the location(s) that are designated for temporary construction-related storage of materials and equipment, which the city's floodplain administrator must review and approve. The floodplain administrator may require the construction of temporary berms or dikes around the construction materials/equipment storage areas, to ensure sufficient protection from flood flows, if warranted. The related projects considered in this cumulative analysis are required to obtain a permit from the floodplain administrator and prepare plans demonstrating compliance with each city's flood damage prevention ordinance before building permits would be issued. Therefore, implementation of the related projects considered in this cumulative analysis would avoid any significant cumulative impact.

The proposed Development Area under both the proposed Project and Alternative 2 would be situated within a FEMA 100-year floodplain. However, the proposed Project or Alternative 2 would be required to comply with City of Suisun City Flood Damage Prevention Ordinance. As described above, this ordinance requires the Project applicant to include plans showing elevations of proposed structures and the elevations of areas proposed for materials and equipment storage; proposed floodproofing; and include certification from a registered civil engineer or architect that the floodproofed buildings would meet the city's floodproofing criteria. In addition, adequate drainage paths must be provided around structures on slopes to guide floodwaters around and away from proposed structures. The site-specific permit from the City for floodplain development would contain terms and conditions that are designed to reduce flood damage. Therefore, the proposed Project or Alternative 2 would result in result in a **less than cumulatively considerable contribution** to cumulative impacts associated with impedance or redirection of flood flows and risk of inundation from temporary storage of materials and/or equipment in a flood zone.

Substantial Interference with Groundwater Recharge or Impede Implementation of Groundwater Sustainability Plans

Currently, the Suisun–Fairfield Valley Groundwater Basin is considered to have stable groundwater levels. Deep percolation of applied surface water from irrigated lands and seepage from SID canals and drains provide beneficial recharge to the underlying aquifers. On an annual basis, the total average recharge from seepage, deep percolation of applied water, and deep percolation of precipitation is about 45,000 acre-feet, while the total average SID and private groundwater pumping is about 30,000 acre-feet (Davids Engineering, Inc. 2018). The related projects considered in this cumulative analysis would create new impervious surfaces as a result of new urban development. The new impervious surfaces would, in turn, reduce the area that is available for percolation of rainwater through the soil and into the groundwater aquifer. Most of the projects considered in this cumulative analysis consist of urban infill projects in existing developed areas, and therefore would not result in a substantial

reduction in groundwater recharge. Therefore, the cumulative impact of the related projects considered in this cumulative analysis would avoid a significant cumulative impact.

Development of approximately 66 or 51 acres, respectively, of new impervious surfaces at the Project Site under the proposed Project or Alternative 2 would result in a decrease of only approximately 13.5 or 10.5 percent, respectively, of the existing pervious surfaces that are currently available for groundwater recharge at the Project Site. Furthermore, no new groundwater wells would be drilled to support the proposed Project or Alternative 2; rather, surface water would be supplied by SID. Therefore, the proposed Project or Alternative 2 would result in a **less than cumulatively considerable contribution** to cumulative impacts from substantial interference with groundwater recharge.

The related projects considered in this cumulative analysis, along with the proposed Project and Alternative 2, are located within the Suisun–Fairfield Valley Groundwater Basin. Because DWR has designated the Suisun–Fairfield Valley Groundwater Basin as a low priority basin, a groundwater sustainability plan is not required and has not been prepared. Thus, there would be **no cumulative impact** relating to the potential for impeding implementation of a groundwater sustainability plan.

5.3.9 LAND USE & PLANNING, POPULATION AND HOUSING

The geographic scope for this cumulative analysis related to land use, planning, population, and housing consists of the City of Suisun City, the City of Fairfield, and the southern portion of Solano County.

Cumulative development within the region would result in substantial changes 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. Implementation of the proposed Project or Alternative 2 would not conflict with plans, policies, or regulations in a way that would generate any adverse physical impacts beyond those addressed in detail in the environmental sections of this Draft EIR (e.g., agriculture, air quality, biological resources, cultural resources, etc.). Land use inconsistencies are not physical effects in and of themselves and combinations of policy inconsistencies would not rise to the level of a physical effect. Cumulative effects of the physical changes related to the proposed Project and Alternative 2 are discussed in the other topics in this section. **No cumulatively considerable** impacts would occur.

Like land use policy inconsistency, population growth is not considered a significant cumulative effect because it is not a physical environmental impact. However, the direct and indirect effects, such as housing and infrastructure needs that are related to population growth, can lead to physical environmental effects.

The county and incorporated cities implement general plans and specific or master plans that could potentially accommodate substantially greater population and employment growth compared to regional forecasts and planning efforts. Increased population and employment in the region could generate the need for additional housing and infrastructure, which could lead to conversion of undeveloped land and associated adverse physical environmental impacts of the sort that are considered in this topic-specific sections of this EIR and this chapter, as appropriate. Considering the indirect effects from past, present, and future development under the cumulative projects, the potential for population growth in the region is a significant cumulative impact.

The proposed Project and Alternative 2 do not propose housing that would generate new residents in the city. Development of new building space under the proposed Project and Alternative 2 could indirectly lead to some population growth by creating new local jobs. However, based on 2022 estimates, the city had a jobs to housing ratio of 0.41, which indicates a predominance of residential uses and less jobs potentially available to workers. The proposed Project and Alternative 2 support the City's goals to create opportunities to generate jobs and attract new employment-creating industries to Suisun City. Furthermore, the proposed Project and Alternative 2 contribute to meeting the Plan Bay Area 2050's goal of a 1.2 jobs/housing balance for North Solano County by improving the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas. New and expanded infrastructure would be planned to meet demands for new development and would not create additional utility capacity in the Development Area beyond what would be necessary to serve the proposed Project or Alternative 2. Specific indirect impacts associated with increased population, such as traffic congestion, air quality degradation, and noise generation, are addressed in each section of this EIR and this chapter, as appropriate. These sections provide a detailed analysis of other relevant environmental effects as a result of development of the proposed Project and Alternative 2. This section focuses on any additional impacts related to population, employment, or housing not already fully addressed and mitigated, where appropriate, in other sections. Therefore, the proposed Project or Alternative 2 would not induce substantial planned or unplanned population growth, and these impacts are **less than cumulatively considerable**.

5.3.10 NOISE AND VIBRATION

The geographic scope for this cumulative analysis related to noise and vibration consists of the Project Site, Alternative 2 Site, and immediately adjacent areas for construction noise and vibration impacts, and roadways in the vicinity of the Project Site and Alternative 2 Site. Traffic noise from passenger and commercial trains and transit vehicles would be the primary noise sources under cumulative conditions. Stationary noise sources from commercial areas, waste removal, and construction and maintenance activities also would contribute to the cumulative noise environment.

Construction noise generated by the proposed Project or Alternative 2, in combination with construction activities for other projects that may be constructed simultaneously could, without mitigation, substantially increase ambient noise levels in the Project vicinity. However, no other projects are within proximity close enough to result in cumulative construction noise contributions. Therefore, the proposed Project or Alternative 2 would result in **no cumulative impacts** from construction-related noise and vibration.

With respect to Project operation, as discussed in detail in Section 4.10, "Noise and Vibration" and in Chapter 6, "Alternatives," operational noise sources associated with the proposed Project or Alternative 2 would be less than significant with implementation of Mitigation Measure 4.10-3a to reduce non-transportation source noise levels. Also, vehicular traffic would be the dominant noise source under cumulative conditions. Traffic generated under cumulative conditions by the proposed Project would contribute to a substantial increase in future traffic noise conditions along one roadway: Pennsylvania Avenue from SR 12 to South of SR 12. There are no existing noise-sensitive uses along this segment of the roadway and this area is not planned or designated for any noise-sensitive uses. Traffic generated under cumulative conditions by Alternative 2 would not contribute to a substantial increase in future traffic conditions. Therefore, long-term noise levels from traffic and non-transportation sources generated by the proposed Project or Alternative 2 would not result in a substantial permanent increase in ambient

noise levels under future cumulative conditions. As a result, this impact is considered **less than cumulatively considerable**.

The Project's contribution to the existing and future traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without Project-generated traffic. Table 5-2 summarizes the modeled traffic noise levels at 50 feet from the centerline of affected roadway segments in the vicinity of the proposed Project Site. Exhibit 5-1 and Exhibit 5-2 illustrate traffic noise contours for cumulative and cumulative plus Project conditions, respectively. As noted in Section 4.12, Transportation and Circulation, of this EIR, a 3-dBA increase in noise level is barely perceptible (Caltrans 2013). As such, modeled increases of 3 dBA in comparison to cumulative no Project conditions are indicated in bold. Modeled roadway noise levels assume no natural or artificial shielding between the roadway and the receptor.

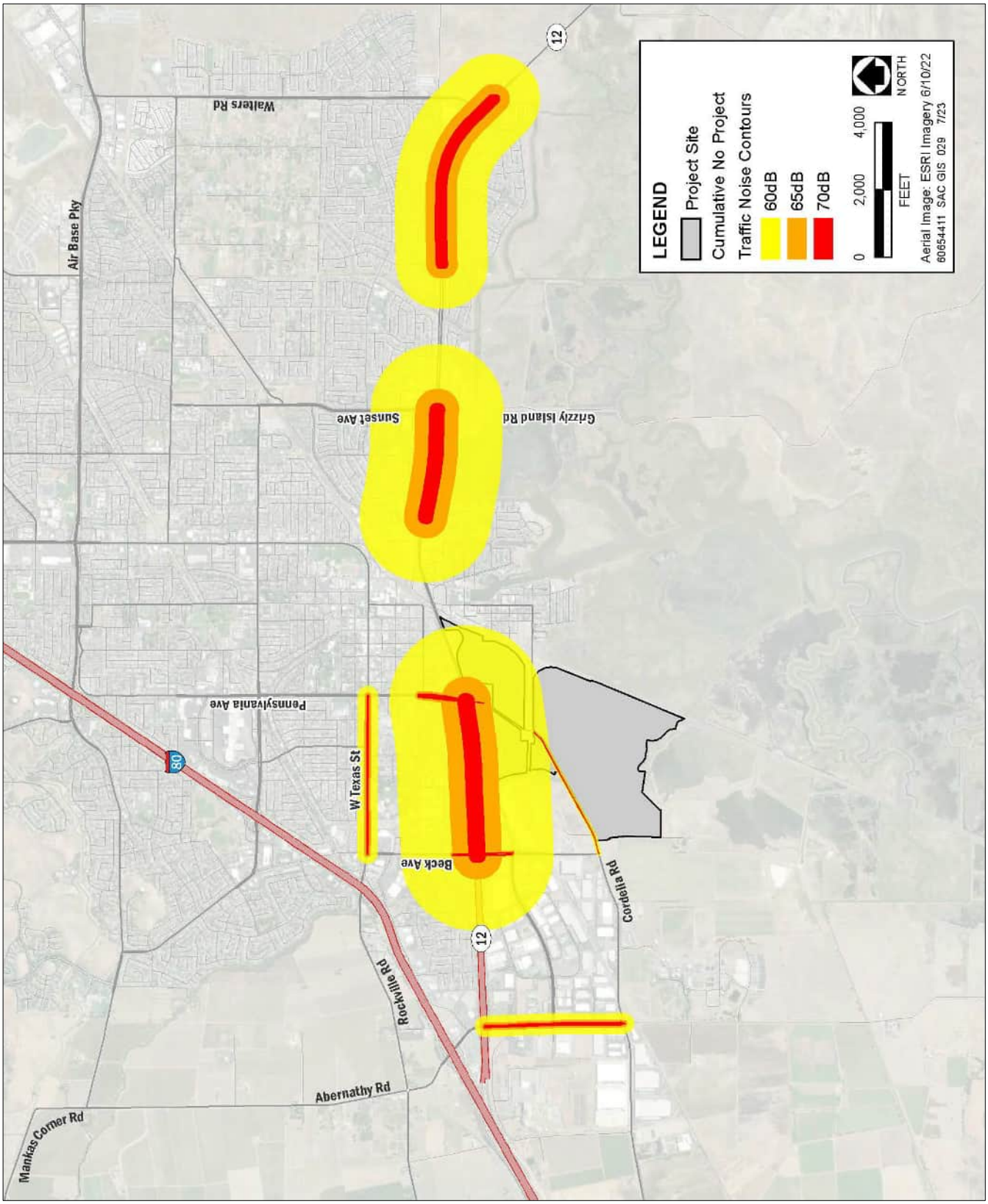
Table 5-2. Predicted Traffic Noise Levels, Cumulative Conditions, L_{dn} at 50 Feet, dB

Roadway Segment	Segment Location	Cumulative No Project	Cumulative Plus Proposed Project	Net Change	Significant Impact?
Chadbourne Road	From SR-12 to Cordelia Road	67.7	67.7	0.0	No
Beck Avenue	From SR-12 to North of SR-12	66.9	66.9	0.0	No
Beck Avenue	From SR-12 to South of SR-12	65.5	65.6	0.1	No
West Texas Street	From Beck Avenue to Pennsylvania Avenue	67.7	67.7	0.0	No
SR-12	From Beck Avenue to Pennsylvania Avenue	76.5	76.5	0.0	No
Cordelia Road	From Beck Avenue to Pennsylvania Avenue	61.0	61.3	0.2	No
Pennsylvania Avenue	From SR-12 to North of SR-12	67.7	67.8	0.1	No
Pennsylvania Avenue	From SR-12 to South of SR-12[a]	62.7	63.3	0.6	**Yes**
SR-12	From Marina Boulevard to Grizzly Island Road	75.9	75.9	0.0	No
SR-12	From Emperor Drive to Walters Road	74.2	74.2	0.0	No

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

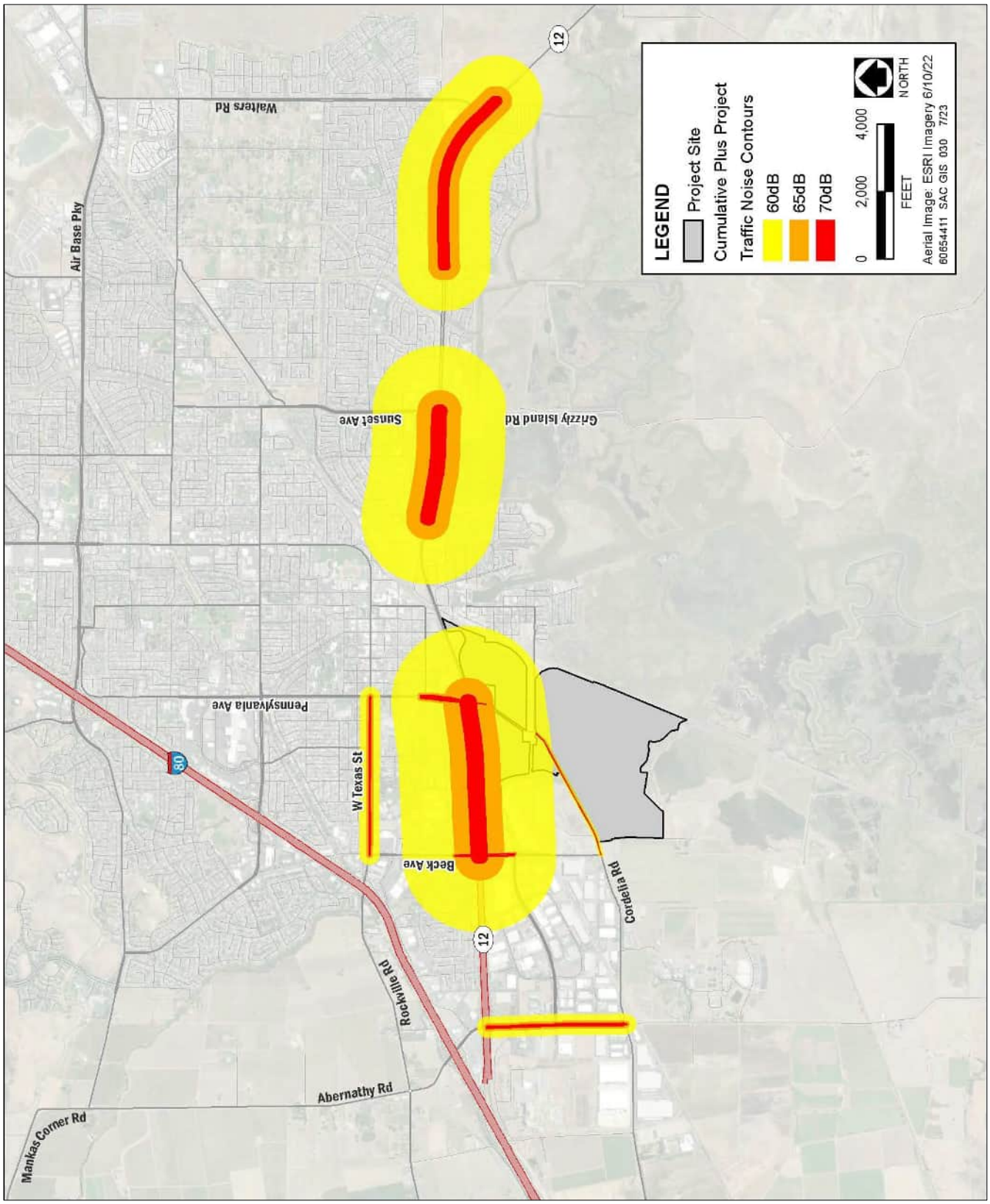
a There are no noise-sensitive uses along this segment of the roadway.

Source: AECOM 2023



Source: AECOM 2022

Exhibit 5-1. Cumulative No Project Roadway Noise Contours



Source: AECOM 2022

Exhibit 5-2. Cumulative Plus Proposed Project Roadway Noise Contours

As shown in Table 4.12-19, the modeling conducted shows that Project-related traffic would increase noise levels by 0 dBA to 0.6 dBA L_{dn} compared to cumulative no Project conditions. Traffic generated under cumulative conditions by the proposed Project would not contribute to a substantial increase in future traffic noise conditions along the Project area roadway. Alternative 2 would result in reduced operational space and therefore a decrease in Project-generated traffic associated with both worker vehicles and visiting trucks. Traffic generated by Alternative 2 would use the same roadways as the proposed Project. Therefore, long-term noise levels from traffic generated by the proposed Project or Alternative 2 would not result in a substantial permanent increase in ambient noise levels (an increase of 3 dBA or greater) under future cumulative conditions. As a result, this impact is considered **less than cumulatively considerable**.

5.3.11 PUBLIC SERVICES AND RECREATION

The geographic scope for this cumulative analysis related to public services and recreation consists of the City of Suisun City.

The proposed Project or Alternative 2 would not increase the population in the Project area such that there would be physical environmental effects to schools, parks, other public facilities (i.e., libraries), or recreation facilities. Therefore, **no cumulative impacts** would occur in relation to these public services.

The related projects considered in this cumulative analysis would result in new urban development, which would in turn result in the need for fire and police protection services. The proposed Project or Alternative 2 would also develop new land uses that could potentially result in an increase demand for fire and police protection services. In terms of cumulative impacts, appropriate service providers are responsible for ensuring adequate provision of public services within their service boundaries. Therefore, the following discussion analyzes the cumulative impacts on fire and police protection services from implementation of the proposed Project or Alternative 2 and future, related projects within their respective service areas.

Fire Protection Services

The Suisun City Fire Department would provide fire protection services to the Annexation Area, inclusive of the proposed Development Area under the proposed Project or Alternative 2, after annexation of this area into the city limits. The Suisun City Fire Department is an All-hazards/All-risk Fire Department that covers the 4.5 square miles that encompass the boundaries of the City of Suisun City. New development within the Suisun City Fire Department 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 Suisun City Fire Department has sufficient facilities and equipment to meet demand. Furthermore, all projects are required to pay the Fees for New Construction per Section 3.16 of the Suisun City Municipal Code to ensure fire protection personnel and equipment is provided to meet increased demand for fire protection services. The related projects would also be required to incorporate applicable requirements of the California Fire Code, reducing demands on fire suppression equipment and personnel. Therefore, the related projects considered in this cumulative analysis would result in no cumulative impact.

The Project applicant would be required to incorporate all requirements of the California Fire Code, California Health and Safety Code, and City standards into Project designs for the proposed Project or Alternative 2. Incorporation of all State and local requirements into Project designs would reduce the dependence on the Suisun

City Fire Department equipment and personnel by reducing fire hazards. Furthermore, the Project applicant for the proposed Project or Alternative 2 would pay the Fees for New Construction per Section 3.16 of the Suisun City Municipal Code, which establishes a fee for new construction to meet the City's current and future needs for capital improvements, including land acquisition and construction of public buildings and other facilities. Payment of the fee would offset the cost of fire service demands associated with the proposed Project. Therefore, the proposed Project or Alternative 2 would have a **less than cumulatively considerable contribution** to the cumulative impact related to increased fire protection services and facilities.

Police Protection Services

The Suisun City Police Department (SCPD) provides law enforcement services to the city and would provide services to the Annexation Area, inclusive of the proposed Development Area under the proposed Project or Alternative 2, after annexation. The SCPD prepared a *Police Department Staffing and Facility Assessment* to comprehensively study the SCPD's future staffing and facility needs to maintain appropriate levels of service (Matrix Consulting Group 2021). The assessment recommended that by 2030 a total of 22 patrol officers would be required to adequately respond to calls for service (Matrix Consulting Group 2021). New development within the SCPD 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 police protection services during the environmental review process to ensure that the SCPD has sufficient facilities and equipment to meet demand. All projects must pay the required Fees for New Construction per Section 3.16 of the Suisun City Municipal Code to ensure police protection personnel and equipment is provided to meet increased demand for police protection services. Therefore, the related projects considered in this cumulative analysis would result in no cumulative impact.

It is anticipated that employment opportunities created by the proposed Project or Alternative 2 would not substantially increase the City's population. In addition, because the proposed Project and Alternative 2 do not include development of new housing, the proposed Project or Alternative 2 would not generate new residents that require additional SCPD staffing to maintain the officer-to-population service ratio. The proposed Project or Alternative 2 would not affect SCPD response times or other performance objectives because project applicants would pay the required Fees for New Construction per Section 3.16 of the Suisun City Municipal Code to ensure police protection personnel and equipment is provided to meet increased demand for police protection services. Furthermore, the proposed Project or Alternative 2 would annex into a community facilities district and incorporate security measures into Project designs, such as security gates, parking lot illumination, on-site security patrols, and fencing, which would reduce the need for police protection services by reducing the potential for crime. Therefore, the proposed Project or Alternative 2 would **result in no cumulative impacts** related to increased police protection services and facilities.

5.3.12 TRANSPORTATION

The geographic scope of the cumulative transportation analysis is the roadway network within Suisun City.

The proposed Project or Alternative 2 would not conflict with programs, plans, ordinances, and policies addressing the circulation system – either in project level or a cumulative sense. Conflict with programs, plans, ordinances, and policies are a possible indicator of an adverse physical impact, but not an environmental impact. Neither the proposed Project nor Alternative 2 would increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) – either at the Project level

or cumulative level. Mitigation Measure 4.12-2 would ensure that access points and internal circulation is free from any traffic hazard. Individual projects are reviewed and conditioned for consistency with City standards, which are designed to avoid such impacts. The site plan for the proposed Project or Alternative 2 does not provide pedestrian or bicycle facilities along Pennsylvania Avenue or Cordelia Road that connect to existing and planned facilities. Inadequate pedestrian and bicycle facilities and connections to the existing pedestrian and bicycle network and transit stations would expose pedestrian and bicyclists to hazardous conditions. However, Mitigation Measure 4.12-3 of this EIR would reduce this potential impact for the proposed Project or Alternative 2 to less than significant. The Project or Alternative 2 would provide a complete on-site circulation network with multiple ingress and egress. The final site plan must be approved by the Suisun City Fire Department to ensure the emergency access routes meet requirements to facilitate the safe movement of emergency vehicles. The contributions of the proposed Project or Alternative 2 to area transit, pedestrian, and bicycle travel would not be cumulatively considerable compared to the overall growth of the area and Suisun City and would not result in significant cumulative impacts. The impact is **less than cumulatively considerable**.

A VMT analysis for cumulative and cumulative plus Project conditions was conducted consistent with the Suisun City VMT-based CEQA thresholds. The City of Fairfield travel demand model (year 2035), which includes Fairfield and Suisun City, was used to analyze the Project's impact on VMT.[1] The cumulative VMT assessment uses the same significance criteria described in Impact 4.12-1. The cumulative VMT analysis results are summarized in Table 5-3. Based on the model runs, the cumulative citywide average home-based work daily VMT per employee is 13.7, and thus the 85 percent citywide average threshold is 11.7. The proposed Project is expected to result in 12.9 home-based work daily VMT per employee, which is 1.2 VMT greater than the threshold. The Alternative 2 is expected to result in 13.0 home-based work daily VMT per employee, which is 1.3 VMT greater than the threshold. The proposed Project and Alternative 2 would also increase total citywide daily VMT by approximately 10,000 and 1,000, respectively.

Table 5-3. Cumulative and Cumulative Plus Project Daily VMT Results

Scenario	Criterion 1: Home-Based Work VMT per Employee	Criterion 2: Total Citywide VMT
No Project Value	13.7	961,000
Threshold Value	11.7[1]	961,000[2]
Project Value	12.9	970,000
Alternative 2 Value	13.0	962,000
Change between Threshold and Project Value	+1.2	+9,000
Change between Threshold and Alternative 2 Value	+1.3	+1,000

Table Notes

1. Represents 85 percent of the City-wide average home-based work VMT per employee.
2. Represents the total City-wide VMT.

However, the TDM Plan described in Mitigation Measure 4.12-1 shall be designed to achieve the trip reduction, as required to reduce the commute trip VMT per employee to the threshold value of 11.7 for the proposed Project or Alternative 2. The analysis prepared to support the TDM Plan shall demonstrate that the selected reduction measures will achieve the necessary VMT reduction. The criterion to evaluate VMT impacts were specifically established to ensure that an individual projects that meet these criteria would support the citywide VMT

1 The 2035 Fairfield Travel Model includes the City of Fairfield and City of Suisun City approved and pending projects and General Plan Buildout assumptions for land uses and roadway improvements.

reduction targets, which account for past, present, and future land use operations. Therefore, with implementation of Mitigation Measure 4.12-1, the proposed Project or Alternative 2 would result in a **less-than-cumulatively-considerable contribution to this impact**.

5.3.13 UTILITIES AND SERVICE SYSTEMS

The geographic scope for utilities consists of future development that would occur within each utility provider's service area. Utilities and service systems would be provided to the proposed Project or Alternative 2 by the Solano-Suisun Water Authority (SSWA), the City of Suisun City, and Fairfield-Suisun Sewer District (FSSD), and Pacific Gas & Electric Company. The related projects discussed in this section include future development that would occur within each provider's service area.

Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure, to serve the Development Area under the proposed Project or Alternative 2 are analyzed throughout the various environmental topic specific sections of this cumulative analysis in conjunction with overall development in the Project Site or the Alternative 2 Site. The placement of these utilities has been considered in the other sections of this cumulative analysis, such as Section 6.3.3, "Air Quality," Section 6.3.4, "Biological Resources," Section 6.3.5, "Cultural Resources," Section 6.3.10, "Hydrology and Water Quality," and other sections that specifically analyze the potential impacts from the development of the Project Site, as well as Chapter 5, "Alternatives." Where necessary, these sections include mitigation measures that would reduce or avoid the impacts of developing infrastructure on the physical environment. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Development Area under the proposed Project or Alternative 2 beyond what is comprehensively analyzed throughout this EIR.

Water Supply

Water supply for the Development Area under the proposed Project or Alternative 2 would be provided by the SSWA. The SSWA's Urban Water Management Plan (UWMP), which was adopted by the SSWA Board of Directors on June 13, 2016, addresses water supply and demand issues, water supply reliability, water conservation, and water shortage contingencies within the SSWA's service area. Water supplies and demands within the SSWA service area would be the same during normal, single-dry, and multiple-dry years. Table 4.13-1 in Section 4.13, "Utilities and Service Systems," of this EIR identifies surface water supply and demand within SSWA service area from 2020 to 2040 in normal, single dry, and multiple dry years excluding the proposed Project. As shown in Table 4.13-1 of Section 4.13, SSWA would have water supplies that meet demands in all water years.

The Solano Irrigation District (SID) commissioned a Water Supply Assessment (WSA) for the proposed Project which is provided in Appendix F of this Draft EIR. The WSA estimated water demand for the 93-acre Development Area under the proposed Project as 105 acre-feet per year (Kjeldsen, Sinnock & Neudeck, Inc. [KSN] 2022).[2] As discussed in the WSA prepared for the proposed Project, SID was not able to confirm it would

2 This water supply demand does not reflect 2022 CALGreen Code (Title 24, Part 11 of the California Code of Regulations) requirements to reduce indoor demand for potable water by 20 percent and to reduce landscape water usage by 50 percent or water conservation measures that may be implemented by future development.

have surplus water available to meet a water supply for lands located outside its boundaries.[3] The current available water supplies, with expectation of increased SID irrigation demands, together with the severe multiple year (2012-2016) drought, and uncertainty regarding reliability of State Water Project North Bay Aqueduct water supplies during severe droughts, highlighted the need to further evaluate SSWA water supply options (KSN 2022). The Second Amendment to the Implementation/Lease Agreement between the City of Suisun City and Solano Irrigation District, effective August 16, 2022, provides for a path forward to implement a point of transfer for the State Water Project water transfer. In addition, one SSWA regulatory requirement for water service, as outlined in the Second Amendment to the Implementation Agreement, is that "new land is to be "…annexed into the Joint Service Area before water can be made available." With implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement and annexation of the Project Site, the WSA concluded that SSWA water supply would be sufficient to meet demands of the proposed Project and existing and planned development in SSWA service area in normal, single-dry, and multiple dry years (KSN 2022). Although a WSA has not been prepared specifically for Alternative 2, because Alternative 2 would result in reduced building square footage with fewer employees, the water demand for Alternative 2 would be lower as compared to the proposed Project. Therefore, the WSA conclusion for the proposed Project would also apply to Alternative 2. A significant cumulative impact would not occur. Therefore, the proposed Project or Alternative 2 **would not result in a cumulatively considerable contribution** to cumulative impacts related to water supply demand.

Wastewater Treatment Facilities

Development in the Project region would create an increased need for wastewater treatment. Wastewater flows collected from FSSD pump stations are ultimately transported into the Fairfield-Suisun Subregional Wastewater Treatment Plant (WWTP). The WWTP currently treats 16.1 million gallons per day (mgd) average dry-weather flow (Woodard & Curran 2020a). In the long term, the 2020 FSSD Master Plan Update estimates that at buildout of the FSSD service area, the average daily flow could reach 23.0 mgd (Woodard & Curran 2020a).

Buildout of the Development Area under the proposed Project or Alternative 2 would result in new land uses that would generate additional wastewater, which would in turn increase the demand for wastewater treatment at the Fairfield-Suisun Subregional WWTP. The 2020 FSSD Master Plan did not include any wastewater flows from the proposed Project because the Project Site is outside of the city limits. A technical memorandum for the proposed Project was prepared to assess the sewer impacts on the existing FSSD system. The technical memorandum noted that the type of uses may generate somewhat lower flows than typical industrial uses assumed in the 2020 FSSD Master Plan; the unit flow factor should therefore be considered a conservative estimate of potential wastewater generation (Woodward & Curran 2020b). This would also be true for Alternative 2, which would include the same land uses as the proposed Project, but with a reduced amount of development.

Wastewater generated by the proposed Project or Alternative 2 would be conveyed off site to Fairfield-Suisun Subregional WWTP for treatment. The Fairfield-Suisun Subregional WWTP has a maximum average dry-weather design treatment capacity of 23.7 mgd and the current average dry weather flow is approximately 16.1 mgd (Woodard & Curran 2020a). The proposed Project-related wastewater flows (0.128 mgd) would not result in an increase in wastewater flows that exceed the current disposal capacity of 23.7 mgd average dry-weather flow.

3 SID engaged a consultant to reevaluate its water supply and water demands in 2015 (see Appendix C in the WSA). The analysis demonstrated that SID's agricultural and urban water demand would exceed its Solano Project entitlement with shortages ranging from 7,000 afy to 27,000 afy. It was also noted that SID has future water supply contract commitments to urban areas in Solano County scheduled to increase from 18,976 afy to 34,929 afy in 2024 (KSN 2022).

Since fewer jobs would be created under Alternative 2, the amount of wastewater generated would be less than the proposed Project; therefore, the Alternative 2 wastewater flows would also not exceed the current Fairfield-Suisun Subregional WWTP disposal capacity. Therefore, the Fairfield-Suisun Subregional WWTP would have adequate capacity to serve the projected demand under the proposed Project and Alternative 2, in addition to its existing and future commitments. A significant cumulative impact would not occur, and the proposed Project or Alternative 2 **would not result in a cumulatively considerable contribution** to cumulative impacts related to wastewater treatment.

Solid Waste

Solid waste in Suisun City is transported by Solano Garbage and disposed of at the Potrero Hills Landfill. According to CalRecycle, the Potrero Hills Landfill has a maximum permitted throughput of 4,330 tpd and has a total maximum permitted capacity of 83.1 million cubic yards (CalRecycle 2022). The Potrero Hills Landfill has a remaining capacity of approximately 13.9 million cubic yards and an anticipated closure date of February 14, 2048 (CalRecycle 2022).

Future development would comply with all federal, State, and local solid waste statues and regulations, including Compliance with the CALGreen Code, the City's the Construction and Demolition Debris Recycling Program, Sections 8.08 (Solid Wastes) and 8.10 (Recyclable Materials) of the Suisun City Municipal Code, Assembly Bill 341 (commercial recycling programs), Assembly Bill 1826 (mandatory commercial organics recycling), and other City recycling programs. Implementation of these codes and programs would reduce the volume of solid waste disposed of at the Potrero Hills Landfill and ensure sufficient landfill capacity would be available to accommodate solid-waste disposal needs for the proposed Project, Alternative 2, and future development associated with the related projects considered in this cumulative analysis. Therefore, **no significant cumulative** impact would occur.

Electricity & Natural Gas

Increased demand for electrical and natural gas supplies and infrastructure is a byproduct of all future land uses and development in Solano 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. Regional growth would involve new building construction, development projects and plans, transportation facilities, and other activities that would demand additional energy resources. Local jurisdictions and service providers are responsible for ensuring adequate provision of these utilities 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. Land use change throughout the region will require the construction of new energy infrastructure, the construction and operation of which could have **significant cumulative impacts**.

Electricity and natural gas service for the Project Site would be provided by Pacific Gas and Electric Company. Service laterals would be extended to Project buildings from existing facilities along Pennsylvania Avenue and Cordelia Road. On-site electrical transmission infrastructure and natural gas lines would be installed underground and would generally follow the alignment of the internal roadway network.

Environmental impacts related to constructing or expanding utility infrastructure, including electrical and natural gas infrastructure, to serve the Development Area under the proposed Project or Alternative 2 are analyzed

throughout the various environmental topic specific sections of this EIR in conjunction with overall development in the Project Site. The placement of these utilities has been considered in the other sections of this EIR, such as Section 4.2, “Air Quality,” Section 4.3, “Biological Resources,” Section 4.4, “Cultural Resources,” Section 4.8, “Hydrology and Water Quality,” and other sections that specifically analyze the potential impacts from the development of the Project Site (or related analyses for Alternative 2 in Chapter 6, Alternatives). Where necessary, these sections include mitigation measures that would reduce or avoid the impacts of developing infrastructure on the physical environment. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Development Area beyond what is comprehensively analyzed throughout this EIR. Therefore, **no significant cumulative** impact would occur.

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6 ALTERNATIVES

6.1 INTRODUCTION

CEQA requires the consideration and analysis of alternatives to a proposed project. According to the CEQA Guidelines, the range of alternatives "shall include those that could feasibly accomplish most of the basic purposes of the project and could avoid or substantially lessen one or more of the significant impacts" (CEQA Guidelines Section 15126.6[c]; see also CEQA Guidelines Section 15126.6[a]).

Section 15126.6(a) of the CEQA Guidelines requires that an EIR describe:

> "…a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason."

In defining "feasibility," CEQA Guidelines Section 15126.6(f)(1) states, in part:

> "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable 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 does not necessarily mean the alternative is feasible. Rather, the inclusion of an alternative in an EIR indicates that lead agency staff has determined that the alternative is *potentially* feasible.

The CEQA Guidelines further require that the alternatives be compared to a proposed project's environmental impacts, and that a "no project" alternative be considered (CEQA Guidelines Section 15126.6[e]). The CEQA Guidelines provide guidance on defining and analyzing alternatives. Section 15126.6[b] states:

> "… the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."

6.2 SELECTION OF ALTERNATIVES

6.2.1 CRITERIA

Alternatives were selected for evaluation in this EIR based on criteria in the CEQA Guidelines Section 15126.6. These criteria include: (1) ability of the alternative to attain most of the basic project objectives; (2) feasibility of the alternative; and (3) ability of the alternative to avoid or substantially reduce one or more significant environmental effects of the proposed project.

The City has evaluated potential alternatives relative to 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. Alternatives that would impede to some degree the attainment of the project objectives or would be more costly may also be considered.

6.2.2 PROJECT OBJECTIVES

The City has identified the following Project Objectives to guide planning for the Project Site, as well as the analysis included within the EIR.

- Further the goals and policies of the City of Suisun City General Plan by developing land contemplated to support urban development.
- Promote economic growth through new capital investment, expansion of the tax base, and creation of new employment opportunities.
- Improve the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas.
- Capitalize on the existing Interstate 80 and State Highway 12 transportation corridor, the existing rail facilities that can provide direct rail service unique to this logistics market area, and the increased demand for warehouse and distribution services in the city and region.
- Create a master planned complex of buildings to accommodate the current and future need for warehouse and distribution uses in an economically viable project with coordinated infrastructure and landscaping.
- Create opportunities to generate jobs and attract new employment-creating industries to Suisun City that generate new tax revenue and minimize demands on City services.

- Continue the orderly development of the western gateway of Suisun City and provide a visual environment that gives visitors an immediate positive first impression of Suisun City with attractive building facades and landscaping.
- Preserve and manage areas of the project site with concentrations of wetlands and other sensitive habitat for permanent open space to mitigate impacts and further regional habitat and species preservation goals.
- Implement a range of sustainability measures aimed at conserving resources, decreasing energy and water consumption, and reducing air and water pollution.
- Install circulation improvements along Pennsylvania Avenue and Cordelia Road that provide efficient ingress and egress to the proposed project, while also ensuring these facilities operate at acceptable levels.
- Design internal circulation to provide efficient ingress and egress while ensuring facilities operate at acceptable levels.
- Offer a project with the scale, location, amenities, and sustainability features necessary to create competitive advantages in attracting and retaining a variety of reputable warehousing and logistics users.

6.3 ALTERNATIVES CONSIDERED BUT REJECTED FROM DETAILED ANALYSIS

6.3.1 OFF-SITE ALTERNATIVE

Based on the lack of ability to meet the Project Objectives, the lack of available properties of a suitable size and location in Suisun City and elsewhere in Solano and Napa counties, the lack of control of other sites, and the environmental constraints on the other sites controlled by the applicant, an off-site alternative is not feasible (Colliers Northern California 2023). In addition, Plan Bay Area 2050 identifies areas north of Cordelia Road and the railroad line operated by the California Northern Railroad within the Project Site as a Priority Production Area (PPA) (ABAG/MTC 2022). PPAs are places for job growth in middle-wage industries like manufacturing, logistics or other trades. Economic Strategies in Plan Bay Area include: “EC6. Retain and invest in key industrial lands. Implement local land use policies to protect key industrial lands, identified as Priority Production Areas, while funding key infrastructure improvements in these areas” (ABAG/MTC 2021).

6.4 ALTERNATIVES CONSIDERED IN DETAIL IN THIS EIR

6.4.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

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.”

Alternative 1 assumes that the current land use designations as set forth in the Suisun City General Plan would remain unchanged. As previously described in detail in Chapter 3, “Project Description” and shown on Exhibit 6-1, the portion of the Project Site that is west of Pennsylvania Avenue and north of the California Northern

Railroad tracks is designated for Commercial Mixed-Use development in the existing City of Suisun City General Plan. The remainder of the Project Site is designated as Agriculture and Open Space under the Suisun City General Plan (City of Suisun City 2015), and as Marsh, Extensive Agriculture, and Park & Recreation under the Solano County General Plan (Solano County 2008). Alternative 1 assumes that the approximately 161 acres north of Cordelia Road and Cordelia Street within the city's Sphere of Influence would be annexed into the city in the same way as the proposed Project. Development under Alternative 1 would be consistent with the existing Commercial Mixed Use land use designation in the area shown on Exhibit 6-1 would occur at some point in the future. The remainder of the approximately 487-acre Alternative 1 site would continue as Agriculture and Open Space within the City's Sphere of Influence (SOI) and Marsh, Extensive Agriculture, and Parks and Recreation within the County's jurisdiction.

Commercial mixed uses could include a shopping center, but could also include research, assembly, fabrication, storage, distribution, and processing uses; professional offices; public services and facilities; and other compatible uses, such as higher-density dwelling units (Suisun City General Plan Table 3-1). Alternative 1 assumes a mix of commercial uses, including retail and commercial services. These land use assumptions, as compared to the proposed Project, are summarized in Table 6-1.

Table 6-1. Alternative 1 Land Use Assumptions

Type of Future Development	Developed Land Area (acres)	Building Square Footage	Number of Employees	Managed Open Space (acres)
Alternative 1 (Commercial)	73	363,000	726	0
Proposed Project	93	1.28 million	1,275	389

Source: Data compiled by AECOM in 2022

As shown in Table 6-1, the developed land area and building square footage would be reduced under Alternative 1 compared to the proposed Project, with a corresponding increase in the amount of agricultural and open space land that would be assumed to continue into the future. While commercial services and retail would require a higher employment density (per square foot of building space) compared to the proposed Project, the total number of employees under Alternative 1 would decrease compared to the proposed Project.

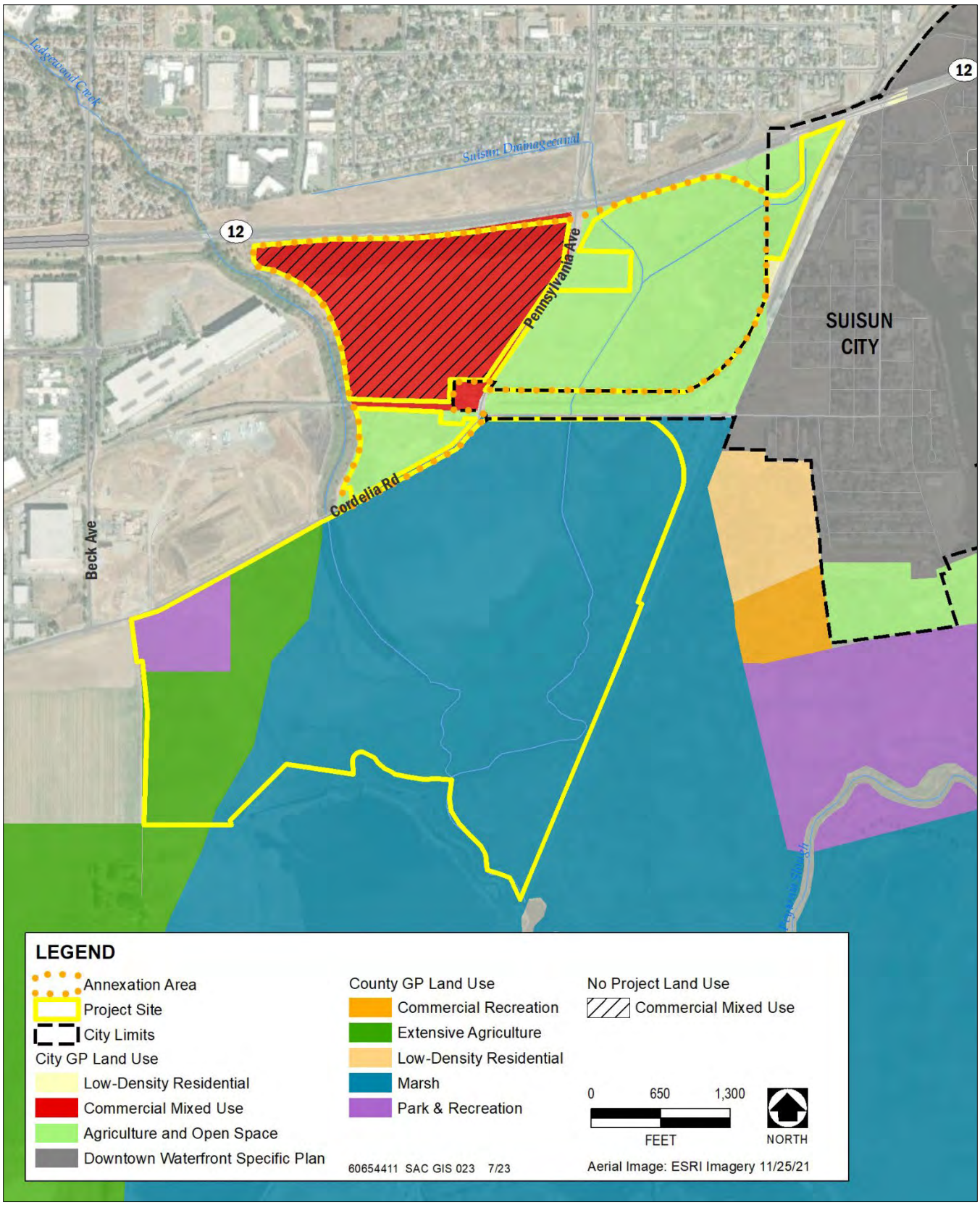
The increased number of employees and shoppers/clients under Alternative 1 would result in a corresponding increase in trip generation compared to the proposed Project. The estimated number of trips per day for potential future land uses that could be encompassed under the commercial mixed-use land use designation, as compared to the proposed Project, are shown in Table 6-2.

Table 6-2. Alternative 1 Estimated Trip Generation by Land Use Type

Type of Future Development	Estimated Number of Trips per Day
Alternative 1: Commercial Uses[1]	15,000
Proposed Project	2,310

Source: Data compiled by AECOM in 2022

1 The land use under Alternative 1 is assumed to be "Shopping Center" as classified by the Institute for Transportation Engineers for the purpose of estimating daily vehicular trip generation.



Sources: Solano County 2008, City of Suisun City 2015, AECOM 2023

Exhibit 6-1. Alternative 1 Site and Land Use Designations

As shown in Table 6-2, Alternative 1 would involve a higher number of daily vehicular trips when compared to the proposed Project due to higher visitor and customer patronage, though Alternative would have a lower percentage of heavy-duty truck trips and a relatively higher percentage of passenger vehicle and light-duty vehicles. The uses assumed to develop under Alternative 1 would require some number of delivery vehicles, and could involve some heavy-duty trucks for delivery depending on the scale of individual commercial uses developed under this alternative.

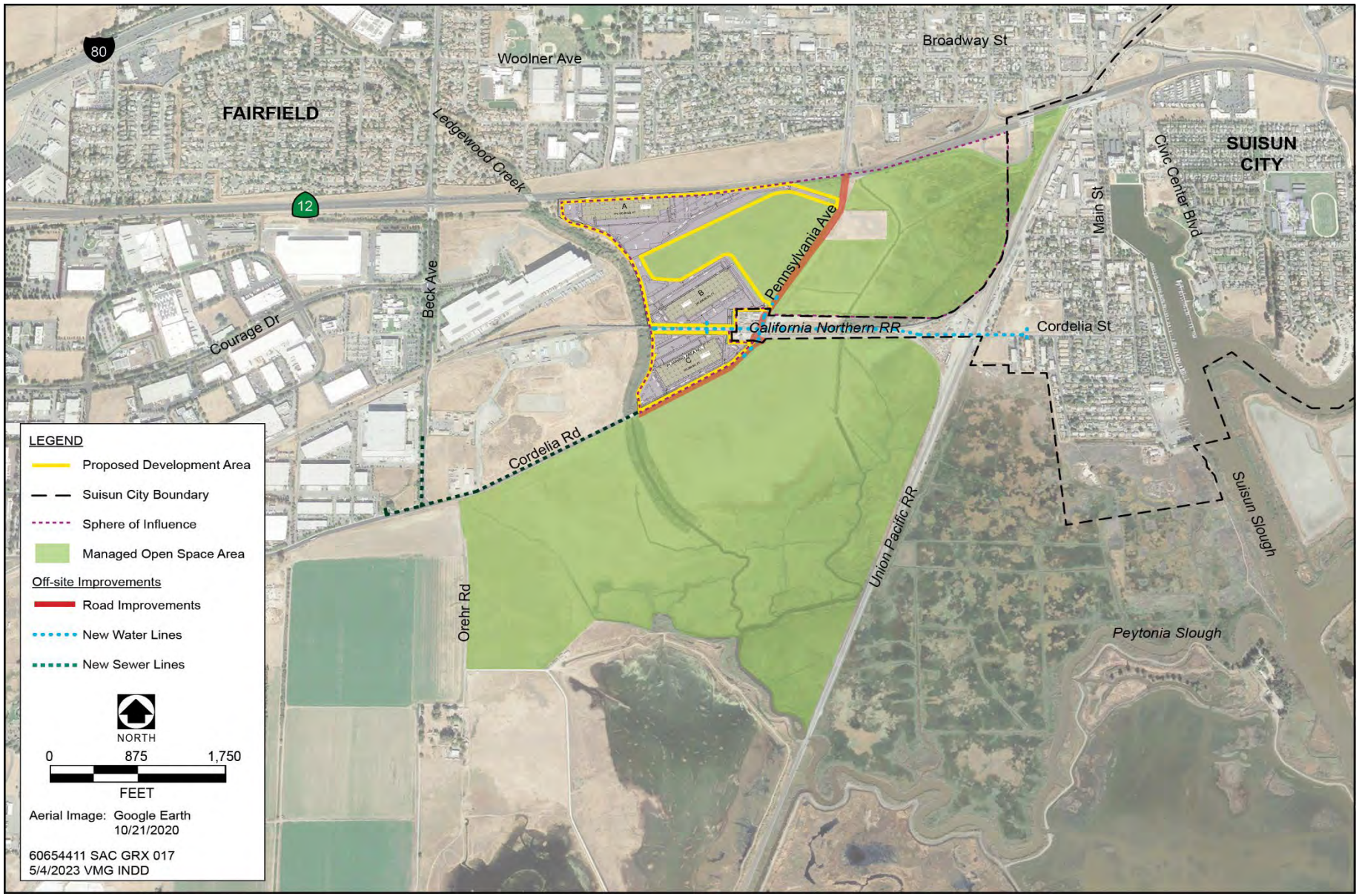
Regardless of the type and mix of commercial development that would be built under Alternative 1, as with the proposed Project, new infrastructure would be required. This infrastructure would include increased off-site sewer treatment and new on- and off-site sewer conveyance lines; increased off-site water supply and new on-site water supply pipelines; new on-site stormwater drainage facilities such as detention basins, low impact development (LID) features, and conveyance lines; off-site electrical and natural gas supply and on-site conveyance lines; and off-site roadway improvements (i.e., Pennsylvania Avenue road widening and turn lanes, and potential turn lanes on SR 12), as well as a new internal on-site circulation network.

6.4.2 ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Alternative 2 was developed to reduce the land area affected by development with a focus on reducing potential impacts to biological resources and reducing the number of heavy-duty truck trips and associated air pollutant emissions as compared with the proposed Project. Alternative 2 would include fewer buildings and would reduce the total building square footage added to the site, as compared with the proposed Project, and would reduce also the area affected by parking, circulation, and other impervious surfaces. While the area affected by development would be reduced under Alternative 2, the total land area proposed for Managed Open Space would be expanded. The overall acreage (approximately 487 acres) of the Alternative 2 site would not change as compared with the proposed Project site. The Alternative 2 site boundaries, with the reduced development area and increased managed open space area, are shown on Exhibit 6-2.

The necessary supporting infrastructure under Alternative 2—wastewater, water supply, stormwater, electrical and natural gas, and parking—would be reduced as compared to the proposed Project, since the area proposed for development would be reduced, and since the demand for infrastructure would be reduced (see Exhibit 6-3 and Exhibit 6-4). The locations of proposed on-site detention basins and LID features that would be implemented under Alternative 2 to detain and treat stormwater runoff are shown on Exhibit 6-3. The locations of wastewater and water supply pipelines, and electrical and natural gas supply lines, are shown on Exhibit 6-4. Off-site sewer and water conveyance pipelines would still be necessary under Alternative 2, and would be installed in the same locations as the proposed Project (see Exhibit 3-9 in Chapter 3, “Project Description”).

Under Alternative 2, the internal driveway that would be developed to access Building A would be modified by moving its location approximately 390 feet south of the SR 12/Pennsylvania Avenue intersection (see Exhibit 6-3 and Exhibit 6-4). Since the volume of truck trips would be reduced under Alternative 2, off-site roadway improvements to SR 12 would not be necessary. Furthermore, under Alternative 2, only the west side of Pennsylvania Avenue would require street frontage improvements (to accommodate an additional lane for driveway access, along with sidewalks and bicycle lanes), as compared to the proposed Project, where both the east and west sides of Pennsylvania Avenue would require street frontage improvements. Similar to the proposed Project, Alternative 2 would require roadway improvements to the north side of Cordelia Street to accommodate an additional lane, along with a sidewalk and bicycle lane on the north side of Cordelia Street.

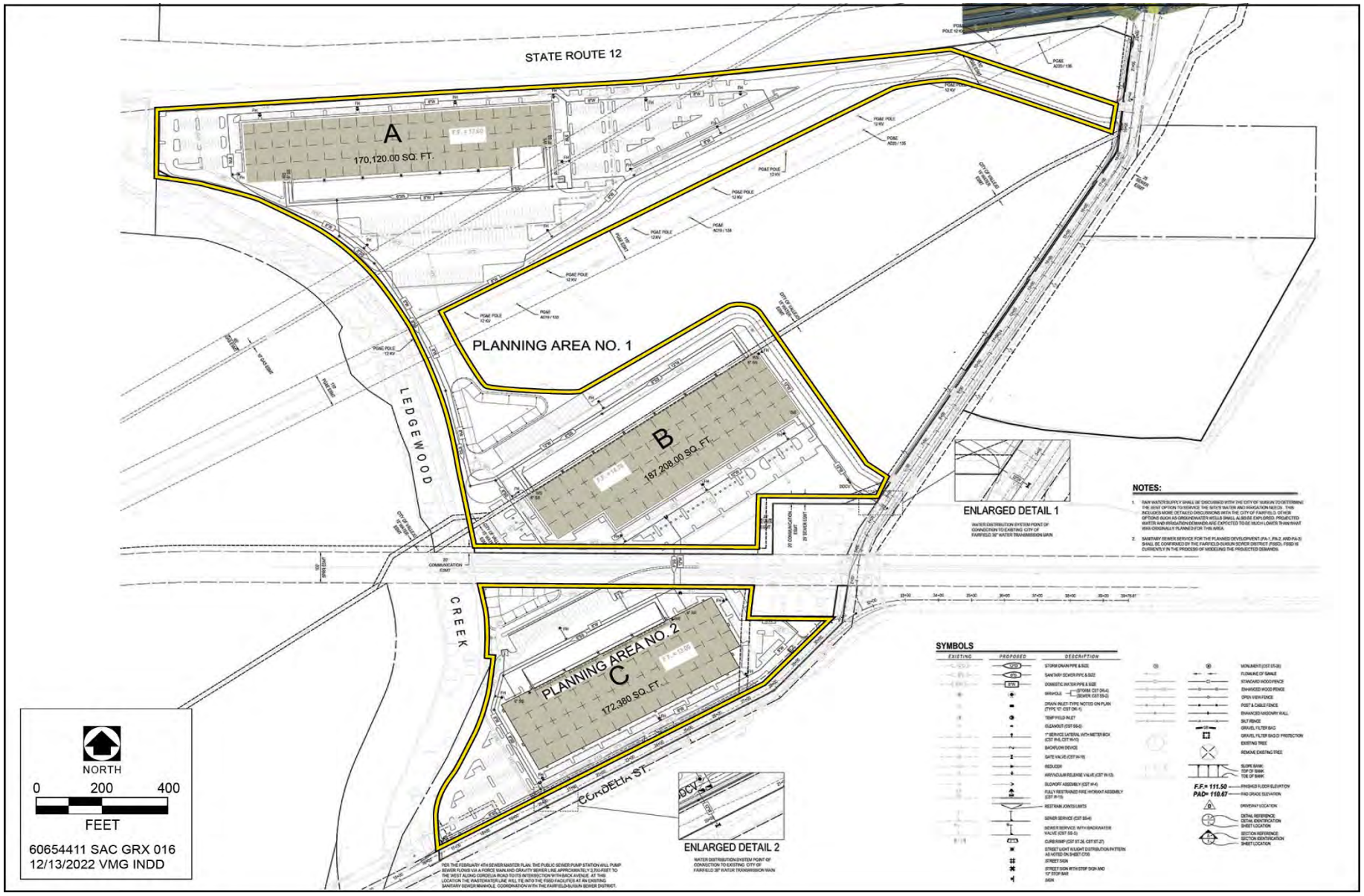


Source: AECOM 2023

Exhibit 6-2. Alternative 2 Site

Sources: Morton & Pitalo, Inc. 2022, Modified by AECOM in 2022

Exhibit 6-3. Alternative 2 Building Layout and Stormwater Drainage Plan



Sources: Morton & Pitalo, Inc. 2022, Modified by AECOM in 2022

Exhibit 6-4. Alternative 2 Building Layout and Utility Plan

The Project Site and Alternative 2 site are situated within U.S. Fish and Wildlife Service (USFS)-designated critical habitat Subunit 5G for Contra Costa Goldfields (CCG) (*Lasthenia conjugens*), which is a small, yellow-flowered annual in the sunflower family. It is federally listed as endangered and is considered rare and endangered (List 1B.1) by the California Native Place Society (CNPS). It is associated with vernal pools and seasonally saturated flats and depressions in annual grasslands (Solano County Water Agency 2012). The locations where development would occur under Alternative 2 were specifically selected to avoid a documented population of approximately 102 individual CCG plants in an approximately 0.007-acre area that would be subject to development under the proposed Project, but that would not be developed under Alternative 2 (Huffman-Broadway Group, Inc. 2022). Reducing the development footprint under Alternative 2 would also preserve an additional 42 acres of designated CCG Critical Habitat, which otherwise would be lost to development under the proposed Project (see Exhibit 6-5). Alternative 2 would also preserve approximately 32 acres of wetland habitat that would otherwise be filled due to development under the proposed Project.

The land use assumptions for Alternative 2, as compared to the proposed Project, are summarized in Table 6-3.

Table 6-3. Alternative 2 Land Use Assumptions

Type of Future Development	Developed Land Area (acres)	Building Square Footage	Number of Employees	Preserved Open Space (acres)
Alternative 2	51	529,708	528	437
Proposed Project	93	1.28 million	1,275	393

Source: Data compiled by AECOM in 2022

As shown in Table 6-3, the developed land area and building square footage would be reduced under Alternative 2, with a corresponding increase in the amount of preserved open space. The number of employees under Alternative 2 would also decrease, since the amount of development at the Alternative 2 site would decrease, as compared with the proposed Project.

The estimated acreage, square footage, and parking associated with each Planning Area and building under Alternative 2, as compared to the proposed Project, are shown in Table 6-4.

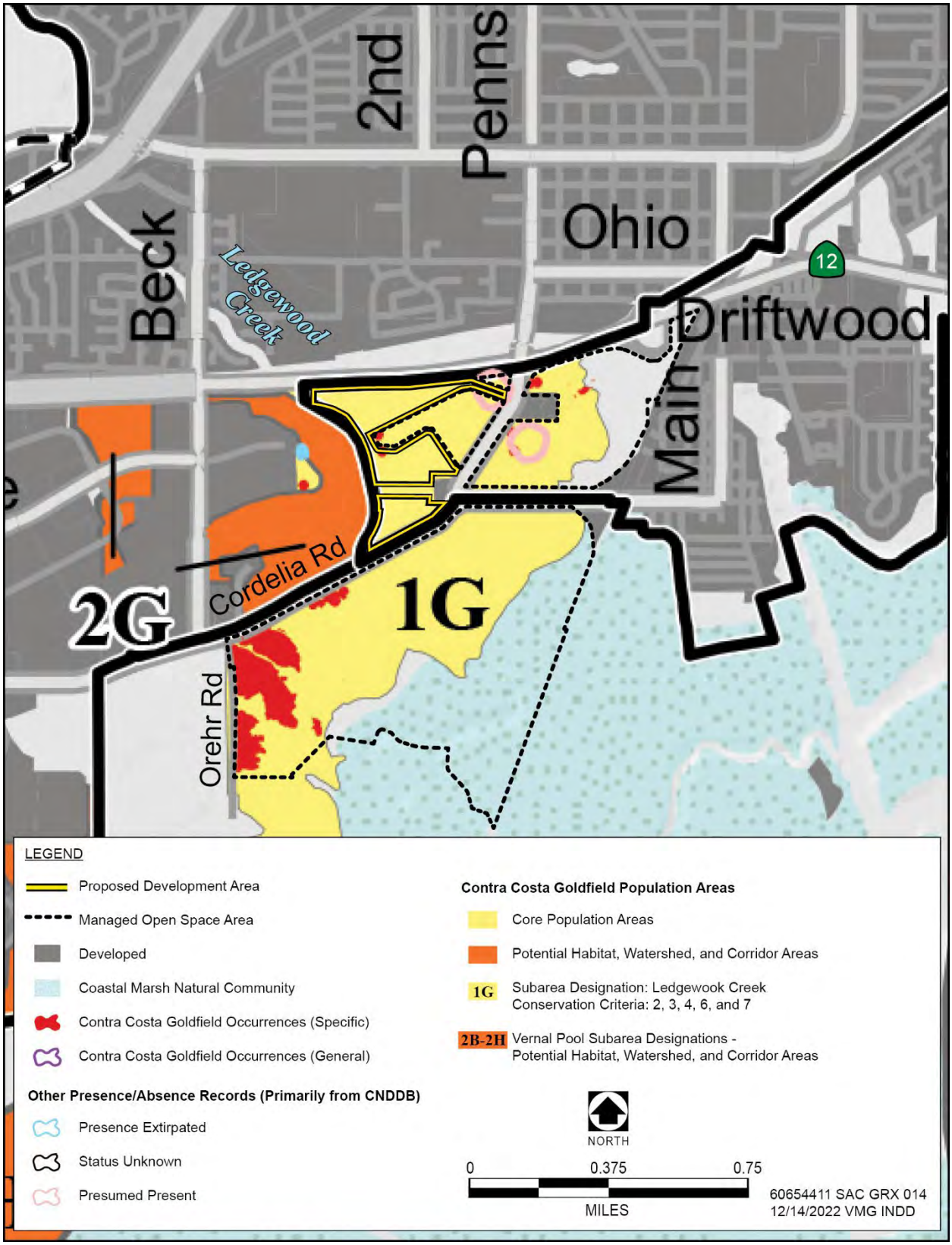
Table 6-4. Alternative 2 Building Details

Planning Area	Developed Area[1] (acres)	Square Footage	Proposed Parking Stalls
Alternative 2			
Planning Area A			
Building A	26	170,120	546
Building B	13	187,208	282
Planning Area B			
Building C	12	172,380	269
Total	**51**	**529,708**	**1,097**
Proposed Project			
Planning Area A			
Building A	19.5	152,305	418
Building B/C	30	710,488	765
Building D	10.5	56,880	183
Building E	9.0	56,880	202
Planning Area B			
Building F	12	172,380	269

Planning Area C			
Building G	12	127,303	188
Total	**93**	**1,276,236**	**2,025**
Total Reduction (Proposed Project Minus Alternative 2)			
Total	**42**	**746,528**	**928**
Percent	**45%**	**59%**	**46%**

[1] Includes the total acreage of all improvements associated with each building, including driveways, parking, and detention basins.

Sources: Fehr & Peers 2022: Table 1, AECOM 2022



Source: Solano County Water Agency 2012

Exhibit 6-5. Solano Habitat Conservation Plan: Contra Costa Goldfields and Alternative 2

The decreased number of employees and smaller development area under Alternative 2 would result in a corresponding decrease in trip generation. The estimated number of trips per day for Alternative 2, as compared to the proposed project, are shown in Table 6-5.

Table 6-5. Alternative 2 Estimated Trip Generation by Land Use Type

Type of Future Development	Estimated Peak Trips per Day	Estimated Total Trips per Day
Alternative 2	218	960
Proposed Project	523	2,310

Source: Fehr & Peers 2022: Table 7

As with the proposed Project, Alternative 2 would include annexation and pre-zoning of 161 acres of the approximately 487-acre site into the City of Suisun City. However, 51 acres of land area would be proposed for development as compared to approximately 93 acres of land area proposed for development under the proposed Project; the remaining 84 acres of the annexation area would be part of the managed open space area (managed open space is discussed in Chapter 3, "Project Description"). The 51 acres of developed land under Alternative 2 would be pre-zoned as Commercial Services and Fabricating (CSF) as part of the annexation process, similar to the proposed Project.

The area that would encompass the proposed Building C under Alternative 2 (on the west side of the site south of the California Northern Railroad tracks), is currently designated for Agriculture and Open Space land uses in the Suisun City General Plan. As with the proposed Project (which proposes to develop this same area as Building F), a General Plan amendment would be required to change the land use designation of this approximately 12-acre area from Agriculture and Open Space to the Commercial Mixed Use General Plan land use designation.

As with the proposed Project, under Alternative 2, no new urban development would occur within either the Primary or Secondary Management Areas of the Suisun Marsh Protection Plan; land at the site that is within the Suisun Marsh Protection Plan boundary would be contemplated for managed open space (see Exhibit 3-3 in Chapter 3, "Project Description"). Because the area affected by development would be reduced under Alternative 2, there would be a corresponding increase in the amount of land that would be retained as managed open space, as compared to the proposed Project (i.e., 437 acres under Alternative 2 compared to 393 acres under the proposed Project), as shown in Table 6-3.

Because the area proposed for development would be smaller under Alternative 2 as compared to the proposed Project (i.e., 51 acres compared to 93 acres), the construction time period would be substantially reduced. Construction of the area contemplated for development under Alternative 2 is anticipated to require approximately 18 months. Construction would typically occur 5 days per week, Monday through Friday, between the hours of 7 a.m. and 8 p.m. The same types of on-site and off-site construction activities would occur under Alternative 2 as compared to the proposed Project with similar types and numbers of equipment.

6.4.3 ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 is intended to reduce potential impacts related to air pollutant emissions, greenhouse gas (GHG) emissions, vehicular travel demand (measured according to vehicle miles traveled or "VMT"), and energy use associated with transportation. Under Alternative 3, the approximately 161 acres north of Cordelia Road and

Cordelia Street within the city's Sphere of Influence would be annexed into the city in the same way as the proposed Project. Instead of logistics and warehousing uses alone, as with the proposed Project, Alternative 3 would also include office space in addition to warehousing and logistics uses. The office space provided under Alternative 3 would focus on providing local employment opportunities for local residents that are currently commuting to other cities for employment. Some of the larger variances between local jobs and occupations of local residents are in the health care and social assistance and administration and support sectors. These sectors employ relatively larger numbers of local residents, but local jobs in these sectors are relatively less available. Examining all of the sectors that would tend to provide employment in office environments (information, finance and insurance, real estate, professional, scientific, and technical services, management of companies, etc.), approximately half of the city's deficit of local jobs to match local resident occupations are in sectors that would typically occupy office space. There is also a deficit, however, for local jobs in transportation and warehousing – approximately 500 local residents are employed in the transportation and warehousing sector while there are approximately 100 jobs available in this sector in Suisun City (U.S. Census Bureau 2020). Approximately 10 percent of the local deficit in local jobs are in sectors that would typically occupy warehouse settings. Therefore, Alternative 3 would include both office space and warehousing space, keeping the same employment total as the proposed Project of 1,275, but would provide these uses in proportions that correlate with the current deficits in local employment.

Instead of the approximately 1.28 million square feet in warehousing use proposed as a part of the Project, Alternative 3 would include 203,000 square feet of warehousing space. In addition, Alternative 3 would provide 268,000 square feet of office space. Alternative 3 would provide approximately 1,100 office setting jobs and approximately 200 jobs in a warehousing, logistics, and transportation setting. The total area affected by development under Alternative 3 would be approximately 46 acres, compared with the approximately 93 acres included within the proposed Development Area under the proposed Project.

While Alternative 3 is focused on reducing air pollutant emissions, greenhouse gas emissions, transportation impacts, and transportation energy impacts, it would develop approximately the same area of land as contemplated under Alternative 2, and would focus development in the same areas as under Alternative 2 in order to reduce biological resources impacts compared with the proposed Project.

The capacity for supporting infrastructure under Alternative 3—wastewater generation, water supply, stormwater, electrical and natural gas, and parking areas—would be similar to the proposed Project since the same level of employment is anticipated, and since the demand for water, wastewater, and solid waste is largely driven by the level of employment. The demand for natural gas and electricity may increase under Alternative 3 as compared with the proposed Project with greater need for space heating and lighting. As with the proposed Project, Alternative 3 would require on-site detention and LID features. As with the proposed Project, Alternative 3 would require access from adjacent roads, internal circulation, and frontage improvements. Overall, infrastructure requirements would be similar to the proposed Project and areas affected by off-site improvements would be similar, as well.

With the reduction in space devoted to warehousing uses, the number of daily heavy duty truck trips would be reduced under Alternative 3 compared with the proposed Project, but the total number of daily trips would increase since office uses generally produce a higher number of vehicular trips per square foot of building space. While the proposed Project would attract approximately 2,310 trips per day in total, Alternative 3 would produce

an estimated 2,980 trips per day. However, while the proposed Project would produce approximately 750 truck trips per day, Alternative 3 would reduce this amount to approximately 120 trips per day.

Because the area proposed for development and the building square footage construction would be reduced under Alternative 3 as compared to the proposed Project (i.e., 46 acres compared to 93 acres), the construction time period would be substantially reduced. Construction of the area contemplated for development under Alternative 3 is anticipated to require approximately 15 months. Construction would typically occur 5 days per week, Monday through Friday, between the hours of 7 a.m. and 8 p.m. The same types of on-site and off-site construction activities would occur under Alternative 3 as compared to the proposed Project with similar types and numbers of equipment.

6.5 ALTERNATIVES ANALYSIS

6.5.1 AESTHETICS

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 would result in a smaller development area and reduced building square footage as compared to the proposed Project (i.e., 73 acres vs 93 acres, respectively). The shopping center buildings that would be implemented under Alternative 1 would result in the same permanent blockage of scenic vistas from Key Community Gateway 3 looking southwest from Pennsylvania Avenue. However, the foreground views from Key Community Gateway 2 looking northeast from Cordelia Road would be preserved, because the area south of the California Northern Railroad tracks would not be developed under Alternative 1. Therefore, Alternative 1 would result in a **reduced** level of impact on scenic vistas as compared to the proposed Project.

The visual appearance of new development would be substantially different under Alternative 1 —consistent with a shopping center—as compared to the proposed warehouse buildings under the proposed Project. Regardless, the shopping center design, layout, parking, landscaping, signage, and lighting would be subject to the same City Municipal Code, City General Plan, City Development Guidelines for Architecture and Site Planning, and City Architectural Review requirements as the proposed Project. As stated in Suisun City General Plan Policy CCD-6.4, the City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis. Because Alternative 1 would result in a slightly smaller area of land that would be converted from open space to urban development, Alternative 1 would result in a **reduced** level of impact on visual character as compared to the proposed Project.

A shopping center with associated parking on 73 acres at the Alternative 1 site would result in a slightly reduced level of nighttime lighting. As with the proposed Project, implementation of Mitigation Measure 4.1-3 would help to reduce the impacts from nighttime lighting, glare, and skyglow under Alternative 1. New nighttime skyglow effects under Alternative 1 would be **reduced** as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.1-1. Effects on Scenic Vistas. This impact would be significant.

Alternative 2 would result in a smaller development area and reduced building square footage as compared to the proposed Project (i.e., 51 acres vs 93 acres, respectively). Because fewer buildings and landscaping would be

installed, an additional line-of-sight viewpoint corridor would be maintained from Key Community Gateway 3 looking southwest from Pennsylvania Avenue as compared to the proposed Project. The loss of scenic vistas from Key Community Gateway 2 would still occur under Alternative 2. No feasible mitigation is available that could fully preserve the existing views of the Coast Ranges, Howell Mountains, Cement Hill, or the Vaca Mountains while also accommodating operation of the buildings and landscaping that are anticipated under Alternative 2. Therefore, adverse impacts to scenic vistas under Alternative 2 would be **significant and unavoidable**. This impact conclusion is the same as the proposed Project (Impact 4.1-1); however, because Alternative 2 would preserve the existing line-of-sight corridor for the scenic vistas from Key Community Gateway 3, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.1-2. Degradation of Visual Character or Quality. This impact would be less than significant.

Alternative 2 would result in the same type of industrial/commercial buildings, parking, detention basins, lighting, signage, and landscaping as proposed Project, with the same visual appearance as the proposed Project, but would occur in a smaller area and with a reduced building square footage as compared to the proposed Project. The areas immediately west, north, and east of the Alternative 2 site are already urbanized with industrial, commercial, and residential development in the cities of Fairfield and Suisun City. Development of Alternative 2 would visually change less than one-quarter of the Alternative 2 site (i.e., 51 acres of the 487-acre Alternative 2 site). Construction activities would be short-term and temporary, are a common sight in the nearby developed areas of Fairfield and Suisun City (through which motorists are passing before they arrive at the Alternative 2 site) and would be scattered across the Alternative 2 site during each phase of construction.

Operation of Alternative 2 would change the visual character of a small portion of the existing open space along the urban fringe through the introduction of new buildings and associated parking areas and urban landscaping, but the visual appearance of the buildings, parking areas, and landscaping under Alternative 2 would be visually consistent with existing adjacent industrial development to the west and north. Most of the existing visual character of the Alternative 2 site would be preserved under Alternative 2. There are no outstanding examples of visual character at the Alternative 2 site, which consists of flat, rural (non-urbanized) land used for cattle grazing. As stated in Suisun City General Plan Policy CCD-6.4, the City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis. A Planned Unit Development (PUD) has been prepared for City approval to establish the land use, zoning, development standards, and regulations for development consistent with General Plan community design policies (David Babcock & Associates 2023). Development is required to comply with the City Municipal Code, General Plan policies, the City's Development Guidelines for Architecture and Site Planning, and Architectural Review requirements. Therefore, the change in visual character at the Alternative 2 site under Alternative 2 is considered a **less-than-significant impact**. This impact conclusion is the same as the proposed Project (Impact 4.1-2); however, because Alternative 2 would involve less conversion of the existing open space to new urban development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.1-3. Substantial New Light and Glare and Skyglow Effects. This impact would be significant.

Alternative 2 would result in additional nighttime lighting and skyglow effects. The area is urbanized and is not a "dark sky" area; existing development in the area already contributes substantially to nighttime lighting and skyglow effects. Development of 45 acres under Alternative 2 would introduce new street lighting, parking lot lighting, pedestrian way lighting, interior lighted building signage, interior and front lighted landmark and

directory signage, interior lighted (LED) security lighting, and architectural lighting, during operations. These lights would be visible during nighttime hours and would represent a source of light and glare surrounding developed areas and roadways. Therefore, this impact is considered **significant**.

> Mitigation Measure: Implement Mitigation Measure 4.1-3 (Prepare an Exterior Lighting Plan Including an Off-Site Photometric Analysis).

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measure 4.1-3 would reduce Alternative 2's potentially significant impacts from nighttime lighting, glare, and skyglow effects to the maximum extent feasible because an exterior lighting plan would be prepared for City review and approval and implemented at the Alternative 2 site. However, even with implementation of this mitigation measure, development anticipated under Alternative 2 would contribute to nighttime skyglow effects. No additional feasible mitigation measures are available. Therefore, nighttime skyglow effects under Alternative 2 would be **significant and unavoidable**. This impact conclusion is the same as for the proposed Project (Impact 4.1-3); however, because Alternative 2 would involve less nighttime lighting, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Issues Where No Impact Would Occur

For the same reasons discussed in Section 4.1.3, "Environmental Impacts and Mitigation Measures," under the heading "Issues Not Discussed Further," the following issues would also result in **no impact** under Alternative 2.

- Damage to Scenic Resources within a State- or County-Designated Scenic Highway

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 would result in a smaller area affected by development and reduced building square footage as compared to the proposed Project (i.e., 45 acres vs. 93 acres, respectively). Because Alternative 3 would involve construction of 470,000 square feet of building space as compared to 1.28 million square feet of building space under the proposed Project, some of the scenic vistas from Key Community Gateway 2 would be retained under Alternative 3. Furthermore, because fewer buildings and landscaping would be installed, an additional line-of-sight viewpoint corridor would be maintained from Key Community Gateway 3 looking southwest from Pennsylvania Avenue as compared to the proposed Project. Therefore, the level of impact related to scenic vistas would be **reduced** under Alternative 3 as compared to the proposed Project.

Alternative 3 would result in a similar type of change to the existing visual character as compared to the proposed Project, from undeveloped agricultural land to buildings, parking lots, roadways, detention basins, lighting, signage, and landscaping. As stated in Suisun City General Plan Policy CCD-6.4, the City will not consider urban development that is consistent with General Plan community design policies to represent a degradation of visual character for the purpose of environmental impact analysis. Under Alternative 3, the site design, layout, parking, landscaping, signage, and lighting would be subject to the same City Municipal Code, City General Plan, City Development Guidelines for Architecture and Site Planning, and City Architectural Review requirements as the proposed Project. Alternative 3 would result in a similar visual appearance as compared to the proposed Project, but would occur in a smaller area and with reduced building square footage as compared to the proposed Project.

Therefore, Alternative 3 would result in a **reduced** level of impact on visual character as compared to the proposed Project.

New industrial/office development under Alternative 3 would result in an approximately 50 percent reduction in the level of nighttime lighting, because development under Alternative 3 would occur on approximately 51 acres as compared to 93 acres under the proposed Project. As with the proposed Project, implementation of Mitigation Measure 4.1-3 would reduce the impacts from nighttime lighting, glare, and skyglow. New nighttime skyglow effects under Alternative 3 would be **reduced** as compared to the proposed Project.

6.5.2 AIR QUALITY

The same environmental setting and regulatory framework detailed in Section 4.2 of this EIR, "Air Quality," also applies to the alternatives examined in this chapter.

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 would involve less construction and construction-related emissions when compared with the proposed Project. Alternative 1 would develop approximately 73 acres of land area compared to approximately 93 acres under the proposed Project, plus off-site improvement areas. Construction-related emissions would be reduced by approximately 20 percent under Alternative 1 compared to the proposed Project. As with the proposed Project, Alternative 1 would involve toxic air contaminant emissions near existing employees of businesses located near the site and potentially significant effects associated with these emissions that would be reduced to a less-than-significant level through the use of newer and cleaner emitting equipment. During operations, Alternative 1 would involve air pollutant emissions associated with motor vehicle trips to and from the site; fuel combustion from landscape maintenance equipment; natural gas combustion emissions from on-site natural gas use; off-site generation of electricity used at the site; evaporative emissions of reactive organic gases associated with the use of consumer products; and evaporative emissions of reactive organic gases resulting from the intermittent re-application of architectural coatings. With the reduction in square footage of building space and area devoted to landscaping, emissions associated with landscape maintenance equipment, natural gas use, and electricity generation would be reduced compared to the proposed Project. The mix of commercial uses anticipated under Alternative 1 would increase the number of vehicular trips to and from the site compared to the proposed Project, though many of the trips would be expected to be shorter compared to the truck trips to the Project Site under the proposed Project. Even considering that a substantial number of the trips attracted to the site under Alternative 1 could be pass-by trips, criteria air pollutant emissions associated with mobile sources would be higher for Alternative 1 compared to the proposed Project.[2] Alternative 1 would reduce diesel particulate matter emissions compared to the proposed Project with the substantial reduction in truck trips. Construction-related emissions would be reduced, criteria air pollutant emissions would increase, and toxic air contaminant emissions would be reduced. Overall air quality impacts are considered **similar** to the proposed Project for Alternative 1.

2 Pass-by trips are those trips already on the roads immediately adjacent to the site, but that alter their path at the driveway to visit the site. Pass-by trips are not normally considered new trips for the purpose of impact analysis.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.2-1. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. *This impact would be potentially significant.*

Alternative 2 would result in construction-related and operational emissions of criteria air pollutants. Alternative 2 construction activities would involve the temporary use of off-road equipment, haul trucks, and worker commute trips. As with the proposed Project and consistent with Stationary Source Control Measures SS36 (PM from Trackout) and SS38 (Fugitive Dust) of the 2017 Clean Air Plan, Alternative 2 would implement BAAQMD's Basic Construction Mitigation Measures, which would reduce fugitive dust emissions during construction. Alternative 2 construction activities would also be consistent with 2017 Clean Air Plan Measure WA4, Recycling and Waste Reduction, which calls for the recycling of construction materials. A minimum of 75 percent of the solid waste generated would be diverted from landfill disposal, as required by the California Green Building Standards Code.

As the Alternative 2 involves development of warehousing and logistics uses, it would not result in the increase of population or housing that was not foreseen in City or regional planning efforts. The Alternative 2 Site is in a Priority Production Area, which identify clusters of industrial business and are prioritized for economic development investments and protection from competing land uses; these areas are already well-served by the region's goods movement network. Priority Production Areas are approved by the Associated of Bay Area Governments (ABAG) and are a key piece of the Bay Area's regional growth framework for coordinated housing, transportation, and other types of land use planning. Therefore, it would not have the potential to substantially affect housing, employment, and population projections within the region, which is the basis of the 2017 Bay Area Clean Air Plan projections.

Furthermore, operation of Alternative 2 would also support the goals of the 2017 Clean Air Plan in the same manner as the proposed Project. Any new stationary sources associated with the Alternative 2 would be required to comply with BAAQMD's regulations which BAAQMD adopts/revises as needed to implement the Stationary Source (SS) control measures to reduce stationary source emissions. Furthermore, Alternative 2 would be subject to the provisions of the City of Suisun City Building Code, and therefore would comply with Title 24. Compliance with Title 24 would also result in Alternative 2's implementation of energy efficient design features and incorporation of electric infrastructure to support current and future adoption of electric vehicles. The control measures for the Natural and Working Lands (NW) sector focus on increasing carbon sequestration on rangelands and wetlands. Alternative 2 would include the establishment of wetlands and bring additional funding and management oversight to 437 acres of the Suisun Marsh and adjacent uplands as the proposed Managed Open Space, which is a greater area than under the proposed Project. Alternative 2 would comply with Assembly Bill (AB) 341, which requires mandatory commercial recycling for businesses that generate four cubic yards or more of commercial solid waste per week, and would include water-efficient indoor fixtures consistent with the requirements of CALGreen and water-efficient and drought-tolerant landscaping outdoors. Alternative 2 does not contain features that would conflict with or obstruct implementation of any 2017 Clean Air Plan control measures. Therefore, the Alternative 2 would conform to this determination of consistency for the 2017 Clean Air Plan.

However, as detailed under Impact 6.5.2-2 below, Alternative 2 would exceed the BAAQMD-recommended threshold of significance for construction-related average daily NOx emissions and for operational annual and maximum daily ROG and NO_X emissions. These thresholds are established to identify projects that have the potential to generate a level of emissions that would be cumulatively considerable, potentially resulting in significant adverse air quality impacts to the region's existing air quality conditions. Furthermore, the BAAQMD does not have quantitative mass emissions thresholds for fugitive PM_{10} and $PM_{2.5}$ fugitive dust. Instead, the BAAQMD recommends that all projects, regardless of the level of average daily emissions, implement applicable best management practices (BMPs), including those listed as Basic Best Management Practices for Construction-Related Fugitive Dust Emissions in the BAAQMD CEQA Air Quality Guidelines (BAAQMD 2023) in order to minimize fugitive dust in alignment with the regional plans for PM reduction. Fugitive dust emissions are considered to be significant unless Alternative 2 implements the BAAQMD's BMPs for fugitive dust control during construction. Because Alternative 2 would exceed the construction threshold of significance for NO_X, operational thresholds of significance for ROG and NO_X, and without implementation of the BMPs for dust management, Alternative 2 could result in a level of emissions that would result in a cumulatively considerable contribution to the existing air quality conditions of the SFBAAB. Therefore, Alternative 2 could conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan and this impact would be **potentially significant**.

Mitigation Measure: Implement Mitigation Measures 4.2-1a through 4.2-1b

Mitigation Measure 4.2-1a: Implement BAAQMD Basic Best Management Practices for Construction-Related Fugitive Dust Emissions

Mitigation Measure 4.2-1b: Implement Construction Exhaust Emissions Control Measures

Mitigation Measure 4.2-1c: Omit the Inclusion of Natural Gas Infrastructure

Mitigation Measure 4.2-1d: Implement Mitigation Measure 4.12-1, Transportation Demand Management (TDM) Plan

Mitigation Measure 4.2-1e: Incorporate CALGreen Tier 2 Standards for Electric Vehicle Infrastructure into Project Design

Mitigation Measure 4.2-1f: Electrification of Yard Equipment

Mitigation Measure 4.2-1g: Electrification of Transportation Refrigeration Units

Mitigation Measure 4.2-1h: Prohibition of Truck Idling for More than Two Minutes

Mitigation Measure 4.2-1i: Limitation of Model Year of Visiting Trucks

Mitigation Measure 4.2-1j: Diesel Backup Generator and Fire Pump Specifications

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measures 4.2-1a and 1b would reduce Alternative 2 *construction*-related emissions to less than the BAAQMD significance threshold, thereby ensuring compliance with BAAQMD recommended fugitive dust control measures and ensuring that Alternative 2 construction would not conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan. In addition, implementation of Mitigation Measures 4.2-1c through 4.2-1j would reduce Alternative 2 *operational* emissions. As detailed in Impact 6.5.2-2, these mitigation measures would reduce operational emissions of ROG and NO_X to below the BAAQMD thresholds, and Alternative 2 operations would not conflict with or obstruct implementation of the 2017 Bay Area Clean Air Plan. Therefore, this impact for Alternative 2 would be **less than significant with mitigation**. This impact conclusion is the **reduced** compared to the proposed Project (Impact 4.2-1)

Impact 6.5.2-2. Result in a cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment under an applicable federal or state ambient air quality standard. *This impact would be potentially significant.*

As shown in Table 6.5-1, construction-related emissions associated with Alternative 2 would exceed the average daily thresholds of significance for NOx emissions in the initial year of construction (2024). The BAAQMD does not have quantitative mass emissions thresholds for fugitive PM_{10} and $PM_{2.5}$ fugitive dust. Instead, the BAAQMD recommends that all projects, regardless of the level of average daily emissions, implement applicable best management practices (BMPs), including those listed as Basic Best Management Practices for Construction-Related Fugitive Dust Emissions in the BAAQMD CEQA Air Quality Guidelines (BAAQMD 2023) in order to minimize fugitive dust in alignment with the regional plans for PM reduction. Fugitive dust emissions are considered to be significant unless Alternative 2 implements the BAAQMD's BMPs for fugitive dust control during construction. Because construction-related exhaust emissions would exceed the significance threshold for NO_X and without implementation of the BAAQMD Basic Construction Measures, Alternative 2 could result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment under an applicable federal or state ambient air quality standard. Construction-related impacts from Alternative 2 would therefore be **potentially significant**.

Table 6.5-1. Annual and Average Daily and Annual Criteria Air Pollutant Construction Emissions

Year/Description	ROG	NO_X	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2024 Total Emissions (tons)	2.62	5.6	0.45	0.22
2024 Average Daily Emissions (pounds per day)[1]	19.98	42.73	3.42	1.70
2025 Total Emissions (tons)	0.20	1.53	0.27	0.05
2025 Average Daily Emissions (pounds per day)[1]	3.09	23.68	4.23	0.82
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	No	No	No	No

Source: Modeled by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NOx = nitrogen oxides; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates calculated based on the approximate construction workdays in 2024 and 2025, which is assumed to be 262 days and 129 days, respectively.

Operation

As with the proposed Project, after construction, long-term emissions of criteria air pollutants would be generated from energy, area, stationary, and mobile sources during operation of Alternative 2. Area sources would include

emissions from use of consumer products, periodic architectural coatings, and landscape equipment. Energy sources are associated with water or space heating and cooling. Mobile sources would involve vehicle trips associated with employee commute trips and visiting trucks, including Transport Refrigeration Units (TRUs) associated with visiting trucks. Stationary source emissions would be associated with the emergency generator and fire pumps at each building. Emergency generators were assumed to operate 100 hours per year based on the maintenance and testing limits per BAAQMD regulations. Additional modeling details are provided in Appendix B.

As shown in Table 6.5-2, the total and net increase in operational emissions generated by Alternative 2 would exceed the BAAQMD daily and annual thresholds for ROG and NO_X before mitigation.

Table 6.5-2. Annual and Average Daily Criteria Air Pollutant Operational Emissions

Description	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions (tons)	**14.77**	**21.65**	2.22	0.94
Threshold of Significance (tons/year)	10	10	15	10
Exceeds Threshold?	Yes	Yes	No	No
Average Daily Emissions (pounds per day)[1]	**80.95**	**118.65**	12.14	5.17
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	Yes	Yes	No	No

Source: Estimated by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates are based on the annual operational emissions divided by 365 days.

Because operational emissions from Alternative 2 would exceed the BAAQMD daily and annual thresholds, Alternative 2 could not result in a cumulatively considerable net increase of a criteria pollutant for which the region is in nonattainment under an applicable federal or state ambient air quality standards. Therefore, operational activities associated with Alternative 2 would be **potentially significant**.

Mitigation Measures

Construction:

Implement Mitigation Measure 4.2-1a.

Operations:

Implement Mitigation Measures 4.2-1c through 4.2-1j.

Significance after Mitigation

Implementation of Mitigation Measure 4.2-1a would ensure that Alternative 2 construction would incorporate measures to minimize fugitive dust from construction activities and ensure that Alternative 2 construction would not result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment under an applicable federal or state ambient air quality standard.

Implementation of Mitigation Measures 4.2-1c through 4.2-1j would reduce energy, area, and mobile source operational emissions associated with Alternative 2. As shown in Table 6.5-3, these mitigation measures would reduce operational emissions of ROG and NO_X to below the BAAQMD thresholds and Alternative 2 operations would not result in a cumulatively considerable net increase of criteria pollutants for which the region is non-attainment under an applicable federal or state ambient air quality standard and this impact would be **less than significant with mitigation**. This impact conclusion is the **reduced** compared to the proposed Project (Impact 4.2-2)

Table 6.5-3. Mitigated Annual and Average Daily Criteria Air Pollutant Operational Emissions

Description	ROG	NO_X	PM_{10}	$PM_{2.5}$
Annual Emissions (tons)	5.50	9.30	1.89	0.64
Threshold of Significance (tons/year)	10	10	15	10
Exceeds Threshold?	No	No	No	No
Average Daily Emissions (pounds per day)[1]	30.13	50.94	10.36	3.49
Threshold of Significance (pounds per day)	54	54	82	54
Exceeds Threshold?	No	No	No	No

Source: Estimated by AECOM in 2023. See Appendix B for detailed modelling assumptions, outputs, and results.

Notes: NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; ROG = reactive organic gases.

[1] Average daily emission estimates are based on the annual operational emissions divided by 365 days.

Impact 6.5.2-3. Expose sensitive receptors to substantial pollutant concentrations. *This impact would be potentially significant.*

Construction

Alternative 2 reduces both the land area affected by development and the level of off-site improvements required compared to the proposed Project. The reduced footprint and reduction in necessary off-site improvements would reduce construction emissions but also shift the location of emissions for Alternative 2 compared to the proposed Project. As discussed in Appendix B of this EIR, the impacts associated with construction-related activities for Alternative 2 were quantitatively assessed. Maximum excess cancer risk for residential and worker during 2.6 years of construction were 1.15 and 0.24 per one million, respectively. The maximum annual $PM_{2.5}$ impacts for construction were 0.105 $\mu g/m^3$ and 0.463 $\mu g/m^3$ for residential and worker sensitive receptors, respectively; therefore, annual $PM_{2.5}$ impacts would exceed the health impact threshold and the construction-related impacts related to exposure of sensitive receptors to substantial pollutant concentrations from Alternative 2 would be **potentially significant**.

The same mitigation measures required for the proposed Project would also be required for Alternative 2. With the implementation of mitigation measures, construction of Alternative 2 would be reduced to **less than significant with mitigation**, which is the **same** as the proposed Project.

Operations

Alternative 2 involves a reduced footprint for developed area compared to the proposed Project and also reduces the number of buildings and their locations, modifies the on-site on-road vehicle circulation, and reduces the number of offroad equipment (i.e., generators, fire water pumps, forklifts, TRU idling). The subsequent reduced

warehouse and logistics space would decrease the number of employees and truck traffic thus decreasing the toxic air contaminant emissions from trucks and worker trips. As discussed in Appendix B of this EIR, the impacts associated with operations for Alternative 2 were quantitatively assessed. The maximum annual $PM_{2.5}$ impacts were 0.052 µg/m^3 and 0.184 µg/m^3 for residential and worker sensitive receptors, respectively. Maximum excess cancer risk for residential (30-year exposure period) and worker (25-year exposure period) were 44.03 and 59.05 per one million, respectively. As a result, excess cancer risk impacts exceed the health impact threshold. Therefore, the operation-related impacts related to exposure of sensitive receptors to substantial pollutant concentrations from Alternative 2 would be **potentially significant**.

The same mitigation measures required for the proposed Project would also be required for Alternative 2. With the implementation of mitigation measures, the operation of Alternative 2 would be reduced to **less than significant with mitigation**, which is the **same** as the proposed Project.

Impact 6.5.2-4. Conflict with or Obstruct Implementation of the Applicable Air Quality Plan. *This impact would be potentially significant.*

Construction

During Alternative 2-related construction activities, construction equipment exhaust, application of asphalt, and architectural coatings may temporarily generate odors. Alternative 2 would use typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. The BAAQMD does not identify construction sites as containing activities that would generate objectionable odors. Additionally, odors would be confined to the immediate vicinity of the construction equipment and construction activities that would generate other emissions, such as those leading to odors, would be intermittent in nature (i.e., the duration of these activities would not be continuous for an extended period of time). In addition, odor concentrations in the air decline with increasing distance. Furthermore, nuisance odors are regulated under the BAAQMD's Regulation 7, Odorous Substances, which requires abatement of any nuisance generating an odor complaint. Regulation 7 places general limitations on odorous substances, and specific emission limitations on certain odorous compounds. Therefore, Alternative 2 construction would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people and impacts during construction would be **less than significant** under Alternative 2. This impact is the **same** as under the proposed Project (Impact 4.2-4)

Operation

Alternative 2 would add new logistics and warehousing uses on the Alternative 2 site, including the use of diesel-powered trucks, TRUs, and on-site equipment. The type of facilities that are considered to result in other emissions such as those leading to objectionable odors include wastewater treatments plants, compost facilities, landfills, solid waste transfer stations, fiberglass manufacturing facilities, paint/coating operations (e.g., auto body shops), dairy farms, petroleum refineries, asphalt batch plants, chemical manufacturing, and food processing facilities (BAAQMD 2017a). Thus, Alternative 2 land uses are not typical odor-generating facilities. Therefore, Alternative 2 would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. This impact would be **less than significant** under Alternative 2. This impact is the **same** as under the proposed Project (Impact 4.2-4)

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

The amount of overall development would be reduced under Alternative 3, when compared with the proposed Project. Alternative 3 would reduce construction and construction-related emissions when compared with the proposed Project. Alternative 3 would develop approximately 46 acres of land area compared to approximately 93 acres under the proposed Project, plus off-site improvement areas. Construction-related emissions would be reduced by approximately 50 percent under Alternative 3 compared to the proposed Project. As with the proposed Project, Alternative 3 would involve toxic air contaminant emissions near existing employees of businesses located near the site. The potentially significant effects associated with these emissions concentrations would be reduced to a less-than-significant level through the use of newer and cleaner emitting equipment under Alternative 3.

With the reduction in square footage of building space and area devoted to landscaping under Alternative 3, emissions associated with landscape maintenance equipment, natural gas use, and electricity generation would be reduced compared to the proposed Project.

Under Alternative 3, instead of providing only warehousing and logistics space as under the proposed Project, the site would also provide office space. The office space offered under Alternative 3 with the intent of providing an employment setting that could attract users that could provide jobs for the local residential population, potentially replacing current longer distance commutes with shorter commutes to the Alternative 3 site. As noted in Section 6.4.3 above, there is a gap in local employment for sectors that typically use professional office space, but there is also a local gap in jobs in transportation and warehousing, so Alternative 3 includes this use, as well, but in a reduced amount compared with the proposed Project.

Approximately 7 percent of Suisun City residents commute to Vacaville, producing two-way commuting daily vehicle miles traveled (VMT) of approximately 16,000, assuming only a trip to and from the office and no other trips to lunch, etc. Approximately 5 percent of Suisun City residents commute to San Francisco producing two-way commuting daily VMT of approximately 49,000; 4 percent to Vallejo producing two-way commuting daily VMT of approximately 15,000; 3 percent to Napa producing two-way commuting daily VMT of approximately 13,000; 3 percent to Benicia producing two-way commuting daily VMT of approximately 12,000; 3 percent to Oakland producing two-way commuting daily VMT of approximately 25,000; 3 percent to Concord producing two-way commuting daily VMT of approximately 16,000; and 2 percent to Sacramento producing two-way commuting daily VMT of approximately 17,000. The two-way weighted average travel distance for Suisun City residents is approximately 33 miles (U.S. Census Bureau 2020). If 33 percent of the 1,100 jobs in office settings included as a part of Alternative 3 could be filled by local residents, this would have the potential to decrease commute-related VMT and associated criteria air pollutant emissions by approximately 30 percent, assuming single-occupant vehicular trips only. If the office uses developed on-site as a part of Alternative 3 would attract customers, the mobile source emissions could increase or decrease depending on the transportation efficiency of customer trips that are being replaced by on-site uses under Alternative 3. While Alternative 3 could produce efficiencies in travel, based on the relatively higher trip generation rate for office uses compared with warehousing and logistics uses, the number of daily trips would increase in comparison to the proposed Project – by approximately 30 percent. However, since the average trip distance would be reduced under Alternative 3, the total criteria air pollutant emissions from mobile sources under Alternative 3 would be reduced compared to the proposed Project.

Alternative 3 would also include warehousing and logistics uses but would reduce the square footage associated with such uses by approximately 84 percent compared with the proposed Project. Therefore, criteria air pollutant emissions and toxic air contaminants associated with truck trips would be reduced in comparison to the proposed Project.

Overall, air quality impacts under Alternative 3 would be **reduced** compared with the proposed Project.

6.5.3 BIOLOGICAL RESOURCES

The same general environmental setting and regulatory setting described in Section 4.3, "Biological Resources," apply to all three alternatives, except for a slightly reduced development area for the Alternative 1 site (73 acres) and a greatly reduced development area for both the Alternative 2 site (51 acres) and Alternative 3 site (46 acres) when compared to the 93-acre proposed Project Development Area.

In addition, compared to the proposed Project, Alternatives 1, 2 or 3 would not impact perennial brackish marsh habitat as a result of construction of a stormwater drainage culvert which is included in the proposed Project.

As with the proposed Project, the alternatives impact analyses will not further analyze the respective alternative against thresholds of significance for which no significant impacts have been identified based on technical studies conducted within and in the vicinity of the proposed Project Site/Alternatives sites (HBG 2006; HBG 2021; Vollmar 2006; Helm 2021; AWE 2006). Therefore, the following issues are not discussed further in the Biological Resources Alternative impact analysis for the same reasons as described in Section 4.3:

- Monarch Butterfly
- Delta Green Ground Beetle
- California Tiger Salamander & Critical Habitat, Central Population
- Western Spadefoot Toad
- Special Status Vernal Pool Crustaceans
- Critical Habitat for Suisun Thistle

In addition, the alternatives impact analyses also will not further analyze potential impacts to the Suisun Marsh Aster because the development areas for all three alternatives have been reduced compared to the proposed Project such that they no longer overlap potential habitat for this species and no occurrences of this species are within 100 feet from proposed ground disturbances, including proposed wetland mitigation establishment areas (except under Alternative 1, where there would be no wetlands mitigation establishment areas).

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

In the context of biological resources, while the habitat and species impacts would be similar to those described in Section 4.3, implementation of the Alternative 1 project would be **reduced** compared to the proposed Project due to the reduced area of impact (73 acres versus 93 acres).

The following summarizes the key differences in potential impacts between Alternative 1 and the proposed Project:

- Alternative 1 would not impact potential upland refugia habitat as a result of construction within the Development Area.

- Alternative 1 would not result in direct or indirect impacts on perennial marsh or associated species from construction of the Development Area.

- Alternative 1 would not impact Suisun Marsh aster.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

The description of biological resources information and analysis presented in this section is based primarily on the Reduced Footprint Alternative Impacts and Mitigation Measures memo (dated May 9, 2023) prepared by HBG (Appendix D), from which data were verified by AECOM; in some cases, acreages were re-calculated to support the analysis in this document.

Impact 6.5.3-1. Contra Costa Goldfields & Critical Habitat. *This impact would be potentially significant.*

Development of Alternative 2 would directly impact an estimated 51 individual Contra Costa goldfields plants over an approximately 0.016-acre area of occupied habitat for Contra Costa goldfields, would directly impact 5.16 acres of unoccupied marginal habitat for Contra Costa goldfields, and may indirectly impact occupied Contra Costa goldfields habitat in proposed Managed Open Space as a result of mitigation wetland grading. Construction activities could also harm individuals by spreading non-native invasive plant species already present in the area or introducing new species via unwashed construction vehicles and equipment. Alternative 2 would also impact 51.83 acres of the 737-acre Critical Habitat Subunit 5G. These impacts would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on this species.

Mitigation Measure 4.3-1a: Establish New Contra Costa goldfields Habitat and Populations

Mitigation Measure 4.3-1b: Establish and Manage 5.16 Acres of Wetland Habitat

Mitigation Measure 4.3-1c: Preserve and Manage Contra Costa goldfields Habitat

Mitigation Measure 4.3-1d: Install Construction Fencing

Mitigation Measures 4.3-1e Limit Introduction and Spread of Invasive Species

Significance after Mitigation

Implementation of these mitigation measures would offset permanent impacts to occupied Contra Costa goldfields habitat and would ensure that Contra Costa goldfields occupied habitat, which supports 99 percent of the Contra Costa goldfields within the Alternative 2 site, is preserved and managed for Contra Costa goldfields in perpetuity. The measures described above would ensure no-net loss of potential Contra Costa goldfields habitat area, Contra Costa goldfields Critical Habitat, or threat to the recovery of Contra Costa goldfields. This mitigation would reduce potential impacts to Contra Costa goldfields to a **less-than-significant** level under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-1); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-2. Alkali Milk-Vetch. *This impact would be potentially significant.*

Development of Alternative 2 would directly impact an estimated 6 individual alkali milk-vetch plants over an approximately 0.007-acre area, and 5.17 acres of seasonally saturated annual grassland habitat suitable to support alkali milk-vetch, and may indirectly affect occupied alkali milk-vetch habitat in the proposed Managed Open Space area as a result of mitigation wetland grading. Construction activities could also harm individuals by spreading non-native invasive plant species already present in the area or introducing new species via unwashed construction vehicles and equipment. Alternative 2 would result in generally **similar** impacts to alkali milk-vetch as described in Section 4.3 for the proposed Project, but to a reduced extent.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on this species.

Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species

Mitigation Measure 4.3-2a: Preserve and Establish Alkali Milk-Vetch Habitat

Mitigation Measure 4.3-2b: Install Construction Fencing

Significance after Mitigation

Implementation of Mitigation Measures 4.3-2a and 4.3-2b would avoid and offset permanent impacts to occupied alkali milk-vetch habitat and ensure there is no-net loss of potential alkali milk-vetch habitat and avoid indirect impacts during mitigation wetland grading. Implementation of Mitigation Measure 4.3-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to alkali milk-vetch under Alternative 2 to a **less-than-significant** level. This impact conclusion is the same as the proposed Project (Impact 4.3-2); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-3. Saline Clover. *This impact would be potentially significant.*

Development of Alternative 2 would directly impact an estimated 141 individual saline clover plants over a 0.37-acre area, would directly impact 0.30 acres of vernal pool habitat and 5.17 acres of seasonally saturated annual grassland habitat suitable to support saline clover, and may indirectly affect occupied saline clover habitat in the proposed Managed Open Space area as a result of mitigation wetland grading. Construction activities could also harm individuals by spreading non-native invasive plant species already present in the area or introducing new species via unwashed construction vehicles and equipment. These impacts would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on this species.

Mitigation Measure 4.3-1e. Limit Introduction and Spread of Invasive Species

Mitigation Measure 4.3-3a: Preserve and Establish Saline Clover Habitat

Mitigation Measure 4.3-3b: Install Construction Fencing

Significance after Mitigation

Implementation of Mitigation Measures 4.3-3a and 4.3-3b would avoid and offset permanent impacts to occupied saline clover habitat and ensure there is no-net loss of potential saline clover habitat and avoid indirect impacts during mitigation wetland grading. Implementation of Mitigation Measure 4.3-1-e would avoid the introduction and spread of invasive plant species. These mitigation measures would reduce potential impacts to saline clover to a **less-than-significant** level under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-3); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-4. Long-styled sand-spurrey plants. *This impact would be potentially significant.*

Development of Alternative 2 would directly impact 0.30 acres of vernal pool habitat and 5.17 acres of seasonally saturated annual grassland habitat suitable to support long-styled sand spurrey. This impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on foraging habitat for this species.

Mitigation Measure 4.4-1e. Limit Introduction and Spread of Invasive Species

Mitigation Measure 4.3-5a: Preserve and Establish Long-Styled Sand-Spurrey Habitat

Mitigation Measure 4.3-5b: Install Construction Fencing

Significance after Mitigation

These mitigation measures would offset and avoid permanent impacts to occupied long-styled sand-spurrey habitat and would ensure there is no-net loss of potential habitat for the species. Mitigation Measure 4.4-1e would avoid the introduction and spread of invasive plant species. These mitigation measures would therefore reduce potential impacts to long-styled sand-spurrey to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-5); however, because Alternative 2 would involve a reduced extent of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-5. Crotch Bumble Bee. *This impact would be potentially significant.*

For the same reasons described for the proposed Project in Section 4.3, this species is unlikely to occur in the Alternative 2 site; however, it is unknown whether the species could establish nests or overwintering sites in upland areas. Ground disturbing construction (including for construction of mitigation wetlands and enhanced upland refugia as mitigation within the proposed Managed Open Space area) could destroy nesting colonies or

overwintering queens, if present in rodent burrows or in other ground surface features in upland areas of the Alternative 2 site.

Furthermore, development of Alternative 2 would directly impact 0.30 acres of vernal pool habitat and 5.17 acres of seasonally saturated annual grassland habitat, which could reduce available floral food resources for this species within the Alternative 2 site. This impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on foraging habitat for this species.

Mitigation Measure 4.3-6: Avoid, Minimize, and Mitigate for Impacts on Crotch Bumble Bee

Significance after Mitigation

Mitigation Measure 4.3-6 would avoid and offset the loss of potential nest sites and provide appropriate native flower resources that would support this species throughout the flight period and promote development of queens (i.e., perennial plants) in the proposed Managed Open Space area, and/or reduce the use of harmful pesticides within the proposed Managed Open Space area. This mitigation would therefore reduce potential impacts to the Crotch bumble bee to **less than significant** under Alternative 2. This impact conclusion is the same as for the proposed Project (Impact 4.3-6); however, because Alternative 2 would involve a reduced extent of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-6. Northern Harrier and Short-Eared Owl. *This impact would be potentially significant.*

Grading or vegetation removal associated with construction of Alternative 2, including for development or for the creation of mitigation wetlands within the proposed Managed Open Space area, could result in disruption of northern harrier or short-eared owl nesting or the potential loss of an active nest. This impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-7a: Preconstruction Nesting Survey

Mitigation Measure 4.3-7b: Implement Non-Disturbance Buffers

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing a northern harrier or short-eared owl active nest, thus reducing potential impacts to **less than significant** under Alternative 2. This impact conclusion is the same as for the proposed Project (Impact 4.3-7); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-7. Swainson's Hawk. *This impact would be potentially significant.*

Alternative 2 construction would result in the loss of 51.83 acres of Swainson's hawk foraging habitat. Construction activities associated with Alternative 2 could disturb nesting Swainson's hawk if individuals of this species were found to be nesting within one-half mile of construction activities. Therefore, this impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project shall also be applicable to Alternative 2, albeit adjusted accordingly for the reduced levels of impact on foraging habitat for this species.

Mitigation Measure 4.3-8a: Preserve Swainson's Hawk Foraging Habitat

Mitigation Measure 4.3-8b: Preconstruction Nesting Surveys

Mitigation Measure 4.3-8c: Implement Nest Buffer

Significance after Mitigation

Implementation of these mitigation measures would compensate for the loss of Swainson's hawk foraging habitat and would avoid adverse effects on Swainson's hawks nesting near the Alternative 2 site. These measures would reduce potential impacts on Swainson's hawks to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-8); however, because Alternative 2 would involve a reduced extent of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-8. Burrowing Owl. *This impact would be potentially significant.*

Construction activities associated with Alternative 2, including for development or for creation of mitigation wetlands within the proposed Managed Open Space area, could impact burrowing owls if found to be present in or near areas of construction. The impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-9a: Preconstruction Burrowing Owl Nesting Survey

Mitigation Measure 4.3-9b: Avoid Impacts to Occupied Burrows

Significance after Mitigation

Implementation of these mitigation measures would avoid disturbing an active burrowing owl nest and avoid harming a burrowing owl during the nonbreeding season. These measures would reduce potential impacts to burrowing owls to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-9); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-9. California Black Rail. *This impact would be potentially significant.*

Construction activity associated with creation of mitigation wetlands in the proposed Managed Open Space area of the Alternative 2 site could result in impacts to nesting California black rail if construction near marsh areas was to take place during the California black rail nesting season and nesting rails were present. This impact would be **potentially significant**.

Mitigation Measure 4.3-10: Preconstruction Nesting Surveys

Significance after Mitigation

Implementation of this mitigation measure would avoid disturbance of nesting California black rail, thus reducing potential impacts to **less than significant** under Alternative 2. This impact conclusion is the **same** as the proposed Project (Impact 4.3-10); however, because the area of mitigation wetland creation under Alternative 2 would be reduced compared to the proposed Project, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-10. Loggerhead Shrike, Suisun Song Sparrow, Grasshopper Sparrow, Tricolored Blackbird. *This impact would be potentially significant.*

Grading or vegetation removal associated with construction of Alternative 2, including for development or for creation of mitigation wetlands within proposed Managed Open Space area, could result in disruption of the nesting cycle of any of several special status bird species (loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony) if active nests of any of these species are present. This impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-11: Preconstruction Nesting Surveys

Significance after Mitigation

Implementation of this mitigation measure would avoid disturbing a nesting loggerhead shrike, Suisun song sparrow, grasshopper sparrow, or a tricolored blackbird nesting colony, thus reducing potential impacts to a level considered **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-11); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-11. Construction Impacts on Salt Marsh Harvest Mouse and Suisun Shrew. *This impact would be potentially significant.*

Potential for direct construction impacts to a wandering salt marsh harvest mouse or Suisun shrew would not be expected within the area affected by development under Alternative 2 because the the area affected by development under Alternative 2 is not adjacent to perennial marsh habitat for this species; however, such direct construction impacts could still result from grading to establish mitigation wetlands in the southern portion of the proposed Managed Open Space area, especially during extreme high tides. Similarly, no direct or indirect impact from operations within the area affected by development under Alternative 2 would be expected, again because the area affected by development under Alternative 2 does not occur adjacent to perennial marsh habitat for this species; however, operational activities could have indirect impacts due to increased food availability associated with development, which could attract and support predators, and introduction of truck and other vehicle traffic and pedestrian activities and nighttime lighting that could result in noise and other disturbances that could affect salt marsh harvest mouse, Suisun shrew and other wildlife species in the adjacent habitats within the proposed Managed Open Space area. Therefore, direct and indirect impacts to salt marsh harvest mouse or Suisun shrew

may occur as a result of construction or operation of Alternative 2; these impacts would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-12a: Worker Environmental Awareness Training

Mitigation Measure 4.3-12b: Work Scheduling Restrictions

Mitigation Measure 4.3-12c: Vegetation Removal and Installation of Exclusion Fencing

Mitigation Measure 4.3-12d: Biological Construction Monitoring

Significance after Mitigation

Implementation of Mitigation Measures 4.3-12a through 4.3-12d would prevent direct impacts on salt marsh harvest mouse and Suisun shrew during construction by excluding these species (if present) from the construction footprint in areas adjacent to suitable habitat and requiring biological monitoring during work adjacent to suitable habitat to ensure impacts to this species do not occur. Collectively these mitigation measures would reduce the potential for direct impacts on these two species to **less than significant** under Alternative 2. Alternative 2 would result in **similar impacts** to salt marsh harvest mouse and Suisun shrew as described in Section 4.3 for the proposed Project (Impact 4.3-12), albeit over a reduced spatial and temporal extent.

Impact 6.5.3-12. Loss of Upland Refugia. *This impact would be potentially significant.*

Construction of Alternative 2 would permanently develop 5.61 acres of upland annual grassland and would convert 38 acres of upland annual grassland to seasonal wetlands in areas adjacent to wetlands within the proposed Managed Open Space area.

Alternative 2 would result in similar impacts on upland refugia habitat as described in Section 4.3 for the proposed Project, but over a reduced extent. Alternative 2 would not result in a loss of upland refugia habitat within the area affected by development under Alternative 2 because the area affected by development under Alternative 2 does not border areas of perennial marsh habitat. However, construction of mitigation wetlands as part of Alternative 2 would convert 5.61 acres of upland annual grassland, that could serve as upland refugia, to seasonal wetlands within the proposed Managed Open Space area. This habitat conversion could result in indirect impacts to wildlife which rely on upland refugia habitat adjacent to tidal marsh. This habitat loss and conversion could result in potential indirect impacts to salt marsh harvest mouse, the Suisun shrew, and other wildlife that rely on upland refugia habitat adjacent to the tidal marsh during high tide events. This impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly to the reduced impact level of Alternative 2.

Mitigation Measure 4.3-13: Create Upland Refugia in Managed Wetland

Significance after Mitigation

Implementation of Mitigation Measure 4.3-11a would enhance and provide additional upland refugia in the proposed Managed Open Space area of the Alternative 2 site for salt marsh harvest mouse, Suisun shrew, and any other species that need cover during high tide events and will reduce this potential impact to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-13); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-13. Nesting Birds. *This impact would be potentially significant.*

The removal of vegetation during the February 1 to August 31 breeding season for Alternative 2 could result in mortality of nesting avian species if they are present. Therefore, this impact would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-14a: Preconstruction Nesting Surveys

Mitigation Measure 4.3-14b: Nest Zone Buffers

Significance after Mitigation

Implementation of Mitigation Measures 4.3-14a and 4.3-14b will avoid and minimize potential impacts during construction of Alternative 2 on nesting avian species, thus reducing potential impacts to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-14); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-14. Special Status Fish Species. *This impact would be potentially significant.*

Alternative 2 construction activities could result in potential water quality impacts in Ledgewood Creek and other waterways and could adversely affect to special status fish species, if present. This impact would be **potentially significant**.

Alternative 2 would result in similar impacts on special status fish as described in Section 4.3 for the proposed Project, but over a reduced extent.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-15a: Implement SWPPP and BMPs

Significance after Mitigation

Implementation of Mitigation Measure 4.3-15a would avoid and minimize potential indirect impacts of Alternative 2 construction on water quality in Ledgewood Creek and other waterways that could support special status fish populations, thus reducing potential impacts to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-15); however, because Alternative 2 would involve

less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-15. Riparian Habitat. *This impact would be potentially significant.*

Construction activities near the riparian corridor of Ledgewood Creek could reduce the value of the riparian wildlife habitat, disrupt the natural wildlife corridor, and could result in degradation of sensitive habitat areas through increased erosion, sedimentation, spills during vehicle refueling, or disposal of food and trash. The increased noise and disturbance associated with Alternative 2 operation could also adversely affect wildlife in the riparian corridor. These impacts would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2.

Mitigation Measure 4.3-16a: Construction Best Management Practices

Mitigation Measure 4.3-16b: Riparian Corridor Protection Zone

Significance after Mitigation

Mitigation Measure 4.3-16a requires BMPs to avoid direct and indirect impacts to Ledgewood Creek and its riparian habitat. Mitigation Measure 4.3-16b, which requires establishment of a riparian setback from Ledgewood Creek would serve to protect the riparian corridor from operational activities and environmental degradation facilitated by Alternative 2 development. These measures would reduce impacts to **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.3-16); however, because Alternative 2 would involve less area of impact, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.3-16. Wetlands. *This impact would be potentially significant.*

Alternative 2 would result in similar impacts on wetlands as described in Section 4.3 for the proposed Project, but over a reduced extent. Furthermore, Alternative 2 would not impact perennial brackish marsh. However, Alternative 2 site grading activities would result in the permanent placement of fill material into 5.17 acres of seasonally saturated annual grassland; 0.30 acre of vernal pools; and 0.14 acre of alkali seasonal wetlands. In addition, grading within the proposed Managed Open Space area to establish/create wetlands may have an indirect adverse effect on the hydrology of adjacent wetlands. These impacts would be **potentially significant**.

The following mitigation measures applicable to the proposed Project would also be applicable to Alternative 2, albeit adjusted accordingly to the reduced impact level of Alternative 2.

Mitigation Measure 4.3-13a: Implement SWPPP and BMPs

Mitigation Measure 4.3-17a: Secure Permits and Implement All Permit Conditions

Mitigation Measure 4.3-17b: Wetland Establishment and Performance Monitoring

Mitigation Measure 4.3-17c: Avoid Impacts to Existing Wetlands in Managed Open Space

Mitigation Measure 4.3-17d: Limit Staging Areas and Access Routes

Mitigation Measure 4.3-17e. Implement Mitigation and Monitoring Plan

Significance after Mitigation

Alternative 2 would protect 437 acres east of Pennsylvania Avenue and south of Cordelia Road; this area would be designated as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement. Approximately three-fourths of this Managed Open Space is currently within the Suisun Marsh Protection Plan jurisdiction. However, the proposed Managed Open Space area provides additional benefits to enhance the quality and diversity of Suisun Marsh wildlife habitats beyond that provided by the Suisun Marsh Protection Plan. The site protection instrument would create new freshwater wetlands and will provide a sanctuary for wildfowl during hunting season by excluding duck hunting, and foster implementation of Suisun March Protection Plan policies and goals such as managing agricultural lands to support waterfowl and enhancements of wildlife habitat. As with the proposed Project, Alternative 2 would create a long-term endowment to provide funding to support regular site inspections, maintenance actions and sustained stewardship to:

- manage vegetation grazing practices to be compatible with wildlife habitat enhancement and rare plant protections
- implement invasive plant inspections and undertake remedial actions
- clean up dump sites and remove trash before it enters waterways
- prevent damage from homeless encampments
- maintain fences, gates, and signage

In addition, the proposed Managed Open Space area under Alternative 2 includes approximately 103.14 acres not currently within the Suisun Marsh Plan jurisdiction. This area will be protected as wildlife habitat and provide refuge to wildfowl consistent with the land acquisition recommendations of the Suisun Marsh Protection Plan. The remaining portion of the proposed Managed Open Space area is within the primary and Secondary Management Areas of the Suisun Marsh.

Implementation of the proposed Managed Open Space area in accordance with Mitigation Measures 4.3-17a through 4.3-17e would therefore offset permanent impacts to the 5.17 acres of Seasonally Saturated Annual Grassland; 0.30 acres of Vernal Pools; and 0.14 acres of Alkali Seasonal Wetlands and ensure there is no-net loss

of wetland area under Alternative 2, thus reducing potential impacts to **less than significant** under Alternative 2 and **the same as** the proposed Project.

Impact 6.5.3-17. Conservation and Protection Plan Conflicts. *This impact would be less than significant.*

As with the proposed Project, Alternative 2 would not conflict with existing conservation and protection plans as described in Section 4.3 for the proposed Project. In addition, Alternative 2 would preserve more area as Managed Open Space that would be managed consistent with existing relevant conservation and protection plans.

Because Alternative 2 would not conflict with the provisions of any adopted habitat conservation plan, and because Alternative 2 area occurs within the Primary and Secondary Management Areas of the Suisun Marsh Protection Plan and would be managed consistent with the Suisun Marsh Protection Plan's goals of preserving and enhancing the quality and diversity of Suisun Marsh wildlife habitats, this impact would be **less than significant** under Alternative 2 and **the same** as the Proposed Project.

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

The same vicinity subject to development and disturbance under Alternative 2 would also be subject to development and disturbance under Alternative 3. In addition, mitigation measures for Alternative 3 would be the same as detailed above under the discussion of Alternative 2. In the context of biological resources, while the habitat and species impacts would be similar to those described in Section 4.3, implementation of the Alternative 3 project would be **reduced** compared to the proposed Project due to the reduced area of impact (46 acres versus 93 acres).

6.5.4 CULTURAL AND TRIBAL CULTURAL RESOURCES

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

As with the proposed Project, Alternative 1 would also result in no impacts of known historical resources because no historical resources or unique archaeological resources have been identified. The impact would be **the same** as for the proposed Project.

While Alternative 1 would have a smaller area affected by development and reduced building square footage, it would still require new infrastructure that would involve ground disturbing activities As with the proposed Project, ground disturbing activities could unearth precontact or historic-era archaeological cultural resources. Implementation of Mitigation Measure 4.4-2 would reduce potentially significant impacts to cultural resources from Alternative 1 because evaluation of discovered resources would take place by a qualified archaeologist and appropriate Native American group, if appropriate, before construction would proceed and, if determined necessary, a data recovery plan and appropriate next steps would be developed in coordination with the appropriate federal, state, and/or local agency(ies) and Tribes to avoid, move, record, or otherwise treat discovered cultural resources appropriately, in accordance with pertinent laws and regulations.

Similarly, as with the proposed Project ground disturbing activities that could unearth buried subsurface human remains. Implementation of Mitigation Measure 4.4-3 in compliance with California Health and Safety Code, California Public Resources Code would reduce potential impacts on previously undiscovered human remains. Implementing this mitigation measure provides consultation with the Most Likely Descendant, and ensures that

any potential human remains encountered during construction would be treated in an appropriate manner under CEQA and other applicable laws and regulations.

Ground disturbing activities could also unearth buried subsurface tribal cultural resources. The Yocha Dehe Wintun Nation's Cultural Resources Department stated that after review of the Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Project area. Based on the information provided, the Tribe has concerns that the proposed Project could impact known cultural resources, and highly recommend including cultural monitors during development and ground disturbance, including Cultural Sensitivity Training prior to all ground disturbance activities. Additionally, they requested that the CEQA document incorporate Yocha Dehe Wintun Nation's Treatment Protocol into the mitigation measures for the proposed Project, provide the Tribe with a copy of the same, and continue to consult with the Tribe.

As with the proposed Project, implementation of Mitigation Measures 4.4-4a through 4.4-4d provided by the Yocha Dehe Wintun Nation's Cultural Resources Department would reduce potentially significant impacts to tribal cultural resources (TCRs) by providing an opportunity to avoid disturbance, disruption, or destruction of TCRs; develop mitigation in coordination with the Tribe to monitor ground-disturbance activities and have the authority request that work be stopped, diverted, or slowed if such TCRs are identified within the direct impact area; provide the Tribe final determination as to the disposition and treatment of human remains and grave goods; providing the Tribe appropriate treatment of cultural items, including ceremonial items and archeological items; and develop mitigation in coordination with the appropriate federal, state, and/or local agency(ies) and Tribes to record and evaluate significant discovered inadvertent cultural resources and TCRs appropriately in accordance with pertinent laws and regulations.

Because Alternative 1 would result in reduced ground disturbance due to the smaller area affected by development, Alternative 1 would result in a **reduced** level of impact on cultural and tribal cultural resources as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 4.4-1. Substantial adverse change in the significance of known historical resources. No impact would occur.

There are no known historical resources or known unique archaeological resources within areas that would be affected by Alternative 2 construction. As with the proposed Project, Alternative 2 would also result in **no impact** to known historical resources because no historical resources or unique archaeological resources have been identified. The impact for Alternative 2 would be **the same** as for the proposed Project.

Impact 4.4-2. Substantial adverse change to undiscovered historical resources or unique archeological resources. The impact would be potentially significant.

While Alternative 2 would result in a smaller development area and reduced building square footage, it would still require new infrastructure that would involve ground disturbing activities that could unearth precontact or historic-era archaeological cultural resources. There may be a slight reduction in the potential for discovery of cultural resources under Alternative 2 – for Alternative 2, the depth of excavation for detention ponds would be approximately 7 to 11 feet, while for the proposed Project, the depth of excavation for detention ponds would be 6 to 18 feet. The impact would be **potentially significant**.

Mitigation Measure 4.4-2 Avoid Potential Effects on Cultural Resources

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measure 4.4-2 would reduce potentially significant impacts to cultural resources from Alternative 2 because mitigation would be developed in coordination with the appropriate federal, state, and/or local agency(ies) and Tribes to avoid, move, record, or otherwise treat discovered cultural resources appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of cultural resources under Alternative 2, this impact would be reduced to **less than significant**. Alternative 2 would result in **similar impacts** to undiscovered historical resources or unique archeological resources as described in Section 4.4 for the proposed Project (Impact 4.4-2); however, because Alternative 2 would involve less ground disturbance, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 4.4-3. Disturbance of human remains. *This impact would be potentially significant.*

While Alternative 2 would result in a reduced area affected by development and reduced building square footage, as with the proposed Project, Alternative 2 would still require new infrastructure that would involve ground disturbing activities that could unearth buried subsurface human remains.

Mitigation Measure 4.4-3: Halt Construction if Human Remains are Discovered and Implement Appropriate Actions

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measure 4.4-3 in compliance with California Health and Safety Code and California Public Resources Code would reduce potential impacts on previously undiscovered human remains. Implementing this mitigation measure ensures that any potential human remains encountered during construction would be treated in an appropriate manner under CEQA and other applicable laws and regulations. By providing consultation with the Most Likely Descendant, this impact under Alternative 2 would be reduced to **less than significant**. Because Alternative 2 would involve less ground disturbance than the proposed Project, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project (Impact 4.4-3).

Impact 4.4-4. Substantial adverse change in the significance of a tribal cultural resources. *This impact would be potentially significant.*

While Alternative 2 would result in a smaller development area and reduced building square footage, it would still require new infrastructure that would involve ground disturbing activities that could unearth buried subsurface tribal cultural resources. The Yocha Dehe Wintun Nation's Cultural Resources Department stated that after review of the proposed Project, they concluded it is within the aboriginal territories of the Yocha Dehe Wintun Nation, and that they have a cultural interest and authority in the proposed Project area. Based on the information provided, the Tribe has concerns that the proposed Project could impact known cultural resources. The same would be true for Alternative 2. The impact would be **potentially significant**.

Mitigation Measure 4.4-4a: Cultural Sensitivity Training and Non-Disclosure of TCRs

Mitigation Measure 4.4-4b: Native American Monitoring

Mitigation Measure 4.4-4c: Treatment of Native American Remains

Mitigation Measure 4.4-4d: Treatment of Cultural Resources

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measures 4.4-4a through 4.4-4d would reduce potentially significant impacts to tribal cultural resources (TCRs) by providing an opportunity to avoid disturbance, disruption, or destruction of TCRs; develop mitigation in coordination with the Tribe to monitor ground-disturbance activities and have the authority request that work be stopped, diverted, or slowed if such TCRs are identified within the direct impact area; provide the Tribe final determination as to the disposition and treatment of human remains and grave goods; providing the Tribe appropriate treatment of cultural items, including ceremonial items and archeological items; and develop mitigation in coordination with the appropriate federal, state, and/or local agency(ies) and Tribes to record and evaluate significant discovered inadvertent cultural resources and TCRs appropriately in accordance with pertinent laws and regulations. Implementing these mitigation measures under Alternative 2 would reduce impacts to **less than significant**. Because Alternative 2 would involve less ground disturbance than the proposed Project, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project (Impact 4.4-4).

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

The same locations subject to development and disturbance under Alternative 2 at the same depths would also be subject to development and disturbance under Alternative 3, and so the impacts and required mitigation measures for Alternative 3 would be the same as detailed above under the discussion of Alternative 2.

6.5.5 GEOLOGY, SOILS, MINERALS, AND PALEONTOLOGICAL RESOURCES

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 would result in a smaller development area and reduced building square footage. Because fewer buildings would be subject to hazards from strong seismic ground shaking, this impact would be **reduced** under Alternative 1 as compared to the proposed Project.

Because a smaller area would be developed with urban uses, the level of construction-related erosion, sedimentation, and associated degradation of water quality; and the potential impacts from construction in unstable or expansive soils, would also be **reduced** under Alternative 1 as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.7-1. Risks to People and Structures Caused by Strong Seismic Ground Shaking. This impact would be less than significant.

As described in Section 4.7, "Geology, Soils, Minerals, and Paleontological Resources," in Impact 4.7-1, the Alternative 2 development area and the off-site improvement areas are located in a seismically active area. There is a 72 percent probability of a major, damaging earthquake occurring in the San Francisco Bay Region during the 30-year timeframe of 2013–2043. The Green Valley-Cordelia-Concord Fault System is located approximately 3.2 miles west of the Alternative 2 site and is classified by CGS as active. The Green Valley Fault System (connected) has the potential to generate a M 6.8 earthquake (Mid Pacific Engineering, Inc. [MPE] 2020). The Vaca-Pittsburg-Kirby Hills Fault Zone and the Great Valley Fault Zone Segment 5 are potentially active and are located approximately 5 miles east of the Alternative 2 site. As with the proposed Project, a large magnitude earthquake on any of these faults, or along other active faults such as the West Napa (11 miles west of the Alternative 2 site) or Hayward-Rodgers Creek (22 miles west of the Alternative 2 site), would subject people and structures at the Alternative 2 development area and the off-site improvement areas to risks from strong seismic ground shaking. As with the proposed Project, under Alternative 2 all structures and infrastructure in the development area and the off-site improvement areas must be designed and built according to the requirements of the seismic design parameters specified in the California Building Standards Code (CBC). In addition to the geotechnical report prepared by MPE (2020) for the Alternative 2 site, which covers the same area as the Alternative 2 development area), an additional, more detailed, geotechnical report would be prepared prior to preparation of detailed construction plans and prior to building permit application. Therefore, the potential damage to the proposed development under Alternative 2 from strong seismic ground shaking would be addressed through proper design as determined by a licensed engineer. The Suisun City Planning Department would review the Alternative 2 building permit applications for compliance with the CBC and implementation of recommendations in the geotechnical study to address seismic hazards. Therefore, impacts related to strong seismic ground shaking under Alternative 2 would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.7-1); however, because Alternative 2 would expose fewer buildings and people to hazards from strong seismic ground shaking, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.7-2. Construction-Related Soil Erosion. This impact would be *less than significant*.

As described in Impact 4.7-2 for the proposed Project, construction activity for Alternative 2 (in the area proposed for development and the off-site improvement areas) would include soil removal, trenching, excavation, pipe and footing installation, grading, and revegetation. No work would be performed in the bed or bank of Ledgewood Creek. Construction activities would result in the temporary disturbance of soil and would expose disturbed areas to winter storm events resulting in stormwater runoff. In addition, soil erosion could occur from summer/fall wind events. However, the Project applicant must comply with the Suisun City Grading, Erosion Control, and Creekside Development Ordinance (Title 15, Chapter 15.12 of the Suisun City Municipal Code). The ordinance requires project applicants to obtain a grading permit, which must include submittal of engineered grading plans and a soils and engineering geology report. The report also must include a suite of Best Management Practices (BMPs) to control runoff and erosion. Furthermore, because Alternative 2 includes construction activities that would disturb more than 1 acre, the Project applicant must obtain a Construction General Permit from the San Francisco Bay Regional Water Quality Control Board (RWQCB) through the National Pollutant Discharge and Elimination System (NPDES) Stormwater Program. The Construction General Permit requires the

implementation of BMPs to reduce sedimentation into surface waters and to control erosion, as well as preparation of a Storm Water Pollution Prevention Plan (SWPPP) that addresses control of water pollution, including sediment, in runoff during construction. Through compliance with these requirements, construction-related water quality impacts related to soil erosion and stormwater runoff under Alternative 2 would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.7-2); however, because Alternative 2 would disturb less soil over a smaller area, the area exposed to construction-related soil erosion would be smaller, and **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.7-3. Potential Damage to Structures and Infrastructure from Construction in Unstable/Expansive Soils. This impact would be *less than significant.*

The results of soil borings and laboratory analyses that are part of the geotechnical report for the proposed Project (MPE 2020) are also applicable to Alternative 2. As described in Impact 4.7-3 for the proposed Project, MPE (2020) found that seismically-induced settlement, static settlement, and differential settlement would be expected from construction in unstable soils in the proposed Development Area. MPE (2020) also noted that because shallow groundwater is present, excavation during or shortly after the rainy season in the near-surface soils may occur when soil moisture is high enough such that substantial aeration or lime-treatment may be required to dry the soils to moisture content where the specified degree of compaction can be achieved. This situation is likely to be true for the off-site improvements under Alternative 2, as well. In addition, due to the high water table, MPE (2020) noted that groundwater is likely to exert substantial pressure on building slabs. This problem could result in soils-related cracking of the slab-on-grade floors. MPE (2020) found that the soils in the proposed Development Area have a moderate to high expansion potential. Soil expansion, including volume changes during seasonal fluctuations in moisture content, could adversely affect interior slabs-on-grade, landscaping hardscapes, and underground pipelines. However, the geotechnical report (MPE 2020) includes recommendations to address all of these issues, as discussed in detail in Impact 4.7-3.

The Project applicant would be required to implement the measures that are determined by the soils and civil/structural engineering studies to be appropriate for the project under Alternative 2, in accordance with the requirements of the CBC and the City of Suisun City. With adherence to the requirements of the CBC as applicable to the site-specific nature of the soils, and the required permit application and design review for on-site improvements by the City of Suisun City, impacts under Alternative 2 related to construction in unstable/expansive soils would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.7-3); however, because Alternative 2 would expose fewer buildings over a smaller area to hazards from construction in unstable/expansive soils, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Issues Where No Impact Would Occur

For the same reasons discussed in Section 4.7.3, "Environmental Impacts and Mitigation Measures," under the heading "Issues Not Discussed Further," the following issues would also result in **no impact** under Alternative 2.

- Risks to People or Structures Caused by Surface Fault Rupture
- Risks to People or Structures Caused by Liquefaction
- Risks to People or Structures Caused by Landslides
- Soil Suitability for Septic Systems

- Destruction of a Unique Paleontological Resource or Site
- Destruction of a Unique Geologic Feature
- Loss of Mineral Deposits of Statewide or Local Importance

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 would result in an approximately 50 percent reduction in the size of the Development Area and would involve construction of only 470,000 square feet of building space as compared to 1.28 million square feet of building space under the proposed Project. Because less new building square footage would be subject to hazards from strong seismic ground shaking, this impact would be reduced under Alternative 3 as compared to the proposed Project. Because a smaller area would be developed with urban uses, the level of construction-related erosion, sedimentation, and associated degradation of water quality; and the potential impacts from construction in unstable or expansive soils, would be **reduced** under Alternative 3 as compared to the proposed Project.

6.5.6 GREENHOUSE GAS EMISSIONS AND ENERGY

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Under Alternative 1, there would be a reduced amount of overall construction and construction-related GHG emissions and energy demand. Alternative 1 would develop approximately 73 acres of land area compared to approximately 93 acres under the proposed Project, plus off-site improvement areas. Alternative 1 would reduce temporary, construction-related GHG emissions by approximately 20 percent compared to the proposed Project.

Alternative 1 would also generate long-term operational emissions from motor vehicle trips to and from the site; fuel combustion from landscape maintenance equipment; natural gas combustion emissions from on-site natural gas use; off-site generation of electricity used at the site; and solid waste. Since Alternative 1 would reduce the building square footage and area devoted to landscaping, GHG emissions associated with landscape maintenance equipment, natural gas use, and electricity generation would be reduced compared to the proposed Project. Alternative 1 would involve a mix of commercial service and retail uses instead of the warehousing and logistics uses proposed for the Project, which would increase the number of daily vehicular trips to and from the site, though many of the trips would be expected to be shorter compared to the truck trips attracted to the Project Site under the proposed Project. Even accounting for pass-by trips that could range from 15 to 30 percent of the total, the total mobile source GHG emissions associated with Alternative 1 would be higher than that generated under the proposed Project. Alternative 1 would also reduce the amount of employment provided on the site, and since GHG emissions are evaluated according to their efficiency per employee, Alternative 1 would be less efficient compared to the proposed Project. This is not a retail-poor area where adding commercial uses could help to reduce relatively long existing commercial trips. The site is not surrounded by compact residential development that would make frequent walking and bicycling trips to the commercial uses under Alternative 1 common. While minor sources of GHG emissions such as energy would be reduced compared to the proposed Project, since mobile sources are the most important source of GHG emissions, and since Alternative 1 would be less transportation efficient compared to the proposed Project, the GHG impact associated with Alternative 1 would be **increased** compared to the proposed Project. The same is true of energy – transportation is the largest user of energy, and since transportation demand would be increased under Alternative 1 compared to the proposed Project, overall energy use would be **increased** compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.6-1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. This impact would be cumulatively considerable.

As with the proposed Project, construction and operation of the proposed facilities associated with the logistics Under Alternative 2 would result in GHG emissions. There would be a reduced amount of building square footage and area affected by construction. Alternative 2 would develop approximately 51 acres of land area compared to approximately 93 acres under the proposed Project, plus off-site improvement areas, and construction of wetlands within the Managed Open Space. Temporary construction-related GHG emissions would be reduced by approximately 20 percent under Alternative 2 compared to the proposed Project.

Operational GHG emissions under Alternative 2 would include those associated with vehicular trips; fuel combustion from landscape maintenance equipment; natural gas combustion emissions from on-site natural gas use; off-site generation of electricity used at the site; and solid waste. With the reduction in square footage of building space and area devoted to landscaping, emissions associated with landscape maintenance equipment, natural gas use, and electricity generation would be reduced compared to the proposed Project. With the decrease in square footage, operational capacity, and employment as a part of Alternative 2 compared to the proposed Project, the mass GHG emissions associated with both truck and non-truck trips attracted to the site would be decreased. Since GHG emissions impacts are evaluated according to their efficiency per employee, and since both emissions and employment would be reduced proportionally, the overall GHG efficiency under Alternative 2 would be approximately 34 MT CO_2e per employee, which would exceed the GHG efficiency threshold. Mitigation Measures 4.6-1a through 1n would apply to Alternative 2 in the same manner as the proposed Project, reduced construction-related and operational emissions. However, the City cannot guarantee the availability of emissions credits meeting the standards outlined in Mitigation Measures 4.6-1m presented in Section 4.6 of this EIR. There is no additional feasible mitigation available. Therefore, with implementation of Mitigation Measures 4.6-1a through 4.6-1n, Alternative 2 construction and operations would be **cumulatively considerable and significant and unavoidable**. This impact conclusion is **the same** as for the proposed Project (Impact 4.6-1).

Impact 6.5.6-2. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or conflict with or obstruction of a State or local plan for renewable energy or energy efficiency. *This impact would be less than significant.*

As with the proposed Project, construction and operation of the proposed facilities associated with the logistics Under Alternative 2 would result in fuel consumption and electricity and natural gas consumption from equipment and vehicle use and building operations. However, there would be a reduced amount of building square footage and area affected by construction, and therefore, construction-related energy use would be reduced compared to the proposed Project. Based on the reduction in building square footage, energy demand would also be **reduced** under Alternative 2 compared to the proposed Project and, for the same reasons as described for the proposed Project (Impact 4.6-2), this impact for Alternative 2 would be **less than significant**.

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

With the reduced amount of building square footage and area affected by construction, short-term, construction-related emissions and energy demand under Alternative 3 would be reduced when compared with that of the

proposed Project. Alternative 3 would develop approximately 46 acres of land area compared to approximately 93 acres under the proposed Project, plus off-site improvement areas. Construction-related emissions would be reduced by approximately 50 percent under Alternative 3 compared to the proposed Project.

With the reduction in square footage of building space and area devoted to landscaping under Alternative 3, emissions associated with landscape maintenance equipment, natural gas use, and electricity generation and associated GHG emissions would be reduced compared to the proposed Project.

With the office space added under Alternative 3 intended to increase jobs for local residents, commute-related mobile source emissions could be reduced. The two-way weighted average travel distance to work for Suisun City residents is approximately 33 miles (U.S. Census Bureau 2020). If 33 percent of the 1,100 jobs in office settings included as a part of Alternative 3 could be filled by local residents, this would have the potential to decrease commute-related VMT and associated GHG emissions by approximately 30 percent, assuming single-occupant vehicular trips only. This assumes that the office uses developed on-site as a part of Alternative 3 do not attract a significant number of motorist customers. Based on the relatively higher trip generation rate for office uses compared with warehousing and logistics uses, the number of daily trips would increase in comparison to the proposed Project – by approximately 30 percent. However, since the average trip distance would be reduced under Alternative 3, the total GHG emissions and fuel consumption from mobile sources under Alternative 3 would be reduced compared to the proposed Project. Overall, the GHG emissions and Energy impacts under Alternative 3 would be **reduced** compared with the proposed Project.

6.5.7 HAZARDS AND HAZARDOUS RESOURCES

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 would result in a smaller development area and reduced building square footage. Thus, under Alternative 1 the potential hazards associated with routine transport, use, or disposal of hazardous materials and the potential for exposure to hazardous materials from upset and accident conditions would be **reduced** as compared to the proposed Project.

Under Alternative 1, new urban development in the northwestern corner of the Alternative 1 site would be subject to similar hazards from the contaminated groundwater plume emanating from 1745 Enterprise Drive north of SR 12 (which extends underneath the Alternative 1 site). Also under Alternative 1, new urban development immediately west of the former landfill, on the west side of Pennsylvania Avenue, would be subject to a similar level of exposure to temporary construction workers or permanent employees to hazards from the former landfill from contaminated soil, groundwater, or off-gassing that could degrade interior air quality as compared to the proposed Project. However, under Alternative 1, there would be no new urban development east of Pennsylvania Avenue. Thus, there would no potential for exposure of temporary construction workers or permanent employees to hazards from contaminated soil, groundwater, or off-gassing that could degrade interior air quality from the former Pennsylvania Avenue landfill from new development immediately to the south. Therefore, the level of impact from potential off-site hazardous materials under Alternative 1 would be **reduced** as compared to the proposed Project.

Under Alternative 1, new urban development would result in the same potential as compared to the proposed Project to hazards from accidental rupture of known underground pipelines, and from the potential to encounter contaminated soil adjacent to the railroad tracks used by the California Northern Railroad. As with the proposed

Project, implementation of Mitigation Measures 4.7-3a and 4.7-3b would reduce the level of these impacts under Alternative 1. Therefore, Alternative 1 would result in a **similar** level of impact as compared to the proposed Project.

As with the proposed Project, the Alternative 1 site and off-site improvement areas are located in the Travis Air Force Base Airport Land Use Compatibility Plan (ALUCP) land use compatibility Zone D, which requires that: (1) structures are limited to a height that is less than 200 feet above the ground surface, and (2) notice of aircraft overflights must be provided to property owners. As with the proposed Project, review of Alternative 1 land use plans by the Solano County Airport Land Use Commission would ensure compatibility with applicable provisions of the ALUCP, and therefore Alternative 1 would result in **similar** impacts related to airport compatibility hazards.

As with the proposed Project, Alternative 1 would not increase aviation-related bird strike hazards because the on-site detention basin that is assumed to be required if the smaller site were developed as a shopping center would be designed to drain quickly (i.e., detention not retention); thus, new waterfowl habitat would not be created. Therefore, Alternative 1 would result in a **similar** level of impact as compared to the proposed Project. Finally, under Alternative 1, because less off-site roadway work would be necessary, the level of impact from temporary construction-related increases in emergency response times from lane closures would be reduced as compared to the proposed Project. As with the proposed Project, implementation of Mitigation Measure 4.7-5 would reduce the level of this impact under Alternative 1. Therefore, Alternative 1 would result in a **reduced** level of impact as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.9-1. Routine Transport, Use, or Disposal of Hazardous Materials. *This impact would be less than significant.*

As with the proposed Project, construction and operation of the proposed facilities associated with the logistics center under Alternative 2, along with the off-site improvements, would involve the routine storage, use, transport, and disposal of hazardous materials such as fuels, oils and lubricants, paints and paint thinners, glues, and cleaning fluids (e.g., solvents). However, as described in detail in Section 4.7.2, “Regulatory Framework,” the same federal, State, and local regulations that require adherence to specific guidelines regarding the use, transportation, and disposal of hazardous materials to prevent accidental releases would also apply to Alternative 2. The construction contractor, along with future industrial and commercial tenants in the logistics center under Alternative 2, are required by law to comply with the provisions of the California Hazardous Materials Regulations and other federal, State, and local regulations and requirements discussed in Section 4.7.2, “Regulatory Framework,” including preparation of a Hazardous Material Business Plan. In addition, Suisun City would enforce its General Plan policies and Municipal Code requirements through project conditions of approval. Therefore, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.7-1); however, because Alternative 2 would result in a lesser amount of construction and fewer buildings during operation, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.9-2. Exposure to Hazardous Materials from Upset and Accident Conditions. *This impact would be less than significant.*

The planned land uses at the Alternative 2 site under Alternative 2 would be the same as the proposed Project, and would not generate potentially hazardous materials, and would not involve the use, handling or storage of large quantities of hazardous materials. Compliance with federal, state, and regional/local regulations, which are presented in detail in Section 4.7.2, "Regulatory Framework," would reduce the risk or severity of an accident from construction and operation under Alternative 2. Compliance with these regulations would reduce the risk of accidental hazardous materials release from construction and operation under Alternative 2 to a **less-than-significant** level. This impact conclusion is the same as the proposed Project (Impact 4.7-2); however, because Alternative 2 would result in a lesser amount of construction and fewer buildings during operation, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.9-3. Exposure of People and the Environment to Existing Hazardous Materials, Including Cortese-listed Sites. *This impact is considered potentially significant.*

Under Alternative 2, roadway improvements to SR 12 would not be necessary, and thus there would be no potential for construction worker exposure to aerially deposited lead. Under Alternative 2, there would be no new urban development east of Pennsylvania Avenue, and no new urban development west of Pennsylvania Avenue immediately across from the former Pennsylvania Avenue landfill. Thus, there would no potential for exposure of temporary construction workers or permanent employees to hazards from contaminated soil, groundwater, or off-gassing that could degrade interior air quality from the former Pennsylvania Avenue landfill from adjacent development to the south or west. Thus, under Alternative 2 there would be **no impact** from exposure to aerially deposited lead or hazardous materials from the former Pennsylvania Avenue, as compared to the proposed Project which would result in a greater level of exposure with a **less-than-significant** impact conclusion (Impact 4.9-3).

New urban development in the northwestern corner of the Alternative 2 site under Alternative 2 would be subject to the same hazards from the contaminated groundwater plume emanating from 1745 Enterprise Drive north of SR 12 (which extends underneath the Alternative 2 site). As described in detail in Section 4.7, "Hazards and Hazardous Materials," Impact 4.7-3, a Groundwater and Soil Gas Investigation (Brusca Associates 2021) was prepared to evaluate potential human and environmental hazards from the contaminated groundwater plume. The results of laboratory analyses demonstrated that although low levels of 1,1-dichloroethene (DCE) and 1,1-dichloroethane (DCA) were detected in groundwater samples obtained in 2021, the levels were below California maximum contaminant level thresholds and were also below San Francisco Bay RWQCB screening values for indoor air vapor intrusion. Although one sample contained a slightly elevated value of tetrachloroethene (PCE), the sample was obtained from an area that would not be underneath Building A and thus indoor air quality would not be affected. Therefore, the very low concentrations of DCE, DCA, and PCE at the Alternative 2 site in the area of the contaminated groundwater plume emanating from Enterprise Drive would not represent a human health hazard from direct contact or indoor air quality, or an environmental hazard from construction dewatering. As with the proposed Project (Impact 4.7-3), this impact under Alternative 2 is considered **less than significant**.

Under Alternative 2, new urban development would result in the same potential as compared to the proposed Project to hazards from accidental rupture of known underground pipelines, and from the potential to encounter contaminated soil adjacent to the railroad tracks used by the California Northern Railroad.

Mitigation Measure: Implement Mitigation Measure 4.7-3a (Prepare and Implement a Site-Specific Health and Safety Plan).

Mitigation Measure: Implement Mitigation Measure 4.7-7b (Locate and Avoid Underground Utilities in Areas Where Development is Proposed, and Prepare a Response Plan to be Implemented if Accidental Rupture Occurs).

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measures 4.7-3a and 4.7-3b would reduce impacts related to hazards and hazardous materials under Alternative 2 to a **less-than-significant** level because a site-specific Health & Safety Plan (HASP) would be prepared and implemented. The HASP would contain specific training requirements designed to reduce hazards from elevated hazardous materials contamination, site safety issues, and potential accidental pipeline rupture. In addition, the Project applicant would coordinate with Kinder Morgan, PG&E, and the City of Vallejo to mark the location of high-pressure pipeline rights-of-way for avoidance during construction, and would utilize Underground Service Alert to locate, mark, and flag for avoidance any other buried utilities. This impact is considered **potentially significant.** This impact conclusion is the same as the proposed Project (Impact 4.7-3); however, because Alternative 2 would result in a lesser amount of construction over a much smaller area, **the level of impact would be reduced** under Alternative 2, as compared to the proposed Project.

Impact 6.5.9-4. Creation of Potential Safety Hazards, Including Possible Birdstrike, in the Vicinity of an Airport. *This impact would be less than significant.*

Alternative 2 site and the off-site improvement areas are approximately 4.5 miles southwest of Travis AFB. The Alternative 2 site and off-site improvement areas are located in ALUCP land use compatibility Zone D, which requires that: (1) structures are limited to a height that is less than 200 feet above the ground surface, and (2) notice of aircraft overflights must be provided to property owners. As with the proposed Project, the maximum height of structures proposed at the Alternative 2 site under Alternative 2 would be approximately 30 feet, and notice of aircraft overflights would be provided to future site-specific developers. Therefore, the proposed development under Alternative 2 would be in compliance with land use compatibility Zone D. Furthermore, as with the proposed Project, Alternative 2 would not increase aviation-related bird strike hazards because the on-site detention basins would be designed to drain quickly (i.e., detention not retention), and new created mitigation habitat would replace existing habitat lost to development at a 1:1 ratio; thus, new waterfowl habitat would not be created and this impact is **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.7-4); however, because Alternative 2 would result in construction over a smaller area and fewer buildings and detention basins during operation, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.9-5. Interference with Emergency Response or Evacuation Plans. *This impact would be potentially significant.*

Development within the logistics center under Alternative 2 is subject to design review by the City, and is required to comply with City standards relating to appropriate street design to accommodate emergency vehicles and emergency evacuation thoroughfares. Under Alternative 2, off-site roadway improvements to SR 12 would not be necessary. However, off-site roadway improvements under Alternative 2 would be needed along the north side of Cordelia Road and the west side of Pennsylvania Avenue, along with off-site improvements along

Cordelia Avenue and Beck Avenue for water supply and wastewater conveyance pipelines. Project-related construction activities under Alternative 2 could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times and impeding existing services. Potential reduction of emergency response services during construction of the proposed on-site land uses and the off-site improvements under Alternative 2 would be a **potentially significant** impact.

Mitigation Measure: Implement Mitigation Measure 4.7-5 (Implement Traffic Control Plans).

Significance after Mitigation

As with the proposed Project, implementation of Mitigation Measure 4.7-5 would reduce the impacts related to interference with emergency response or emergency evacuation plans under Alternative 2 to a **less-than-significant** level because a traffic control plan(s), designed to avoid traffic-related hazards and maintain emergency access during construction phases, would be prepared and submitted to the City and/or Caltrans, as appropriate, for approval. This impact conclusion is the same as the proposed Project (Impact 4.7-5); however, because Alternative 2 would result in a lesser amount of off-site construction on fewer roadways, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Issues Where No Impact Would Occur

For the same reasons discussed in Section 4.7.3, "Environmental Impacts and Mitigation Measures," under the heading "Issues Not Discussed Further," the following issues would also result in **no impact** under Alternative 2.

- Result in Hazardous Emissions within One-Quarter Mile of a School
- Impacts Associated with Wildfires

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 would result in an approximately 50 percent reduction in the size of the development area and would involve construction of only 470,000 square feet of building space as compared to 1.28 million square feet of building space under the proposed Project. Thus, under Alternative 3 the potential hazards associated with routine transport, use, or disposal of hazardous materials and the potential for exposure to hazardous materials from upset and accident conditions would be **reduced** as compared to the proposed Project.

Depending on the location of new buildings under Alternative 3, new urban development immediately west of the former landfill on the west side of Pennsylvania Avenue would be subject to a similar level of exposure to temporary construction workers or permanent employees to hazards from the former landfill, and from the contaminated groundwater plume emanating from 1745 Enterprise Drive north of SR 12 (which extends underneath the Alternative 3 site) from contaminated soil, groundwater, or off-gassing that could degrade interior air quality as compared to the proposed Project. However, under Alternative 3, there would be no new urban development east of Pennsylvania Avenue. Thus, there would no potential for exposure of temporary construction workers or permanent employees to hazards from contaminated soil, groundwater, or off-gassing that could degrade interior air quality from the former Pennsylvania Avenue landfill from new urban development to the south. Therefore, potential hazards from the off-site landfill would be **reduced** under Alternative 3.

Under Alternative 3, roadway improvements to SR 12 would not be necessary, and thus there would be no potential for construction worker exposure to aerially deposited lead. Under Alternative 3, new urban development would result in the same potential as compared to the proposed Project to hazards from accidental rupture of known underground pipelines, and from the potential to encounter contaminated soil adjacent to the railroad tracks used by the California Northern Railroad. As with the proposed Project, implementation of Mitigation Measures 4.7-3a and 4.7-3b would reduce the level of these impacts under Alternative 3. Therefore, Alternative 3 would result in a **similar** level of impact as compared to the proposed Project.

As with the proposed Project, the Alternative 3 site and off-site improvement areas are located in the Travis Air Force Base Airport Land Use Compatibility Plan (ALUCP) land use compatibility Zone D, which requires that: (1) structures are limited to a height that is less than 200 feet above the ground surface, and (2) notice of aircraft overflights must be provided to property owners. As with the proposed Project, review of Alternative 3 land use plans by the Solano County Airport Land Use Commission would ensure compatibility with applicable provisions of the ALUCP, and therefore Alternative 3 would result in **similar** impacts related to airport compatibility hazards.

As with the proposed Project, Alternative 3 would not increase aviation-related bird strike hazards because the on-site detention basin that is assumed to be required if the smaller site were developed with warehouse/office uses would be designed to drain quickly (i.e., detention not retention); thus, new waterfowl habitat would not be created. Furthermore, since Alternative 3 would result in an approximately 50 percent reduction in the developed area, the size and/or number of detention basins under Alternative 3 would be reduced. Therefore, Alternative 3 would result in a **reduced** level of impact as compared to the proposed Project.

Finally, under Alternative 3, because less off-site roadway work would be necessary, the level of impact from temporary construction-related increases in emergency response times from lane closures would be reduced as compared to the proposed Project. As with the proposed Project, implementation of Mitigation Measure 4.7-5 would reduce the level of this impact under Alternative 3. Therefore, Alternative 3 would result in a **reduced level of impact** as compared to the proposed Project.

6.5.8 HYDROLOGY AND WATER QUALITY

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Under Alternative 1, the Project applicant/s would be required to comply with the same federal, state, and local regulations governing stormwater runoff and protection of groundwater and surface water quality as the proposed Project. These regulations include preparing and implementing a SWPPP with BMPs during construction, and implementing appropriate long-term stormwater design measures as required by the Fairfield-Suisun Urban Management Runoff Program (FSURMP) that would be operated according to a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan. Under Alternative 1, a smaller area of land would be developed with urban uses and there would be a reduced building square footage as compared to the proposed Project, resulting in less construction and operation-related stormwater runoff. Therefore, impacts under Alternative 1 related to violation of water quality standards or substantial degradation of surface or groundwater quality would be **reduced** as compared to the proposed Project.

Because Alternative 1 would require a reduced amount of groundwater for potable water supply and landscape irrigation as compared to the proposed Project, Alternative 1 would result in a reduced level of impact from

substantial decreases groundwater supplies. Furthermore, since Alternative 1 would result in a reduction in the amount of impervious surfaces in the proposed development area as compared to the proposed Project, Alternative 1 would result in a **reduced** level of impact related to interference with groundwater recharge.

New development under Alternative 1 in the approximately 73-acre proposed development area could alter drainages and would add impervious surfaces, which could result in increased erosion or siltation. Under Alternative 1, the project applicants would be required to comply with the same federal, state, and local regulations governing stormwater runoff and protection of groundwater and surface water quality as the proposed Project. These regulations include preparing and implementing a SWPPP with BMPs during construction, and implementing appropriate long-term stormwater design measures as required by the FSURMP that would be operated according to a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan. Under Alternative 1, a smaller area of land would be developed with urban uses and there would be a reduced building square footage as compared to the proposed Project, resulting in less alteration of drainages and less construction and operation-related stormwater runoff. Therefore, impacts under Alternative 1 related to substantial alteration of drainage patterns or the addition of impervious surfaces resulting in increased erosion or siltation would be **reduced** as compared to the proposed Project.

Under Alternative 1, as with the proposed Project, the 73-acre proposed development area would be situated within a FEMA 100-year flood hazard zone. However, the Project applicant is required to comply with Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), which requires a permit from the City's floodplain administrator. The permit application must include plans demonstrating compliance with Municipal Code requirements related to floodproofing, and be certified by a registered engineer. A Master Drainage Plan would be required for Alternative 1 that incorporates stormwater design and water quality and runoff controls per the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012), along with a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan, all of which would require city approval prior to approval of improvement plans and building permits. Under Alternative 1, a smaller area of land would be developed with urban uses and there would be a reduced building square footage as compared to the proposed Project. Therefore, under Alternative 1, the impacts from substantial alteration of drainage patterns or the addition of impervious surfaces that would exceed storm drainage systems, result in increased flooding, or impede or redirect flood flows would be **reduced** as compared to the proposed Project.

As with the proposed Project, the Alternative 1 site is not located in a seiche or tsunami hazard area. Although construction materials could be temporarily stored in a FEMA 100-year flood hazard area, the Project applicant is required to comply with Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), which requires a permit from the City's floodplain administrator. The permit application must include plans illustrating the location(s) that are designated for temporary construction-related storage of materials and equipment, which the city's floodplain administrator must review and approve. The floodplain administrator may require the construction of temporary berms or dikes around the construction materials/equipment storage areas, to ensure sufficient protection from flood flows, if warranted. Under Alternative 1, a smaller area of land would be developed with urban uses and therefore a smaller amount and area of construction materials may be temporarily located in a floodplain. Therefore, under Alternative 1, the impacts from the risk of release of pollutants from inundation in a tsunami, seiche, or flood hazard zone would be **reduced** as compared to the proposed Project.

As with the proposed Project, under Alternative 1 the required compliance with existing laws, regulations, ordinances, and policies related to water quality control, which are required by law, ensures that Alternative 1 would not conflict with the San Francisco Bay Basin Plan. A groundwater sustainability plan (GSP) for the Suisun-Fairfield Valley Groundwater Basin is not required nor are there any plans to prepare one; therefore, as with the proposed Project, Alternative 1 would not conflict with a sustainable groundwater management plan. Because there are no plans to drill a new groundwater well for water supply, and because Alternative 1 would result in reduction in impervious surfaces as compared to the proposed Project, Alternative 1 would result in a **reduced level of impact** from substantial decreases in groundwater supplies or interference with groundwater recharge, and therefore, as with the proposed Project, would not substantially reduce groundwater sustainability in the Suisun-Fairfield Valley Groundwater Basin.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.10-1. Violate Water Quality Standards or Substantially Degrade Surface or Groundwater Quality. *This impact would be less than significant.*

Under Alternative 2, approximately 45 acres of cattle grazing land would be converted to urban development in the form of new industrial (i.e., logistics and warehouse) land uses. In addition, off-site improvements related to roadways, water lines, and a sewer line would also occur. Construction and operation under Alternative 2 would result in increased stormwater runoff, which could in turn result in transport of sediment and other pollutants to on-site and off-site waterways. These pollutants could degrade receiving water quality thereby violating water quality standards and interfering with implementation of the San Francisco Bay Basin Plan. Furthermore, groundwater quality could be affected either by direct contact during construction-related earthmoving activities, or by indirect contact as a result of percolation of stormwater. As with the proposed Project, under Alternative 2 the Project applicant must comply with the SWRCB's Construction General Permit, which requires preparation and implementation of a SWPPP with site-specific BMPs designed to prevent stormwater runoff and pollutant transport during construction activities. Similarly, as with the proposed Project, under Alternative 2, long-term operational water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater. Operational stormwater requirements are contained in the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012), which is required to achieve compliance with the FSURMP's NPDES MS4 Phase II General Permit. Furthermore, industrial or commercial facilities require appropriate NPDES permits/waste discharge requirements, and implementation of BMPs consistent with the *California Stormwater Quality Association (CASQA) Industrial/Commercial BMP Handbook* (CASQA 2019) or its equivalent, including annual reporting of any structural control measures and treatment systems. These measures would protect water quality as required by the San Francisco Bay Basin Plan. Therefore, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-1); however, because Alternative 2 would result in a lesser amount of construction and operation over a smaller area, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-2. Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge. *This impact would be less than significant.*

Potable water for development at the Alternative 2 site would be supplied by SID. Water supplied by SID for urban uses is obtained from surface water, from Lake Berryessa via the Solano Project (through a contract with the U.S. Bureau of Reclamation). Alternative 2 would result in reduced water demands for both potable and landscape irrigation water, because a smaller area with less building square footage and fewer employees would

be developed. Because Alternative 2 would not include drilling new groundwater wells, and because SID would have sufficient surface water supplies to serve the Alternative 2 water demands through the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement executed in 2022 (Kjeldsen, Sinnock, and Neudeck, Inc. 2022), Alternative 2 would not substantially decrease groundwater supplies, and this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-2); however, because Alternative 2 would result in a reduced water demand, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

The Suisun-Fairfield Valley Groundwater Basin is a low priority basin, and therefore a GSP is not required nor are there any plans to prepare one. Alternative 2 would result in new impervious surfaces over the approximately 45-acre proposed development area. However, the remaining approximately 437 acres of Alternative 2 site would continue to be available for groundwater recharge through rainwater percolation, because this area of the Alternative 2 site would continue to be operated with the existing land use (i.e., cattle grazing). The new 45 acres of impervious surfaces would represent only an approximately 9 percent decrease in the area available for groundwater recharge at the Alternative 2 site. Therefore, Alternative 2 would not substantially interfere with groundwater recharge, and this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-2); however, because Alternative 2 would result in a reduced amount of impervious surfaces, **the level of impact would be reduced** under Alternative 2 as compared to the Proposed project.

Impact 6.5.10-3. Substantially Alter Drainage Patterns or Add Impervious Surfaces Resulting in Increased Erosion or Siltation. *This impact would be less than significant.*

Alternative 2 would result in new impervious surfaces over the approximately 45-acre proposed development area. As described above in Impact 6.5.10-1 (and for the proposed project in Impact 4.8-3), the Project applicant must comply with the SWRCB's Construction General Permit, which requires preparation and implementation of a SWPPP with site-specific BMPs designed to prevent stormwater runoff and pollutant transport during construction activities. Similarly, as with the proposed Project, under Alternative 2, long-term operational water quality impacts must be reduced using site design and source control measures to help keep pollutants out of stormwater through compliance with the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012), which is required to achieve compliance with the FSURMP's NPDES MS4 Phase II General Permit. Therefore, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-3); however, because Alternative 2 would result in a lesser amount of construction and operation over a smaller area, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-4. Substantially Alter Drainage Patterns or Add Impervious Surfaces that would Exceed Storm Drainage Systems, Result in Increased Flooding, or Impede or Redirect Flood Flows. *This impact would be less than significant.*

Alternative 2 would result in new impervious surfaces over the approximately 45-acre proposed development area. As with the proposed Project, under Alternative 2 storm drainage from proposed building roofs and parking lots would be routed into bioretention facilities for infiltration and treatment prior to discharge to the on-site detention basins. The bottom of the on-site detention basins would also be constructed as a bioretention facility. LID features may include disconnected roof drains and disconnected pavement. The proposed locations of detentions basins and LID features are shown on Exhibit 6-2. The proposed on-site detention basin volumes are based on the 100-year, 24-hour storm event with outflows restricted to 95 percent of pre-development flows or less (as required by the City). The detention basins and LID features shown in Exhibit 6-2 are based on the

FSURMP *Stormwater C.3 Guidebook* (FSURMP 2012) requirements. The Drainage Master Plan prepared for the proposed Project (Morton & Pitalo 2021) has been revised specific to Alternative 2, to include hydraulic, floodplain, hydrologic, and water quality analyses for the proposed development under Alternative 2 (Morton & Pitalo 2022). The Drainage Master Plan for Alternative 2 includes modeling results, as required by the City, demonstrating that Alternative 2 includes appropriate stormwater runoff design features, properly sized stormwater drainage features, and appropriate stormwater quality treatment features so that the new impervious surfaces would not increase the peak discharge rate of stormwater runoff and would not result in erosion, sedimentation, and on-site or downstream flooding. Furthermore, as with the proposed Project, Alternative 2 would be operated according to a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan. City approval of the Alternative 2 Drainage Master Plan, Stormwater Control Plan, and Stormwater Control Operation and Maintenance Plan would be required prior to approval of improvement plans or issuance of building permits.

New urban development within the 45-acre development area under Alternative 2 would be located within a FEMA 100-year floodplain zoned as AO (i.e., areas of sheet flow with an average depth of 1–3 feet) (see Exhibit 4.10-2 in Section 4.8, "Hydrology and Water Quality"). As with the proposed Project, under Alternative 2 the Project applicant must comply with the standards set forth in the City's Floodplains and Flood Damage Prevention Ordinance (Municipal Code Chapter 15.08, Article II) Sections 15.08.410 through 15.08.470. The standards control filling, grading, dredging, and other development which may increase flood damage; and prevent or regulate the construction of flood barriers that would unnaturally divert flood waters or which may increase flood hazards in other areas. Per Municipal Code Section 15.08.370, the Project applicant must apply for a development permit for construction in FEMA flood zones, with approval by the City's floodplain administrator. The Alternative 2 permit application must include plans showing elevations of proposed structures and the elevations of areas proposed for materials and equipment storage; the proposed elevation in relation to mean sea level, of the lowest floor (including basement) of all structures; and the proposed elevation in relation to mean sea level to which any nonresidential structure will be floodproofed (among other requirements). The Alternative 2 permit application must also include certification from a registered civil engineer or architect that the nonresidential floodproofed building meets the City's floodproofing criteria (Section 15.08.430[B]). Per Suisun City Ordinance No. 729, Section 15-08.430, the lowest floor of each building must be elevated above the highest adjacent grade to a height equal to or exceeding the depth number specified in feet on the FEMA FIRM plus one-half-foot of freeboard. Municipal Code Section 15.08.420 also requires that within FEMA flood zones AO[3], adequate drainage paths must be provided around structures on slopes to guide floodwaters around and away from proposed structures. As with the proposed Project, minor grading associated with creation of new wetlands in the Managed Open Space Area would not affect existing flood flows or depths.

Therefore, although new development under Alternative 2 in the proposed 45-acre development area would alter drainage patterns, add impervious surfaces, and be located in a 100-year floodplain, the new development would not exceed storm drainage system capacity, result in increased flooding, or impede or redirect flood flows, and this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-4); however, because Alternative 2 would result in a lesser amount of construction and operation over a smaller area, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

3 Area inundated by the Base Flood with flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities are also determined.

Impact 6.5.10-5. Risk Release of Pollutants from Inundation in a Tsunami, Seiche, or Flood Hazard Zone. *This impact would be less than significant.*

As with the proposed Project, Alternative 2 site and the proposed off-site improvement areas are not in a tsunami inundation zone. The nearest large waterbody with potential for seiches is Grizzly Bay/Suisun Bay, approximately 6.5 miles south of the Alternative 2 site and the off-site improvement areas, and approximately 10 feet lower in elevation; therefore, the potential for inundation of Alternative 2 construction storage areas from a seiche is low.

Construction activities within the 45-acre Alternative 2 development area and the proposed off-site improvement areas could result in short-term, temporary storage of materials in a FEMA 100-year flood hazard zone (i.e., classified by FEMA as zone AO and designated by the city as a secondary FP-2 floodplain zones). Inundation of temporary construction material storage areas during a flood could result in downstream transport of pollutants, thereby degrading water quality. However, development in flood zones is subject to the Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), and requires a permit from the City's floodplain administrator. The permit application must include plans illustrating the location(s) that are designated for temporary construction-related storage of materials and equipment, which the City's floodplain administrator must review and approve. The floodplain administrator may require the construction of temporary berms or dikes around the construction materials/equipment storage areas, to ensure sufficient protection from flood flows, if warranted.

As with the proposed Project, under Alternative 2, review by the City's floodplain administrator is required to determine whether to approve locations for temporary short-term storage of construction materials and equipment, and the city would impose appropriate permit terms and conditions such as the requirement for installation of temporary berms or dikes around storage areas if necessary. Therefore, this impact is considered **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-5); however, because Alternative 2 would result in a lesser amount of construction and operation over a smaller area, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-6. Conflict with a Water Quality Control Plan or Sustainable Groundwater Management Plan. *This impact would be less than significant.*

For the same reasons described in Impact 6.5.10-1 above (and Impact 4.10-1 for the proposed Project), under Alternative 2 the required compliance with existing laws, regulations, ordinances, and policies related to water quality control, which are required by law, ensures that Alternative 2 would not conflict with the San Francisco Bay Basin Plan. As described in Impact 6.5.10-2 above (and Impact 4.8-2 for the proposed Project), a GSP for the Suisun-Fairfield Valley Groundwater Basin is not required nor are there any plans to prepare one; therefore, Alternative 2 would not conflict with a sustainable groundwater management plan. As further described in Impact 6.5.10-2, because there are no plans to drill a new groundwater well for water supply, and because Alternative 2 would only result in an approximately 9 percent reduction in pervious surfaces that provide for existing groundwater recharge at the Alternative 2 site, Alternative 2 would not substantially decrease groundwater supplies or interfere with groundwater recharge, and therefore would not substantially reduce groundwater sustainability in the Suisun-Fairfield Valley Groundwater Basin. Therefore, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.8-6); however, because Alternative 2 would result in a lesser amount of construction and operation over a smaller area, and a reduced demand for water supply and a reduced amount of new impervious surfaces, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 would result in an approximately 50 percent reduction in the size of the development area and would involve construction of only 470,000 square feet of building space as compared to 1.28 million square feet of building space under the proposed Project, resulting in less construction, fewer impermeable surfaces, and reduced operation-related stormwater runoff. Furthermore, under Alternative 3, the Project applicant would be required to comply with the same federal, state, and local regulations governing stormwater runoff and protection of groundwater and surface water quality as the proposed Project. These regulations include preparing and implementing a SWPPP with BMPs during construction, and implementing appropriate long-term stormwater design measures as required by the FSURMP that would be operated according to a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan. Therefore, the impacts related to violation water quality standards or substantial degradation of surface or groundwater quality would be **reduced** under Alternative 3 as compared to the proposed Project.

Because Alternative 3 would require a reduced amount of groundwater for potable water supply and landscape irrigation as compared to the proposed Project, Alternative 3 would result in a reduced level of impact from substantial decreases groundwater supplies. Furthermore, since Alternative 3 would result in a reduction in the amount of impervious surfaces in the proposed development area as compared to the proposed Project, Alternative 3 would result in a **reduced** level of impact related to interference with groundwater recharge.

New development under Alternative 3 in the approximately 45-acre proposed development area could alter drainages and would add impervious surfaces, which could result in increased erosion or siltation. Under Alternative 3, the project applicants would be required to comply with the same federal, state, and local regulations governing stormwater runoff and protection of groundwater and surface water quality as the proposed Project. These regulations include preparing and implementing a SWPPP with BMPs during construction, and implementing appropriate long-term stormwater design measures as required by the FSURMP that would be operated according to a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan. Under Alternative 3, only 470,000 square feet of building space would be developed as compared to 1.28 million square feet of building space under the proposed Project, which would substantially reduce the impervious surfaces and operational stormwater runoff. Therefore, impacts under Alternative 3 related to substantial alteration of drainage patterns or the addition of impervious surfaces resulting in increased erosion or siltation would be **reduced** as compared to the proposed Project.

Under Alternative 3, as with the proposed Project, the 45-acre proposed development area would be situated within a FEMA 100-year flood hazard zone. However, the Project applicant is required to comply with Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), which requires a permit from the city's floodplain administrator. The permit application must include plans demonstrating compliance with Municipal Code requirements related to floodproofing, and be certified by a registered engineer. A Master Drainage Plan would be required for Alternative 3 that incorporates stormwater design and water quality and runoff controls per the FSURMP's *Stormwater C.3 Guidebook* (FSURMP 2012), along with a site-specific Stormwater Control Plan and a Stormwater Control Operation and Maintenance Plan, all of which would require city approval prior to approval of improvement plans and building permits. Under Alternative 3, only 470,000 square feet of building space would be developed as compared to 1.28 million square feet of building space under the proposed Project, therefore a substantially smaller area would be subject to flood

area. Therefore, under Alternative 3, the impacts from substantial alteration of drainage patterns or the addition of impervious surfaces that would exceed storm drainage systems, result in increased flooding, or impede or redirect flood flows would be **reduced** as compared to the proposed Project.

As with the proposed Project, the Alternative 3 site is not located in a seiche or tsunami hazard area. Although construction materials could be temporarily stored in a FEMA 100-year flood hazard area, the Project applicant is required to comply with Suisun City Flood Damage Prevention Ordinance (Suisun City Municipal Code, Chapter 15.08, Article II), which requires a permit from the City's floodplain administrator. The permit application must include plans illustrating the location(s) that are designated for temporary construction-related storage of materials and equipment, which the city's floodplain administrator must review and approve. The floodplain administrator may require the construction of temporary berms or dikes around the construction materials/equipment storage areas, to ensure sufficient protection from flood flows, if warranted. Under Alternative 3, a smaller area of land would be developed with urban uses and therefore a smaller amount and area of construction materials may be temporarily located in a floodplain. Therefore, under Alternative 3, the impacts from the risk of release of pollutants from inundation in a tsunami, seiche, or flood hazard zone would be **reduced** as compared to the proposed Project.

As with the proposed Project, under Alternative 3 the required compliance with existing laws, regulations, ordinances, and policies related to water quality control, which are required by law, ensures that Alternative 3 would not conflict with the San Francisco Bay Basin Plan. A groundwater sustainability plan for the Suisun-Fairfield Valley Groundwater Basin is not required nor are there any plans to prepare one; therefore, as with the proposed project, Alternative 3 would not conflict with a sustainable groundwater management plan. Because there are no plans to drill a new groundwater well for water supply, and because Alternative 3 would result in a substantial reduction in impervious surfaces as compared to the proposed project, Alternative 3 would result in a **reduced level of impact** from substantial decreases in groundwater supplies or interference with groundwater recharge, and therefore, as with the proposed Project, would not substantially reduce groundwater sustainability in the Suisun-Fairfield Valley Groundwater Basin.

6.5.9 LAND USE & PLANNING, INCLUDING AGRICULTURAL RESOURCES, POPULATION, AND HOUSING

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 assumes that the approximately 161 acres north of Cordelia Road and Cordelia Street within the City's Sphere of Influence would be annexed into the city in the same way as the proposed Project. As with the proposed Project, under Alternative 1 the Solano Local Agency Formation Commission (LAFCO) would require consistency with their policies before approval of annexation, and the same amount of land would be annexed under Alternative 1 as compared to the proposed Project. Therefore, Alternative 1 would have a **similar** level of impact related to land use compatibility from the standpoint of annexation as compared to the proposed Project.

Development under Alternative 1 would be consistent with the existing Commercial Mixed Use land use designation and zoning in the area. Under Alternative 1, the remainder of the approximately 487-acre Alternative 1 site would continue as Agriculture and Open Space within the City's Sphere of Influence (SOI) and Marsh, Extensive Agriculture, and Parks and Recreation in areas under the County's jurisdiction. The types of land uses under Alternative 1, as well as the amount of developed area, would be different from the proposed Project.

Alternative 1 would involve Commercial Mixed Use on 73 acres, whereas the proposed Project would involve a Logistics Center on 93 acres. There would be no Managed Open Space component under Alternative 1. Alternative 1 would not require a General Plan amendment. The proposed Project would require prezoning of Commercial Services & Fabricating instead of Commercial Mixed Use, as would be anticipated under Alternative 1. As with the proposed Project, changes in zoning and general plan land use designations do not in and of themselves represent any adverse physical environmental impact. Therefore, the impact would be **similar** to that of the proposed Project.

With respect to the relationship between Alternative 1 and other plans, policy inconsistencies are not physical effects on the environment under CEQA unless it relates to a physical impact on the environment that is significant in its own right. As with the proposed Project, implementation of Alternative 1 would not conflict with adopted City General Plan policies or other land use plans, policies, or regulations that would generate any adverse physical impacts beyond those addressed in detail in the topic area sections of this EIR. Therefore, Alternative 1 would result in a **similar** level of impact related to conflicts with plans adopted to reduce environmental impacts as compared to the proposed Project.

Neither Alternative 1 nor the proposed Project include housing, and therefore would not directly induce population growth. However, the 726 new employees from the jobs created under Alternative 1 could indirectly induce additional population growth. The 1,275 new employees from jobs created under the proposed Project could also indirectly induce additional population growth. Both Alternative 1 and the proposed Project would improve the City's jobs-to-housing ratio by locating employment uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas. New and expanded infrastructure would be planned to meet only the demands for new development and would not create additional utility capacity in the Development Area beyond what would be necessary to serve Alternative 1 or the proposed Project. Nevertheless, because Alternative 1 would likely induce less indirect population growth, it would result in a **reduced** level of impact as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.9-1. Conflict with any Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect. *This impact would be less than significant.*

Under Alternative 2, the approximately 161 acres north of Cordelia Road and Cordelia Street within the City's Sphere of Influence would be annexed into the city in the same way as the proposed Project. As with the proposed Project, under Alternative 2 the Solano LAFCO would require consistency with their policies before approval of annexation, and the same amount of land would be annexed under Alternative 2 as compared to the proposed Project.

The types of land uses under Alternative 2 and the proposed Project would be the same; however, the area of land subject to development under Alternative 2 would be reduced to 51 acres to protect sensitive biological resources, as compared to 93 acres under the proposed Project. Both Alternative 2 and the proposed Project would require a prezoning of Commercial Services & Fabricating, and the remaining Annexation Area would be pre-zoned as Open Space. The Commercial Services & Fabricating zoning would accommodate light manufacturing, research and development, warehousing, and accessory office space. The Open Space zoning would allow agriculture, resource protection and restoration, and resource-related recreation. Both Alternative 2 and the proposed Project would result in Managed Open Space in the Primary and Second Management Areas of Suisun Marsh, as well as

Managed Open Space that is outside of the Suisun Marsh Protection Plan. Under Alternative 2, the total Managed Open Space area at the Alternative 2 site would increase to 437 acres, versus 393 acres under the proposed Project.

With respect to the relationship between Alternative 2 and other plans, policy inconsistencies are not physical effects on the environment under CEQA unless it relates to a physical impact on the environment that is significant in its own right. As with the proposed Project, implementation of Alternative 2 would not conflict with adopted City General Plan policies or other land use plans, policies, or regulations that would generate any adverse physical impacts beyond those addressed in detail in the topic area sections of this EIR.

For the reasons stated above, under Alternative 2 potential land use conflicts with plans or policies adopted to reduce an environmental effect would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.9-1). Because Alternative 2 would have a similar level of impact related to land use and planning, **the level of impact would be similar** under Alternative 2 as compared to the proposed Project.

Impact 6.5.9-2. Induce Substantial Population Growth. *This impact would be less than significant.*

Alternative 2's potential to induce substantial unplanned population growth is analyzed based on the following three factors: (1) does Alternative 2 induce unplanned population growth (direct or indirect), (2) is that growth substantial, and (3) does this substantial unplanned growth result in significant adverse environmental impacts.

As with the proposed Project, Alternative 2 does not include housing, and therefore would not directly induce population growth.

Indirect population growth may result from: (1) the extension of roads and infrastructure or increases in infrastructure capacity; (2) the approval of "leapfrog" development (where urban development is approved in a satellite area and this spurs development of the land between the satellite area and the urban edge); or (3) the approval of substantial new land uses or an imbalance of uses which result in a regional draw of people and/or services. As with the proposed Project, the proposed Alternative 2 Development Area is adjacent to the existing city limits and within the existing City SOI; however, under Alternative 2 the Development Area would be reduced to 51 acres, as compared to 93 acres under the proposed Project.

Alternative 2 could indirectly lead to some population growth by creating 528 new local jobs. The 1,275 new employees from jobs created under the proposed Project could also indirectly induce additional population growth. As discussed in DEIR Impact 4.9-2, based on 2022 estimates, the City had a jobs-to-housing ratio of 0.41, which indicates a predominance of residential uses and less jobs potentially available to local resident-workers. U.S. Census data indicate that approximately 96.6 percent of City residents commute to jobs outside of the city. Furthermore, 85 percent of local jobs within the city are filled by employees from outside of the city, mainly from Fairfield and Vacaville. Alternative 2 supports the City's goals to create opportunities to generate jobs and attract new employment-creating industries to Suisun City. Furthermore, the Development Area is identified by the Plan Bay Area 2050 as a PPA, which is defined by the Association of Bay Area Governments as a locally identified place for job growth in middle-wage industries such as manufacturing, logistics, or other trades. Alternative 2 would improve the City's jobs-to-housing ratio by locating employment uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas, while also avoiding impacts to sensitive biological resources.

Population and employment growth associated with buildout of Alternative 2 are not, in and of themselves, an environmental impact under CEQA. However, the direct and indirect effects on the environment associated with unplanned population growth may be considered potentially significant impacts under CEQA. Unplanned population growth can result in new housing, employment, and increased travel demand that requires additional roadways and other transportation infrastructure, with resulting air pollutant emissions and traffic noise; impacts related to the capacity of public facilities and utilities expansions needed to serve new growth; and loss of biological and cultural resources from installation of the supporting infrastructure. These potential impacts are addressed in the individual topic area sections of this EIR. As with the proposed Project, the new and expanded infrastructure under Alternative 2 would be planned to meet only the demands for planned development and would not create additional utility capacity in the Development Area beyond what would be necessary to serve Alternative 2. The indirect effects associated with the proposed Project's potential for inducing additional population and employment growth (which would be greater than Alternative 2 due to the larger land area developed and additional jobs) are also discussed in Chapter 7 of this EIR, "Other CEQA Considerations."

For the reasons listed above, Alternative 2 would not directly or indirectly induce substantial unplanned growth that could lead to significant environmental impacts not already detailed throughout the environmental topic area sections of this EIR; therefore, the impact is considered **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.9-2). Because Alternative 2 would result in a smaller Development Area with fewer new jobs, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Issues Where No Impact Would Occur

For the same reasons discussed in Section 4.9.3, "Environmental Impacts and Mitigation Measures," under the heading "Issues Not Discussed Further," the following issues would also result in **no impact** under Alternative 2.

- Physically Divide an Established Community
- Convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland
- Conflict with Existing Zoning for an Agricultural Use
- Conflict with Existing Williamson Act Contract
- Conflict with Existing Zoning for, or Cause Rezoning of, Forest Land, Timberland, or Timberland Zoned Timberland Production
- Result in the Loss of Forest Land or Conversion of Forest Land to Non-Forest Use
- Displace Substantial Numbers of People or Existing Housing

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3 assumes that the approximately 161 acres north of Cordelia Road and Cordelia Street within the City's Sphere of Influence would be annexed into the city in the same way as the proposed Project. As with the proposed Project, under Alternative 3 the Solano LAFCO would require consistency with their policies before approval of annexation, and the same amount of land would be annexed under Alternative 3 as compared to the

proposed Project. Therefore, Alternative 3 would have a **similar** level of impact related to land use compatibility from the standpoint of annexation as compared to the proposed Project.

Instead of logistics and warehousing uses alone as under the proposed Project, Alternative 3 would also include office space in addition to warehousing and logistics uses. Both Alternative 3 and the proposed Project would require prezoning, which could include a combination of Commercial Mixed Use and Commercial Services & Fabricating or just Commercial Services & Fabrication; however, the total acreage requiring prezoning would be reduced under Alternative 3. The total Development Area under Alternative 3 would be approximately 46 acres, compared with the approximately 93-acre Development Area under the proposed Project. The remaining Annexation Area would be pre-zoned as Open Space (436 acres under Alternative 3 vs. 393 acres under the proposed Project). Because Alternative 3 would require a rezoning action similar to the proposed Project, Alternative 3 would result in a **similar** level of impact related to land use zoning and designations as compared to the proposed Project.

With respect to the relationship between Alternative 3 and other plans, policy inconsistencies are not physical effects on the environment under CEQA unless it relates to a physical impact on the environment that is significant in its own right. As with the proposed Project, implementation of Alternative 3 would not conflict with adopted City General Plan policies or other land use plans, policies, or regulations that would generate any adverse physical impacts beyond those addressed in detail in the topic area sections of this EIR. Therefore, Alternative 3 would result in a **similar** level of impact related to conflicts with plans adopted to reduce environmental impacts as compared to the proposed Project.

Alternative 3 would also include office space in addition to warehousing and logistics uses. The office space provided under Alternative 3 would focus on providing local employment opportunities for local residents that are currently commuting to other cities for employment. Some of the larger variances between local jobs and occupations of local residents are in the health care and social assistance and administration and support sectors. These sectors employ relatively larger numbers of local residents, but local jobs in these sectors are relatively less available. However, jobs in the logistics/warehousing sector are also underserved. Instead of the approximately 1.28 million square feet in logistics center/warehousing use on 93 acres under the proposed Project, Alternative 3 would provide 203,000 square feet of logistics/warehousing space and 268,000 square feet of office space on 46 acres of land. The total number of jobs under Alternative 3 would be the same as the proposed Project; however, Alternative 3 would provide approximately 1,100 office setting jobs and approximately 200 jobs in a warehousing, logistics, and transportation setting.

Neither Alternative 3 nor the proposed Project include housing, and therefore would not directly induce population growth. However, the approximately 1,275 to 1,300 new employees from the jobs created under Alternative 3 or the proposed Project could indirectly induce additional population growth. Both Alternative 3 and the proposed Project would improve the City's jobs-to-housing ratio by locating employment uses near existing infrastructure, transportation corridors, and residential areas. New and expanded infrastructure would be planned to meet only the demands for new development and would not create additional utility capacity beyond what would be necessary to serve Alternative 3 or the proposed Project. Because Alternative 3 would likely induce the same amount of indirect population growth, it would result in a **similar** level of impact as compared to the proposed Project.

6.5.10 NOISE & VIBRATION

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 would result in a smaller development area and reduced building square footage as compared to the proposed Project (i.e., 73 acres vs. 93 acres, respectively). Regardless, the buildings' design, layout, parking, landscaping, signage, and lighting would be subject to the same City Municipal Code, and City General Plan requirements as the proposed Project. Therefore, with respect to construction noise and vibration, Alternative 1, would result in a similar level of impact. As noted previously in Section 6.4.1, Alternative 1 has the potential to increase the number of daily vehicular trips to the site, as compared with the proposed Project. Though Alternative 1 would involve a higher number of daily vehicular trips when compared to the proposed Project, Alternative 1 would have a lower percentage of heavy-duty truck trips and a relatively higher percentage of passenger vehicles when compared with the proposed Project. Also, the number of employees included as a part of Alternative 1 would be reduced when compared to the proposed Project. With implementation of Mitigation Measure 4.12-1, construction would be limited to daytime hours, for which associated noise levels are considered exempt from the provisions of applicable standards established by the City and the County. On-site and off-site impacts from temporary, short-term exposure of sensitive receptors to increased equipment noise from Alternative 1 would be reduced compared to the proposed Project. Therefore, with respect to vehicular traffic noise, Alternative 1, would result in a **lower** level of impact.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.10-1. Temporary, Short-Term Exposure of Sensitive Receptors to Construction Noise. *This impact would be significant and unavoidable.*

Short-term construction source noise levels could exceed the applicable City standards at nearby noise-sensitive receptors. In addition, if construction activities were to occur during more noise-sensitive hours, construction source noise levels could also result in annoyance and/or sleep disruption to occupants of existing and proposed noise-sensitive land uses and create a substantial temporary increase in ambient noise levels.

Without feasible noise control, large pieces of earth-moving equipment, such as graders, excavators, and dozers, generate maximum noise levels of 85 dBA to 90 dBA at a distance of 50 feet (refer to Table 4.12-17) (EPA 1971: 11). Typical hourly average construction-generated noise levels are about 80 dBA to 85 dBA, measured at a distance of 50 feet from the site during busy construction periods. It is possible that pile driving could occur during the proposed project construction. This type of construction activity could produce very high noise levels of approximately 95 dB at 50 feet.

Noise from localized point sources (such as construction sites) typically decreases by 6 dB to 7.5 dB with each doubling of distance from source to receptor. The existing intervening ground type at the proposed project area is currently soft and attenuates noise due to absorption; therefore, an attenuation rate of 7.5 dB per doubling of distance was assumed and accounted for in construction operation noise level predictions. The nearest noise and vibration-sensitive uses to the Alternative 2 site are single-family residences located approximately 500 feet (north of SR 12 within the city of Fairfield limit) from the northern project boundary; approximately 2,300 feet (east of the railway within the city of Suisun City limit) from the eastern project boundary; approximately 300 feet from the western project boundary; and approximately 700 feet (along Orehr Road within the Solano County

limit) from the southern project boundary. Table 6-6. Project-Related Construction Noise (dBA) at Nearest Noise-Sensitive Land Uses presents project-related construction noise at the nearest noise-sensitive uses.

Table 6-4. Alternative 2-Related Construction Noise (dBA) at Nearest Noise-Sensitive Land Uses

Source of Construction Noise	Distance (feet)	Typical Construction Noise - L_{eq}	Including Pile Driving Noise - L_{eq}
From Utilities (Potentially within the County and City Limits)	50	85	95
From Northern Boundary (City of Fairfield)	500	60	70
From Eastern Boundary (City of Suisun City)	2,300	44	53
From Southern Boundary (County of Solano)	700	57	66

Notes: dBA = A-weighted decibels; L_{eq} = equivalent or energy-averaged sound level.
Source: Calculated by AECOM 2022.

Permitted hours of construction and applicable thresholds in Solano County, City of Suisun City, and the City of Fairfield are described in Section 4.10.2, and summarized in Table 4.10-19 of this EIR. The County of Solano exempts daytime construction noise from applicable standards. However, if construction activities occur during the more noise-sensitive evening and nighttime hours, due to the potential necessity of continuous activity for specific components to maintain structural integrity, Alternative 2-generated noise levels could exceed nighttime exterior and interior noise standards of 55 dB L_{eq} and 45 dB L_{eq}, respectively, at the nearest noise-sensitive receptors.

As shown in Table 6-6, construction noise ranges from 57 dBA to 85 dBA (under typical construction activities), and from 66 dBA to 95 dBA (with pile driving). These noise levels exceed the applicable thresholds summarized in Table 4.10-19 when construction occurs beyond permitted hours. Therefore, the construction of on-site and off-site facilities could expose existing off-site sensitive receptors to equipment noise levels that exceed the applicable noise standards and/or result in a substantial increase in ambient noise levels. This would be a **significant** impact.

> Mitigation Measure: Implement Mitigation Measure 4.10-1 (Implement Noise-Reducing Construction Practices, Prepare and Implement a Noise Control Plan, and Monitor and Record Construction Noise near Sensitive Receptors)

Significance after Mitigation

With implementation of Mitigation Measure 4.10-1, construction would be limited to daytime hours, for which associated noise levels are considered exempt from the provisions of applicable standards established by the City and the County. On-site and off-site impacts from temporary, short-term exposure of sensitive receptors to increased equipment noise from the project would be reduced. With enforcement of the above mitigation measure and existing noise regulations, future development and off-site improvements would be designed to minimize potential impacts. For example, when installed properly, acoustic barriers can reduce construction noise levels by approximately 8–10 dB (EPA 1971). This mitigation measure would reduce potential impacts. However, it is not possible to demonstrate that this would avoid significant construction noise impacts in every case. There is no additional feasible mitigation. Therefore, impacts construction equipment and related noise would be **significant and unavoidable.** This impact conclusion is the same as for the proposed Project (Impact 4.10-1); however,

because Alternative 2 would include a reduced level of construction, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-2. Temporary, Short-Term Exposure of Sensitive Receptors to Increased Traffic Noise Levels from Project Construction. *This impact would be less than significant.*

Future development would result in an increase of traffic volumes due to the addition of construction-generated traffic associated with on-site future development and off-site infrastructure improvements. Construction-generated traffic on the local roadway network was analyzed based on a maximum construction-related traffic volume of 500 vehicles daily and assuming eight hours of construction period per, the project would result in 63 construction vehicles per hour. As such, all materials would be transported using the local roadway network, thus increasing traffic volumes along affected roadway segments.

To examine the effect of Alternative 2-generated traffic increases, traffic noise levels were calculated for roadway segments affected by Alternative 2 traffic. Traffic noise levels were modeled using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108) under existing conditions, with and without construction traffic. Additional input data included day/night percentages of autos, medium and heavy trucks, vehicle speeds, ground attenuation factors, and roadway widths.

Table 4.10-16 of this EIR summarizes the modeled traffic noise levels for existing and existing plus construction conditions at 50 feet from the centerline of roadways for the proposed Project. Proposed Project-related construction traffic increases accounted for a 0.1 to 3.5 dB increase in short-term traffic noise levels. Construction-related traffic noise would result in an estimated 3.5-dB increase over existing traffic noise levels along Chadbourne Road from Cordelia Road to South of Cordelia Road. There are no noise-sensitive uses along this segment of the roadway. Alternative 2 would include a reduced level of construction, but could include a similar level of daily worker and truck trips associated with construction during peak construction times. Thus, the potential noise level increases identified for construction related traffic under the proposed Project would be **similar** to that of Alternative 2. Therefore, implementation of Alternative 2 would not result in a substantial temporary or periodic increase in ambient noise levels associated with construction traffic. As a result, this impact would be **less than significant** under Alternative 2. This impact conclusion is the same as the proposed Project (Impact 4.10-2); however, because Alternative 2 would include a reduced level of construction, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-3. Temporary, Short-Term Exposure of Sensitive Receptors to Potential Groundborne Noise and Vibration from Project Construction. *This impact would be significant.*

Table 4.10-17 of this EIR provides vibration levels at 25 feet for impact and heavy construction equipment, in terms of PPV (for structural damage) and VdB (for human annoyance). Construction equipment could include pile drivers, loaded trucks, bulldozers, and vibratory roller, among others. According to the FTA, vibration levels associated with the use of such equipment would range from approximately 0.003 in/sec PPV (referenced to 1 μin/sec and based on the root mean square velocity amplitude) and 58 VdB for a vibratory roller to 1.518 in/sec PPV and 112 VdB for a pile driver, at 25 feet, as shown in Table 4.10-17 of this EIR. Typical construction equipment, loaded trucks, jackhammers, and bulldozers, generate vibration levels that decrease quickly over distance, and pile driving activities generate significantly more vibration energy and require more distance for it to decrease the vibration levels.

The vibration-sensitive uses (buildings) nearest to the construction sites are residential uses approximately 350 feet to the west, approximately 550 feet to the north, approximately 2,300 feet to the east, and approximately 650 feet to the south. The majority of the construction activities would take place farther from the nearest noise-sensitive uses; most would occur in the central portion of the site where the buildings would be constructed. At distances of 350 to 2,300 feet, the vibration generated by construction equipment would result in 28 to 53 VdB and 0.0001 to 0.002 in/sec PPV, respectively for a bulldozer (the heaviest equipment). The vibration levels from vibratory roller operation would result in 35 to 60 VdB and 0.0001 to 0.002 in/sec PPV, at distances of 350 to 2,300 feet, respectively. The vibration generated by the pile driver would result in 53 to 78 VdB and 0.001 to 0.01 in/sec PPV. These levels would be below the criteria of 80 VdB, and above 0.2 in/sec PPV recommended for older building structures by Caltrans. However, for the existing commercial buildings located in the middle of the Alternative 2 site to the west of the intersection of Pennsylvania Avenue and Cordelia Street, the vibration levels due to construction would exceed the thresholds of building damage, conservatively assuming these structures would occur to be within 100 feet for the pile driver, and within 45 feet for vibratory rollers. Therefore, short-term construction of Alternative 2 would exceed the threshold for structural damage and would expose persons to or generate excessive ground-borne noise or vibration. For these reasons, this impact would be **potentially significant** under Alternative 2.

Long-term operations under Alternative 2 would not include any major new sources of groundborne noise or vibration. Maintenance vehicles and delivery trucks would be restricted to existing public roadways, and the limited number of trips generated would not have the potential to substantially increase vibration levels at adjacent land uses.

> Mitigation Measure: Implement Mitigation Measure 4.10-2 (Implement Measures to Reduce Groundborne Noise and Vibration Levels at Sensitive Receptors during Pile Driving Activities)

Significance after Mitigation

Implementation of Mitigation Measure 4.10-2 would substantially limit the effects of groundborne vibration on sensitive receptors. Pile driving construction would be conducted at least 500 feet from vibration-sensitive receptors, or use alternative methods when within 500 feet from a vibration-sensitive receptor. Therefore, project-generated groundborne noise and vibration levels would be reduced.

Implementation of Mitigation Measure 4.10-2 would substantially limit the effects of groundborne vibration on sensitive receptors. Pile driving construction would be conducted at least 500 feet from vibration-sensitive receptors, or use alternative methods when within 500 feet from a vibration-sensitive receptor. Therefore, with implementation of Mitigation Measure 4.10-2, this impact would be reduced to a **less-than-significant level** under Alternative 2**.** This impact conclusion is the same as the proposed Project (Impact 4.10-3); however, because Alternative 2 would include a reduced level of construction duration, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Impact 6.5.10-4. Long-term Traffic Noise Levels at Existing Noise-Sensitive Receivers. *This impact would be less than significant.*

The contribution of Alternative 2 to the existing and future traffic noise levels along area roadways was determined by comparing the predicted noise levels with and without Alternative 2-generated traffic. Table 6-7 summarizes the modeled traffic noise levels at 50 feet from the centerline of affected roadway segments in the

vicinity of the Alternative 2 site. Modeled increases that would be considered substantial, an increase of 3 dBA, in comparison to existing no project conditions are indicated in bold. Modeled roadway noise levels assume no natural or artificial shielding between the roadway and the receptor.

As shown in Table 6-7, the modeling conducted shows that future development, in addition to existing conditions, would result in traffic noise level increases ranging from 0.1 dBA to + 0.5 dBA L_{dn}, compared to noise levels without Alternative 2. As seen, traffic generated under existing and future conditions by the Alternative 2 would not contribute to a substantial increase in future traffic noise conditions. Therefore, long-term noise levels from Alternative 2-generated traffic sources for Alternative 2 would not result in a substantial permanent increase in ambient noise levels (an increase of 3 dBA or greater) under existing and future conditions. As a result, this impact is considered **less than significant** under Alternative 2. This impact conclusion is the same as for the proposed Project (Impact 4.10-4); however, because Alternative 2 would include a reduced level of operational traffic levels, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Table 6-5. Predicted Traffic Noise Levels, Existing Plus Project Alternative 2 Conditions, Ldn at 50 Feet, dB

Roadway Segment	Segment Location	No Project	Plus Alternative 2	Net Change	Significant Impact?
Chadbourne Road	From SR-12 to Cordelia Road	68.5	68.8	0.2	No
Beck Avenue	From SR-12 to North of SR-12	69.1	69.3	0.2	No
Beck Avenue	From SR-12 to South of SR-12	67.1	67.4	0.3	No
West Texas Street	From Beck Avenue to Pennsylvania Avenue	69.7	69.9	0.2	No
SR-12	From Beck Avenue to Pennsylvania Avenue	76.2	76.3	0.1	No
Cordelia Road	From Beck Avenue to Pennsylvania Avenue	66.9	67.3	0.3	No
Pennsylvania Avenue	From SR-12 to North of SR-12	69.4	69.6	0.2	No
Pennsylvania Avenue	From SR-12 to South of SR-12	64.8	65.4	0.5	No
SR-12	From Marina Boulevard to Grizzly Island Road	76.1	76.2	0.1	No
SR-12	From Emperor Drive to Walters Road	74.1	74.2	0.1	No

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

[a] There is no existing noise-sensitive use along this segment of the roadway.

Source: AECOM 2023

Impact 6.5.10-5. Long-term Non-Transportation Noise Levels at Existing Noise-Sensitive Receivers. *This impact would be significant.*

The long-term operations of Alternative 2 could result in non-transportation noise from, but not limited to, the following potential sources:

- landscape and building maintenance activities (e.g., hand tools, power tools, lawn and garden equipment);
- mechanical equipment (e.g., pumps, generators heating, ventilation, and cooling systems);
- garbage collection;
- parking lots; and
- commercial, office, and industrial activities.

The OS zoning of the Managed Open Space portion of the Alternative 2 site would accommodate agriculture, resource protection and restoration, and resource-related recreation. However, the Managed Open Space area would be managed to protect the existing habitat and also to provide for mitigation of development impacts, and noise-generating activities associated with uses such as agriculture or recreation would be minimal.

Potential Long-Term Alternative 2-Generated Stationary Source Noise

Landscape and Building Maintenance Activities

Landscape maintenance activities include the use of leaf blowers, power tools, and gasoline-powered lawn mowers, which could result in intermittent noise levels that range from approximately 88.3 dB at 6.5 feet, respectively. Based on an equipment noise level of 88.3 dB, the use of such equipment, assuming a noise attenuation rate of 6 dB per doubling of distance from the source, would result in exterior noise levels of approximately 70.1 dB at 50 feet. Although such activities would likely occur during the daytime hours, the exact hours and locations are unknown at this time. Such activities are intermittent and would occur during the daytime, which is a less noise-sensitive time of day. The use of such equipment is not so frequent that applicable daily noise standards or maximum single-event noise standards would be exceeded for noise-sensitive land uses. This impact would be **less than significant**. However, because Alternative 2 would include a reduced level of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Mechanical HVAC Equipment

HVAC equipment is often mounted on rooftops, located on the ground, or located within mechanical equipment rooms. The noise sources could take the form of fans, pumps, air compressors, and chillers. Packaged rooftop units contain all necessary mechanical equipment, such as fans, pumps, condensers, and compressors, within a single enclosure. AECOM has measured noise levels from schools' HVAC systems. HVAC equipment noise at high schools would be approximately 70 dBA L_{eq} at a distance of 6 feet[4]. This would result in a noise level of 52 dBA at a distance of 50 feet. Also, noise levels from commercial HVAC equipment can reach 100 dBA at a distance of three feet (EPA 1971). However, HVAC systems would be enclosed and/or shielded to reduce exterior

4 Long Beach Unified School District. Jordan High School Major Renovation Project Draft EIR. September 2013: http://lbschoolbonds.net/jordanhs.cfm.

noise levels. Noise from mechanical equipment associated with the operation of Alternative 2 is required to comply with the California Building Standards Code requirements pertaining to noise attenuation.

The closest off-site noise-sensitive land uses in the vicinity of the Alternative 2 site are single-family residences located approximately 200 feet east of the Alternative 2 site from the boundary of the Alternative 2 site and HVAC would be farther away (200 feet to 300 feet) assuming the HVAC would be located in the center of a rooftop of buildings within the Alternative 2 site. Furthermore, the HVAC systems would be enclosed and/or shielded to reduce exterior noise. Based on the cooling capacity of the packaged systems and their locations with respect to sensitive uses, noise levels for mechanical HVAC systems would be less than 50 dBA L_{eq} at the nearest noise-sensitive receptors to the Alternative 2 site. Therefore, HVAC equipment would not exceed the City's performance standard of 55 dB L_{eq} for noise-sensitive land uses affected by non-transportation noise during the daytime period, and would not result in a substantial permanent increase (more than 3–5 dB) in ambient noise levels in the project vicinity above levels existing without Alternative 2. This impact would be **less than significant**. However, because Alternative 2 would include a reduced level of development and since the Alternative 2 site is farther from noise-sensitive receptors, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Garbage Collection Activities

Garbage collection activities (e.g., emptying large refuse dumpsters, possibly multiple times per week, and the shaking of containers with a hydraulic lift), could result in instantaneous maximum noise levels of approximately 89 dB L_{max} at 50 feet. Such activities are anticipated to be very brief, intermittent, and would occur during daytime hours, which are considered to be less noise-sensitive times of the day. Garbage collection activities are infrequent, and therefore would not be expected to exceed daily noise standards. Noises would typically emanate from public rights-of-way, which would normally be separated from outdoor gathering spaces associated with residential uses. Noise associated with garbage collection would not be expected to create single-event noise that would be substantially disruptive to daily activities or cause sleep disturbance. This impact would be **less than significant.** However, because Alternative 2 would include a reduced level of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

Parking Lots

Parking lots and parking structures include noise sources such as vehicles entering/exiting the lot, alarms/radios, and doors slamming. Alternative 2 would introduce approximately 546 new parking stalls at the nearest proposed building (Building A) on the north side of the Alternative 2 site approximately 500 feet from adjacent noise-sensitive residential uses to the north. Based on previous noise measurements, the sound exposure level (SEL) associated with a parking event is approximately 71 dB SEL at 50 feet. Assuming that each parking stall adjacent to residential uses were to fill and empty (416 parking events total) during the peak hour, the noise level is predicted to be 62 dBA L_{eq} at 50 feet, and 42 dBA L_{eq} at 500 feet from the center of the parking stalls. Existing ambient noise levels at the residential uses to the north of the Alternative 2 site were measured at 56 to 59 dBA L_{eq}, represented by LT-1. Therefore, noise levels associated with parking would not be distinguishable from the existing ambient noise levels. As a result, this impact would be **less than significant** and **the level of impact would be similar** under Alternative 2 as compared to the proposed Project.

Light Manufacturing, Research and Development, Warehousing, and Accessory Office Space Activities

Light manufacturing, research and development, warehousing, and accessory office space noise sources include loading dock activities, air circulation systems, delivery areas, and the operation of trash compactors and air compressors. Such activities could result in intermittent noise levels of approximately 91 dB L_{max} at 50 feet (79 dB L_{max} at 200 feet) (EPA 1971) and high single-event noise levels from backup alarms from delivery trucks during the more noise-sensitive hours of the day. Noise levels could exceed the applicable standards at existing and proposed noise-sensitive receptors, especially if such activities were to occur during the more noise-sensitive hours (e.g., evening, nighttime, and early morning) and create a substantial increase in ambient noise levels at existing noise-sensitive receptors located approximately at 200 feet. Therefore, this impact would be **potentially significant**.

> Mitigation Measure: Implement Mitigation Measure 4.10-3 (Implement Measures to Reduce Potential Exposure of Sensitive Receptors to Non-Transportation Source–Generated Noise)

Significance after Mitigation

Compliance with the applicable City of County Noise Ordinance and implementation of additional mitigation measures for the control of non-transportation source noise as identified above in Mitigation Measure 4.10-3 would reduce non-transportation source noise levels. Restricting noise-generating activities to daytime hours as outlined in the City or County's Noise Control Ordinance and requiring stationary equipment to achieve property line noise limits would reduce the potential for noise impacts at sensitive receptors. Achievable noise reductions from fences or barriers can vary but typically range from approximately 5 to 10 dBA, depending on construction characteristics, height, and location. However, it is not now possible to determine the effectiveness of mitigation with certainty. With enforcement of the above mitigation measure, Alternative 2 would be designed to minimize potential impacts. Therefore, implementation of Mitigation Measure 4.10-3 would reduce this impact to a **less-than-significant level** under Alternative 2. This impact conclusion is the same as for the proposed Project (Impact 4.10-5); however, because Alternative 2 would include a reduced level of development, **the level of impact would be reduced** under Alternative 2 as compared to the proposed Project.

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

As described in Section 6.4.3, Alternative 3 is intended to reduce potential impacts related to air pollutant emissions, greenhouse gas (GHG) emissions, vehicular travel demand (measured according to vehicle miles traveled or "VMT"), and energy use associated with transportation. To reduce these impacts, Alternative 3 would reduce the amount of building space for logistics and warehousing uses, and would add office space with the intent to offer local employment opportunities for residents that are currently commuting relatively long distances for employment.

Alternative 3 would result in a smaller area affected by development and reduced building square footage as compared to the proposed Project (i.e., 45 acres vs. 93 acres, respectively). Because fewer buildings and landscaping would be installed, as compared to the proposed Project, the level of impact related to construction and operational noise and vibration would be less than Alternative 3 as compared to the proposed Project.

6.5.11 PUBLIC SERVICES AND RECREATION

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

As with the proposed Project, Alternative 1 would increase the demand for Suisun City Fire Department facilities and services within the 161-acre Annexation Area after annexation to the City. The Project applicant would be required to incorporate all California Fire Code and California Health and Safety Code requirements into the 73-acre Development Area designs under Alternative 1, which would reduce the dependence on the Suisun City Fire Department equipment and personnel by reducing fire hazards. Under both Alternative 1 and the proposed Project, the Project applicant would be required to pay the Fees for New Construction as required by Section 3.16 of the Suisun City Municipal Code to ensure fire protection equipment and facilities are provided to meet increased demand. Because Alternative 1 would involve a reduced amount of development (363,000 square feet vs 1.28 million square feet under the proposed Project) in a smaller area, the level of impact related to increased demand for fire protection facilities, services, and equipment under Alternative 1 would be **reduced** as compared to the proposed Project.

As with the proposed Project, Alternative 1 would increase the demand for Suisun City Police Department facilities and services within the 161-acre Annexation Area after annexation to the City. Under both Alternative 1 and the proposed Project, the Project applicant would be required to pay the Fees for New Construction as required by Section 3.16 of the Suisun City Municipal Code to ensure police protection equipment and facilities are provided to meet increased demand. Furthermore, incorporation of security measures into the 73-acre Development Area designs under Alternative 1 would reduce the need for police protection services by reducing the potential for crime. Because Alternative 1 would generate a reduced number of on-site personnel (approximately 726 jobs as compared to 1,275 jobs under the proposed Project) that would be concentrated in a smaller patrol area, the level of impact related to increased demand for police protection facilities, services, and equipment under Alternative 1 would be **reduced** as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.11-1: Increased Demand for Fire Protection Facilities, Services, and Equipment. *This impact would be less than significant.*

Under Alternative 2, the approximately 161 acres north of Cordelia Road and Cordelia Street within the City's SOI would be annexed into the city in the same way as the proposed Project. After annexation, fire protection services to the Annexation Area would be provided by the Suisun City Fire Department. The department operates out of one fire station located at 621 Pintail Drive in Suisun City, approximately 2.9 miles northeast of the Alternative 2 site. As discussed in EIR Section 4.11.1, in the event of a large-scale fire, the Suisun City Fire Department would request mutual aid from the City of Fairfield.

The City requires new development to demonstrate, to the satisfaction of the City Engineer, that existing services can accommodate the increased demand generated by new development or that project conditions would adequately mitigate for impacts associated with additional demand. As with the proposed Project, Alternative 2 would include two tie-ins from existing water transmission mains (shown in Exhibit 6-4, "Alternative 2 Building Layout and Utility Plan") to supply fire and potable water and meet California Fire Code requirements for fire flow to the 51-acre Development Area. The Suisun City Fire Department would review the Alternative 2 designs to ensure that adequate emergency access, fire suppression equipment, and other features that reduce fire risk are

incorporated into the designs. In addition, as with the proposed Project, Alternative 2 would be subject to the requirements of Suisun City Municipal Code Section 3.16, Fees for New Construction, which establishes a fee for new construction to meet the City's current and future needs for capital improvements, including land acquisition and construction of public buildings and other facilities. Payment of the fee would offset the cost of fire service demands associated with Alternative 2.

The Alternative 2 applicant would be required to incorporate all California Fire Code and California Health and Safety Code requirements, including fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, and hazardous materials storage and use, into the Alternative 2 Development Area site designs. Incorporation of all State and local requirements into Alternative 2 designs would reduce the dependence on the Suisun City Fire Department equipment and personnel by reducing fire hazards.

Therefore, Alternative 2 would not require new fire protection facilities or the expansion of existing fire protection facilities to maintain acceptable service ratios, response times, or other performance objectives for fire protection services, and this impact would be **less than significant**. This impact conclusion is the same as for the proposed Project (Impact 4.11-1). Because Alternative 2 would involve a reduced amount of development (529,708 square feet of building space as compared to 1.28 million square feet under the proposed Project), the level of impact under Alternative 2 would be **reduced** as compared to the proposed Project.

Impact 6.5.11-2: Increased Demand for Police Protection Facilities, Services, and Equipment. *This impact would be less than significant.*

Under Alternative 2, after annexation, police protection services to the Annexation Area would be provided by the Suisun City Police Department. The police department is located at 701 Civic Center Boulevard, approximately 1.5 miles east of the Alternative 2 site. The City requires new development to demonstrate, to the satisfaction of the City Engineer, that existing services can accommodate the increased demand generated by new development or that project conditions would adequately mitigate for impacts associated with additional demand. The Suisun City Police Department would review the final Alternative 2 Development Area site plan to ensure that adequate access for police services is available and that adequate security measures have been incorporated. In addition, as with the proposed Project, the Alternative 2 applicant would be subject to the requirements of Suisun City Municipal Code Section 3.16, Fees for New Construction, which establishes a fee for new construction to meet the City's current and future needs for capital improvements, including land acquisition and construction of public buildings and other facilities. Payment of the fee would offset the cost of police service demands associated with Alternative 2.

As with the proposed Project, because Alternative 2 does not include development of new housing, Alternative 2 would not generate new residents that require additional police department staffing. The approximately 528 new jobs created under Alternative 2 (as compared to approximately 1,275 jobs created by the proposed Project) would not substantially increase the population in the surrounding area that is served by the Suisun City Police Department. Incorporation of security measures into Alternative 2 Development Area designs, such as security gates, security guard shacks at each access point, parking lot illumination, on-site security patrols, and fencing would reduce the need for police protection services by reducing the potential for crime. Therefore, Alternative 2 would not result in the need for construction of new police protection facilities or the expansion of existing police protection facilities that could cause an adverse physical environmental effect, and this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.11-2). Because Alternative 2

would involve a reduced number of jobs (i.e., on-site personnel) concentrated in a smaller patrol area, the level of impact under Alternative 2 would be **reduced** as compared to the proposed Project.

Issues Where No Impact Would Occur

For the same reasons discussed in Section 4.11.3, "Environmental Impacts and Mitigation Measures," under the heading "Issues Not Discussed Further," the following issues would also result in **no impact** under Alternative 2.

- Increased Demand for Schools, Parks, or Other Public Facilities
- Increase the Use of Existing Neighborhood and Regional Parks or Other Recreational Facilities
- Construction or Expansion of Recreational Facilities

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

As with the proposed Project, Alternative 3 would increase the demand for Suisun City Fire Department facilities and services within the 161-acre Annexation Area after annexation to the City. The Project applicant would be required to incorporate all California Fire Code and California Health and Safety Code requirements into the 46-acre Development Area designs under Alternative 3, which would reduce the dependence on the Suisun City Fire Department equipment and personnel by reducing fire hazards. Under both Alternative 3 and the proposed Project, the Project applicant would be required to pay the Fees for New Construction as required by Section 3.16 of the Suisun City Municipal Code to ensure fire protection equipment and facilities are provided to meet increased demand. Furthermore, the amount of building square footage under Alternative 3 would be substantially reduced as compared to the proposed Project: instead of the approximately 1.28 million square feet in logistics center/warehousing use under the proposed Project, Alternative 3 would provide 203,000 square feet of logistics/warehousing space and 268,000 square feet of office space. Because Alternative 3 would involve a reduced amount of development in a smaller area, the level of impact related to increased demand for fire protection facilities, services, and equipment under Alternative 3 would be **reduced** as compared to the proposed Project.

As with the proposed Project, Alternative 3 would increase the demand for Suisun City Police Department facilities and services within the 161-acre Annexation Area after annexation to the City. Under both Alternative 3 and the proposed Project, the Project applicant would be required to pay the Fees for New Construction as required by Section 3.16 of the Suisun City Municipal Code to ensure police protection equipment and facilities are provided to meet increased demand. Furthermore, incorporation of security measures into the 46-acre Development Area designs under Alternative 3 would reduce the need for police protection services by reducing the potential for crime. The total number of jobs (i.e., on-site personnel) under Alternative 3 would be the same as the proposed Project, and therefore the level of impact related to increased demand for police protection facilities, services, and equipment under Alternative 3 would be **similar** to the proposed Project.

6.5.12 TRANSPORTATION

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1 assumes a mix of commercial uses, including retail and commercial services. As noted previously in Section 6.4.1, Alternative 1 has the potential to increase the number of daily vehicular trips to the site, as

compared with the proposed Project. Though Alternative 1 would involve a higher number of daily vehicular trips when compared to the proposed Project, Alternative would have a lower percentage of heavy-duty truck trips and a relatively higher percentage of passenger vehicles when compared with the proposed Project. However, as detailed in Section 4.12 of this EIR, "Transportation and Circulation," the City's methodology for assessing transportation impacts focuses on passenger vehicle and light-duty vehicles, and not on medium- or heavy-duty truck trips. The adverse physical environmental impacts associated with vehicular transportation are fully evaluated in the air quality, greenhouse gas emissions, and noise and vibration sections, as well as these sections within this alternatives chapter. For the purposes of transportation impact analysis specifically, the vehicular travel demand impact, measured according to passenger vehicle miles traveled (VMT) per employee would be increased relative to the proposed Project. This particularly true considering that the number of employees included as a part of Alternative 1 would be reduced when compared to the proposed Project. Commercial services and retail in this location would be separated from residential areas that it could serve by State Route 12 to the north and the Union Pacific Railroad to the east. Commercial development that is in smaller increments and is designed and tenanted in a way that directly appeals to surrounding residences in a pedestrian and bicycle-friendly environment could reduce vehicular travel demand (CAPCOA 2021). However, given the location of the site and the scale of commercial development contemplated as a part of Alternative 1, these travel demand-reducing features would be unlikely. Similar to the proposed Project, Alternative 1 would require a policy consistency analysis with relevant transportation-related policies and would be required to implement public works improvement standards and street design standards designed to avoid any substantial traffic hazard. Overall, transportation impacts under Alternative 1 would be **increased** compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.12-1. Near-Term Vehicle-Miles Traveled (VMT). *This impact would be potentially significant.*

As with the proposed Project, the City of Fairfield travel demand model, which includes Fairfield and Suisun City, was used to analyze the impact on VMT from implementation of Alternative 2.[5] Using Caltrans and Federal Highway Administration model validation standards, the model was calibrated and validated to 2019 pre-pandemic conditions and finalized in year 2020 (herein referred to as the "year 2020 model"). The year 2020 model network and land use in the Alternative 2 site vicinity were confirmed to reflect existing roadway network and land uses.

Impacts are identified based on the Alternative 2 VMT compared against a percentage of a baseline value of VMT. Based on the Suisun City thresholds, the Alternative 2 VMT-related impact was evaluated against two criteria: (1) a project would result in a significant impact if it would generate an average home-based work VMT per employee that is greater than 85 percent of the citywide average, and (2) if the threshold is exceeded, the project's VMT impact could still be found to be less-than-significant if it did not cause the total citywide VMT to increase. The average home-based work VMT per employee metric in the first criterion evaluates the VMT for all employee trips that travel between home and work. Trips related to non-commute economic activity (i.e., goods deliveries, customer visits, etc.) would not be captured in this metric. The focus of this metric is on passenger vehicle commute trips as being the primary component of VMT for most employment-focused land uses. The total citywide VMT metric in the second criterion evaluates all VMT (for all trip purposes by all users) that occurs within a geographic boundary. Since Alternative 2 is expected to generate truck traffic, which is not captured by

[5] The City of Fairfield Model was adjusted to ensure the model vehicle trip generation for the project was consistent with ITE trip generation estimate for Alternative 2.

the average home-based work passenger vehicle commute metric in the first criterion, this total citywide VMT metric includes all vehicle trips. This metric is used to understand whether a project causes trips to shorten and thereby result in a net decrease in areawide VMT.

Based on the model runs, the citywide average home-based work daily VMT per employee is 14.8, and the 85 percent citywide average threshold is 12.6. Alternative 2 is expected to result in 14.3 home-based work daily VMT per employee, which is 1.7 VMT greater than the threshold. Alternative 2 would also increase total citywide daily VMT by approximately 4,000. Therefore, this impact would be **potentially significant**. The VMT analysis results are summarized in the Table 6-8.[6]

Table 6-6. Existing and Existing Plus Alternative 2 Daily VMT Results

	Criterion 1: Home-Based Work VMT per Employee	Criterion 2: Total Citywide VMT
No Project Value	14.8	472,000
Threshold Value	12.6[1]	472,000[2]
Project Value	14.3	476,000
Change between Threshold and Project Value	+1.7	+4,000
Change as % of Threshold Value	+13.5%	+0.8%

VMT = vehicle miles traveled

Table Notes

1. Represents 85 percent of the citywide average home-based work VMT per employee.
2. Represents the total citywide VMT.

Mitigation Measure: Implement Mitigation Measure 4.12-1 (Transportation Demand Management [TDM] Plan)

Significance after Mitigation

Prior to issuance of building permits, the Alternative 2 applicant would develop a TDM Plan for Alternative 2, including any anticipated phasing, and would submit the TDM Plan to the City for review and approval. The TDM Plan would be required to identify trip reduction strategies, as well as mechanisms for funding and overseeing the delivery of trip reduction programs and strategies. The TDM Plan would be required to be designed to achieve the trip reduction, as required to reduce the commute trip VMT per employee from 13.1 to 12.6, consistent with an 11.3-percent reduction. The analysis prepared to support the TDM Plan would be required to demonstrate that the selected reduction measures will achieve the necessary VMT reduction.

Based on research in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (GHG Handbook), Table 4.12-3 of this EIR describes feasible measures for the Alternative 2 TDM Plan aimed to reduce trips that would be generated under Alternative 2. The

[6] VMT forecasts presented in this assessment do not consider some foreseeable travel changes, including increased use of transportation network companies, such as Uber and Lyft, nor the potential for autonomous vehicles. Although the technology for autonomous vehicles is expected to be available over the planning horizon, the federal and State legal and policy frameworks are uncertain. Initial modeling of an autonomous future indicates that with automated and connected vehicles, the capacity of the existing transportation system would increase as vehicles can travel closer together; however, these efficiencies are only realized when a high percentage of vehicles on the roadway are automated and connected. There is also the potential for vehicle travel to increase with zero-occupancy vehicles on the roadway. Additionally, the VMT forecasts are based on a model that was developed using data reflecting travel conditions before COVID-19; the effects of COVID-19 may be a near-term suppression in travel activity based on reduced economic output and could permanently modify travel habits.

GHG Handbook calculates maximum VMT reduction based on the Alternative 2 land use type and locational context. Alternative 2 is considered a commercial project type in a suburban setting.[7] A 11.3-percent reduction is potentially achievable with implementation of the measures listed in Table 4.12-3 of this EIR.

As part of the TDM Plan, the Alternative 2 applicant would be required to monitor and report its effectiveness at reducing home-based work VMT per employee. Tenant/s would be required to submit annual reports to the City describing the specific TDM measures that are being implemented, the number of employees on-site, the daily vehicle trips generated by Alternative 2, and length of the trips being generated. The report would be required to be prepared by an independent City-approved transportation planning/engineering firm. The TDM Coordinator will provide information to the firm to monitor implementation effectiveness of the approved TDM Plan. To assess the TDM Plan's commute trip reductions, a baseline daily driveway count of vehicle trips shall be conducted before implementation of the TDM Plan and compared to the driveway count after one year of TDM Plan implementation. If the monitoring report shows that there was at least 11.3-percent commute trip VMT reduction, then the TDM Plan is presumed to effectively mitigate the Alternative 2 impact on VMT. If the monitoring report shows that the TDM Plan does not reduce commute trip VMT by at least 11.3 percent, then the transportation planning/engineering firm would be required to provide guidance for TDM Plan modification to achieve the VMT reduction goal.

Additionally, if the initial TDM Plan strategies do not reduce commute trip VMT by at least 11.3 percent, the Alternative 2 operations shall incorporate additional TMD strategies, such as the following to increase TDM effectiveness in the future:

- Provide enhancements to bus service to the Alternative 2 site area during peak commute times in coordination with FAST and SolTrans (not quantifiable at this time as future coordination with FAST and SolTrans is required and has not occurred)
- Compliance with a future City VMT/TDM ordinance (not quantifiable at this time as the City does not have a VMT/TDM ordinance)
- Participation in a future City VMT fee program (not quantifiable at this time as the City does not have a VMT fee program)

Implementation of Mitigation Measure 4.12-1 would reduce VMT to a level of **less-than-significant with mitigation** under Alternative 2 by implementing a TDM Plan and regularly monitoring its effectiveness through annual reports to the City to ensure VMT reductions are met. This impact conclusion is the same as for the proposed Project (Impact 4.12-1). Because Alternative 2 would involve a reduced amount of VMT, the level of impact under Alternative 2 would be **reduced** as compared to the proposed Project.

Impact 6.5.12-2. Circulation System. *This impact would be less than significant.*

The Alternative 2 site plan provides 5 vehicular driveways along Pennsylvania Avenue and Cordelia Road. The driveway specifications provide for adequate queuing and site distance to minimize potentially hazardous conditions. Furthermore, the California Northern Railroad (CFNR) crosses Pennsylvania Avenue and divides the Alternative 2 site. Warning equipment and gate arms are currently provided at the Pennsylvania Avenue crossing.

[7] *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (GHG Handbook), California Air Pollution Control Officers Association, 2021.

The proposed rail spurs extend north and south of the CFNR onto the Alternative 2 site with adequate separation between on-site vehicular circulation. Alternative 2 would not conflict with programs, plans, ordinances, and policies addressing the circulation system. With the same Mitigation Measure 4.12-2 as required for the proposed Project, Alternative 2 would not increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). Furthermore, individual projects are reviewed and conditioned for consistency with City standards, which are designed to avoid such impacts. Therefore, this would be a **less-than-significant impact with mitigation** under Alternative 2. This impact conclusion is the **same** as for the proposed Project (Impact 4.12-2). Some adjustments will be required to the Alternative 2 site plan if the City were to move forward with this alternative. For example, the parking areas next to the driveways (entering from Cordelia Road) would be adjusted to accommodate the required throat depths. The center driveway serving Building C on Cordelia Road would need to be reconfigured to increase the throat depth. No changes would be required for driveways on Pennsylvania Avenue. The sight distance of drivers exiting the driveways required to reduce vehicular conflicts with vehicles on Pennsylvania Avenue is adequate under Alternative 2 with no change. All driveways are shown as perpendicular. Drive aisles are shown perpendicular and parallel to the proposed buildings under Alternative 2 to the extent possible. The rail spurs are shown as eliminated.

Impact 6.5.12-3. Transit System. *This impact would be less than significant.*

Fixed route bus service operates in the vicinity of the Alternative 2 site. The closest bus stop is FAST Route 5 approximately 0.6-mile north of the Alternative 2 site at Pennsylvania Avenue and Woolner Avenue and the FAST Route 7 bus stop approximately 0.75-mile west of the Alternative 2 at Beck Avenue and Courage Drive. Based on the Suisun City commute patterns, about 90 percent of commute trips are by car. The Alternative 2 site is in an area with limited access to public transit. It is unlikely that Alternative 2 would generate large amounts of new demand for the transit services and facilities that serve the area to a level that would exceed the current local commute transit vehicle capacities. Alternative 2 is not expected to conflict with existing or planned transit facilities as there are no existing or planned transit facilities at the Alternative 2 site or frontages that would be interrupted or impacted. Therefore, this impact would be **less than significant** under Alternative 2. This impact conclusion is the **same** as for the proposed Project (Impact 4.12-3).

Impact 6.5.12-4. Pedestrian and Bicycle Systems. *This impact would be potentially significant.*

Like the proposed Project, Alternative 2 is expected to increase pedestrian and bicycle activity. The existing transportation network along the Alternative 2 site frontages on Pennsylvania Avenue and Cordelia Road do not provide pedestrian or bicycle facilities. Pedestrian and bicycle facilities are provided in and around the developed parcels near the Alternative 2 site. The closest major intersection is at SR-12 and Pennsylvania Avenue, adjacent the northeast corner of the area anticipated for development. This signalized intersection provides actuated pedestrian pushbuttons and signals, a marked crosswalk on the east leg for north-south travel, and a marked crosswalk on the southern leg for east-west travel. The north-south crosswalk connects the Alternative 2 site area south of SR 12 to Fairfield residential and commercial development north of SR 12 on Pennsylvania Avenue. The east-west crosswalk provides pedestrians the option of walking on either the east or west side of Pennsylvania Avenue south of SR 12. Pedestrians traveling south on Pennsylvania Avenue on the east side can continue on Cordelia Road along the Alternative 2 site frontage. Pedestrians traveling southbound on the west side of Pennsylvania Avenue can access the Alternative 2 site and continue east on Cordelia Street toward Suisun City. Other nearby sidewalks are located on Cordelia Street west of West Street, Beck Avenue, north of Cordelia Road,

and Cordelia Road east of Beck Avenue. The closest existing bicycle facility is the Central County Bikeway, a Class I bicycle path in Suisun City providing east-west travel along SR 12 between Walters Road and the Suisun/Fairfield Amtrak Station at Main Street.

The Suisun City and Fairfield Active Transportation Plans propose to build bicycle facilities that directly connect to the Alternative 2 site frontages at the following locations:

- SR 12 between Beck Avenue and Illinois Avenue
- Cordelia Road between Beck Avenue and Pennsylvania Avenue
- Cordelia Street between Pennsylvania Avenue and Waterfront Path

A portion of workers could use transit, walk, or bike to and from the Alternative 2 site. The Alternative 2 site plan does not provide pedestrian or bicycle facilities along Pennsylvania Avenue or Cordelia Road to connect to existing and planned facilities. Inadequate pedestrian and bicycle facilities and connections to the existing pedestrian and bicycle network and transit stations would expose pedestrian and bicyclists to hazardous conditions. The Suisun City and Fairfield General Plans include policy goals of safe and accessible multimodal system and infrastructure. Therefore, the Alternative 2 impact on pedestrians and bicyclists would be **potentially significant**.

> Mitigation Measure: Implement Mitigation Measure 4.12-3 (Provide adequate pedestrian and bicycle facilities and improvements along Project Site frontages and on site)

Significance after Mitigation

Mitigation Measure 4.12-3 of this EIR would reduce this potential impact for Alternative 2 to less than significant through improved on-site and surrounding pedestrian and bicycle transportation conditions by providing adequate facilities to connect to the existing and future multimodal transportation network. Implementation of Mitigation Measure 4.12-3 would therefore reduce this impact to **less than significant** under Alternative 2. This impact conclusion is the **same** as the proposed Project (Impact 4.12-4).

Impact 6.5.12-5. Emergency Access. *This impact would be less than significant.*

Alternative 2 would provide a complete on-site circulation network with multiple ingress and egress. The final site plan must be approved by the Suisun City Fire Department to ensure the emergency access routes meet requirements to facilitate the safe movement of emergency vehicles. This impact would be **less than significant** under Alternative 2. This impact conclusion is the **same** as the proposed Project (Impact 4.12-5).

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

As described in Section 6.4.3, Alternative 3 is intended to reduce potential impacts related to air pollutant emissions, greenhouse gas (GHG) emissions, vehicular travel demand (measured according to vehicle miles traveled or "VMT"), and energy use associated with transportation. To reduce these impacts, Alternative 3 would reduce the amount of building space for logistics and warehousing uses, and would add office space with the

intent to offer local employment opportunities for residents that are currently commuting relatively long distances for employment.

Approximately 7 percent of Suisun City residents commute to Vacaville, producing two-way commuting daily VMT of approximately 16,000; 5 percent to San Francisco producing two-way commuting daily VMT of approximately 49,000; 4 percent to Vallejo producing two-way commuting daily VMT of approximately 15,000; 3 percent to Napa producing two-way commuting daily VMT of approximately 13,000; 3 percent to Benicia producing two-way commuting daily VMT of approximately 12,000; 3 percent to Oakland producing two-way commuting daily VMT of approximately 25,000; 3 percent to Concord producing two-way commuting daily VMT of approximately 16,000; and 2 percent to Sacramento producing two-way commuting daily VMT of approximately 17,000.

Alternative 3 could reduce some of this commuting VMT if the additional office space developed under this alternative would attract tenants that would offer local jobs to those currently commuting to relatively more distant locations, such as San Francisco, Napa, Oakland, Concord, and Sacramento. The degree of VMT reduction would depend on many factors outside the control of the Alternative 3 applicant and City. The relative percentage of remote Suisun City employees and Suisun City employees that sometimes travel to distant office locations and at other times work from home remotely is unknown. Similarly, the change in remote and hybrid work arrangements associated with Alternative 3 is not known. However, considering the current deficit of local employment options in office settings and the substantial number of Suisun City residents that are currently commuting relatively long distances, it is assumed that Alternative 3 could reduce commute-related VMT somewhat, assuming that the office space offered at the Alternative 3 site could displace office space situated in more distant locations and the local labor force could occupy this space. The impact would be **slightly reduced** compared to the proposed Project.

Similar to the proposed Project, Alternative 3 would require a policy consistency analysis with relevant transportation-related policies and would be required to implement public works improvement standards and street design standards designed to avoid any substantial traffic hazard.

6.5.13 UTILITIES & SERVICE SYSTEMS

ALTERNATIVE 1: NO PROJECT ALTERNATIVE (BUILDOUT OF EXISTING LAND USE DESIGNATIONS)

Alternative 1, as with the proposed Project, would require installation of new electrical, natural gas, water, and wastewater utilities and service systems to serve the proposed development. Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure to serve the 73-acre commercial area under Alternative 1, are analyzed throughout the various environmental topic specific subsections of this alternatives analysis in conjunction with overall development at the Alternative 1 site. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Alternative 1 development area beyond what is comprehensively analyzed throughout this chapter. Because Alternative 1 would involve a reduced amount of development (363,000 square feet vs 1.28 million square feet under the proposed Project) in a smaller area, the level of impact related to construction of new or expanded utilities and service systems facilities under Alternative 1 would be **reduced** as compared to the proposed Project.

Alternative 1 would increase the demand for water supplies from the Suisun-Solano Water Authority for new development within the 73-acre area anticipated for development under Alternative 1. The Water Supply Assessment prepared for the proposed Project, which included water demand for industrial development and landscaping over a 93-acre Development Area, concluded that with implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement and annexation into the Suisun-Solano Water Authority's service area, water supply would be sufficient to meet demands of the proposed Project and existing and planned development in the Suisun-Solano Water Authority service area in normal, single-dry, and multiple-dry years. The Suisun-Solano Water Authority water demand rates are based on acreage and land use type. Alternative 1 consists of commercial development and landscaping over a 73-acre area. Because the water demand rates for commercial development are higher than industrial development (Maddaus Water Management 2023), Alternative 1 would result in a similar water demand as the proposed Project even with the reduced acreage. As with the proposed Project, sufficient water supplies would be available to serve Alternative 1 in normal, single-dry, and multiple-dry years. Because the water demand under Alternative 1 would be similar, the level of impact related to increased demand for water supplies under Alternative 1 would be **similar** to the proposed Project.

Alternative 1 would require wastewater conveyance and treatment for the 73-acre area anticipated for development under Alternative 1. Under Alternative 1 as with the proposed Project, on-site and off-site sewer conveyance lines would be installed to convey wastewater to an existing off-site 27-inch pipeline near the intersection of Cordelia Road and Beck Avenue. Wastewater would be conveyed to the Fairfield-Suisun Subregional Wastewater Treatment Plant (WWTP) for treatment. Alternative 1 would result in development of 363,000 square feet of building space, as compared to 1.28 million square feet under the proposed Project. The Fairfield-Suisun Sewer District wastewater generation rates are based on building square footage and land use type (Woodard & Curran 2020: Table 2-2). Because the Fairfield-Suisun Sewer District wastewater generation rates for commercial development are the same as industrial development, and Alternative 1 would result in a reduction in the area anticipated for development (73 acres vs. 93 acres), Alternative 1 would result in less wastewater generation as compared to the proposed Project. As with the proposed Project, Alternative 1 would not exceed the capacity of existing sewer conveyance lines or the WWTP's permitted treatment capacity. Because the amount of wastewater generated under Alternative 1 would be less, the level of impact related to increased demand for wastewater conveyance and treatment would be **reduced** as compared to the proposed Project.

As with the proposed Project, Alternative 1 would result in generation of solid waste during the construction and operational phases. Construction and operational activities under Alternative 1 would be required to comply with all federal, state, and local solid waste statues and regulations. Because Alternative 1 would result in fewer employees and construction over a smaller area with a reduced building square footage as compared to the proposed Project, the construction and operational generation of solid waste under Alternative 1 would be reduced as compared to the proposed Project. The Potrero Hills Landfill has sufficient landfill capacity available to accommodate the solid-waste disposal needs of both Alternative 1 and the proposed Project. Because Alternative 1 would result in a reduced amount of solid waste generation, the level of impact related to increased generation of solid waste and the potential to impair the attainment of solid waste reductions goals would be **reduced** as compared to the proposed Project.

ALTERNATIVE 2: REDUCED FOOTPRINT ALTERNATIVE

Impact 6.5.13-1: Require or Result in the Relocation of or the Construction of New or Expanded Utilities and Service Systems Facilities, the Construction of Which Could Cause Significant Environmental Effects. *This impact would be less than significant.*

The 51-acre area anticipated for development under Alternative 2 would require the construction of new or expanded electrical, natural gas, water, and wastewater facilities to serve proposed development of approximately 529,708 square feet of warehousing and logistics uses. New underground utility lines would be installed throughout the Alternative 2 site, as shown on Exhibit 6-3 and Exhibit 6-4. Similar off-site water and sewer line improvements as compared to the proposed Project would also be required for Alternative 2, as shown on Exhibit 6-2.

Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure, to serve the 51-acre Development Area are analyzed throughout the various environmental topic specific sections of this chapter in conjunction with overall development at the Alternative 2 site. The placement of these utilities has been considered in the other sections of this EIR, such as Section 4.2, "Air Quality," Section 4.3, "Biological Resources," Section 4.4, "Cultural Resources," Section 4.8, "Hydrology and Water Quality," and throughout Chapter 6, "Alternatives," which specifically analyze the potential impacts from the development at the Alternative 2 site. Where necessary, these sections include mitigation measures that would reduce or avoid the impacts of developing infrastructure on the physical environment under Alternative 2. There is no additional significant impact related to construction of new or expanded utilities and service systems for Alternative 2 beyond what is comprehensively analyzed throughout this chapter and this EIR. Therefore, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.13-1). Because Alternative 2 would involve a reduced amount of development on reduced acreage (529,708 square feet of building space on 51 acres as compared to 1.28 million square feet on 93 acres under the proposed Project), and a reduced number of employees (528 as compared to 1,275 under the proposed Project) the level of impact under Alternative 2 would be **reduced** as compared to the proposed Project.

Impact 6.5.13-2: Increased Demand for Water Supplies. *This impact would be less than significant.*

As with the proposed Project, Alternative 2 would require water supply for the anticipated development, provided by the Suisun-Solano Water Authority. The City outlines specific requirements to ensure water supplies are available to meet demands created by new development. These requirements include demonstrating water supplies are available to accommodate new development, including during multiple-dry years and adequate fire flow pressure, prior to approval. The Suisun-Solano Water Authority has published Design Standards, Standard Specifications, and Standard Details that include fire flow requirements, with which developers are required to comply. In addition, the City requires new development to include water conservation technologies and water-efficient industrial equipment, in accordance with State law. The proposed on-site and off-site water supply system improvements under Alternative 2 are shown in Exhibit 6-2 and Exhibit 6-4, and are similar to the proposed Project except for modifications related to the smaller area anticipated for development.

A Water Supply Assessment was prepared for the proposed Project as requested by the City, which included water demand for approximately 1,275 employees and 1.28 million square feet of buildings plus landscaping over a 93-acre Development Area. Based on a water demand factor of 0.7 gallons per minute (gpm) per acre for warehouse land uses, water demand for the proposed Project was determined to be 65.1 gpm total annual demand,

which equates to 105 acre-feet per year (afy) (Kjeldsen, Sinnock & Neudeck, Inc. 2022: Appendix A, p. 30). The Water Supply Assessment concluded that with implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement, and annexation of the Project site into the Suisun-Solano Water Authority's service area, water supply would be sufficient to meet demands of the proposed Project and existing and planned development in the Suisun-Solano Water Authority service area in normal, single-dry, and multiple-dry years.

Alternative 2 includes approximately 538 employees and 529,708 square feet of building space with landscaping on 51 acres. Based on the 0.7 gpm/acre warehouse demand factor used by the Suisun-Solano Water Authority (Maddaus Water Management 2023), the water demand for Alternative 2 would be 35.7 gpm total annual demand, which equates to 57.6 afy. Therefore, the water demand for Alternative 2 represents a 45-percent reduction as compared to the proposed Project.

Since Alternative 2 would result in a substantial reduction in water demand, the Water Supply Assessment conclusion for the proposed Project is also applicable to Alternative 2. If required by the City, the Water Supply Assessment would be updated specific to the development proposed under Alternative 2. Because sufficient water would be available to serve Alternative 2 plus existing and planned development in the Suisun-Solano Water Authority service area in normal, single-dry, and multiple-dry years, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.13-2). Because Alternative 2 would result in a reduced water demand, the level of impact related to demand for water supply would be **reduced** as compared to the proposed Project.

Impact 6.5.13-3: Increased Demand for Wastewater Treatment Facilities. *This impact would be less than significant.*

Alternative 2 would require wastewater conveyance and wastewater treatment. As with the proposed Project, wastewater generated by Alternative 2 would be conveyed off-site to a 27-inch sewer main near the intersection of Beck Avenue and Cordelia Road. The proposed on-site and off-site wastewater system improvements under Alternative 2 are shown in Exhibit 6-2 and Exhibit 6-4, and are similar to the proposed Project except for modifications related to the smaller area anticipated for development. As discussed in detail in Section 4.13, "Utilities and Service Systems," no deficiencies in the conveyance pipelines or pump stations in the vicinity of the Alternative 2 site were identified in the most recent Fairfield-Suisun Sewer District Master Plan. Wastewater would be treated at the Fairfield-Suisun Subregional WWTP, which has a maximum average dry-weather design treatment capacity of 23.7 million gallons per day (mgd); the current average dry weather flow is approximately 16.1 mgd.

The Fairfield-Suisun Sewer District uses a base wastewater flow factor for industrial development of 0.1 gallons per day per square foot (gpd/SF) (Woodard & Curran 2020: Table 2-2). For the proposed Project, the base wastewater flow factor was determined to be 128,000 gpd (0.128 mgd), based on approximately 1.28 million square feet of building area. Applying this discharge into the wastewater pipeline at the intersection of Beck Avenue and Cordelia Road, a modeled system capacity analysis showed that the proposed Project would somewhat increase the projected surcharge in the existing wastewater system (by approximately 1 foot). However, based on allowable surcharges in the sewer system, the proposed development would not trigger any new capacity deficiencies and would not exacerbate any existing capacity deficiencies (Morton & Pitalo 2021: Appendix B).

Under Alternative 2, approximately 529,708 square feet of building space would be developed. Applying the industrial wastewater flow factor of 0.1 gpd/SF, the proposed Alternative 2 development would result in 52,970

gpd (0.05 mgd) of wastewater. Therefore, the amount of wastewater generated under Alternative 2 represents a 59-percent reduction as compared to the proposed Project.

Because the amount of wastewater generated by Alternative 2 (0.05 mgd) would not exceed the capacity of the existing 27-inch sewer conveyance line at Beck Avenue and Cordelia Road and would not result in an increase in wastewater flows that exceed the current disposal capacity of 23.7 mgd average dry-weather flow at the Fairfield-Suisun Subregional WWTP, this impact would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.13-3). Because Alternative 2 would result in a reduced amount of wastewater generation, the level of impact related to demand for wastewater treatment would be **reduced** as compared to the proposed Project.

Impact 6.5.13-4: Increased Generation of Solid Waste in Excess of Capacity and Compliance with Solid Waste Statutes and Regulations. *This impact would be less than significant.*

Construction of the Alternative 2 Development Area and the off-site improvements would result in site clearing and the generation of various construction-period wastes, including scrap lumber, scrap finishing materials, various scrap metals, and other recyclable and nonrecyclable construction-related wastes. The California Green Building Standards Code (CALGreen Code) (Title 24, Part 11 of the California Code of Regulations) requires construction contractors to prepare a Waste Management Plan that identifies a waste hauler and a construction and demolition sorting facility, and a waste log must be maintained to document compliance with CALGreen Code's 65 percent diversion requirement. In addition, the City requires all new construction to comply with its Construction and Demolition Debris Recycling Program.

The California Department of Resources Recycling and Recovery (CalRecycle) estimated Suisun City had a 2020 solid-waste disposal generation rate of 28.8 pounds per day (ppd) per employee (CalRecycle 2020). Based on this generation rate, the approximately 528 employees anticipated under Alternative 2 could generate 15,206 ppd (7.6 tons per day [tpd]) (above existing conditions), as compared to the 36,720 ppd (18.4 tpd) under the proposed Project. The amount of solid waste generated by Alternative 2 represents a 59-percent reduction as compared to the proposed Project. This estimate of solid waste for Alternative 2 is conservative (high) because recycling and waste diversion reduces this amount and is likely to increasingly reduce the waste stream that is sent to landfills in the future as more restrictive regulations require diversion of larger fractions of the waste stream. The City provides recycling programs, such as curbside recycling of paper, plastics, and bottles, to reduce the operational volume of solid waste transported to landfills.

Solid waste in Suisun City is transported by Solano Garbage and disposed of at the Potrero Hills Landfill. According to CalRecycle, the Potrero Hills Landfill has a maximum permitted throughput of 4,330 tpd and has a total maximum permitted capacity of 83.1 million cubic yards (CalRecycle 2022). The Potrero Hills Landfill has a remaining capacity of approximately 13.9 million cubic yards and an anticipated closure date of February 14, 2048 (CalRecycle 2022). Therefore, the Potrero Hills Landfill has sufficient existing remaining capacity to accept the anticipated increase in solid waste generated by Alternative 2 (7.6 tpd).

As with the proposed Project, Alternative 2 would be required to comply with all federal, State, and local solid waste statues and regulations, including compliance with the CALGreen Code, the City's Construction and Demolition Debris Recycling Program, the Suisun City Municipal Code Sections 8.08 (Solid Wastes) and 8.10 (Recyclable Materials), Assembly Bill (AB) 341 related to commercial recycling programs, AB 1826 related to mandatory commercial organics recycling, and other City recycling programs. Implementation of these codes and

programs would reduce the volume of solid waste disposed of at the Potrero Hills Landfill and ensure sufficient landfill capacity would be available to accommodate solid-waste disposal needs under Alternative 2. Therefore, Alternative 2 would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reductions goals or other federal, state, and local management and reduction status and regulations. Thus, impacts related to increased generation of solid waste under Alternative 2 would be **less than significant**. This impact conclusion is the same as the proposed Project (Impact 4.13-4). Because Alternative 2 would result in a reduced amount of solid waste generation, the level of impact related to increased generation of solid waste and the potential to impair the attainment of solid waste reductions goals would be **reduced** as compared to the proposed Project.

ALTERNATIVE 3: REDUCE CRITERIA AIR POLLUTANT AND GHG EMISSIONS AND TRANSPORTATION-RELATED ENERGY CONSUMPTION

Alternative 3, as with the proposed Project, would require installation of new electrical, natural gas, water, and wastewater utilities and service systems to serve the proposed development. Environmental impacts related to constructing or expanding utility infrastructure, including water, sewer, electrical, and natural gas infrastructure to serve the 46-acre logistics/warehousing and office space Development Area under Alternative 3, are analyzed throughout the various environmental topic specific subsections of this alternatives analysis in conjunction with overall development at the Alternative 3 site. There is no additional significant impact related to construction of new or expanded utilities and service systems within the Alternative 3 Development Area beyond what is comprehensively analyzed throughout this chapter. Because Alternative 3 would involve a reduced amount of development (470,000 square feet vs. 1.28 million square feet under the proposed Project) in a smaller area, the level of impact related to construction of new or expanded utilities and service systems facilities under Alternative 3 would be **reduced** as compared to the proposed Project.

Alternative 3 would increase the demand for water supplies from the Suisun-Solano Water Authority for new development within the 46-acre logistics/warehousing and office space Development Area. The Water Supply Assessment prepared for the proposed Project, which included industrial water demand for a 93-acre Development Area, concluded that with implementation of the Second Amendment to the Suisun/Solano Implementation Agreement and Lease Agreement and annexation of the 161 acres of the Project site that is north of Cordelia Road and Cordelia Street into the Suisun-Solano Water Authority's service area, water supply would be sufficient to meet demands of the proposed Project and existing and planned development in Suisun-Solano Water Authority service area in normal, single-dry, and multiple-dry years. The Suisun-Solano Water Authority water demand rates are based on acreage and land use type. Alternative 3 includes a mix of warehouse and office uses over a smaller 46-acre area; office uses are included in the commercial water demand factors (Maddaus Water Management 2023). Although the commercial water demand rates are somewhat higher than industrial, the reduced acreage under Alternative 3 would still result in a reduced water demand as compared to the proposed Project. As with the proposed Project, sufficient water supplies would be available to serve Alternative 3 in normal, single-dry, and multiple-dry years. Because the water demand under Alternative 3 would be less, the level of impact related to increased demand for water supplies would be **reduced** as compared to the proposed Project.

Alternative 3 would increase the demand for wastewater conveyance and treatment for new development within the 46-acre Development Area. Under Alternative 3 as with the proposed Project, on-site and off-site sewer conveyance lines would be installed to convey wastewater to the existing 27-inch off-site pipeline near the intersection of Beck Avenue and Cordelia Road. Wastewater would be conveyed to the Fairfield-Suisun

Subregional WWTP for treatment. Alternative 3 would result in development of 470,000 square feet of building space (203,000 square feet of warehouse/logistics space and 268,000 square feet of office space), as compared to 1.28 million square feet of industrial use under the proposed Project. The Fairfield-Suisun Sewer District wastewater generation rates are based on building square footage and land use type (Woodard & Curran 2020: Table 2-2). The wastewater generation rates for office and commercial land uses are the same as industrial uses; therefore, the reduced acreage under Alternative 3 would result in a reduced wastewater generation rate as compared to the proposed Project. As with the proposed Project, Alternative 3 would not exceed the capacity of existing sewer conveyance lines or the WWTP's permitted treatment capacity. Because the amount of wastewater generated under Alternative 3 would be reduced as compared to the proposed Project, the level of impact related to increased demand for wastewater conveyance and treatment would be **reduced** as compared to the proposed Project.

As with the proposed Project, Alternative 3 would result in generation of solid waste during the construction and operational phases. Construction and operational activities under Alternative 3 would be required to comply with all federal, State, and local solid waste statutes and regulations. Because Alternative 3 would result in a similar number of employees as the proposed Project, the operational generation of solid waste under Alternative 3 would also be similar to the proposed Project. However, because Alternative 3 would involve development on a much smaller area of land and greatly reduced building square footage, the amount of solid waste generated during the construction phase under Alternative 3 would be substantially reduced as compared to the proposed Project. The Potrero Hills Landfill has sufficient landfill capacity available to accommodate the solid-waste disposal needs of both Alternative 3 and the proposed Project. Because Alternative 3 would result in an overall (construction and operation) reduced generation of solid waste, the level of impact related to increased generation of solid waste and the potential to impair the attainment of solid waste reductions goals would be **reduced** as compared to the proposed Project.

6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Alternative 2 would have the greatest number of reduced impacts as shown in Table 6-9, therefore Alternative 2 would be the Environmentally Superior Alternative. This alternative provides the greatest reduction in potential environmental effects of the proposed Project.

Table 6-7. Comparison of Impacts of the Alternatives to the Proposed Project

Environmental Topic Area	Alternative 1: No Project (Buildout of Existing Land Use Designations)	Alternative 2: Reduced Footprint	Alternative 3: Reduce Criteria Air Pollutant and GHG Emissions and Transportation-Related Energy Consumption
Aesthetics	Reduced	Reduced	Reduced
Air Quality	Similar	Reduced	Reduced
Biological Resources	Reduced	Reduced	Reduced
Cultural and Tribal Cultural Resources	Reduced	Reduced	Reduced
Geology, Soils, Minerals, and Paleontological Resources	Reduced	Reduced	Reduced

Environmental Topic Area	Alternative 1: No Project (Buildout of Existing Land Use Designations)	Alternative 2: Reduced Footprint	Alternative 3: Reduce Criteria Air Pollutant and GHG Emissions and Transportation-Related Energy Consumption
Greenhouse Gas Emissions and Energy	Increased	Reduced	Reduced
Hazards and Hazardous Materials	Reduced	Reduced	Reduced
Hydrology and Water Quality	Reduced	Reduced	Reduced
Land Use and Planning, Including Agricultural Resources, and Population and Housing	Similar	Reduced	Similar
Noise and Vibration	Reduced	Reduced	Reduced
Public Services and Recreation	Reduced	Reduced	Reduced
Transportation	Increased	Reduced	Reduced
Utilities and Service Systems	Reduced	Reduced	Reduced
Total Reduced Impact Topics	9	13	12

Source: Data Compiled by AECOM in 2023

7 OTHER CEQA CONSIDERATIONS

7.1 GROWTH-INDUCING IMPACTS

7.1.1 INTRODUCTION TO GROWTH-INDUCING IMPACTS

CEQA (CEQA Guidelines, California Code of Regulations (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, population densities, and related impacts on environmental resources. Specifically, CEQA states that the Environmental Impact Report (EIR) shall:

[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 example, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises); 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 new urban development adjacent to undeveloped land.

Growth-inducement itself is not an environmental impact, but it may lead to foreseeable environmental impacts. These environmental impacts 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.

7.1.2 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

The Project proposes to annex and pre-zone approximately 161 acres of the approximately 486-acre Project Site into the City of Suisun City (see Exhibit 3-4 in Chapter 3). The proposed Development Area would be on approximately 93 acres within this annexation area, which is adjacent to the existing city limits and within the existing Sphere of Influence of the City. The remaining portion of the annexation area would be in public rights-

of-way and in Managed Open Space.[1] The portion of the Project Site south and southeast of the California Northern Railroad and Cordelia Road is outside the City's SOI, is not proposed for development or any SOI change or annexation, and would be proposed as Managed Open Space and protected in perpetuity with a deed restriction or conservation easement within unincorporated Solano County.

The proposed Project does not include a residential component and no new homes would be built at the proposed Project site. The proposed Project would include development of currently undeveloped areas, which would result in infrastructure being extended into these locations. Extensions of existing local utility lines (i.e., water, sewer, and electricity) would be installed to serve the proposed Project site. However, these utility extensions would be sized only to serve the needs of the proposed Project, and would not have additional capacity created to serve any other development. The proposed Project would improve Pennsylvania Avenue and Cordelia Road along the project frontages and construct a northbound right turn lane on northbound Pennsylvania Avenue and SR 12. These roadway improvements would accommodate the increased traffic generated by the proposed Project. The new and expanded infrastructure is designed to meet demands of the proposed Project, and would not create additional utility capacity in the Development Area beyond what would be necessary to serve the proposed Project. Therefore, the proposed Project does not include an extension of utilities or roads that would indirectly induce population growth.

The proposed Project would create approximately 1,275 new jobs (EPS 2021). Based on 2022 estimates, the City had a jobs to housing ratio of 0.41, which indicates a predominance of residential uses and less jobs potentially available to local resident-workers. The most recent LODES data reported by the U.S. Census reports approximately 96.6 percent of City residents commute to jobs outside of the city and 85 percent of local jobs within the city are filled by employees from outside of the city, mainly from the cities of Fairfield and Vacaville (U.S. Census Bureau 2020b, c). The proposed Project supports the City's goals to create opportunities to generate jobs and attract new employment-creating industries to Suisun City. Furthermore, as stated above, the Plan Bay Area 2050 jobs/housing balance for northern Solano County would be 1.2 by 2050, indicating a near balance between jobs and housing (ABAG 2021). The proposed Project contributes to this goal by improving the City of Suisun City's jobs-to-housing ratio by locating employment land uses on historically underutilized land near existing infrastructure, transportation corridors, and residential areas. Furthermore, the Development Area is identified by the Plan Bay Area 2050 as a PPA, which are defined as locally identified places for job growth in middle-wage industries like manufacturing, logistics, or other trades (ABAG 2021). The Development Area is also within the City's Sphere of Influence, in which employment-generating development is anticipated. Therefore, the project's employment opportunities would not be growth inducing.

7.2 SIGNIFICANT AND UNAVOIDABLE IMAPCTS

CEQA Guidelines section 15216.2(b) requires an EIR to include a discussion of any significant environmental impacts that cannot be avoided if the proposed Project is implemented.

Chapter 4 of this EIR provides a detailed analysis of all significant and potentially significant environmental impacts from implementation of the proposed Project; identifies feasible mitigation measures, as appropriate, that could avoid or reduce these significant and potentially significant impacts; and presents a determination whether

1 The Project Site also includes a 6.4-acre parcel northeast of the proposed Annexation Area, southeast of the intersection of SR 12 and the UPRR line; this parcel is within the City's current SOI and therefore not proposed for annexation but is included in the overall Project Site and the total area to be maintained as Managed Open Space.

the identified mitigation measures would reduce these impacts to less-than-significant levels. In addition, Chapter 5 of this EIR provides an analysis of the significant cumulative impacts resulting from the combined effects of the proposed Project and other lead agencies' planned projects. If a potentially significant or significant impact cannot be reduced to a less-than-significant level, it is considered a significant and unavoidable adverse impact.

Implementing the proposed Project would result in significant and unavoidable adverse impact(s) as identified below.

7.2.1 PROJECT-LEVEL SIGNIFICANT AND UNAVOIDABLE IMPACTS

AESTHETICS AND VISUAL RESOURCES

Impact 4.1-1. Effects on Scenic Vistas.

No feasible mitigation is available that could fully preserve the existing views of the Coast Ranges, Howell Mountains, Cement Hill, or the Vaca Mountains while also accommodating operation of the buildings and landscaping that are proposed as part of the Project. Because no other feasible mitigation measures are available, this impact would be **significant and unavoidable**.

Impact 4.1-3. Substantial New Light and Glare and Skyglow Effects.

Implementation of Mitigation Measure 4.1-3 would reduce potentially significant impacts from daytime and nighttime glare, and nighttime skyglow effects, to the maximum extent feasible because an exterior lighting plan with measures specifically designed to reduce nighttime light spillover, glare, and skyglow effects would be prepared and implemented. The Project Site currently has no sources of light, but nearby commercial areas and infrastructure, such as the Kings of Auto and NorCal Concrete areas and SR 12, emit minimal nighttime lighting for security reasons, while surrounding areas of Fairfield and Suisun City have nighttime lighting from commercial, light industrial, and residential development. Further, daytime and nighttime glare generated by urban development are present to the west, north, and east of the Project Site, in addition to the Kings of Auto and NorCal Concrete commercial areas located at the intersection of Pennsylvania Avenue and Cordelia Road. Proposed urban land uses in the 93-acre Development Area would introduce new street lighting, parking lot lighting, pedestrian way lighting, interior lighted building signage, interior and front-lighted landmark and directory signage, interior lighted LED security lighting, and architectural lighting, during the Project's operational stage. Even with implementation of Mitigation Measure 4.1-3, the proposed commercial and light industrial development on 93 acres of the Project Site would contribute to regional nighttime skyglow effects. Because no other feasible mitigation measures are available, this impact would be **significant and unavoidable**.

GREENHOUSE GAS

Impact 4.6-1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Implementation of Mitigation Measures 4.6-1a through 4.6-1d would reduce emissions associated with offroad equipment use during Project construction. Mitigation Measures 4.6-1e through 4.6-1m would reduce emissions associated with natural gas use, electricity consumption, worker vehicle and truck travel and idling, TRU operations, use of onsite offroad equipment such as forklifts, and backup generators. Implementation of these

mitigation measures would reduce the Project's generation of GHG emissions to support the Project's fair share contribution emissions reductions toward the State GHG reduction mandates and the State's goal of statewide carbon neutrality. The Project's GHG emissions and GHG efficiency with implementation of these measures would still exceed the GHG efficiency thresholds for 2030 and for 2045.

Mitigation Measure 4.-1n further reduces the proposed Project's impacts related to the generation of GHG emissions, as it requires the purchase and retirement of GHG emissions credits based on protocols approved by ARB, consistent with Section 95972 of Title 17 of the California Code of Regulations. Mitigation Measure 4.6-1n also requires the Project applicant to provide documentation demonstrating that the mitigation credits are real, additional, quantifiable, verifiable, enforceable, permanent, and consistent with the standards set forth in Health and Safety Code section 38562, subdivisions (d)(1) and (d)(2). Mitigation Measure 4.6-1n would ensure that the Project's GHG emissions efficiency would be consistent with that of the State SB 32 regulatory GHG emissions reduction target for 2030 and with the State AB 1279 regulatory GHG emissions reduction target for 2045 over the long-term operations of the Project. Therefore, with implementation of Mitigation Measures 4.7-1a through 1n, the generation of GHG emissions associated with the proposed Project would not result in a substantial contribution to the significant impact of climate change or conflict with an applicable plan, policy, or regulation adopted for the purposes of reduction GHG emissions. However, the City cannot guarantee the availability of emissions credits meeting the standards outlined in Mitigation Measures 4.6-1n presented above. There is no additional feasible mitigation available. Therefore, with implementation of Mitigation Measures 4.6-1a through 4.6-1n, the Project construction and operations would result in a **cumulatively considerable and significant and unavoidable**.

NOISE & VIBRATION

Impact 4.10-1. Temporary, Short-term Exposure of Sensitive Receptors to Construction Noise.

Implementation of Mitigation Measure 4.10-1a, construction would be limited to daytime hours, for which associated noise levels are considered exempt from the provisions of applicable standards established by the City and the County. On-site and off-site impacts from temporary, short-term exposure of sensitive receptors to increased equipment noise from the project would be reduced. However, given the uncertainty of future potential development of the proposed project area and the possibility of off-site infrastructure improvements that may be required to serve currently unknown developments within the Proposed project area, it is not now possible to determine the effectiveness of mitigation with certainty. With enforcement of the above mitigation measure and existing noise regulations, future development in the Proposed project area and off-site improvements would be designed to minimize potential impacts. For example, when installed properly, acoustic barriers can reduce construction noise levels by approximately 8–10 dB (EPA 1971). This mitigation measure would reduce potential impacts. However, it is not possible to demonstrate that this would avoid significant construction noise impacts in every case. Because no other feasible mitigation measures are available, this impact would be **significant and unavoidable**.

7.2.2 CUMULATIVELY SIGNIFICANT AND UNAVOIDABLE IMPACTS

AESTHETICS AND VISUAL RESOURCES

Impact 4.1-1. Effects on Scenic Vistas.

Scenic views to the north at the Project Site from Key Community Gateway 2 and from Viewpoint 10 along Cordelia Street would be blocked by proposed buildings and landscaping, and scenic views from Key Community Gateway 3 to the southwest would also be blocked. The loss of scenic vistas from Key Community Gateway 2 would still occur under Alternative 2. There are no feasible mitigation measures that would preserve scenic vistas from these locations while still allowing development to proceed under the proposed Project or Alternative 2. Because no other feasible mitigation measures are available, the proposed Project would result in a **cumulatively considerable contribution** to this Significant and unavoidable impact related to scenic vistas. There is no feasible mitigation to reduce the proposed Project's contribution to this significant cumulative impact. The impact would be **significant and unavoidable**.

Impact 4.1-3. Substantial New Light and Glare and Skyglow Effects.

The proposed Project and Alternative 2 would result in additional nighttime lighting and skyglow effects from the proposed development. Implementation of Mitigation Measure 4.1-3 would reduce the potentially significant impacts from nighttime lighting, glare, and skyglow effects associated with the proposed Project and Alternative 2 to the maximum extent feasible because an exterior lighting plan would be prepared for City review and approval and implemented. However, even with implementation of Mitigation Measure 4.1-3, the proposed commercial and light industrial development on the Project Site and Alternative 2 site would contribute to regional nighttime skyglow effects. No additional feasible mitigation measures are available. Therefore, the proposed Project or Alternative 2 would result in a **cumulatively considerable contribution** to this significant and unavoidable impact related to nighttime skyglow effects. There is no feasible mitigation to reduce the proposed Project's contribution to this significant cumulative impact. The impact would be **significant and unavoidable**.

GREENHOUSE GAS EMISSIONS

Impact 4.6-1.

GHGs typically persist in the atmosphere for extensive periods time—long enough to be dispersed throughout the globe and result in long-term global impacts that contribute to climate change. As such, the proposed Project would not, by itself, result in climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. Accordingly, impacts related to GHG emissions are inherently cumulative. See discussion of Impact 4.6-1 in Section 7.2.1, Project Level Significant and Unavoidable Impacts.

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7 LIST OF PREPARERS

CITY OF SUISUN CITY

Greg Folsom ..... City Manager
Jim Bermudez ..... Development Services Director
John Kearns ..... Principal Planner
Nouae Vue ..... Public Works Director / City Engineer

AECOM

Matthew Gerken ..... Project Manager
Suzanne McFerran ..... Deputy Project Manager, Air Quality/Greenhouse Gas Specialist
Wendy Copeland ..... Senior Environmental Scientist
Jenifer King ..... Senior Environmental Planner
Issa Mahmodi ..... Noise and Vibration Specialist
Susan Sanders ..... Senior Biologist
Julie Roth ..... Biologist
Chandra Miller ..... Senior Architectural Historian
Heather Miller ..... Cultural Resources Specialist
Diana Ewing ..... Archaeologist
Lisa Clement ..... Senor GIS Specialist
Vivian Gaddie ..... Graphics Specialist
Deborah Jew ..... Document Specialist

WADE AND ASSOCIATES

David Wade ..... Principal

FEHR AND PEERS

Sarah Chan, P.E., T.E. ..... Senior Associate
Emily Chen ..... Transportation Planner

HUFFMAN-BROADWAY GROUP, INC.

Robert Perrera ..... Senior Wetland Regulatory Scientist

MORTON & PITALO, INC.

Edwin Yu, P.E., LEED AP ..... Principal Engineer

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