STOCKTON DIAMOND

Unlocking Northern California's Freight and Passenger Rail Potential

FINAL ENVIRONMENTAL ASSESSMENT

July 2022

SAN JOAQUIN REGIONAL RAIL COMMISSION®

CALIFORNIA High-Speed Rail Authority

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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Stockton Diamond Grade Separation
Final Environmental Assessment

Pursuant to:
National Environmental Policy Act (42 U.S.C. § 4321 et seq.)
40 C.F.R. Parts 1500–1508, 64 Fed. Reg. 28545, 49 U.S.C. § 303, and 23 U.S.C. § 327

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July 2022

San Joaquin Regional Rail Commission. 2022. *Stockton Diamond Grade Separation Final Environmental Assessment*. July 2022. Stockton, CA.

Abstract: The preparation of the *Stockton Diamond Grade Separation Project Final Environmental Assessment (EA)* meets all pertinent requirements of the National Environmental Policy Act (NEPA). Specifically, the environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 United States Code Section 327 and a Memorandum of Understanding (MOU) dated July 23, 2019, and executed by the Federal Railroad Administration (FRA) and the State of California. Prior to the July 23, 2019, MOU, the FRA was the federal lead agency. Accordingly, and per the above, the California High-Speed Rail Authority is the NEPA lead agency for this project.

This document considers, describes, and summarizes at a project level of analysis the environmental effects of a grade separation at the Stockton Diamond, in Stockton, California. A total of two project alternatives are analyzed, including the Project Alternative and a No-Action Alternative.

Best management practices, along with mitigation measures, are described to avoid, minimize, and/or mitigate potential adverse effects.

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Abbreviations and Acronyms

Term	Definition
°F	degrees Fahrenheit
AASHTO	American Association of State and Highway Transportation Officials
AB	Assembly Bill
ac	acre
ACE	Altamont Corridor Express
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ACS	American Community Survey
ADA	Americans with Disabilities Act
AIA	Airport Influence Area
ALUCP	Airport Land Use Compatibility Plan
AM	morning
APE	area of potential effect
ARB	California Air Resources Board
ARP	Accidental Release Prevention Program
ASTM	American Society for Testing and Materials International
BAAQMD	Bay Area Air Quality Management District
BG	block group
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BNSF	BNSF Railway
BSA	biological study area
BTU	British Thermal Units
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal Water	California Water Service
Cal/EPA	California Environmental Protection Agency
CALFIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code

Term	Definition
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CCT	Central California Traction Company
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CHP	California Highway Patrol
CHSRA	California High-Speed Rail Authority
CMP	Congestion Management Process
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CT	census tract
CTP	Construction Transportation Plan
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CWA	Clean Water Act
CWSC	California Water Service Company Stockton District

Term	Definition
CY	cubic yard
dB	decibel
dBA	A-weighted decibel
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DOE	U.S. Department of Energy
DOF	California Department of Finance
DOT	Department of Transportation
DPM	diesel particulate matter
DPP	Design Pollution Prevention
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	Environmental Assessment
EB	eastbound
EDR	Environmental Data Resources
EFH	Essential Fish Habitat
EHRA	Earthquake Hazards Reduction Act
EIA	Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESA	Endangered Species Act
FCAA	federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Fire and Emergency Services Administration
FGC	California Fish and Game Code
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	finding of no significant impact

Term	Definition
FR	*Federal Register*
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GAO	Government Accountability Office
GHG	greenhouse gas
GIS	geographic information system
GWh	gigawatt hour
HAPC	Habitat Areas of Particular Concern
HASP	health and safety plan
HCM	*Highway Capacity Manual*
HCP	habitat conservation plan
HMMP	hazardous materials management plan
HRA	health risk assessment
I-205	Interstate 205
I-5	Interstate 5
I-580	Interstate 580
ICCTA	Interstate Commerce Commission Termination Act
kV	kilovolt
kWh	kilowatt hour
LBP	lead-based paint
LCCF	lightweight cellular concrete fill
Ldn	day-night sound level
LEP	limited English proficiency
Leq	equivalent sound level
Lmax	maximum sound pressure level
LOS	level of service
LQG	large-quantity generator
LRA	Local Responsibility Area
LS	length-slope factor
LUST	leaking underground storage tank
LWCF	Land and Water Conservation Fund

Term	Definition
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MM	mitigation measure
MOU	Memorandum of Understanding
MP	milepost
mph	miles per hour
MRI	magnetic resonance imaging
MS4	municipal separate storm sewer system
MT	metric ton
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAVD 88	North American Vertical Datum of 1988
NB	northbound
NCC	not cumulatively considerable
NCCP	natural community conservation plan
NCCPA	Natural Community Conservation Planning Act
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NE	northeast
NEPA	National Environmental Policy Act
NFRAP	no further remedial action planned
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NO_X	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
NRHP	National Register of Historic Places

Term	Definition
NW	northwest
O_3	ozone
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OSHA	Occupation Safety and Health Administration
OWJ	official with jurisdiction
PA	Programmatic Agreement
Pb	lead
PDT	Project Development Team
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric
PL	Public Law
PM	evening
PM_{10}	particulate matter 10 microns in diameter or less
$PM_{2.5}$	particulate matter 2.5 microns in diameter or less
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
PRMP	Paleontological Resources Management Plan
RCMP	Regional Congestion Management Program
RCRA	Resource Conservation and Recovery Act
RMS	root mean square
ROG	reactive organic gas
RONA	Record of Non-Applicability
RR	railroad
RSA	Resource Study Area
RTD	Regional Transit District
RTP	Regional Transportation Plan
RWCF	Regional Wastewater Control Facility
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill

Term	Definition
SCH	State Clearinghouse
SCK	Stockton Metropolitan Airport
SCS	Sustainable Communities Strategy
SE	southeast
SEL	sound exposure level
SEWD	Stockton East Water District
SFD	Stockton Fire Department
SHMA	Seismic Hazards Mapping Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SJAFCA	San Joaquin Area Flood Control Agency
SJCCTP	San Joaquin County Coordinated Transportation Plan
SJCOG	San Joaquin Council of Governments
SJJPA	San Joaquin Joint Powers Authority
SJMSCP	San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
SJRRC	San Joaquin Regional Rail Commission
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Air Pollution Control District
SO_2	sulfur dioxide
SO_X	sulfur oxide
SP	Southern Pacific
SPCC	Spill Prevention, Control, and Countermeasure
SPD	Stockton Police Department
SPL	State Priority List
SQG	small-quantity generator
SR	State Route
STIP	State Transportation Improvement Program
SWG	Stakeholder Working Group
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant

Term	Definition
TCE	temporary construction easement
TMDL	total maximum daily load
TSCA	Toxic Substances Control Act
TVSJVRRA	Tri-Valley San Joaquin Valley Regional Rail Authority
UC	University of California
UCMP	University of California Museum of Paleontology
UP	Union Pacific Railroad
US	United States
USA North	Underground Service Alert North
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USD	Unified School District
USDOT	U.S. Department of Transportation
USEO	U.S. Executive Order
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
v/c	volume-to-capacity
VdB	vibration velocity
VMS	variable message sign
VMT	vehicle miles traveled
VOC	volatile organic compound
WB	westbound
WDR	waste discharge requirement
WEAP	Worker Environmental Awareness Protection

1 Project Description

1.1 Introduction

The California High-Speed Rail Authority (CHSRA), under assignment by the Federal Railroad Administration (FRA) and in coordination with the San Joaquin Regional Rail Commission (SJRRC), proposes to construct a grade separation of two principal railroad lines at the Stockton Diamond in Stockton, California. Figure 1.1-1 shows the general regional location of the Stockton Diamond Grade Separation Project (Project).

On August 19, 2020, SJRRC officially launched the environmental review process for the Project with a Notice of Preparation (NOP) for an Environmental Impact Report (EIR). At the time of the NOP issuance, the environmental document was presented to stakeholders and the public as a joint California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) document. SJRRC, as the CEQA Lead Agency in coordination with CHSRA as the NEPA Lead Agency, under assignment from FRA,[1] was to prepare an EIR/Environmental Assessment (EA). Due to funding deadline considerations, the CEQA/NEPA document was split, and SJRRC prepared an EIR for the Project, which was adopted by the SJRRC Board on June 4, 2021. SJRRC, with guidance and independent evaluation by CHSRA, has now prepared this Final EA for the Project in conformance with NEPA. SJRRC is the Project sponsor and joint lead agency under NEPA. Throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated.

The Project is a critical passenger and freight mobility project. As shown in Figure 1.1-2, the current Altamont Corridor Express (ACE) commuter rail service connecting Stockton and San Jose—owned and operated by SJRRC with managerial oversight by San Joaquin Joint Powers Authority (SJJPA)—and the current San Joaquins intercity passenger rail service—operated by Amtrak and managed by SJJPA in San Joaquin Valley—are constrained by the Stockton Diamond Interlock (Stockton Diamond or Diamond) at-grade crossing. The convergence of these two rail lines at the Stockton Station, which is central in the Valley Rail Program, could cause reductions in reliability and on-time performance for both passenger and freight rail in the greater area. The grade separation would help improve the operational performance for SJRRC and the SJJPA as they provide service between the Central Valley, Sacramento, and San Francisco Bay Area.

[1] The environmental review, consultation, and other actions required by applicable federal environmental laws for this Project are being or have been carried out by the State of California pursuant to 23 United States Code (USC) 327 and a Memorandum of Understanding dated July 23, 2019, and executed by FRA and the State of California.

Figure 1.1-1: Regional Project Location

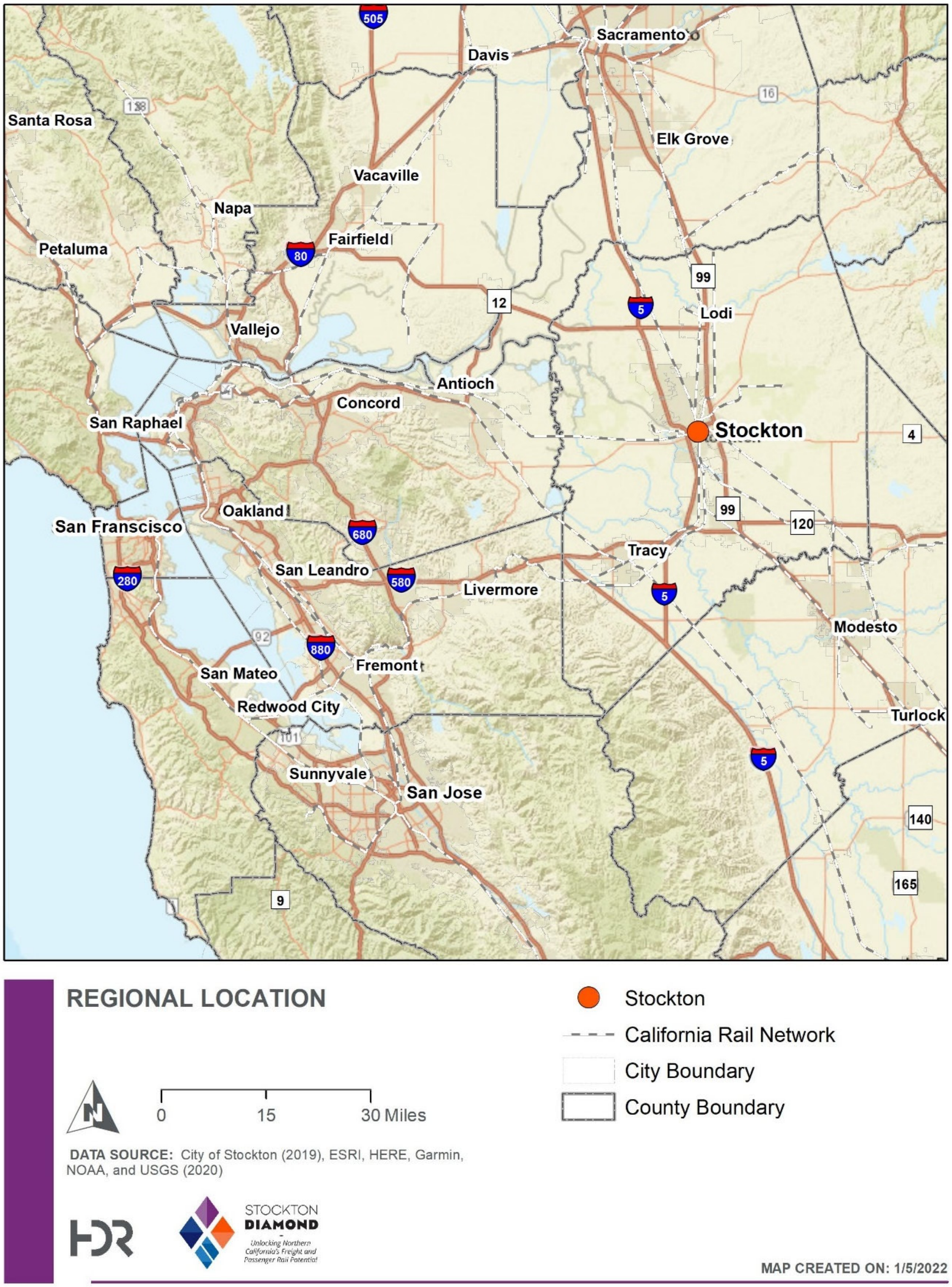
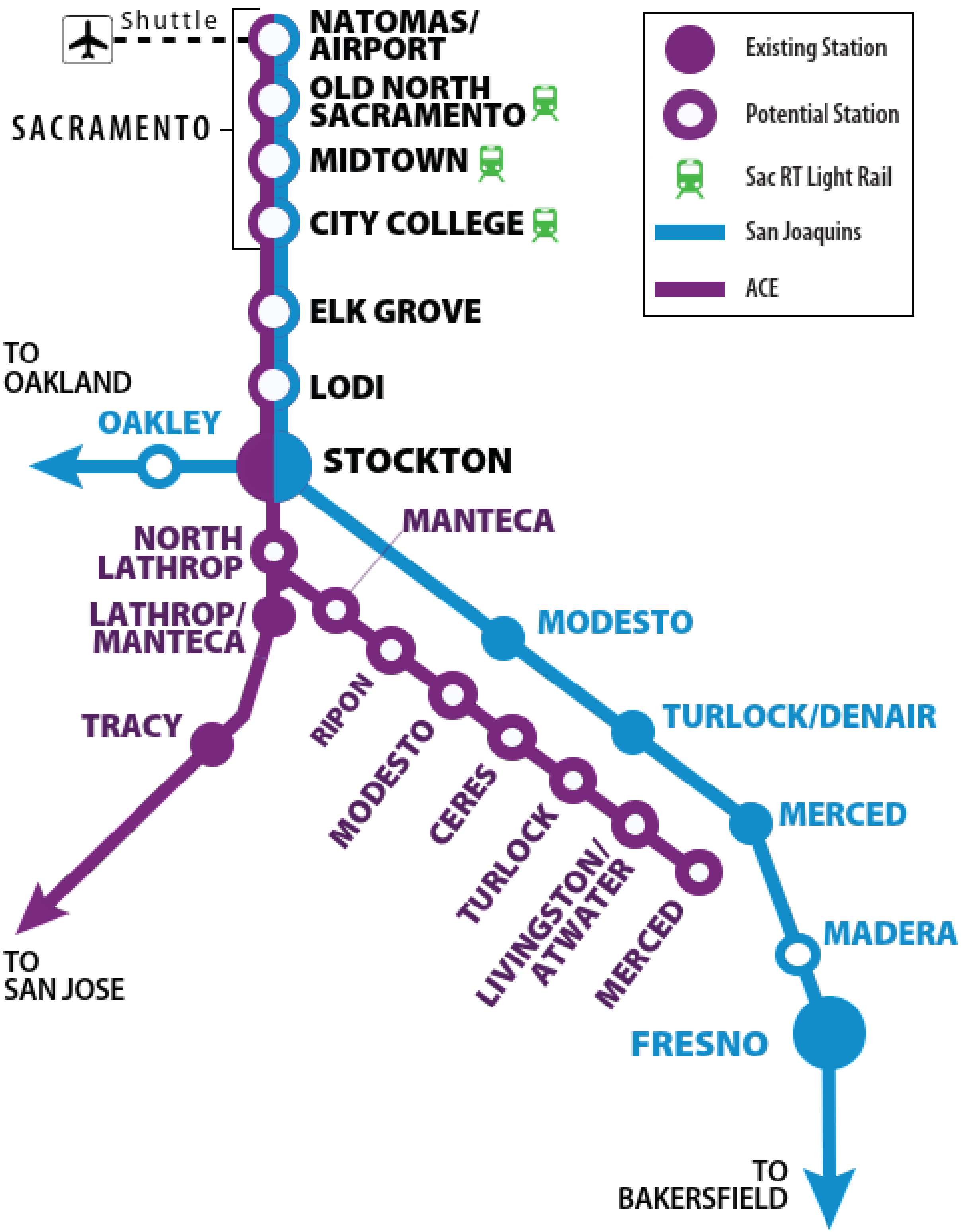


Figure 1.1-2: Valley Rail Program



Currently, the BNSF Railway (BNSF) Stockton Subdivision and the Union Pacific Railroad (UP) Fresno Subdivision consist of two main tracks each, and they intersect each other at a level, at-grade crossing known as the Stockton Diamond. This rail intersection, located just south of downtown Stockton near South Aurora Street and East Scotts Avenue, is the busiest at-grade railway junction in California. The at-grade crossing experiences substantial congestion and severe delays for people and freight throughout the Central Valley—and for freight on the broader national network. The current, at-grade track configuration results in critical delays to passenger and freight trains in the area, including those serving the Port of Stockton. Train congestion also causes vehicle delays at roadway-rail at-grade crossings and creates potential motor vehicle, rail, bicycle, and pedestrian conflicts.

The Project would construct a grade separation of the BNSF and UP rail lines to reduce rail congestion and allow for an uninterrupted flow of passenger and freight rail traffic through the crossing. The reduction in rail congestion would reduce delays for passenger and freight rail providers and improve freight mobility, which could lead to lower costs for freight shipping and reduce travel times for motor vehicle, bicyclist, and pedestrian traffic.

The reduction in train congestion and motor vehicle wait times at these roadway-rail grade crossings would reduce locomotive and automobile idling and air emissions. The Project's benefits would accrue to motorists, pedestrians, rail passengers, freight shippers, and residents throughout the region and would result in reduced fuel consumption, lower costs for freight rail transportation, and improved travel times and reliability.

Additionally, the Project plans to incorporate complete streets elements that have been developed in close coordination with the California Public Utilities Commission (CPUC) Diagnostic Team. These multimodal improvements include curb, gutter, sidewalk and stormwater drainage improvements at affected roadway crossings; updated rail crossing warning devices; accommodations for planned bicycle and pedestrian facilities; and improved lighting (where necessary). Additionally, the Project will include raised median and landscaping to be incorporated in areas, as appropriate, within the Project Study Area.

As described below, passenger and commuter rail reliability are essential for those residing and working in the region, especially those in rural communities, who need improved access to essential services and economic centers. The Project is aligned with San Joaquin County's goals to enhance existing rail infrastructure and to improve the rail network efficiency and capacity—including safe, reliable transportation choices—while also improving the local economy through economic growth, job retention, and job creation.

1.2 Background

1.2.1 RELATIONSHIP TO OTHER PLANS IN THE STUDY AREA

This section identifies planned and current rail and roadway operations plans at the state and local level that are related to the Project that have provided input into the development and evaluation of potential Project alternatives. It is important to note that all of these plans, studies, and projects are separate efforts apart from the Project and that the improvements proposed as part of these efforts are not elements of the Stockton Diamond Grade Separation Project under environmental review in this Final EA.

San Joaquin Regional Rail Commission Plans

As part of the Valley Rail program, a joint program was established in partnership with SJJPA that included expanded ACE and San Joaquins service. SJRRC is currently planning and delivering passenger rail improvements and extensions to Sacramento, including the addition of potential stations at the Lodi, Elk Grove, City College, Midtown, Old north Sacramento, and Natomas Airport, and Ceres/Merced, including the addition of potential stations at North Lathrop, Lathrop/Manteca, Ripon, Modesto, Ceres, Turlock, Livingston/Atwater, and Merced along the ACE line. Additionally, a new Madera station will be added to the San Joaquins line toward Fresno/Bakersfield and a new Oakley station will be added to the San Joaquins line toward Oakland.

Valley Rail implements two new daily round trips for the Amtrak San Joaquins service to better connect San Joaquin Valley travelers with the Sacramento Area and extends ACE between Sacramento and Ceres/Merced (see Figure 1.1-2). SJRRC issued a Final EIR for the ACE Extension Lathrop to Ceres/Merced (ACE Extension) project in July 2018. SJRRC issued a Final EIR for the Valley Rail Sacramento Extension project in October 2020.

The Project is an important component of SJRRC's ACE*forward* and subsequent Valley Rail programs to address existing travel delays and lack of reliability. While maintaining independent utility, it is also an initial step in the implementation of longer-term plans for an integrated and efficient ACE passenger rail network.

A 2014 Memorandum of Understanding (MOU) between SJRRC and CHSRA created a cooperative framework between the agencies regarding, among other items, SJRRC's advancement of the ACE*forward* program.

California State Rail Plan

The Project's objectives align with the *2018 California State Rail Plan*[2], a strategic plan that identifies operating and capital investment strategies that would lead to a coordinated, statewide travel system. The 2040 vision laid out in the plan includes the following key passenger rail elements:

- **Statewide System:** Passenger rail service will tie together urban, suburban, and rural areas of the state.
- **Integrated Services:** Multimodal hubs will connect all levels of service with a common fare system, which allows trips to be made on a single ticket.
- **Coordinated Schedules:** Services will be coordinated in a "pulsed" schedule across the network to reduce wait times and allow direct transfers.
- **Frequent Service:** Service frequency will make rail a timely option for travelers, meeting trip demands throughout the day.
- **Customer Focus:** Enhanced ticketing, scheduling, and passenger information will be supported by coordinated services.

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[2] California Department of Transportation, *2018 California State Rail Plan*, https://dot.ca.gov/programs/rail-and-mass-transportation/california-state-rail-plan

The Project advances many of these goals by eliminating the interlock at the Stockton Diamond and allowing for uninterrupted flow of passenger rail trains through the Diamond. The Project would result in improved travel time reliability, transfers, and passenger confidence.

City of Stockton Plans

The City of Stockton's 2017 Bicycle Network Master Plan is part of the overall General Plan 2035 update. The City currently has 100 miles of off-street bicycle trails and paths and on-street bicycle facilities. The vision of the plan is to implement a vibrant, safe, and supportive bicycle network that connects residents in every neighborhood with desirable places to ride for any trip purpose. The Bicycle Network Master Plan is expected to be the catalyst for starting a cultural shift toward cycling in Stockton by effectively marketing cycling as a healthy, active transportation option and through funding supportive educational programs to reach people of all ages and abilities.

In accordance with the City of Stockton's *Bicycle Network Master Plan* (2017) and the *General Plan 2040* (2018), several bicycle facilities are proposed in the Project Study Area. Class IV separated bikeways are proposed within the Project Study Area on Charter Way and Weber Avenue and near the Project Study Area on Airport Way and California Street. Class II bicycle lanes are proposed within the Project Study Area on Hazelton Avenue and just east of the Project Study Area on Main Street and Market Street.

The Project considers these plans for improved bicycle facilities, along Hazelton Avenue in particular, which would be grade-separated from the UP Fresno Subdivision mainline tracks. The Project's Hazelton Avenue underpass would accommodate the bicycle lanes planned by the City of Stockton.

1.3 Project Area and Study Area

1.3.1 PROJECT AREA

The Project is located in the City of Stockton in San Joaquin County, California. Figure 1.3-1 shows the general Project area. San Joaquin County encompasses approximately 1,448 square miles, with approximately 773,632 residents. Alameda and Contra Costa Counties are located to its west, Sacramento County is located to its north, and Stanislaus County is located to its south. The region's incorporated cities include Escalon, Lathrop, Lodi, Manteca, Ripon, Stockton, and Tracy, the largest of which is Stockton, with a population of 318,522 (California Department of Finance [DOF] 2020a).[3]

According to the San Joaquin Council of Governments (SJCOG), rail is a critical link to the full-service transportation network available in San Joaquin County. The rail network consists of approximately 200 miles of track owned by Class I railroads, BNSF and UP. The county also features approximately 50 miles of short-line railroads, including the Stockton Terminal and Eastern Railroad and the Central California Traction Company (CCT) (SJCOG 2018).

Transit in San Joaquin County is also important to the region and includes a system of bus rapid transit, intercity and interregional bus transit services, ACE commuter rail service, and San Joaquins intercity rail service.

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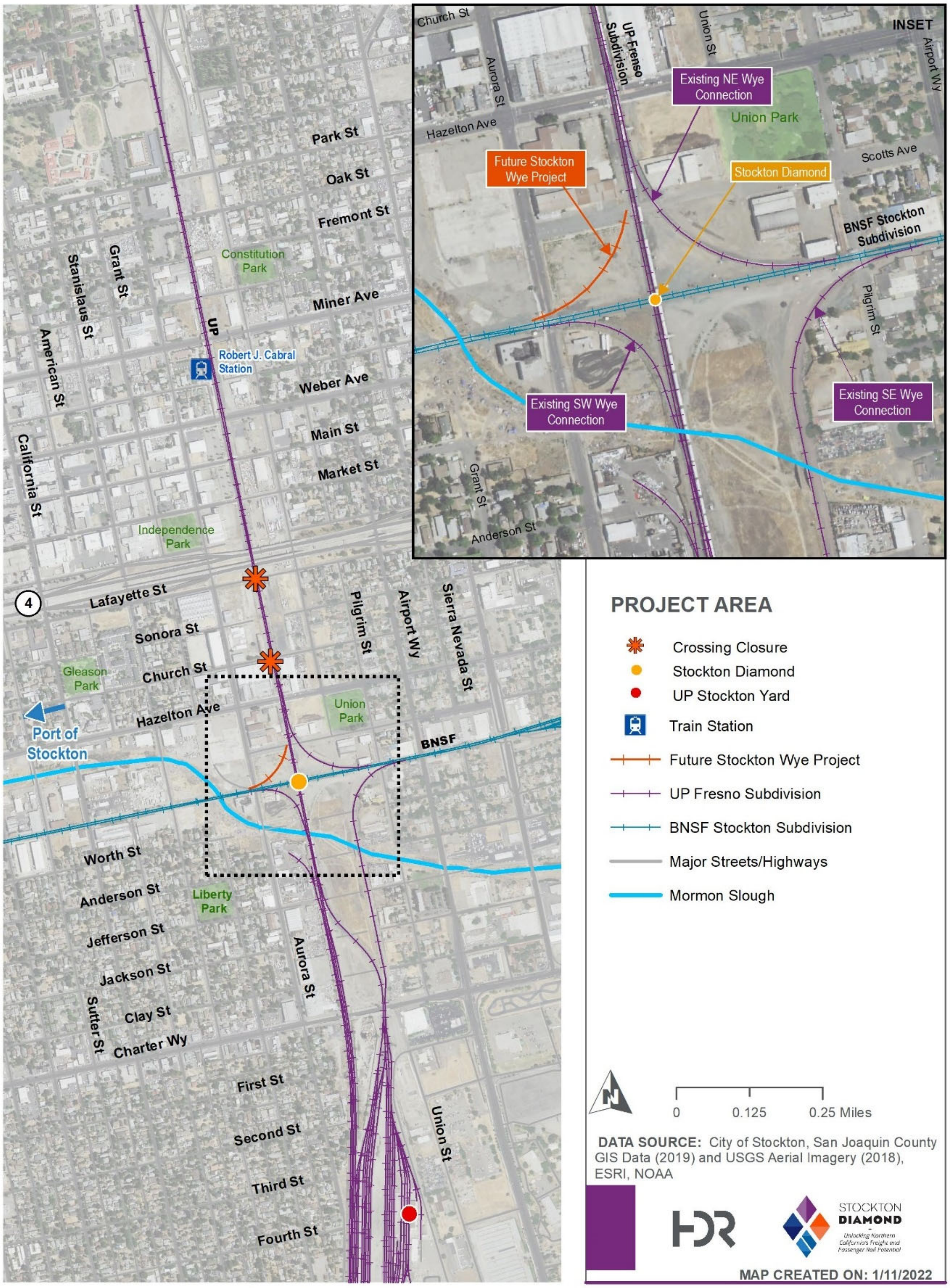
[3] DOF, E-1 Population Estimate, http://www.dof.ca.gov/Forecasting/Demographics/Estimates//E-1/

Figure 1.3-1: Project Area



As shown in Figure 1.3-2, there are currently 10 stops along the 86-mile ACE route between San Jose and Stockton. As shown in Figure 1.1-2, ACE trains pass through the Stockton Diamond between the current northern terminal station in Stockton (Robert J. Cabral Station) and the Lathrop/Manteca Station, approximately 11 miles to the south. San Joaquin County's road network is made up of more than 3,600 maintained miles. Major north-to-south highways include State Route (SR) 99 and Interstate 5 (I-5). SR 99 is considered the "Main Street" of the San Joaquin Valley and I-5 is a corridor of statewide and national significance.

These routes carry much higher truck traffic than the state average for the highway system and are imperative to goods movement. SR 120, SR 4, and SR 12 are major east-to-west highways, connecting SR 99 and I-5. SR 4, referred to as the Crosstown Freeway in Stockton, is located less than 2,000 feet north of the Stockton Diamond and continues west to the City of Hercules and east into the Sierra Nevada. Other important highways in the region include Interstates 580 (I-580) and 205 (I-205), which are located in the southwest region of the county. Each of these highways facilitates goods movement throughout the region. I-205 and I-580 serve as the gateway connection between the San Joaquin Valley and the San Francisco Bay Area.

1.3.2 PROJECT STUDY AREA

Figure 1.3-3 shows the Study Area for the Project (Project Study Area). The northern limit of the Project Study Area includes East Weber Avenue, a major east-to-west arterial in Downtown Stockton. Just north of East Weber Avenue is the Robert J. Cabral Station. The southern limit of the Project Study Area is the UP Stockton Yard, located approximately at East Fourth Street. The eastern and western limits of the Project Study Area are generally South Pilgrim Street and South Grant Street, respectively.

The Stockton Diamond is generally located in the middle of the Project Study Area. Substantial freight movements between the Port of Stockton and points east, north, and south must pass through the Diamond. The existing at-grade nature of the Diamond provides an operational constraint that results in delays to the regional rail network where these two principal rail lines intersect.

At several locations, the existing north-to-south UP Fresno Subdivision tracks at and near the Diamond are raised above grade by approximately 3 feet, requiring any vehicular or pedestrian traffic to go up and over the hump to cross the tracks at roadway-rail grade crossings. Additionally, the Mormon Slough is crossed by existing road and railway tracks in several locations within the Project Study Area.

The railroad main lines at the Stockton Diamond are geographically oriented east-to-west (BNSF Stockton Subdivision) and north-to-south (UP Fresno Subdivision). Both railroads are segments of important trade routes between Northern California (including ports in Stockton and the San Francisco Bay Area), the central United States, and the Pacific Northwest. BNSF has operating rights on the UP main line that it exercises for certain trains, and UP has operating rights on the BNSF main line that it exercises for certain trains.

Figure 1.3-2: Altamont Corridor Express Route Between San Jose and Stockton

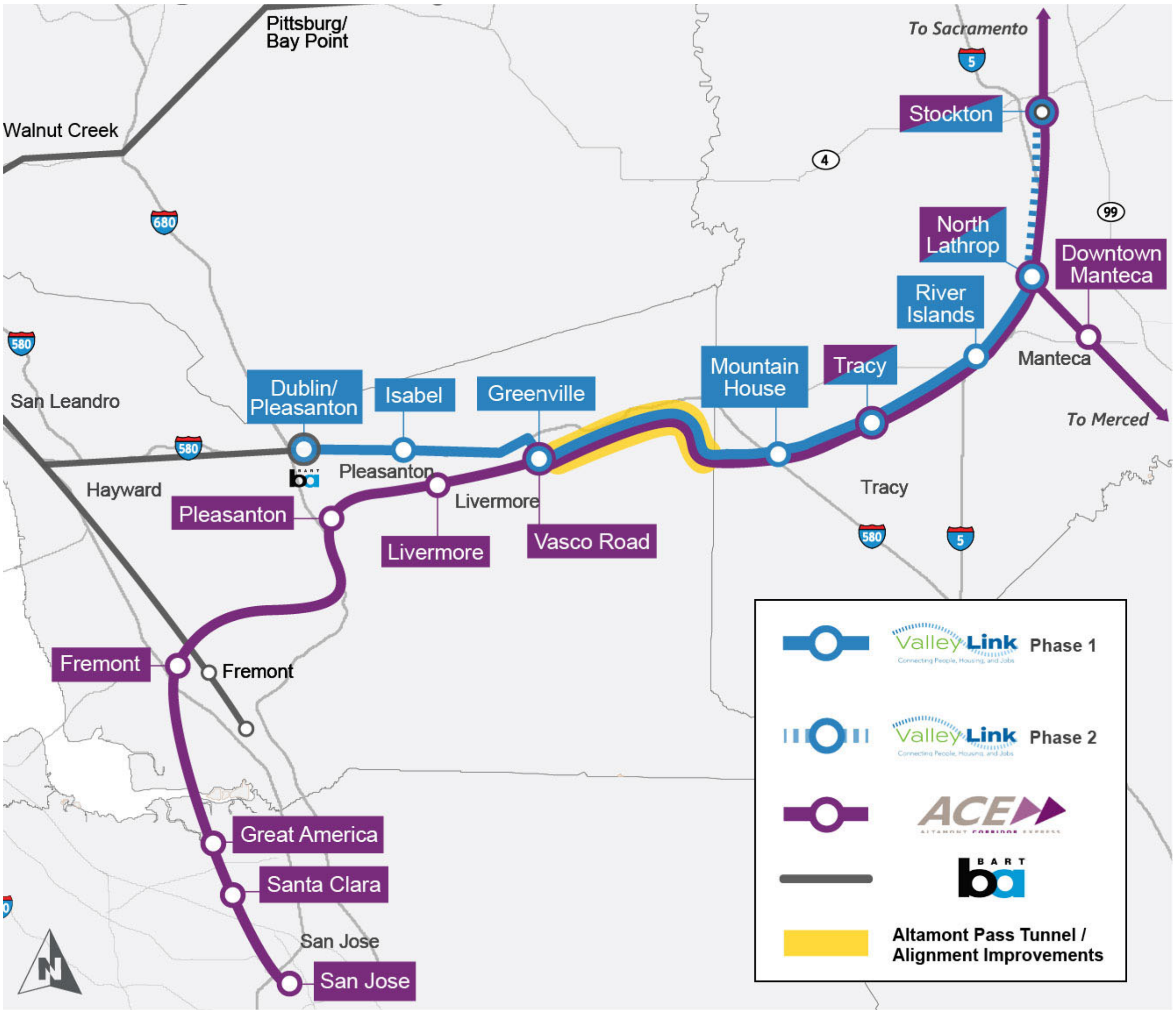
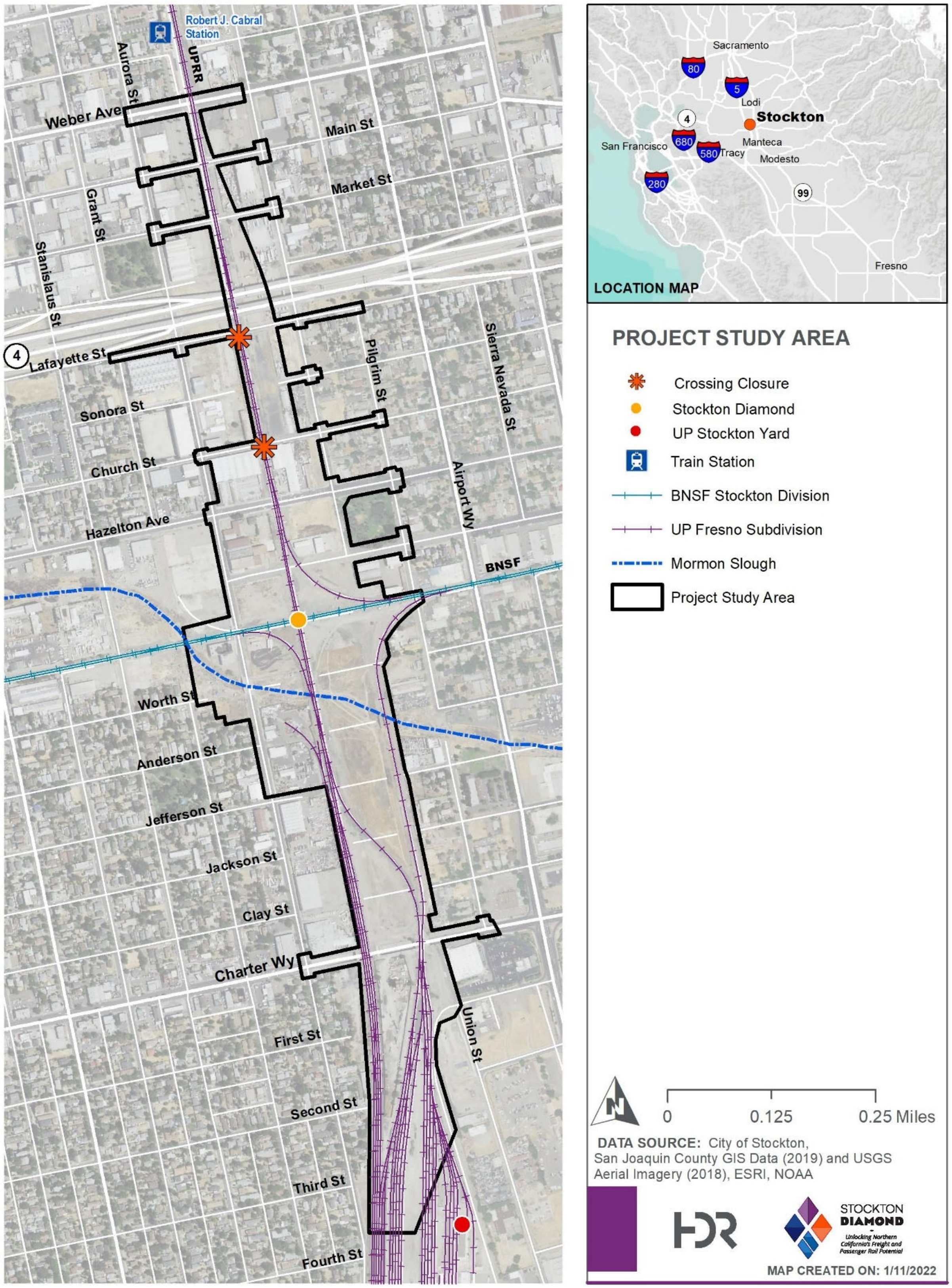


Figure 1.3-3: Project Study Area



ACE commuter passenger trains between Stockton and San Jose, operated by SJRRC, and intercity Amtrak San Joaquin's passenger trains between Oakland/Sacramento and Bakersfield, operated by SJJPA, operate on the UP and BNSF rail lines. Various types of freight trains typically operate through Stockton. These include intermodal trains that carry containerized freight or highway semi-trailers, bulk trains moving between a single origin and destination that consist of a single commodity such as grain, manifest trains moving between multiple origins and destinations that carry individual carloads of freight for many shippers, and local freight trains and transfers that move freight cars between switching yards, between yards and the docks, or between shipping and receiving facilities of railroad customers.

Based on the *2018 California State Rail Plan*, between 50 and 70 freight trains and between 12 and 20 passenger trains currently travel through the Stockton Diamond intersection per day.

The existing and estimated future rail activity through the Stockton Diamond, the amount of time roadway and rail crossings are occupied to allow trains to pass, the resulting vehicular traffic and train delays, and safety concerns associated with at-grade crossings are the basis for the Project. Improvements that enhance railroad operating efficiency and safety are critical for the efficient movement of people and goods and to help economic conditions in Stockton and the region.

1.4 Project Description

The Stockton Diamond currently features wye connection tracks in three of its four quadrants. A new wye for the northwest quadrant, referred to as the Stockton Wye, is currently in final design with construction scheduled to begin in late 2022. These wye connection tracks enable through trains of one railroad to use the other railroad's tracks. As shown in Figure 1.3-1, the wye connection tracks create a triangular ("diamond") joining arrangement of three rail lines, where trains can switch between the BNSF Stockton Subdivision and UP Fresno Subdivision. In the southeast quadrant, the wye track provides connection to and from the UP Stockton Yard, located south of the Diamond, and allows connectivity to the BNSF Mormon Yard, located east of the Diamond. In the southwest quadrant, a wye track connects the UP Fresno Subdivision and the UP Stockton Yard with the BNSF Stockton Subdivision heading westbound. In the northeast quadrant, a wye track provides a connection between the BNSF Stockton Subdivision and the UP Fresno Subdivision, which Amtrak uses for the San Joaquins service between Sacramento, Stockton, and Bakersfield. Completion of the Stockton Wye project would provide a connection track in the northwest quadrant of the diamond and would improve access between the UP Fresno Subdivision and the Port of Stockton to the west of the Diamond.

The Project would replace the existing at-grade intersection of the BNSF Stockton Subdivision and UP Fresno Subdivision with a grade-separated structure (flyover bridge) that would elevate the UP main tracks over the BNSF main tracks, enabling through trains proceeding on the UP main tracks to travel unimpeded through the crossing, avoiding any conflict with trains on the BNSF main tracks (and vice versa). With the exception of the Stockton Wye, which UP already cleared environmentally, the three existing connections between the two railroads would remain and function much as they do today, although their alignments would be modified to accommodate the development of the flyover bridge structure to reduce operating conflicts between trains on various other tracks within Stockton. With the BNSF main tracks staying at-grade and the UP main tracks elevated on the flyover, traffic conflicts and train staging, which currently occur as trains wait on one railroad's main track for trains using the other railroad's main track to pass through the Stockton Diamond crossing, would be reduced. The at-grade crossing of the UP and BNSF main tracks would be removed permanently, thereby removing the need for frequent signal and other maintenance associated with this at-grade crossing and eliminating the resulting train delays created while this crossing is shut down for these maintenance activities.

Additionally, East Lafayette Street and East Church Street would be closed permanently as part of the Project. East Lafayette Street would be closed due to the multiple at-grade rail crossings of the at-grade main tracks and wye connection tracks (that is, four crossings within two blocks). In addition, East Church Street would be closed because it would not meet the UP/BNSF required minimum flyover vertical clearance for a vehicle crossing under the rail structure of 16.5 feet, and it would not be consistent with the American Association of State and Highway Transportation Officials' design criteria for change in grade for a local roadway.

SJRRC will use funding that has already been secured from SB 132 and the Interregional Transportation Improvement Program to match other project funds for this $237 Million project. In September 2020, the United States Department of Transportation (USDOT) awarded a $20 Million Better Utilizing Investments to Leverage Development (BUILD) grant for the Project. In December 2020, the California Transportation Commission (CTC) awarded a $100 Million Trade Corridor Enhancement Program (TCEP) grant for the Project.

1.5 Purpose and Need

The purpose and need for the Project improvements are discussed in the sections that follow.

1.5.1 PROJECT PURPOSE

The purpose of the Stockton Diamond Grade Separation Project is to:

- Provide operational benefits that enhance existing passenger rail service and new service planned in the Valley Rail program, to support faster, more reliable passenger rail service linking residents to family, jobs, and recreational destinations throughout Northern California.
- Provide for an uninterrupted flow of rail through the crossing to improve passenger and freight movement, to improve regional passenger and freight rail efficiency and travel reliability, and Stockton residents' access, safety, and mobility across rail lines.
- Reduce delays for pedestrians and motorists at key local roadway-rail grade crossings, resulting in increased throughput, efficient goods movement, decreases in fuel consumption, and improvements in air quality by the reduction of greenhouse gas (GHG) emissions from trains and vehicles on roads that idle because of congestion and delays.

1.5.2 PROJECT NEED

Needs for the Project are based on the future growth anticipated in the region and existing and estimated future rail activity, including the Valley Rail and ACE*forward* programs, through the Stockton Diamond, the amount of time roadway and rail crossings are occupied to allow trains to pass, the resulting vehicular traffic and train delays, and safety concerns associated with at-grade crossings. Improvements that enhance railroad operating efficiency and safety are critical for the efficient movement of people and goods and to help economic conditions in Stockton and the region. Specifically, the Project is needed for the following reasons:

- **Freight and Passenger Rail Congestion.** High levels of freight and passenger rail activity cause train congestion. The Stockton Diamond is the busiest, most congested at-grade railway junction in California.
- **Freight and Passenger Rail Reliability.** Congestion and freight maintenance activities cause delays and poor reliability. The current at-grade configuration of the Stockton Diamond results in significant delays and poor reliability for BNSF and UP freight trains and for ACE and Amtrak San Joaquins passenger trains. Local road traffic also experiences delays and poor reliability because of the amount of time the road crossings are occupied by trains.
- **Safety at Roadway-Rail Grade Crossings.** Multiple roadway-rail grade crossings and the BNSF-UP main line track at-grade crossings create conflict points that result in increased safety risks.

These three key needs are discussed in detail in the sections below.

Freight and Passenger Rail Congestion

Several passenger and freight rail services converge at the Stockton Diamond; consequently, there is a substantial amount of rail activity at this location. Publicly available FRA *Highway-Rail Grade Crossing Inventory Reports* were consulted to obtain a conceptual daily estimate of the typical number of freight trains operated through each roadway-rail grade crossing in the Project Study Area.[4] Data were available from 2016 for the UP Fresno Subdivision and from 2019 for the BNSF Stockton Subdivision. Train count data for the UP Fresno Subdivision from 2016 were escalated to 2019 using a 2 percent compound annual growth rate, which is a factor acceptable to FRA to account for freight growth for planning purposes.[5]

According to the data, in 2019 an estimated daily average of 44 freight trains typically operated on the UP Fresno Subdivision north of the Diamond, 36 of which continued south through the Stockton Diamond and 8 of which used the northeast connecting tracks to access the BNSF Stockton Subdivision, or vice versa. In addition, an estimated daily average of 20 freight trains operated on the BNSF Stockton Subdivision east of the Diamond, of which 12 used the Stockton Diamond and 8 used the northeast connecting tracks to access the UP Fresno Subdivision.[6] An additional 4 trains per day, on average, used the southwest connecting tracks between the BNSF Stockton Subdivision west of the Diamond and the UP Fresno Subdivision south of the Diamond. Figure 1.5-1 illustrates the relative freight rail activity in 2019 through and near the Stockton Diamond.

In addition to the freight trains, in 2019 SJRRC operated 8 (peak-period service) ACE commuter trains each weekday between the Stockton Cabral Station and San Jose, through the Stockton

[4] FRA, Highway-Rail Grade Crossing Inventory Reports, https://fragis.fra.dot.gov/gisfrasafety/.

[5] Growth rates used for the analysis do not exceed the suggested maximum allowable compounded annual growth rate of 2 percent, which is typically identified by FRA as a best practice for freight rail forecasting used in transportation studies.

[6] Actual typical number of freight trains is subject to future analysis and railroad coordination.

Diamond on the UP Fresno Subdivision, all of which pass through the Stockton Diamond. In 2019, the SJJPA had 4 daily Amtrak San Joaquins intercity trains (operated by Amtrak) between Bakersfield and Sacramento traveling through the Stockton Diamond along the BNSF Stockton Subdivision and UP Fresno Subdivision (using the northeast connecting tracks), as well as 10 daily San Joaquins trains between Bakersfield and Oakland through the Stockton Diamond on the BNSF Stockton Subdivision both east and west of the Diamond. These passenger train volumes are also illustrated in Figure 1.5-1.

Using a 25-year planning horizon (out to 2045), the Existing Year (2019) freight train activity was escalated using the same 2 percent compounded annual growth rate noted above. The resulting forecast estimates as many as 52 daily freight trains passing through the Stockton Diamond on the UP Fresno Subdivision and 12 daily freight trains passing through the Diamond on the BNSF Stockton Subdivision.

Table 1.5-1 shows Existing Year (2019) and Future Year (2045) freight and passenger train volumes. As shown in Table 1.5-1, an additional 16 daily passenger trains passing through the Stockton Diamond on the UP Fresno Subdivision, and an additional 10 daily passenger trains using the connecting tracks in the Project Study Area would occur in Future Year (2045) with or without the Project.[7]

Table 1.5-1: Number of Freight and Passenger Trains, Existing Year (2019) and Future Year (2045)

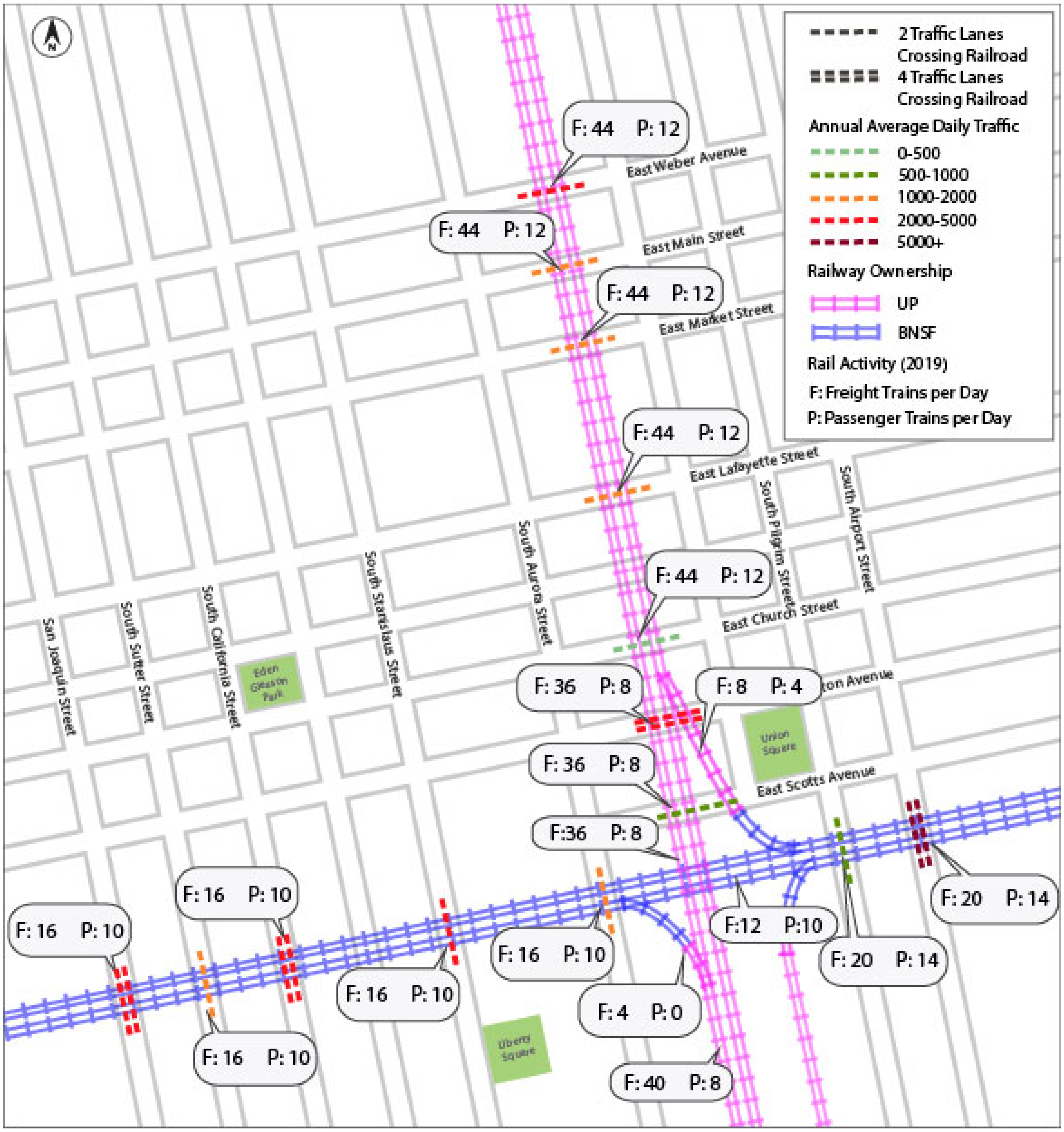
Scenario	Diamond Route Freight Trains	Northeast Connector Route Freight Trains	Diamond Route Passenger Trains	Northeast Connector Route Passenger Trains
Existing Year (2019) Condition	36	8	8	4
Future Year (2045) No Project Condition	52	12	16	10
Future Year (2045) Build Condition	52	12	16	10

Passenger service through the Stockton Diamond would not increase as a result of the Project. The separate SJRRC/SJJPA Valley Rail Program proposes 7 new passenger rail service round trips (2 new San Joaquins trains and 5 new ACE trains) that would pass through the Stockton Diamond[8] during the planning horizon.

[7] Actual typical number of freight trains for all planning horizons is subject to future analysis and railroad coordination.

[8] SJRCC and SJJPA, *SJRRC/SJJPA Valley Rail Sacramento Extension Final Environmental Impact Report*, https://acerail.com/deir-chapters-and-appendices/

Figure 1.5-1: Freight Rail Activity and Crossing Vehicular Traffic Near the Stockton Diamond



The effects of additional service implemented as part of the Valley Rail program will be studied in a separate environmental document as increases in future services will be more accurately evaluated as each planned improvement is implemented as part of the SJRRC/SJJPA Valley Rail Program.

Freight and Passenger Rail Reliability

Freight Rail Reliability

Roadway-rail grade crossing occupancy time for a given train (that is, “gate down” time for vehicles waiting for a train to pass) is based on train length, train speed, roadway width, and railroad industry best practices for minimum activation time, prior warning time, and the time it takes for the grade crossing warning devices to recover after the train passes. The ways in which these factors affect gate down time—and the resulting roadway delays—are discussed below.

Average Train Length: A 2019 report from the United States (US) Government Accountability Office (GAO), *Rail Safety: Freight Trains Are Getting Longer, and Additional Information Is Needed to Assess Their Impact,* listed average freight train lengths provided by four different US Class I railroads. To support the analysis developed for this study, the average of these four values was taken as a baseline for a typical freight train length in 2016 through 2019.

Based on observation of rail industry trends,[9] a growth in average freight train length from 6,500 feet in 2016 through 2019 to 7,500 feet in 2045 was assumed. Passenger train length was assumed to grow from 700 feet in the 2019 baseline year to approximately 935 feet in 2045.

Average Train Speed: Based on information in the FRA *Highway-Rail Grade Crossing Inventory Reports*, trains can generally operate at speeds up to 40 miles per hour (mph) on the UP Fresno Subdivision, up to 60 mph on the BNSF Stockton Subdivision, and up to 15 mph on the connecting tracks in the vicinity of the Stockton Diamond, although typical speeds are lower.[10] As observed using Google Earth Pro imagery, the Stockton Diamond has a posted speed limit of 30 mph for all approaching trains until the entire train is clear of the Diamond. Based on observed train operations, train speeds are often reduced substantially as a result of rail congestion within the Stockton Diamond Project Study Area and on the immediate rail network.

Roadway Width: The roadway widths are generally determined by the number of travel lanes multiplied by an average width of 12 feet per lane. Most roadways that cross either the UP Fresno Subdivision or the BNSF Stockton Subdivision near the Stockton Diamond are two-lane roads (therefore, 24-foot crossing length); however, East Hazelton Avenue, South San Joaquin Street, South California Street, and South Airport Way each currently have four travel lanes (therefore, 48-foot crossing length).[11]

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[9] Actual average freight train lengths for existing and potential future freight trains are subject to future analysis and railroad coordination.

[10] Actual train speeds are subject to future study and railroad coordination.

[11] Note that with a separate City of Stockton project, South California Street will be reduced to three lanes with Class IV Separated Bikeways.

Warning Device Activation Time: The general assumptions for warning device activation include 20-second prior warning time, 5-second gate down time before the train enters the crossing, 5-second reaction delay, and 12-second gate rise time. It should be noted that the time for the train to pass through the crossing is based on the other factors and not included in these times.

Considering average train lengths and train speeds, roadway widths, and warning device activation time, the 2019 total occupancy (or gate down time) per freight train crossing typically varies from a minimum of 3 minutes and 11 seconds to a maximum of over 8 minutes. The shorter passenger trains generally have gate down times of between 55 seconds and 1 minute and 30 seconds. By 2045, these times per freight train are expected to increase between 23 seconds and 1 minute each.

The total gate down time over the course of a day, based on the 2019 combined train activity, ranges from approximately 22 minutes for a small subset of the trains using the BNSF Fresno Subdivision and southwest connecting track, to nearly 2 hours for the majority of the trains (36 per day) using the UP Fresno Subdivision and passing through the Stockton Diamond. By 2045, the total gate down time for the UP Fresno Subdivision roadway-rail grade crossings would be as high as 3 hours per day for the estimated 52 trains that would continue through the Stockton Diamond.

Given the proximity to Downtown Stockton, the roadways that cross the UP and BNSF tracks also experience a great deal of activity, with traffic volumes ranging from under 1,000 vehicles a day at two-lane crossings, such as East Church Street, East Scotts Avenue, and South Pilgrim Street, to nearly 5,000 vehicles a day at East Hazelton Avenue, and over 16,000 vehicles a day at South Airport Way. As shown in Figure 1.5-1, East Hazelton Avenue and South Airport Way are both four-lane roadways. The current and future gate down times result in, and would continue to result in, delays to vehicles that need to cross the tracks.

Passenger Train Reliability

The *2018 California State Rail Plan* focuses on a sustainable and connected megaregional rail network, with competitive rail travel times and a high degree of reliability. Therefore, passenger rail services not only need to be integrated and part of a larger network, but the service and transfer opportunities should be reliable.

The large number of freight trains that operate along the UP Fresno and BNSF Stockton Subdivisions affect passenger rail operations through the Stockton Diamond and affect passengers' ability to reach destinations on time or to make critical connections to other transit services. Passenger rail users expect reliable service; they plan for the scheduled arrival and departure of trains, and delayed trains can result in being late for work, missing transfer connections, and/or choosing to drive as an alternative.

Train movements through the Stockton Diamond are controlled by BNSF, which has priority at the Diamond crossing. As a result, when BNSF trains pass through the Diamond, ACE, San Joaquins, and UP trains experience delays—needing to slow down or stop to wait for the BNSF trains to pass. Delays can also result from Diamond maintenance. The at-grade crossing is affected significantly by continuous heavy freight movements and must be maintained on a regular basis. Train movements through the Diamond must be shut down during maintenance, creating delays and reducing on-time performance and reliability for both freight and passenger trains.

The delays caused as a result of the at-grade Stockton Diamond adversely affect passenger confidence in rail travel. In addition, delayed passenger and freight trains can affect economic vitality if employees and goods do not arrive at their destinations on time, could affect air quality with increased emissions from longer periods of train idling or travelers choosing single-occupancy automobiles, and would not meet the goals of the *2018 California State Rail Plan*.

Safety at Roadway-Rail Grade Crossings

As a result of the number of trains that pass through the Project Study Area, crossing local and arterial roadways in residential neighborhoods, safety is a major concern among local residents. Over the past 5 years, six trespasser fatalities and five injuries have occurred within a 1-mile radius of the Project Study Area.[12] Immediately near the Stockton Diamond, there have been six bicycle or pedestrian injuries at at-grade crossings, one of which resulted in a fatality.

1.6 Permits and Approvals Needed

The Project will require permits, reviews, and approvals identified in Table 1.6-1, below.

Table 1.6-1: Required Permits, Reviews, and Approvals

Permit, Licenses, Agreements, and Certifications	Agency	Status
California Department of Fish and Game Code, Section 1602 Lake and Streambed Alteration Agreement	CDFW	SJRRC will submit the application after approval of this EA.
Porter-Cologne Water Quality Control Act Waste Discharge Requirements	Central Valley RWQCB	SJRRC will submit the application after approval of this EA.
SJMSCP Participation Approval	SJCOG	SJRRC will initiate the approval process prior to final approval of this EA.
Federal Endangered Species Act (ESA) Section 7 Compliance	NMFS	SJRRC obtained NMFS concurrence for the Project on May 17, 2021, and is provided in Appendix N of this EA.
Federal Clean Air Act (CAA) General Conformity Determination	FRA	FRA approved the RONA July 26, 2022.
Caltrans NPDES Permit, Statewide Storm Water Permit Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2012-0011-DWQ as amended by Order WQ 2014-0006-EXEC, Order WQ 2014-0077-DWQ, Order WQ 2015-0036-EXEC, and Order WQ 2017-0026-EXEC, NPDES No. CAS000003	SWRCB	SJRRC will obtain SWRCB-issued Caltrans NPDES Permit prior to Project construction.

[12] FRA, *Trespassers Casualty Map*, https://fragis.fra.dot.gov/Trespassers/

Permit, Licenses, Agreements, and Certifications	Agency	Status
Industrial General Permit (Order No. 2014-0057-DWQ as Amended by Order No. 2015-0122-DWQ and Order No. 2018-XXXX-DWQ; NPDES No. CAS000001)	SWRCB	SJRRC will obtain an SWRCB-issued Industrial General Permit prior to Project construction.
NPDES Construction General Permit, Waste Discharges of Storm Water Runoff Associated with Construction Activities, Order No. 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ, NPDES No. CAS000002	Central Valley RWQCB	SJRRC will apply by preparing a Stormwater Pollution Prevention Plan and submitting an NOI and other permit registration documents prior to any Project construction.
Waste Discharge Requirements/Monitoring & Reporting Program (Order No. R5-2015-0024, NPDES No. CAS083470)	Central Valley RWQCB	Dewatering is required, SJRRC will apply for and obtain prior to dewatering activities.
Encroachment Permits	Caltrans City of Stockton	SJRRC, in coordination with CHSRA, will apply for Caltrans and City of Stockton encroachment permits prior to Project construction.
Floodplain Encroachment Permit	CVFPB	SJRRC will apply for a Floodplain Encroachment Permit prior to Project construction.
Grading/Building Permits	SJVAPCD	SJRRC will apply for grading/building permits from SJAPCD prior to Project construction.
Construction and Maintenance Agreements	UP BNSF	SJRRC will apply for construction and maintenance permits from UP and BNSF prior to Project construction.
Aboveground Fuel Storage Tank Permit in Excess of 60-gallons	City of Stockton	If determined to be necessary during the final design phase, SJRRC will apply for an Aboveground Storage Tank Permit prior to Project construction.
Utility Company Approvals	City of Stockton	SJRRC will coordinate with utility providers to obtain approvals during final design.
Permit and Required Inspection	SJEHD	SJRRC will coordinate with SJEHD to obtain the appropriate permits and conduct the SJEHD-required inspections in compliance with the San Joaquin County Development Title, Sections 9-115.3 and 9-115.6, prior to the commencement of geotechnical drilling activities.
Encroachment Permit	Caltrans	SJRRC will apply for an encroachment permit through Caltrans prior to Project construction.

Permit, Licenses, Agreements, and Certifications	Agency	Status

Notes:

BNSF=BNSF Railway; Caltrans=California Department of Transportation; CDFW=California Department of Fish and Wildlife; CESA=California Endangered Species Act; California Department of Transportation=Caltrans; CVFPB=Central Valley Flood Protection Board; CWA=Clean Water Act; EA=Environmental Assessment; FRA=Federal Rail Administration; No.=number; NMFS= National Marine Fisheries Service; NOI=Notice of Intent; NPDES=National Pollutant Discharge Elimination System; RWQCB=Regional Water Quality Control Board; SJEHD=San Joaquin Environmental Health Department; SJRRC=San Joaquin Regional Rail Commission; SJAPCD=San Joaquin Valley Air Pollution Control District; SJCOG=San Joaquin Council of Governments; SJMSCP=San Joaquin Multi-Species Habitat and Conservation and Open Space Plan; SWRCB=State Water Resources Control Board; UP=Union Pacific Railroad

2 Alternatives

2.1 Criteria for Evaluating Alternatives

NEPA requires that federal agencies consider appropriate and reasonable alternatives during the development of an EA, as mandated in 42 USC Section 4332(2)(E) and 40 CFR Section 1508.9(b).[1] Additionally, FRA's NEPA implementing regulations require an EA to "identify alternatives and measures that might mitigate adverse environmental impacts" (23 CFR Section 771.119(b)). An EA includes a brief discussion of appropriate and reasonable alternatives, as well as other alternatives that were eliminated from detailed study, with a brief discussion of the reasons for their elimination (40 CFR Section 1508.9(b)). Under NEPA, the purpose and need largely determine what constitutes a "reasonable" alternative. NEPA requires the evaluation of a "No Action" alternative in an EIS or EA (40 CFR § 1502.14(d)). Including a No Action alternative allows decision-makers to compare the impacts of approving a project with impacts of not approving a project. NEPA requirements for the inclusion of a No Action alternative is discussed in further detail in Section 2.2, Evaluated Alternatives.

A grade separation can only be accomplished by changing the elevation of the main tracks for either BNSF, or UP, or both. Four high-level design concepts were identified at the beginning of the study as potential reasonable options to meet the purpose and need described in Chapter 1, Introduction: (1) UP flyover with BNSF at grade, (2) BNSF flyover with UP at grade, (3) UP flyover with BNSF in trench, and (4) BNSF flyover with UP in trench. Design variations of these four primary concepts were developed during the concept screening process and presented to the host railroads. The variations included shifting the location of the proposed flyover alignment and revisions to the various track vertical grades. The concepts and their variations are included in Appendix A, Alternatives Considered but Eliminated from Further Consideration, and additional details are summarized in this chapter.[2]

Five key criteria drove the screening process for the four high-level concepts:

1. Ability to meet the Project's purpose and need
2. Acceptance by the host railroads, UP and BNSF
3. Minimization of local road crossing impacts
4. Avoidance and minimization of environmental impacts associated with the concept
5. Minimization of property acquisitions and displacements of residences and businesses

These criteria are further discussed in the following sections.

[1] The Council on Environmental Quality (CEQ) issued new regulations, effective September 14, 2020, updating the NEPA implementing procedures at 40 CFR Sections 1500 to 1508. However, because this Project initiated the NEPA process before September 14, 2020, it is not subject to the new regulations. SJJPA and SJRRC are relying on the regulations as they existed prior to September 14, 2020. Therefore, all citations to CEQ regulations in this environmental document refer to the 1978 regulations, pursuant to 40 CFR Section 1506.13 (2020) and the preamble at 85 FR 43340 (July 16, 2020).

[2] UP and BNSF would not accept a trench option when the alternatives development and screen process began; therefore, exhibits for Concepts 3 and 4 are not included in Appendix A.

2.1.1 PROJECT PURPOSE AND NEED

Of utmost importance was a concept's ability to meet the Project's purpose and need. The purpose of the Project is to improve operational efficiency in the regional rail network that exists where the BNSF main lines cross the UP main lines in the city of Stockton, at the Stockton Diamond. Because each of the four high-level concepts would provide a grade-separated crossing at the Stockton Diamond, all options would meet the purpose and need of the Project.

2.1.2 ACCEPTANCE BY HOST RAILROADS

Throughout the concept development process, SJRRC established a cooperative and willing partnership with each of the host railroads, BNSF and UP, to move the Project forward. SJRRC is the Project proponent, however SJRRC does not own the affected ROW and serves as a tenant on the host railroad's tracks. The host railroads own the railroad ROW and tracks/railroad infrastructure, and any improvements would need to meet their design standards and undergo their review processes; therefore, through substantial coordination and an iterative review process, freight railroad concurrence with the potential design concepts was a critical screening criterion.

The host railroads clarified early in the concept development process that a trench section (Concepts 3 and 4) was not acceptable and would not be approved because of technical feasibility concerns associated with high groundwater, additional maintenance, and other technical engineering challenges associated with a trench. Groundwater elevations in the Project Study Area are estimated at 20 to 25 feet below ground surface, which is the approximate depth required to depress one railroad below another in order to achieve the required vertical clearances.

In order to meet railroad track grades, the other railroad (not being depressed) would need to be elevated approximately 15 to 20 feet. A trench at this depth would require stormwater pumping and incur the associated maintenance costs. Further, in order to construct a trench section for one railroad and elevate the other railroad, while maintaining train traffic during construction, complex construction staging would be required that would affect a substantially larger project footprint than the existing alternatives have considered. As a result, Concepts 3 and 4 were rejected form further consideration.

2.1.3 MINIMIZATION OF LOCAL ROAD CROSSING IMPACTS

To maintain roadway operational efficiency in the Project Area, the development of concepts also considered ways to reduce local road crossing impacts. Currently, several local roadways cross the railroad corridor at grade, providing local access for the community. The grade separation would result in both temporary and permanent impacts on several of these crossings. As discussed above, Concepts 3 and 4 would affect nearly twice as many local roadways because of the combination of roadways along one rail line being lowered to accommodate the elevated railroad with roadways along the other rail line being raised to accommodate the trenched railroad. More local roadway crossing impacts would result with Concept 2 than with Concept 1 because more cross streets currently exist along the BNSF line than the UP line.

2.1.4 ENVIRONMENTAL AND RIGHT-OF-WAY IMPACTS

The Project team prepared an environmental constraints analysis for Concepts 1 and 2—the two Stockton Diamond high-level design concepts that were identified as most feasible. Because the two trench options under Concepts 3 and 4 would need to be constructed parallel to the existing railroad tracks to maintain railroad operations during construction, there would be construction along both rail lines. Additionally, as discussed previously, the area affected by the construction of the Project would double under Concepts 3 and 4 and result in substantial environmental and property impacts. For that reason, and because the host railroads indicated that they would not approve Concepts 3 and 4, the environmental constraints analysis was conducted only for Concepts 1 and 2. The constraints analysis helped identify a recommended build alternative for the Project by comparing the general option for a north-to-south bridge for the UP Fresno Subdivision to fly over the BNSF Stockton Subdivision (Concept 1) against a general option for an east-to-west bridge for the BNSF Stockton Subdivision to fly over the UP Fresno Subdivision (Concept 2). To complete the analysis, environmental resources that would help inform the development, evaluation, and selection of the alternative were identified and analyzed. For each of the environmental resources, a desktop analysis determined potential environmental constraints associated with the implementation of the alternatives. As potential impacts were identified, modifications were made to the design concepts to minimize and avoid environmental impacts to the extent possible. The resources evaluated in the constraints analysis included the following:

- land use
- community facilities and public services
- hydrology and water quality
- property acquisitions
- biological resources
- paleontological resources
- transportation and mobility
- cultural resources
- noise and vibration
- hazardous materials
- visual resources

Based on the analysis, the Project team identified Concept 1 as environmentally preferable to Concept 2 because it would have fewer environmental impacts related to community facilities and public services, noise and vibration, transportation and mobility, and property acquisitions. Therefore, an option that would include the UP Fresno Subdivision flyover with the BNSF Stockton Subdivision at grade was recommended as an environmentally preferred alternative.

Table 2.1-1 summarizes the preliminary screening of the four high-level concepts.

Table 2.1-1: Summary of Preliminary Screening Results

General Concept	Description	Meets Purpose and Need	Accepted by Host Railroads	Minimizes Local Road Impacts	Minimizes Environ-mental Impacts	Minimizes Right-of-Way Impacts
1	UP elevated, BNSF at grade					
2	BNSF elevated, UP at grade					
3	UP elevated, BNSF in trench					
4	BNSF elevated, UP in trench					

best performing — worst performing

2.1.5 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER DISCUSSION

A total of five variations of Concept 1 and four variations of Concept 2 were refined to try to further avoid or reduce the potential impacts identified in the environmental constraints analysis, and ultimately a Concept 1 variation, identified as Alternative 1A, which is identified as Alternative 2 in this Final EA, was selected by SJRRC and the Authority as the Project. For detailed exhibits of concepts considered but eliminated from further discussion, please refer to Appendix A of this Final EA.

2.2 Evaluated Alternatives

The alternatives evaluated in this Final EA are discussed below.

2.2.1 ALTERNATIVE 1: NO ACTION

NEPA requires the evaluation of a "no action" alternative in an EIS or EA (CEQ Regulations, 40 CFR Section 1502.14(d)). The No Action Alternative considers the impacts of conditions forecast by current plans for land use and transportation in the vicinity of the Project area, including planned improvements to future passenger rail infrastructure through the Future Year (2045).

Currently, under Existing Year (2019) conditions, trains operating on the BNSF and UP main lines at the Stockton Diamond consist of freight trains operated by BNSF and UP, ACE commuter passenger trains between Stockton and San Jose operated by SJRRC, and intercity Amtrak San Joaquins passenger trains between Oakland/Sacramento and Bakersfield operated by SJJPA. In the Future Year (2045), it is anticipated that approximately 64 freight trains and 26 passenger trains will travel through the Stockton Diamond per day.

Under the No Action Alternative, the existing at-grade intersection of the BNSF Stockton Subdivision and UP Fresno Subdivision would not be replaced with a grade-separated structure that would elevate the UP main tracks above the BNSF main tracks. Therefore, trains operating on the BNSF Stockton Subdivision could not advance through the intersection without potential conflict with through trains operating on the UP Fresno Subdivision.

All existing connections between the two railroads would remain and function as they currently do, and no alignments would be modified. As a result, operating conflicts between trains on various routes through the Stockton Diamond would continue.

2.2.2 ALTERNATIVE 2: PROJECT

The Project (Alternative 2) would construct a flyover structure to provide the vertical clearance required by both railroads to grade separate the existing crossing of the UP and BNSF tracks at the Diamond. The existing condition at the Diamond and a rendering of the proposed flyover is shown in Figure 2.2-1.

As it continues south, the flyover would begin to descend so that it conforms back to the existing track elevation south of the existing East Charter Way underpass and continues into the UP Stockton Yard. For rail services traveling north from the UP Stockton Yard, a turnout is proposed on the flyover beginning just north of East Charter Way to bring rail services that need to connect to the BNSF Stockton Subdivision to grade before reaching the Diamond. Once returning to grade, a new wye is proposed to allow these rail services to select between traveling east or west on the BNSF line. Figure 2.2-2 provides the vertical profile of the flyover and the streets that cross the Project limits. Figure 2.2-3 provides the concept layout plan for the Project.

East Main and East Market Streets would have new tracks running perpendicular through the street, east of the existing track crossing. The new tracks at East Weber Avenue, East Main Street, and East Market Street would require a modification to the roadway profile to accommodate the flat grades across the new tracks to tie back into the existing roadway. Those tie-ins would likely occur within 200 feet of the existing and new tracks. The new and existing tracks would also require upgrading the railroad crossing equipment to the most current UP/BNSF crossing guideline standards. Each new crossing would require evaluation to determine whether new flashing light signals, gate arms, signs, and pavement markings are needed. Depending on existing site conditions, improvements at the new crossing locations would tie into the existing pedestrian facilities, including placement of Americans with Disabilities Act (ADA)-required tactile walking surface indicators for the blind and vision impaired to indicate crossing locations. Street lighting would be assessed at each crossing to ensure lighting is adequate.

Figure 2.2-1: Existing Condition and Rendering of Proposed Flyover

Existing Condition

With Project

Figure 2.2-2: Vertical Profile of the Proposed UP Fresno Subdivision Flyover

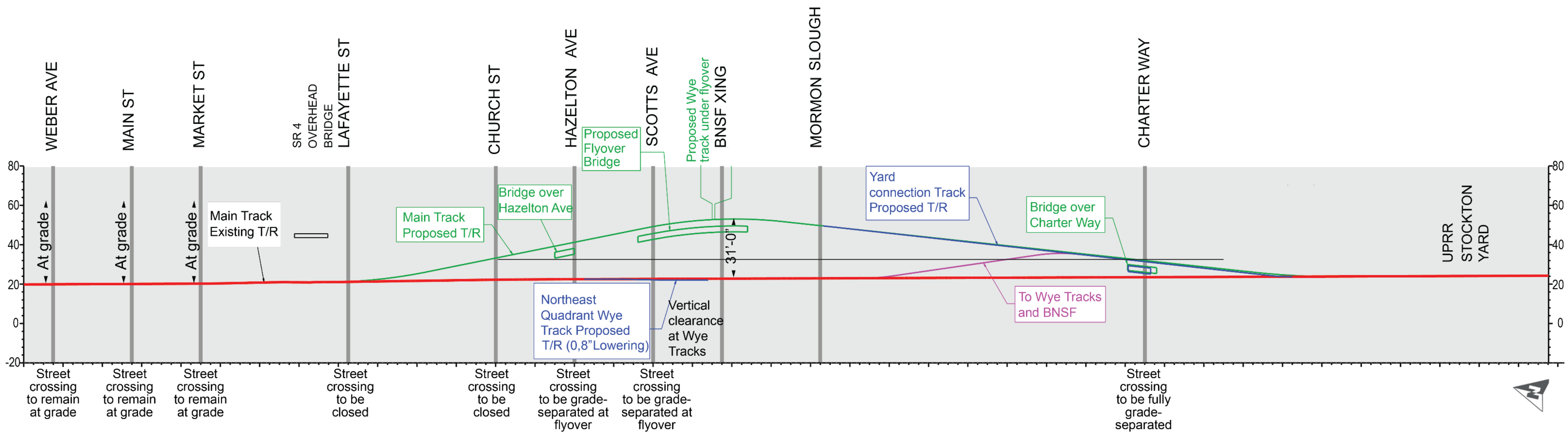

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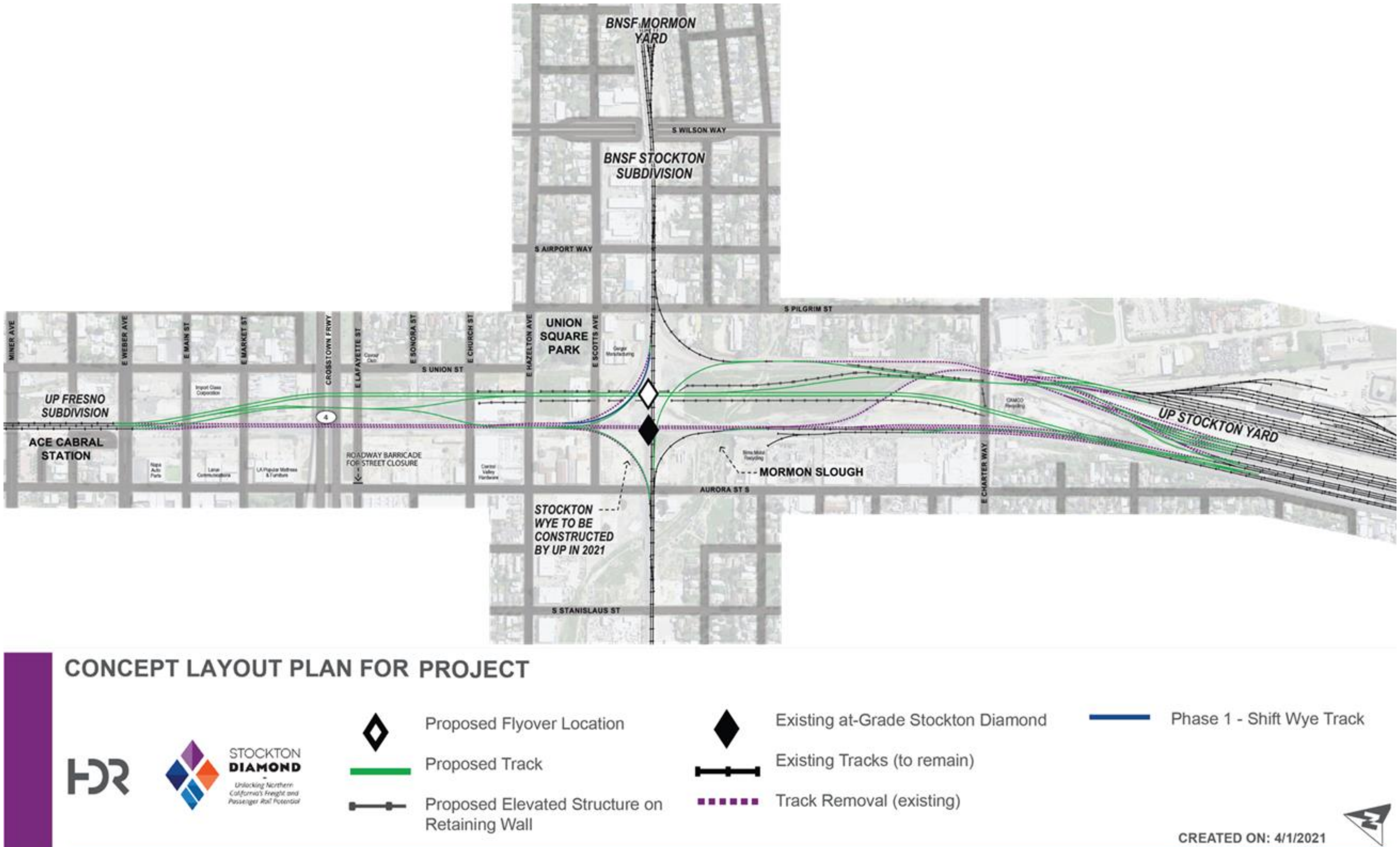
Figure 2.2-3: Project Concept Layout Plan



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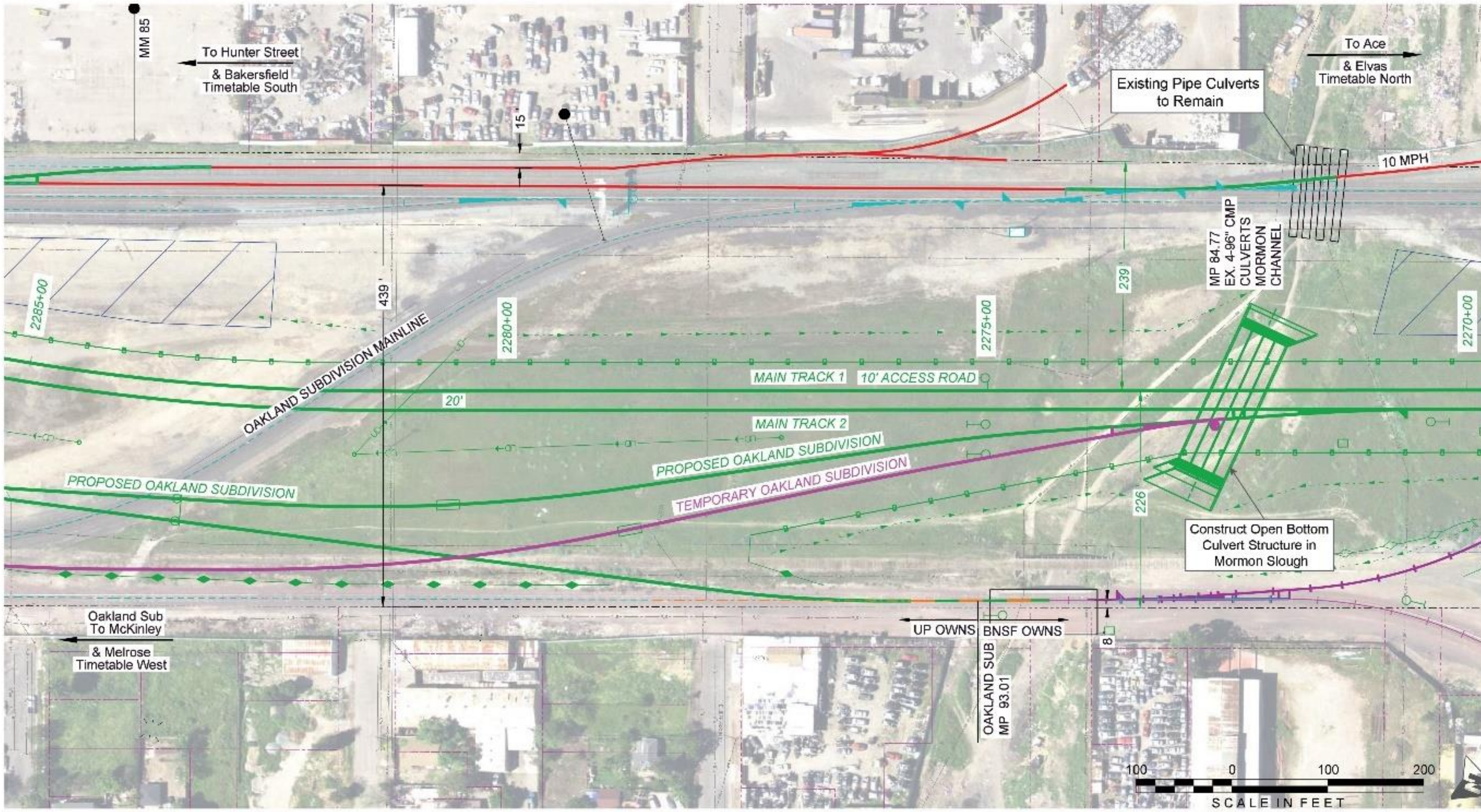
The Mormon Slough crosses the alignment just north of Anderson Street. A drainage structure would be constructed to span the Mormon Slough in that location. The preferred structure is a multi-cell, open-bottom culvert that would accommodate future flows consistent with the City of Stockton's Specific Plan for Mormon Channel (August 1989). The four pipe culverts under the existing UP Fresno Subdivision main tracks immediately downstream (west) of the flyover alignment would be left in place to support the remaining at-grade connection track to BNSF. See Figure 2.2-4 and Figure 2.2-5 for a plan and cross section view of the culvert structure in the Mormon Slough.

Figure 2.2-4: New Alignment Plan at the Mormon Slough



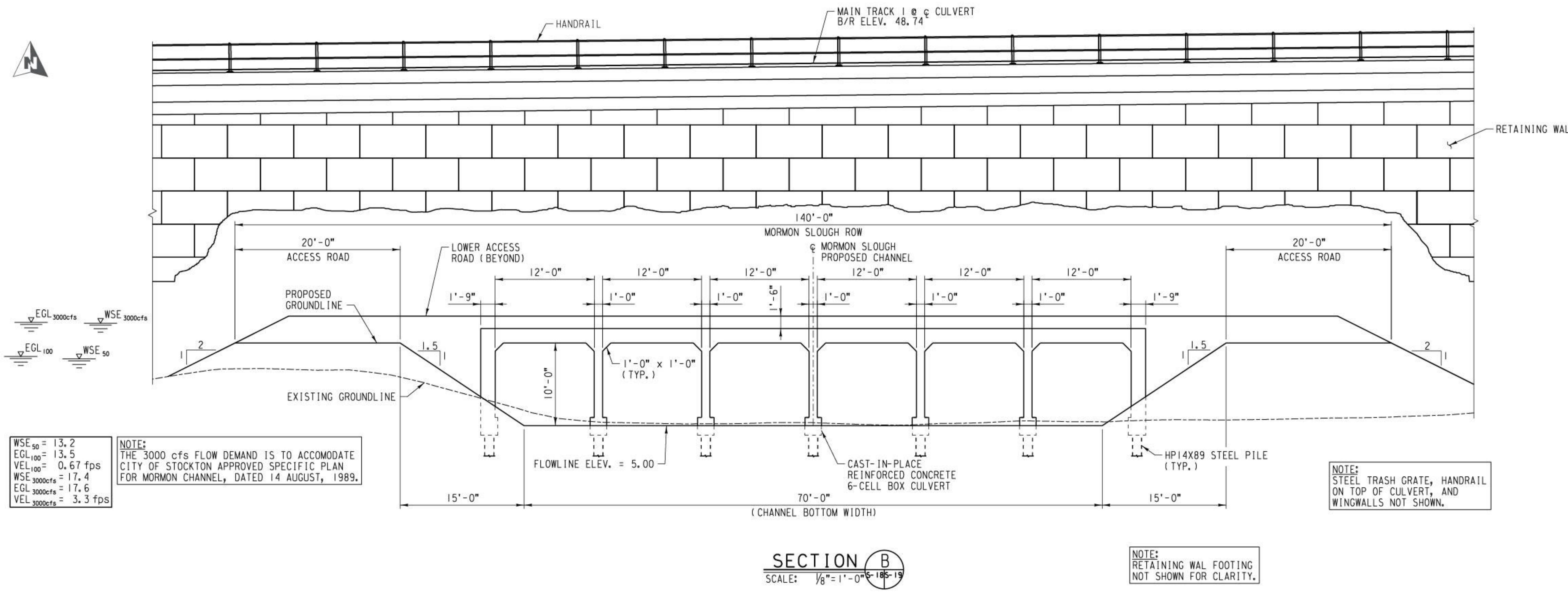
NEW ALIGNMENT PLAN AT MORMON SLOUGH

HDR STOCKTON DIAMOND

- Existing Railroad ROW
- Proposed ROW Aquisition
- Permanent Easement City of Stockton
- Proposed Track Removal
- Permanent Easement/Joint Use Agreement Caltrans
- Proposed Main Tracks
- Proposed Connector Tracks

CREATED ON: 1/12/2021

Figure 2.2-5: Cross Section View of Project Improvements in the Mormon Slough



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Roadway-Rail Grade Crossings

The track alignment, modified rail connections, and flyover construction associated with the Project would affect several existing east-to-west city street at-grade rail crossings. Table 2.2-1 provides information on existing and proposed conditions at each of the street crossings with proposed temporary or permanent closures.

In conjunction with the City of Stockton, SJRRC, and the railroads, SJRRC's design team continues to evaluate the need for potential closures and grade separations at select crossings. Final determination of road closures and improvements that may be required at and near the rail crossings would occur through a combination of technical analysis, engineering feasibility, and stakeholder and public input during final design.

Table 2.2-1: Proposed Temporary Construction and Permanent Road Closures

Street	Roadway Classification	Pedestrian Crossing	Proposed Street Crossing Impacts
East Weber Avenue	Major Collector	Yes	Temporary closure during construction; street crossing to remain at grade after construction
East Main Street	Arterial	Yes	Temporary closure during construction; street crossing to remain at grade after construction
East Market Street	Minor Arterial	Yes[a]	Temporary closure during construction; street crossing to remain at grade after construction
East Lafayette Street	Major Collector	No	Street crossing to be permanently closed
East Church Street	Local	Yes[a]	Street crossing to be permanently closed
East Hazelton Avenue	Major Collector	Yes	Temporary closure during construction; with Project, full grade-separated underpass of main UP tracks and at-grade crossing to the west side for a single connecting wye track
East Scotts Avenue	Local	No	Temporary closure during construction; with Project, grade-separated underpass at flyover site and at-grade crossings to the west side for connecting tracks
East Charter Way	Arterial	Yes	Temporary closure during construction; with Project, full grade-separated underpass

[a] *Existing pedestrian crossing is not ADA-compliant.*

Temporary Construction Road Closures

For this EA, it was assumed that all temporarily closed roads during construction would require a Transportation Management Plan (TMP). The TMP would be drafted, approved, and filed with the City of Stockton Engineering and Transportation Department, or other agency with jurisdiction over the road, prior to any road closures. The plan would include alternative routing plans and methods, and details for early public outreach. Temporary construction road closures are anticipated at the at-grade crossings.

Permanent Road Closures

In addition to the temporary construction closures, it is also anticipated that the at-grade crossings of East Church Street and East Lafayette Street would be permanently closed to through traffic.

Grade Separation Crossings

New grade-separated crossings of the UP main line tracks are proposed for East Hazelton Avenue and East Scotts Avenue. The Project would retain a grade separation of East Charter Way.

Modifications to Existing UP Fresno Subdivision At-grade Tracks

In conjunction with the shifted flyover alignment, portions of the existing at-grade UP tracks would be reconstructed to meet railroad design requirements, modify existing connections, and conform to the proposed flyover.

Table 2.2-2 shows existing and proposed rail facilities. Affected track sections south of the Diamond include the existing UP Fresno Subdivision tracks at the UP Stockton Yard, the wye connection track in the southwest quadrant of the Diamond, and the UP Stockton Yard connection track to the BNSF Stockton Subdivision. North of the Diamond, the proposed at-grade connection track at the existing UP Fresno Subdivision would be modified to address the grade changes created by the new track connections to the BNSF Stockton Subdivision.

Table 2.2-2: Existing and Proposed Rail Facilities

Street	Existing UP Rail Facilities	Proposed Configuration with Project
East Weber Avenue	3 tracks	3 new tracks – 2 main tracks, one connector track[a]
East Main Street	3 tracks	3 new tracks – 2 main tracks, one connector track[a]
East Market Street	2 tracks	4 new tracks – 2 main tracks, 1 connector track, 1 crossover
East Lafayette Street[a]	2 tracks	3 tracks – 2 new main tracks, 1 connector track[a]
East Church Street	2 tracks	4 tracks – 2 new main tracks, 1 connector track, 1 crossover track[a]
East Hazelton Avenue	3 tracks- 2 tracks and wye track; UP Stockton Wye project adds future wye track to existing main track[b]	3 tracks – 2 main tracks on flyover structure, 1 connector at-grade track
East Scotts Avenue	4 tracks - 2 tracks and 2 wye tracks	4 tracks – 2 new main tracks on flyover structure, 2 new wye at-grade tracks
East Charter Way	6 tracks - 4 tracks and another set of 2 tracks crossing overhead on existing grade-separated crossings	4 tracks – 2 new main tracks on new bridge; yard connection track on new bridge; replacement of 4 existing grade-separated tracks with single connector track

[a] *Crossover tracks are at a lower speed (10 mph) than main tracks (30 mph).*

[b] *Stockton Wye refers to the new UP Stockton Wye track currently in final design with construction scheduled to begin in late 2022.*

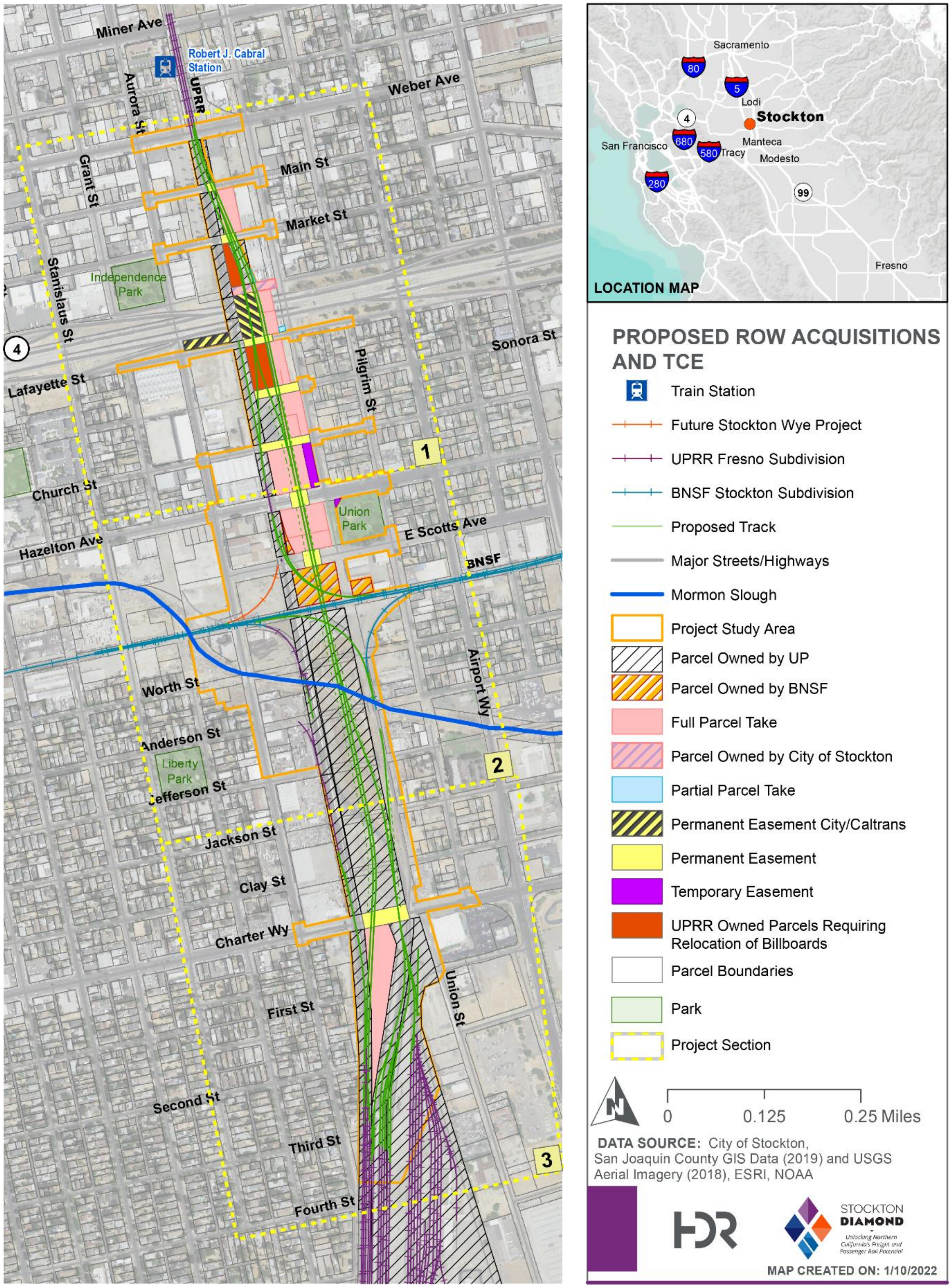
Proposed Right-of-Way Acquisitions and Temporary Construction Easements

Full and partial ROW acquisitions and TCEs would be required for the Project. Refer to Figure 2.2-6 for details on the location and parcels that will be either acquired or used as temporary easements during construction of the Project. For additional detailed information regarding ROW acquisitions and TCEs as a result of the Project, refer to Section 3.3, *Relocations and Real Property Acquisition*, in this Final EA.

Utility Relocations

Utility relocation or protection-in-place of existing utilities would be necessary during construction. For detailed information regarding utility relocations during construction, refer to Section 3.6, *Utilities and Emergency Services* in this Final EA.

Figure 2.2-6: Proposed Right-of-Way Acquisitions and Temporary Construction Easements



2.2.3 PROJECT ACTIVITIES BY STUDY AREA SECTION

For this environmental review, the Project Study Area for the Project was divided into three sections to provide details on proposed activities (Figure 2.2-7). This section provides details on the Project features along the Project Study Area. These sections are not intended to infer how the Project would be constructed; construction details would be determined during final design and contracting. Figure 2.2-7 also presents the Project Study Area. This area includes all areas that could be permanently or temporarily disturbed during implementation of the Project.

Section 1: East Weber Avenue to South of East Church Street

Project Features

Figure 2.2-8 provides an overview of this northernmost section and the Project Study Area. It also presents the Project design features and general areas proposed for equipment and materials staging and construction site access. More information on staging and anticipated site access locations is provided in Section 2.2.5.

Figure 2.2-9 through Figure 2.2-11 provide detailed information on the existing and proposed track configuration at each of the roadway crossings within this section: East Weber Avenue, East Main Street, East Market Street, East Lafayette Street, and East Church Street.

East Weber Avenue is the northernmost extent of the Project Study Area, through which three UP tracks currently cross, and no work is anticipated to occur north of East Weber Avenue. At East Weber Avenue, one of the existing UP Fresno Subdivision main tracks may need to be slightly realigned farther east on the south side of the street. Minor street modifications to accommodate this track realignment may be necessary.

Between East Main Street and East Market Street, two UP Fresno Subdivision tracks would shift eastward, and the new connector track would shift eastward with the other two UP tracks. The resulting three tracks would continue toward the proposed flyover location in a north-to-south direction, approximately 200 feet east of the existing track location. The existing tracks south of East Weber Avenue would be removed with the Project and replaced with the new tracks shifted eastward.

Between East Market Street and the Crosstown Freeway, a turnout between the main tracks and ACE connection track would be added to allow trains running on the main tracks to access the remaining at-grade wye connection track. The connection and main tracks, and the existing tracks and associated crossing features between East Main Street and East Church Street would be removed, and the roadway would be modified accordingly to match the new track location(s). Just north of East Lafayette Street, the two new shifted tracks that would become the proposed flyover tracks would stop heading to the east and would begin to head south toward the UP Stockton Yard. Also, just south of East Lafayette Street, the proposed flyover tracks would start to gain elevation; however, the maximum height would not be reached until the proposed flyover structure reaches the crossing with the east-to-west BNSF Stockton Subdivision tracks in the Diamond.

Figure 2.2-7: Project Study Area Sections

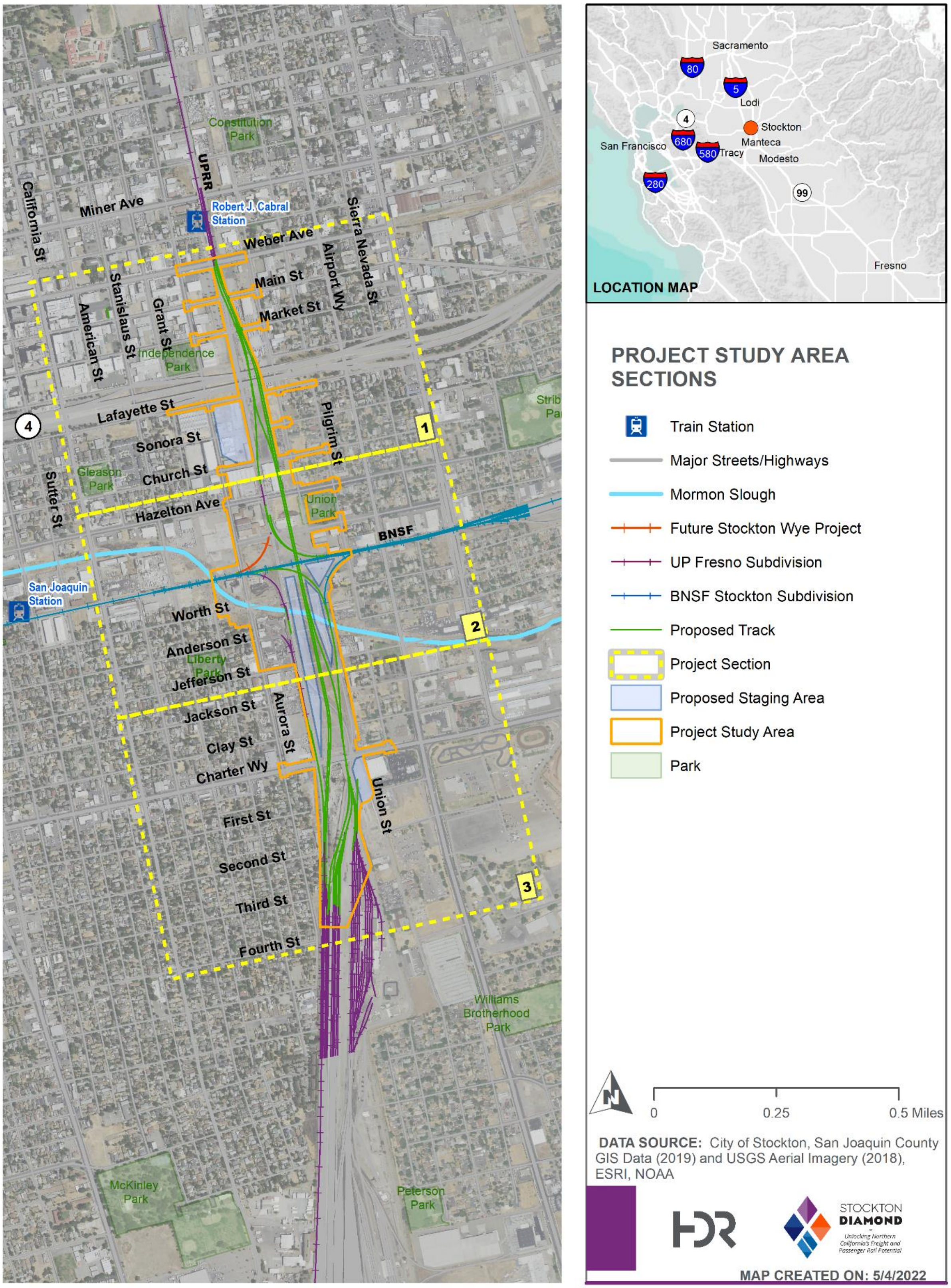


Figure 2.2-8: Project Design Features and Study Area (East Weber Avenue to South of East Church Street)

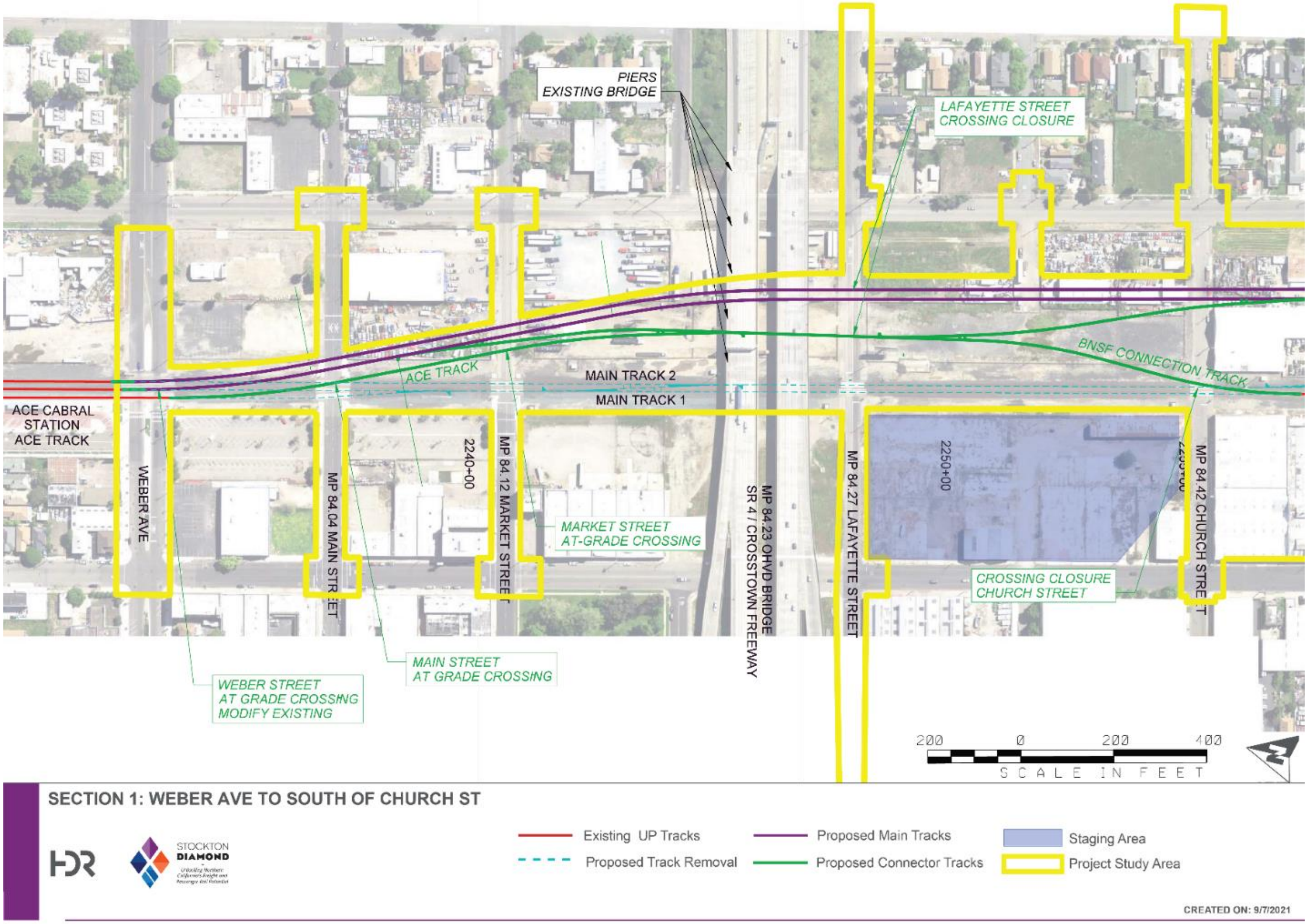
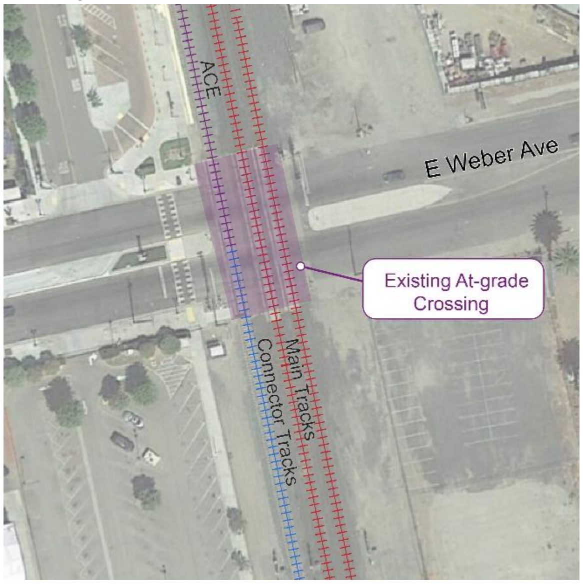


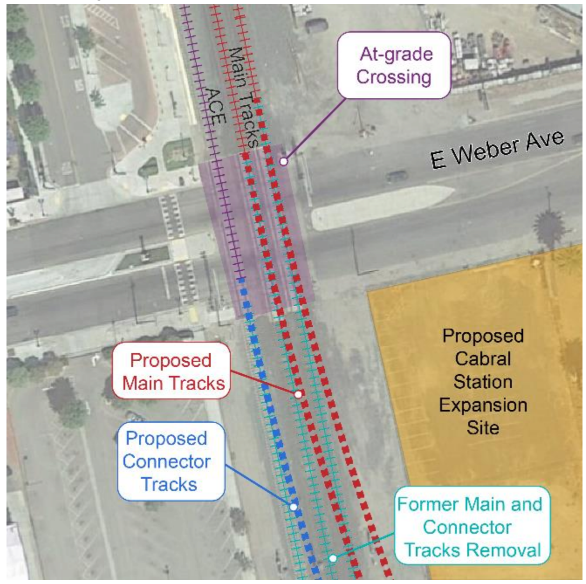
Figure 2.2-9: Existing and Proposed Track Configuration (East Weber Avenue to South of East Church Street) – Sheet 1 of 3

East Weber Avenue

Existing Condition

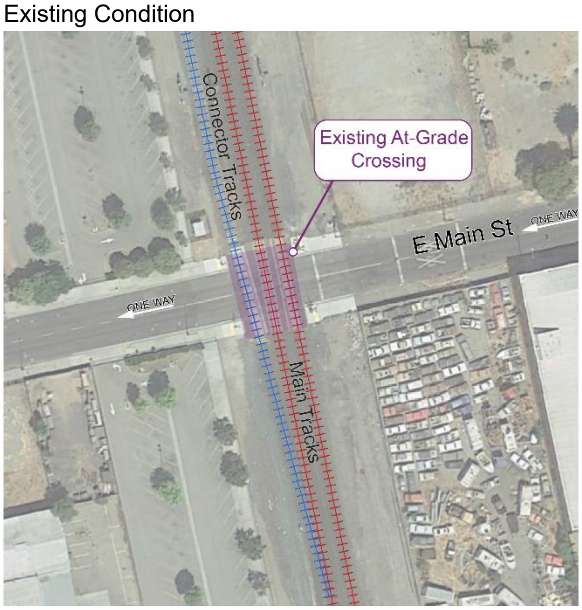


With Project

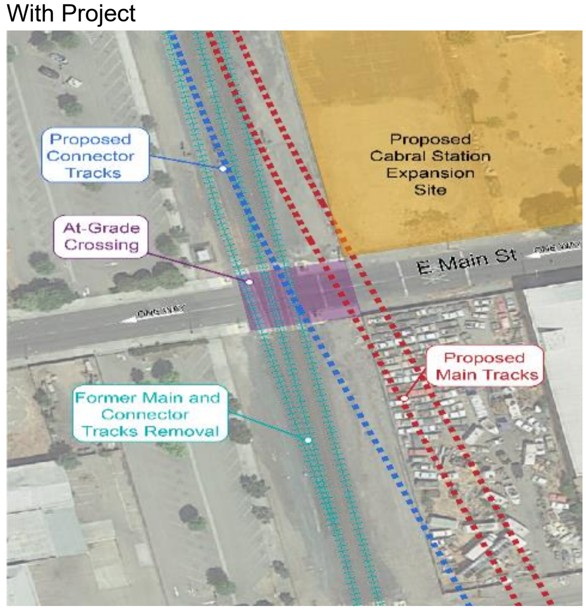


East Main Street

Existing Condition



With Project



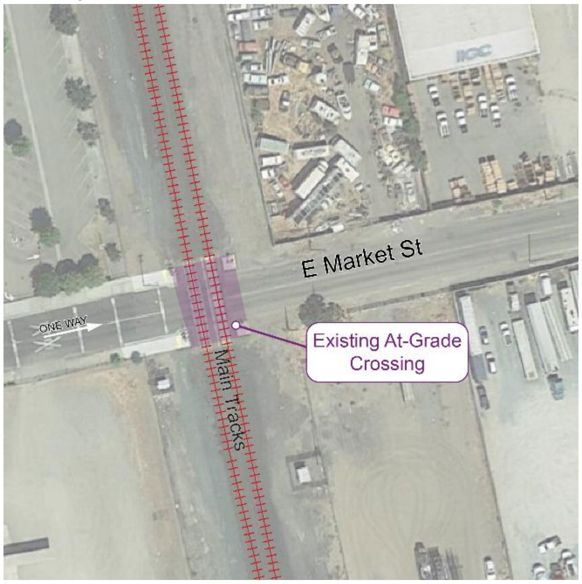
LEGEND

- Existing ACE Tracks
- Existing UPRR Main Tracks
- Proposed UPRR Main Tracks
- At-Grade Crossing
- Existing Connector Tracks
- Proposed Track Removal
- Proposed Connector Tracks
- Grade Separation

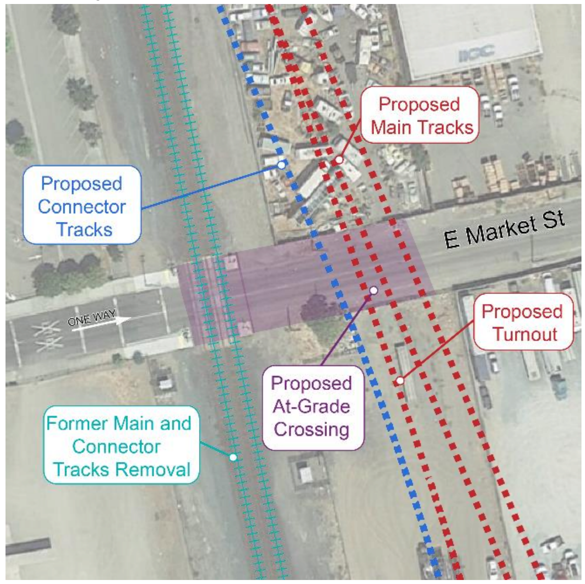
Figure 2.2-10: Existing and Proposed Track Configuration (East Weber Avenue to South of East Church Street) – Sheet 2 of 3

East Market Street

Existing Condition

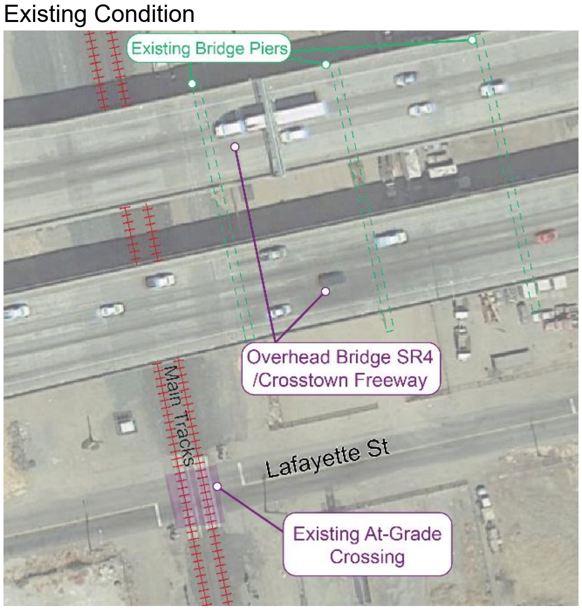


With Project

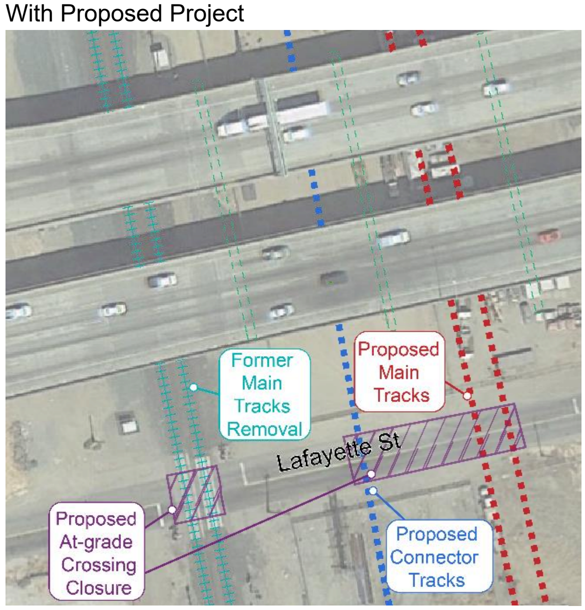


East Lafayette Street

Existing Condition



With Proposed Project

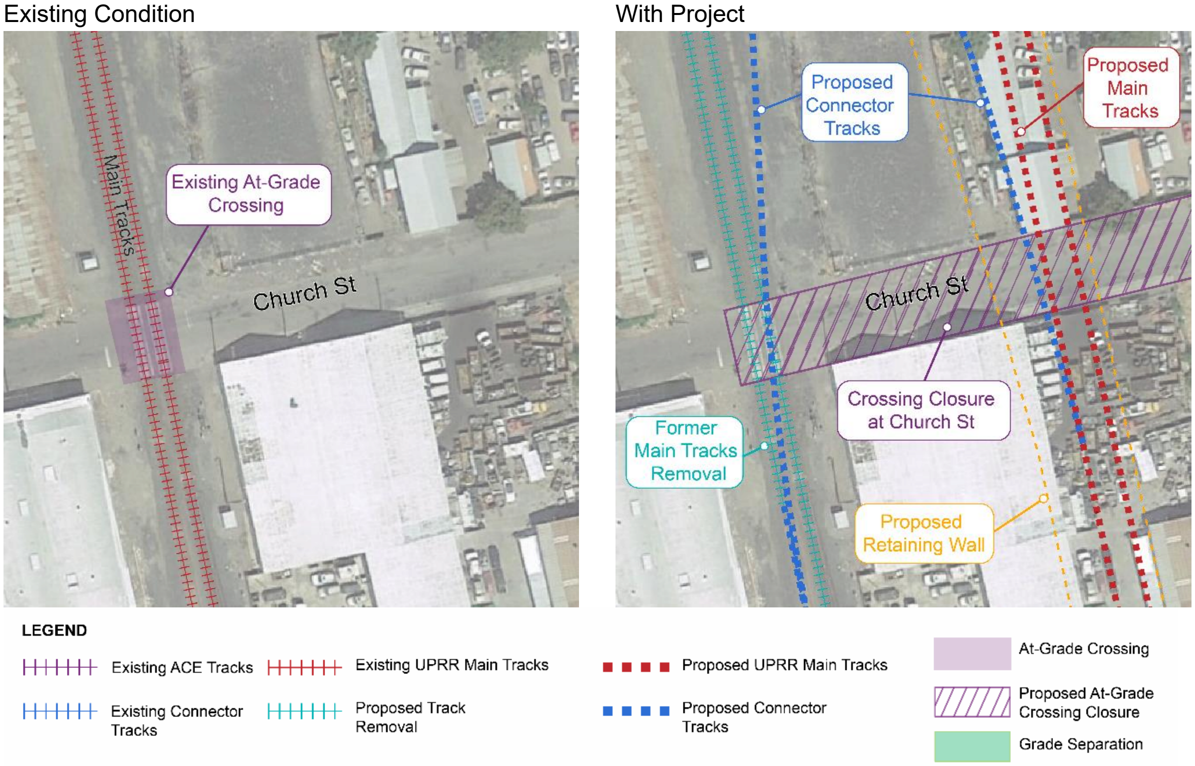


LEGEND

- Existing ACE Tracks
- Existing UPRR Main Tracks
- Proposed UPRR Main Tracks
- At-Grade Crossing
- Existing Connector Tracks
- Proposed Track Removal
- Proposed Connector Tracks
- Proposed At-Grade Crossing Closure
- Grade Separation

Figure 2.2-11: Existing and Proposed Track Configuration (East Weber Avenue to South of East Church Street) – Sheet 3 of 3

East Church Street



The connection tracks that diverge from the shifted UP Fresno Subdivision tracks just before the Crosstown Freeway crossing would continue to move southwest until connecting with the existing westernmost UP track just before East Hazelton Avenue. A new wye would be constructed at the convergence; track upgrades would also be done on the existing tracks to allow for the connection.

The proposed track configuration allows for southbound UP Fresno Subdivision trains to go straight to the BNSF Stockton Subdivision without crossing over and disrupting traffic on the parallel UP Fresno Subdivision track. The same would be true for trains traveling north from the BNSF Stockton Subdivision to the UP Fresno Subdivision tracks. This would enhance railroad operating efficiency by reducing passenger and freight rail delays and associated congestions.

Roadway-Rail Grade Crossings

Both East Main and East Market Streets are one-way roads. Temporary closure at these two crossings would be determined during final design, and could occur in one of two ways:

1. Both streets closed for up to 2 to 3 months, with traffic diverted to East Weber Avenue or East Lafayette Street, or
2. Closures are staggered so that either East Main Street or East Market Street are always open with one of the one-way lanes being used for opposing traffic, which would temporarily be a single lane in either direction.

No structural modifications are proposed for the grade-separated crossing below the Crosstown Freeway; however, new at-grade tracks would be added under the structure.

East Lafayette Street is expected to be open for most of the construction period, with possible staggered, short closures over 1 to 2 months while construction occurs in that location. However, once construction is complete, East Lafayette Street is proposed for closure because of the multiple at-grade rail crossings of the at-grade main tracks and wye connection tracks (that is, four proposed crossings within two blocks). Final determination of road closures and improvements needed would occur through a combination of technical analysis, engineering feasibility, and stakeholder/public input.

East Sonora Street, which is currently closed, would remain closed. Depending on ROW acquisitions needed, East Sonora Street would become a T-intersection at the Union Street intersection.

East Church Street requires closure because the proposed flyover structure would not have reached its full elevation and, therefore, would not meet the required 16.5-foot minimum vertical clearance for a vehicle crossing required by UP and BNSF while still adhering to the American Association of State and Highway Transportation Officials (AASHTO) design criteria.

Proposed Right-of-Way Acquisitions and Temporary Construction Easements

For ROW acquisitions and TCE information within this Project Study Area section, refer to Figure 2.2-6. For additional detailed information regarding ROW acquisitions and TCEs as a result of the Project, refer to Section 3.3*, Relocations and Real Property Acquisition,* in this Final EA.

Utility Relocations

Utility relocation or protection-in-place of existing utilities would be necessary during construction. For detailed information regarding utility relocations during construction, refer to Section 3.6, *Utilities and Emergency Services* in this Final EA.

Section 2: North of East Hazelton Avenue to South of East Jefferson Street

Project Features

Figure 2.2-12 provides an overview of this central section and the Project Study Area. It also presents the Project design features and general areas proposed for equipment and materials staging and construction site access. Figure 2.2-13 provides detailed information on the existing and proposed track configuration at each of the roadway crossings within this section, including East Hazelton Avenue and East Scotts Avenue.

The Stockton Diamond is included in this section, and it is within this section that the flyover would reach its maximum height of 32 feet.

Figure 2.2-12: Project Design Features and Study Area for Section 2 (North of East Hazelton Avenue to South of East Jefferson Street)

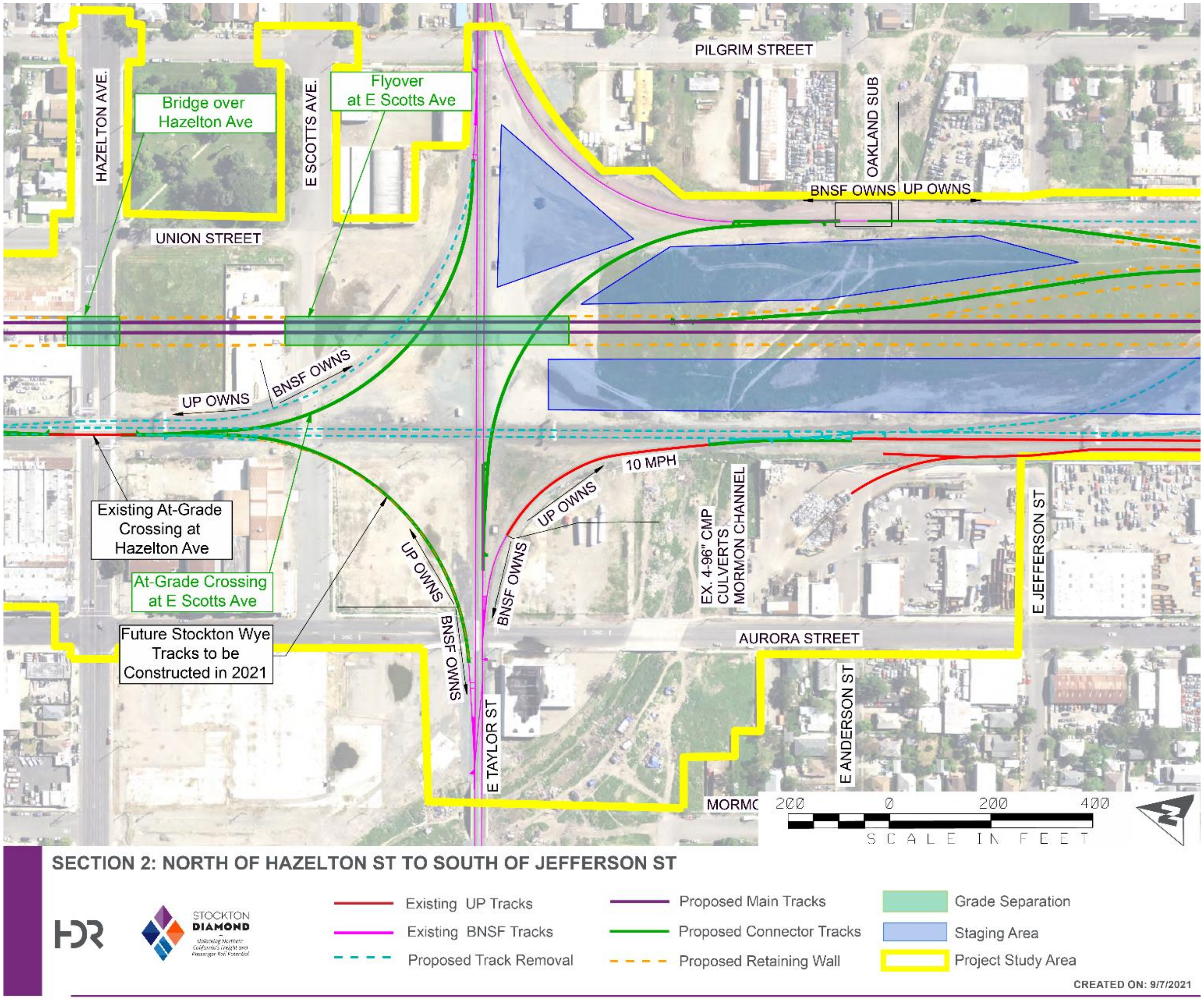
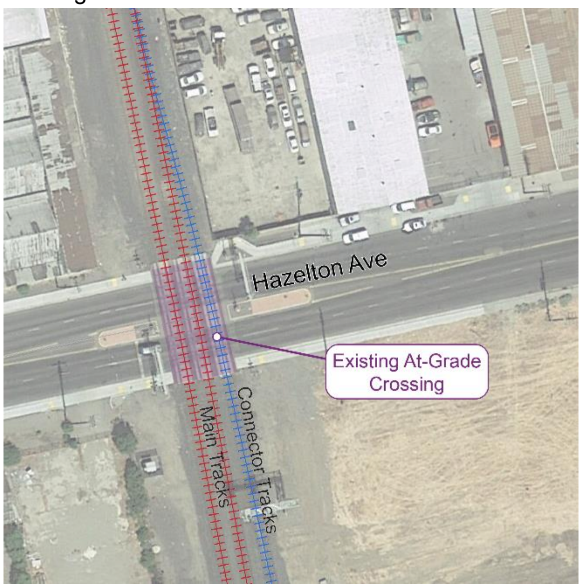


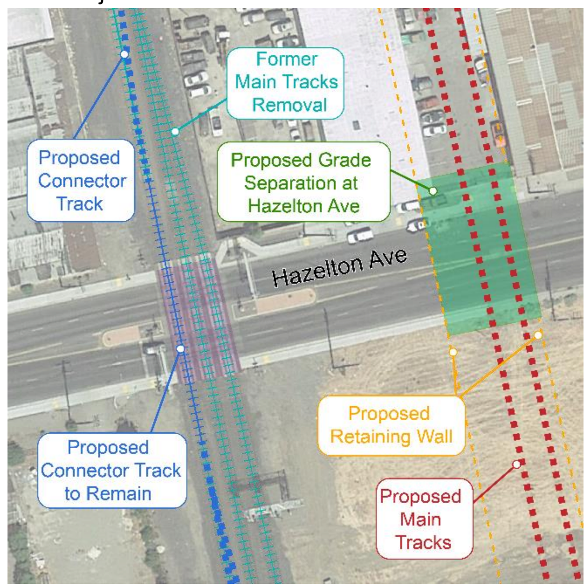
Figure 2.2-13: Existing and Proposed Track Configuration (North of East Hazelton Avenue to South of East Jefferson Street)

East Hazelton Avenue

Existing Condition

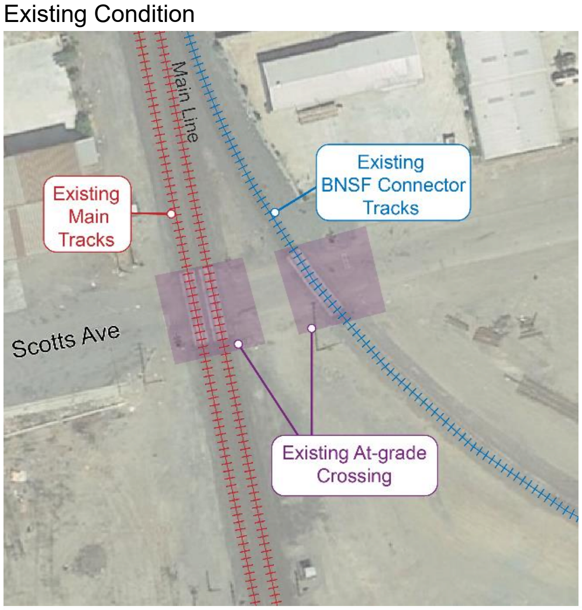


With Project

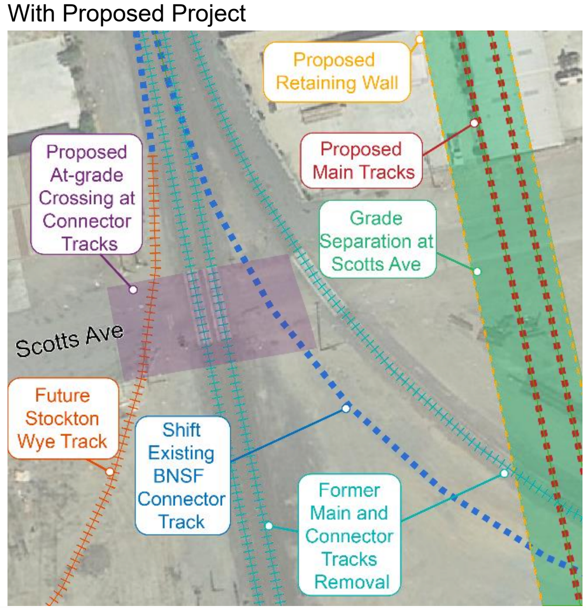


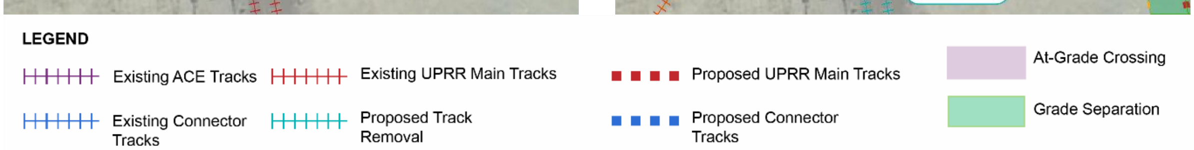
East Scotts Avenue

Existing Condition



With Proposed Project





Just south of East Hazelton Avenue, the connection track that diverged from the shifted UP Fresno Subdivision tracks and merged with the westernmost UP track would separate into a new connecting track to the BNSF Stockton Subdivision in the eastbound direction and the new track to be constructed with the separate Stockton Wye Project (currently in final design with construction scheduled to begin in late 2022) for connectivity to the BNSF Stockton Subdivision in the westbound direction, improving access to the Port of Stockton.

With these connections, any freight train traffic going from the UP Fresno Subdivision to the BNSF Stockton Subdivision could use this proposed connection track and avoid having to go through the ACE Cabral Station. This would enhance railroad operating efficiency, capacity, and network mobility, which are among the goals of the Project.

The UP Fresno Subdivision main tracks would be grade separated on the flyover at East Hazelton Avenue. A single connector track would remain at grade, where the UP main tracks were previously located, and would be designed to accommodate the UP Stockton Wye Project.

East Scotts Avenue is also proposed for a grade-separated undercrossing structure at the location of the UP main track flyover. Farther west, there would be an at-grade crossing of the realigned connecting track between the UP Fresno Subdivision and BNSF Stockton Subdivision heading east. The new UP Stockton Wye would also cross East Scotts Avenue at grade. East Scotts Avenue does not have existing pedestrian crossing facilities, and new facilities would likely be required to meet current standards.

At the south entrance to the Diamond, a new wye track would be constructed to provide a direct connection between the BNSF Stockton Subdivision tracks coming from the west and the UP Stockton Yard. Also, just before reaching East Anderson Street, the easternmost UP main line includes a connection track that would allow a direct transfer from the UP main line to the UP Stockton Yard. This connector line would ultimately connect with the aforementioned BNSF Stockton connector tracks prior to reaching the UP Stockton Yard.

The proposed flyover structure would reach a maximum elevation of 32 feet (with a 23.5-foot minimum vertical clearance) at the crossover of the BNSF Stockton Subdivision main tracks. Following this crossing, the proposed flyover structure begins to descend back to grade.

Construction of the Project would require a clear span flyover bridge over the existing BNSF Stockton Subdivision main tracks, as well as the northeast wye and the new southwest wye connection tracks. Options for retaining structures between flyover bridges or a continuous flyover bridge over all tracks will be considered.

SJAFCA modeling of future flows noted an additional culvert is required under the Fresno Subdivision tracks, and SJAFCA was planning to add two more pipe openings under the tracks at this location to accommodate future flows. The new pipe openings are not part of the Project. Section 2.2.4 provides detailed information regarding design options being considered.

Roadway-Rail Grade Crossings

East Hazelton Avenue is proposed for a grade-separated undercrossing structure. East Hazelton Avenue is a four-lane minor arterial roadway with two lanes of traffic running in each direction. East Hazelton Avenue has the highest average daily traffic of any of the local at-grade road crossings affected by this Project. These factors make East Hazelton Avenue the most logical choice for an undercrossing of the two relocated UP main line tracks. The grade-separated undercrossing structure is discussed further below in the section, *Section 3: South of East Jefferson Street to UP Stockton Yard*).

During construction, temporary closure at East Hazelton Avenue would likely occur over 2 to 3 months and could include full closures during the day or could be limited to nighttime full closures, with traffic diverted to East Scotts Avenue. Alternatively, if possible, only a partial closure would occur, with two lanes closed at one time and traffic redirected temporarily to the two remaining lanes. East Scotts Avenue would likely see closure for up to 5 to 6 months; however, closures at East Hazelton Avenue and East Scotts Avenue would not occur at the same time to minimize traffic disruption.

No permanent road closures are proposed for this section of the Project.

As noted above, grade-separated undercrossing structures are proposed at East Hazelton and East Scotts Avenues because the flyover structure would reach a sufficient elevation to meet the UP/BNSF joint guidelines for an undercrossing.

Proposed Right-of-way Acquisitions and Temporary Encroachment Permits

For ROW acquisitions and TCE information within this Project Study Area section, refer to Figure 2.2-6. For additional detailed information regarding ROW acquisitions and TCEs as a result of the Project, refer to Section 3.3, *Relocations and Real Property Acquisition,* in this Final EA.

Utility Relocations

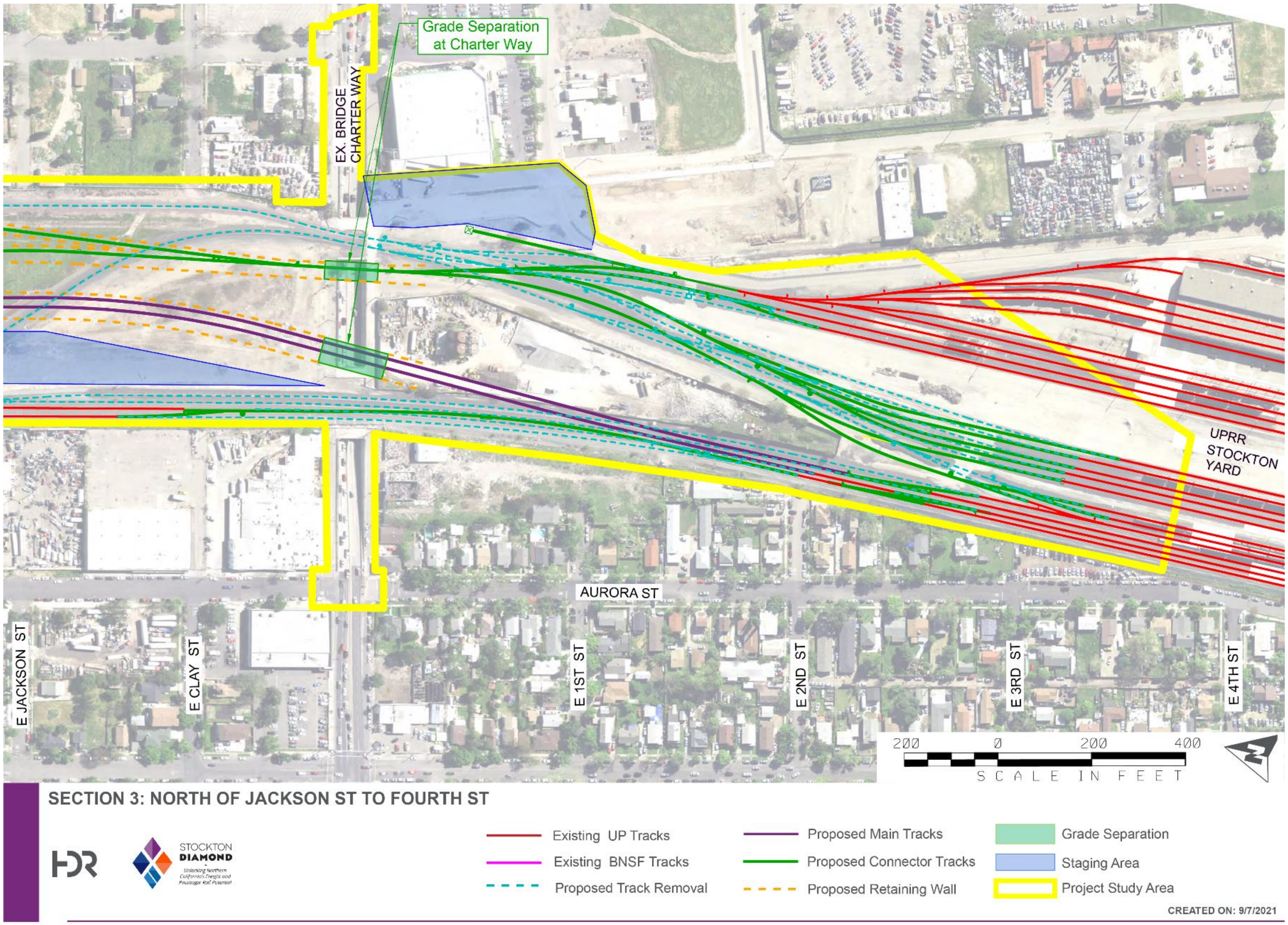
Utility relocation or protection-in-place of existing utilities would be necessary during construction. For detailed information regarding utility relocations during construction, refer to Section 3.6, *Utilities and Emergency Services*, in this Final EA.

Section 3: South of East Jefferson Street to UP Stockton Yard

Project Features

Figure 2.2-14 provides an overview of this southernmost section and the Project Study Area. It also presents the Project design features and general areas proposed for equipment and materials staging and construction site access.

Figure 2.2-14: Project Design Features and Study Area (South of East Jefferson Street to UP Stockton Yard)



More information on staging and anticipated site access locations is provided in Section 2.2.5. Figure 2.2-15 provides detailed information on the existing and proposed track configuration at the East Charter Way crossing within this section.

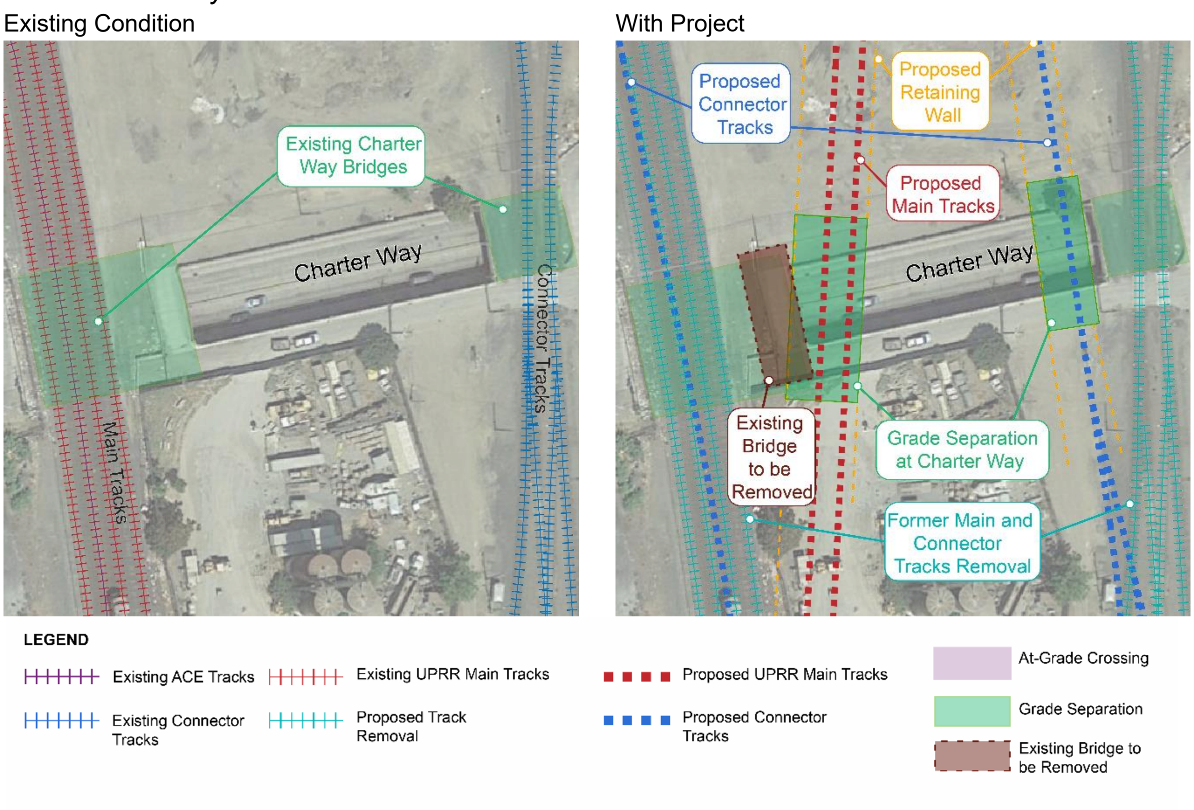
To satisfy UP grade requirements, the proposed flyover structure would return to grade just south of East Charter Way between the UP Stockton Yard and the flyover at full elevation. Rather than design the flyover to return to grade north of East Charter Way, the extension of the yard connection south of East Charter Way and into the northern end of the UP Stockton Yard would use two new structures across East Charter Way and modifications to several UP yard tracks.

At East Charter Way, two separate existing railroad bridges cross over the roadway. A portion of one of these existing bridges would need to be removed to accommodate the new flyover bridge.

As the UP tracks enter the UP Stockton Yard, they split into multiple lines to converge with existing yard tracks. Upgrades at the existing tracks would also be included to connect the upgraded tracks to existing tracks at the yard.

Figure 2.2-15: Existing and Proposed Track Configuration (South of East Jefferson Street to UP Stockton Yard)

East Charter Way



Roadway-Rail Grade Crossings

The Project would not require closing East Charter Way except for short periods to do the superstructure (bridge) work; these could be limited to nighttime closures, as possible.

No permanent road closures are proposed for this section of the Project.

As discussed previously, a new grade-separated bridge would be constructed over East Charter Way as part of the Project.

Proposed Right-of-Way Acquisitions and Temporary Construction Easements

For ROW acquisitions and TCE information within this Project Study Area section, refer to Figure 2.2-6. For additional detailed information regarding ROW acquisitions and TCEs as a result of the Project, refer to Section 3.3, *Relocations and Real Property Acquisition*, in this Final EA.

Utility Relocations

Utility relocation or protection-in-place of existing utilities would be necessary during construction. For detailed information regarding utility relocations during construction, refer to Section 3.6, *Utilities and Emergency Services*, in this Final EA.

2.2.4 DESIGN OPTIONS OF THE PROJECT

The Project includes the track configurations, grade separations, and other improvements as described in the previous section; however, the exact bridge structure for the flyover is not determined at this time. Structure types under consideration include the following three options:

Soil embankment. Soil embankment is the railroad's preferred choice and is characteristic of a natural aesthetic quality. This option would be low maintenance; however, maintenance on the embankment slope would be necessary. Of the three options considered, soil embankment would require the largest permanent footprint and large quantities of fill to be delivered. It is estimated that this concept would require approximately 484,000 cubic yards (CY) of fill. The soil embankment option would potentially provide access for trespassers; however, fencing would mitigate that risk. Potential issues associated with soil embankment include slope instability and settlement, vegetation impacts and impacts on buried utilities.

Precast concrete panel system with lightweight cellular concrete fill (LCCF). LCCF consists of a large vertical wall, which would be a highly resilient system and would serve as a barrier to trespassers. Fencing would also mitigate risk from trespassing and provide additional safety and security. As it relates to seismic safety, this system would be seismically stable and resilient compared with other options. The LCCF would be a low-maintenance option over the life of the structure. Panels that may become damaged could be replaced with minimal impact to the wall. Additionally, there would be a minimal permanent footprint. Lightweight fill replacement would require minimal crews, and truck delivery of fill would be significantly lower than for soil embankment and other retaining wall options. This option would require approximately 324,000 CY of lightweight fill. The design of the LCCF could be stepped with a bottom outset, or with other architectural features to make it appear less imposing to pedestrians. Issues associated with this option include the potential for graffiti and vandalism.

Viaduct bridge structure. The viaduct bridge structure would create an open aesthetic and would not create a significant barrier across the community. The total estimated fill would be approximately 73,000 CY, less than both the LCCF and soil embankment options. However, high short-term environmental impacts during construction (drilling holes for shafts, carrying away debris, delivering and placing concrete and reinforcement) would be anticipated. The viaduct bridge structure would require a complex seismic analysis and increased risk to the railroad under seismic loads.

The three potential structure types are evaluated in this Final EA. In conjunction with railroad and stakeholder input, a preferred structure type would be selected at the conclusion of these efforts.

2.2.5 CONSTRUCTION OF THE PROJECT

Construction of the Project would take approximately 36 months, regardless of the bridge structure type selected. For all design options, pile driving is assumed only for the bridge foundations.

Construction Staging Areas and Access Points

Equipment and Materials Staging

As shown in Figure 2.2-7, Figure 2.2-8, Figure 2.2-12, and Figure 2.2-14, staging areas for equipment and materials would be provided throughout the Project Study Area to maximize access to work areas and to store material. Potential staging areas are shown in the figures above for each of the three footprint sections; however, equipment and materials staging may not require the full extent of the areas shown and the actual siting within these proposed locations may change during further design.

Generally speaking, it is anticipated that the open areas in each of the four quadrants of the Diamond would be used for staging and may be used to store materials needed for construction of the bridges over the BNSF connector and main line, and East Hazelton Avenue. Additionally, the area south and east of the existing UP main line tracks, within the UP ROW, would be used for staging. Additional space along East Lafayette Street between South Aurora and South Union Streets may also be used for roadway construction staging. All staging would occur within the public and/or railroad ROW and would not require permanent construction of additional unpaved areas to impervious hardscaping. Any unpaved areas temporarily used for construction staging would be returned to their original condition or better.

Project Access

Project access is anticipated at the following points:

- From East Scotts Avenue, north of the BNSF Stockton Subdivision main line;
- From East Taylor Street from South Pilgrim Street, east of the UP Fresno Subdivision main line and south of the BNSF Stockton Subdivision;
- From South Aurora Street, west of the UP Fresno Subdivision;
- From East Lafayette Street between South Aurora Street and South Union Street; and
- From East First Street, south of Charter Way.

For construction vehicles, primary western access to the construction area would be provided from Aurora Street and primary eastern access would be provided by East Taylor Street, South Pilgrim Street, East First Street, and East Scotts Avenue. Secondary access points would be provided from East Jackson Street and off East Lafayette Street for the roadway construction. East Charter Way, Wilson Way, and Stanislaus Street are the logical construction access routes that provide local road connections from the state highway system. Local road connections to the access points are designated truck routes.

In addition, the access routes would use existing at-grade crossings of UP tracks off South Pilgrim Street to East Taylor Street crossing the Diamond. During construction, this and the other temporary crossings would be supervised by a UP flag person, who would control the crossing. Rail traffic would have priority.

Construction Schedule

Construction of the flyover structures and railroad track would be accomplished through staged construction to maintain railroad operations during construction. The estimated time to complete all construction activities, including site preparation and utility relocations, is a maximum of 3 years. Construction is anticipated to occur from 2023 to 2026 (Table 2.2-3). The majority of the necessary construction along the railroad and structures would be completed during daytime hours. Nighttime construction activities would be limited to track work and other construction necessary to connect the existing and relocated tracks. Noise-intensive pile driving would not be conducted during nighttime hours. In addition, with the implementation of a Noise Control Plan, City standards would not be violated during construction of the Project. Therefore, it is not expected that construction would be limited to specific work windows.

Depending on results of further geotechnical investigations, soil mitigation may be required to minimize or avoid anticipated soil settlement and potential liquefaction (soils becoming unstable during an earthquake) at the proposed flyover structure.

Soil treatment and mitigation options may include replacement of poor soils, treatment with lime, deep soil mixing, stone columns or rammed aggregate piers, or use of lightweight engineered/concrete fill. Soil treatment and/or mitigation options must occur prior to, or in conjunction with, the proposed flyover construction, and are estimated to take approximately 3 to 4 months.

Table 2.2-3: Anticipated Construction Schedule

Activities	2023							2024												2025												2026					
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Construction contract award	■																																				
Mobilize	■	■																																			
Clear/grub		■	■	■	■																																
Excavation of surface soils (as needed)			■	■																																	
Install soil mitigation features (if necessary)			■	■	■	■																															
Construct bridge foundations					■	■	■	■	■	■	■	■	■	■																							
Construct flyover support structure (includes walls and fill)										■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■											
Erect/place bridge superstructure (prefabricated girders)															■	■	■	■																			
Construct flyover track																			■	■	■	■	■	■	■	■	■										
Construct/modify wye connection tracks											■	■	■	■												■	■	■									

Activities	2023							2024												2025												2026					
	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Modify at-grade crossings – new alignment																																					
Shift traffic to new flyover																																					
Modify at-grade crossings – existing alignment																																					
Local roadway improvements																																					
Demobilization																																					

2.2.6 MAINTENANCE OF THE PROJECT

Future track maintenance activities in the Project area would be very similar to current maintenance activities. The amount and type of railroad track would be about the same, and regular inspections and maintenance of the tracks would occur in the future just as they do today. Track inspection occurs at least as often as required for this class of track in accordance with FRA regulations. In general, maintenance of newly installed track would require less intensive work than maintenance on older track. Maintenance of the track consists of minor track fastener adjustments or replacements, wood tie spot replacements, rail grinding or weld repairs, and rail-laying temperature adjustments on an irregular basis depending on condition and defects found during routine inspections. Track lining and surfacing for main tracks may occur anywhere from a few times per year to every 3 to 5 years, depending on local conditions. Ballast cleaning or undercutting may also be needed infrequently, depending on local conditions.

The two primary differences between existing maintenance and future maintenance would be the at-grade diamond crossing itself and the structures associated with the new flyover. Current maintenance of the diamond crossings consists of routine repairs and likely complete replacement every 10 years or so given the high wear associated with this special track work. In the future, with the Project, these maintenance activities would no longer be required. Future maintenance with the proposed bridges and structures associated with the flyover alignment would involve routine inspections. However, similar to new track, newly built structures are not expected to require maintenance activities for many years after they are open to railroad traffic. Therefore, less maintenance activity would be anticipated for newly built track and structures than with older track and structures.

Railroads use low-maintenance materials, such as weathering steel and reinforced concrete, to prevent deterioration. They also use design details proven to hold up to heavy railroad traffic over time. Design service life expectations for railroad structures are 75 to 100 years, or longer. Maintenance activities, however, may be required at any time if damage from a vehicle collision or vandalism occurs. This typically involves fence and handrail repairs, concrete patching, graffiti removal, or painting over graffiti. Other potential maintenance activities, typically after 20 to 25 years, may include jetting storm drains, replacing bridge bearings, replacing fence and handrails, tightening or replacing bolts, and patching or spot replacing concrete.

3.0 Environmental Resources, Effects, and Mitigation Measures

Chapter 3 describes the existing affected environment for the Project. The affected environment is the base condition on which environmental effects of the alternatives are evaluated in this Final EA.

The sections in Chapter 3 include the regulatory setting applicable to the environmental topic, the methodology of effects analysis, a description of the affected environment, environmental effects resulting from the Project, and measures to mitigate adverse effects under Alternative 2 (Project). Photographs, graphic exhibits, and data matrices are included throughout this Final EA, where applicable, to support the effects analyses.

NEPA uses the term "effects," to identify impacts on the environment. In order for there to be an effect, there must be a causal relationship with the environment. NEPA distinguishes three types of causal effects: direct, indirect, and cumulative. A "cumulative effect" definition is provided, and the contribution of Alternative 2 (Project) to cumulative effects is analyzed in Section 3.16 of this Final EA. Direct and indirect effects are defined below and analyzed in Sections 3.1 through 3.16 of this Final EA.

- Direct effects are caused by the action and occur at the same time and place (40 CFR 1508.8).
- Indirect effects are caused by the action and occur later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, as well as related effects on air, water, and other natural systems, including ecosystems (40 CFR 1508.8).

3.0.1 NATIONAL ENVIRONMENTAL POLICY ACT PROVISIONS

NEPA requires federal agencies to consider the potential environmental effects in the evaluation of any proposed federal agency action. NEPA also obligates federal agencies to consider the environmental consequences and costs of their projects and programs as a part of the planning process. Under NEPA, the determination of significance is based on context and intensity (including duration) (CEQ regulations, 40 CFR Sections 1500 to 1508).[1] Under NEPA, a federal agency may prepare an EA to determine whether a federal action has the potential to cause adverse environmental effects. If the federal agency determines that the action (project) will not have adverse environmental effects with the implementation of mitigation measures, the agency will issue a finding of no significant impact (FONSI). Mitigated FONSIs can result when an agency concludes its NEPA review with an EA that is based on a commitment to mitigate significant environmental effects. CEQ guidance clarifies that any such mitigation measures would be made publicly available with the

[1] The Council on Environmental Quality issued new regulations on July 14, 2020, effective September 14, 2020, updating the NEPA implementing procedures at 40 C.F.R. Parts 1500-1508. However, this project initiated NEPA before the effective date and is not subject to the new regulations, relying on the 1978 regulations as they existed prior to September 14, 2020. All subsequent citations to Council on Environmental Quality regulations in this environmental document refer to the 1978 regulations, pursuant to 40 C.F.R. 1506.13 (2020) and the preamble at 85 Fed. Reg. 43340.

FONSI.[2] If an EA determines that the adverse environmental effects of a proposed federal action will be significant, an Environmental Impact Statement (EIS) is prepared. SJRRC and CHSRA initiated this EA because the initial analysis did not identify significant effects under NEPA. This chapter explores the environmental effects in greater detail.

3.0.2 ORGANIZATION OF ENVIRONMENTAL ISSUE AREAS

This chapter consists of an overview and 15 individual resource sections that describe and compare the potential direct and indirect effects and proposed mitigation measures for the Project and No Action Alternative, as described in Chapter 2, *Alternatives*. It provides an environmental analysis for the Project's potential effects. Section 3.16, *Cumulative Effects*, provides the analysis of cumulative effects based on the project-level findings in Chapter 3.

The following resource topics are included in Chapter 3:

- Section 3.1, Land Use and Planning
- Section 3.2, Community Effects and Growth
- Section 3.3, Relocations and Real Property Acquisition
- Section 3.4, Parks and Recreation and Section 4(f) Resources
- Section 3.5, Environmental Justice
- Section 3.6, Utilities and Emergency Services
- Section 3.7, Traffic, Transportation, Pedestrian, and Bicycle Facilities
- Section 3.8, Visual Quality and Aesthetics
- Section 3.9, Cultural Resources
- Section 3.10, Hydrology, Floodplains, and Water Quality
- Section 3.11, Geology, Soils, Seismicity, and Paleontology
- Section 3.12, Hazardous Waste and Materials
- Section 3.13, Air Quality
- Section 3.14, Noise and Ground-borne Vibration
- Section 3.15, Biological Resources
- Section 3.16, Cumulative Effects

[2] CEQ Memorandum for Heads of Federal Departments and Agencies, "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact" (January 14, 2011).

3.0.3 FORMAT AND CONTENT OF THE ENVIRONMENTAL ANALYSIS

For each resource topic considered in Chapter 3, the basic format for the environmental analysis is as follows:

- Regulatory Setting (a detailed discussion of the applicable regulations is provided in Appendix B, *Applicable Federal, State, and Local Plans, Policies, and Regulations*)
- Affected Environment
- Environmental Consequences
- Mitigation Measures (if required)

The content for each of these sections is described below under the following headings.

Regulatory Setting

This discussion identifies the regulatory context of the resource being analyzed, including any applicable federal, state, and local statutes, regulations, executive orders (EO), policies, and plans relative to the Project.

Project consistency addresses NEPA requirements to describe a proposed project's consistency or conflicts with applicable federal, state, and local land use and other plans and laws. Details of the federal, state, and local statutes, regulations, EOs, policies, and laws that are applicable to the particular resource; and the Project's consistency with them are included in Appendix B. The CEQ regulations require a discussion of conflicts between a proposed undertaking and the objectives of federal, regional, state, local, and tribal land use plans, policies, and laws, as well as a description of the extent to which CHSRA would reconcile the inconsistencies [CEQ Regulations Sections 1502.16(c), 1506.2(d)].

Affected Environment

Definition of Resource Study Areas

Resource Study Areas (RSA) are the geographic boundaries in which the environmental investigations specific to each resource topic are conducted to determine the resource characteristics and project effects. A resource topic may have more than one RSA depending on the types of resources present and the types of effects being analyzed. The RSAs pertinent to each resource topic are described in each resource section (Sections 3.1 through 3.15) and for cumulative effects (Section 3.16).

Each RSA covers a geography that includes:

- Area necessary to define characteristics and context of the resource
- Facilities or features within the Project Study Area and associated activities that could affect the resource
- Area necessary to determine the direct and indirect effects (both beneficial and adverse) of the Project

Existing Setting

This discussion provides a description of the existing physical environment and baseline setting within each RSA in accordance with NEPA regulations (40 CFR 1502.10). For the purposes of this document, the environmental setting is used to determine the effects associated with the Project and is based on the existing environmental conditions without the implementation of the Project.

Environmental Consequences

Changes that would result from the Project under consideration were evaluated relative to the affected environment and existing environmental conditions within the RSA.

Method for Determining Effects

In accordance with CEQ regulations, the analysis considers context and intensity to describe project effects. Context refers to the affected environment in which a proposed project occurs and may include affected interests or resources (e.g., residents, special-status species), the specific locality, the region, or society as a whole, depending on the resource. Intensity refers to the severity of the effect. Context and intensity are considered together when determining the severity of the change introduced by the project in comparison with conditions under the No Action Alternative.

Methods for Evaluating Effects

This discussion describes the methods, process, procedures, and/or assumptions used to characterize existing environmental conditions and evaluate the potential for adverse effects on the human and natural environment. This includes the methods used in identifying and considering the range of direct and indirect effects for each environmental issue area. Project effects fall into the following three categories:

- **Direct Effects:** These effects would be caused as a direct result of implementing the proposed action and would occur at the same time and place as the action. The environmental analysis addressed potential direct effects of temporary construction activities and operation of the Project within the Project Study Area. Direct effects would result from demolition of existing structures, buildings, and infrastructure; construction of on- and off-site rail infrastructure and roadway improvements; and long-term operation of the Project.
- **Indirect Effects:** These effects are anticipated to occur later in time or are farther removed in distance from the Project Study Area but are reasonably foreseeable as a result of Project implementation. Examples of indirect effects include growth-inducing effects and other effects related to changes in land use patterns, population density, or growth rate, and related effects on the physical environment caused by the non-growth-inducing operational transportation improvement project.
- **Cumulative Effects:** A cumulative effect is an effect that would result from the incremental effect of the action when compounded with other past, present, and reasonably foreseeable future actions (even if those actions are undertaken by others). Cumulative effects associated with the Project are discussed and analyzed in Section 3.16 of the Final EA.

Effects Analysis

For each effect criterion, the discussion in Chapter 3 is subdivided, as appropriate, to differentiate between the direct and indirect environmental effects for the Project as described in Chapter 2, as well as short-term construction versus longer-term operational effects. Subheadings and subnumbering are used, where appropriate, for transitions between major topics and particular distinctions in effect determinations for sub-issues covered by the effect criteria. Where mitigation is proposed, the analysis clearly indicates when, how, and by whom each mitigation measure will be applied.

NEPA Effects

The analysis provides an assessment of whether the Project would have: (1) no effect, (2) no adverse effect, (3) an adverse effect, or (4) a beneficial effect on environmental resources. Further description of each type of effect used in the NEPA analysis is provided below:

- **No Effect:** The alternative would not alter the environmental status quo.
- **No Adverse Effect:** The alternative would result in an effect to the environmental resource; however, the effect would not be adverse, and no mitigation is proposed.
- **Adverse Effect:** The alternative would negatively affect the environmental resource value or quality as it currently exists prior to the Project. Adverse effects are qualified as negligible, moderate, or substantial.
- **Beneficial Effect:** The alternative would improve the resource area or quality as it exists prior to implementation.

Best Management Practices and Mitigation Measures

NEPA requires federal agencies to identify potentially significant adverse effects and discuss potential measures to mitigate those effects.

This section in each sub-chapter of Chapter 3 identifies proposed Best Management Practice Measures (identified as BMP in this Final EA) that are incorporated as part of the Project, to potentially avoid and/or minimize potential effects, so that no adverse effects would occur, and mitigation measures (identified as MM in this Final EA) to mitigate potentially adverse effects of the proposed Action in accordance with NEPA regulations (40 CFR Section 1508.20).

It is important to note that in instances where adverse effects are identified under the No Action Alternative, no mitigation is proposed since no action or project will be implemented as a result of selecting the No Action Alternative. Rather, the assessment of the No Action Alternative is intended to provide a comparative analysis with that of the Project.

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3.1 Land Use and Planning

This section describes the regulatory setting and affected environment for land use and planning. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on land use and planning during construction and operation of the Project. If short-term or long-term effects on land use and planning are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to land use and planning are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the land use and planning RSA.

3.1.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of land use and planning is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

State Plans, Policies, and Regulations

California State Planning and Zoning Law

Sustainable Communities and Climate Protection Act (Senate Bill 375)

Local Plans, Policies, and Regulations

San Joaquin County General Plan

Goal LU-1.8: Support for Alternative Transportation Modes: The County shall encourage land use patterns that promote walking and bicycling and the use of public transit as alternatives to the personal automobile.

City of Stockton General Plan

Policy LU-3.2: Retain narrower roadways and reallocate ROW space to preserve street trees and mature landscaping and enhance the pedestrian and bicycle network within and adjacent to residential neighborhoods.

Policy LU-3.3: Maintain or expand the amount of public park and open space area currently available in each neighborhood.

Action LU-6.3C: Coordinate, to the extent possible, upgrades and repairs to roadways with utility needs, infrastructure upgrades, and bicycle and pedestrian improvements.

Policy CH-1.1: Maintain walking and wheeling facilities and parks that are safe and accessible in all areas of Stockton.

Goal TR-1: Provide an integrated transportation system that enables safe and efficient movement of people and goods for all modes of travel.

Policy TR-1.2: Enhance the use and convenience of rail service for both passenger and freight movement.

Goal TR-3: Design transportation infrastructure to help reduce pollution and vehicle travel and its associated policies and actions.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1, in the same appendix.

Based on the consistency analysis provided in Table B-1, in Appendix B of this Final EA, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.1.2 AFFECTED ENVIRONMENT

This section defines the RSA, describes the methods used to analyze the existing and planned land uses within the RSA, and determines the construction and operational effects on these land uses.

Definition of Resource Study Area

The RSA for the evaluation of effects on land use and planning encompasses the areas directly or indirectly affected by construction and operation of the Project. The land use and planning RSA includes the Project's construction limits plus a half-mile buffer to account for potential indirect effects on land use.

Methods for Data Collection and Analysis

For this analysis, information on land use designation and zoning within the RSA was collected. The existing land uses in the Project's construction limits were identified using GIS data, land use maps, and City and County general plans. Aerial imagery and design information were used to analyze the existing land uses and locations where property acquisition would result from the Project. Construction methods, ROW, and staging areas were reviewed to determine potential land use effects and any temporary or permanent property acquisitions. Additionally, pertinent plans, policies, and regulations were reviewed to determine the Project's consistency with federal, state, and local regulations, plans, and policies during and after construction of the Project.

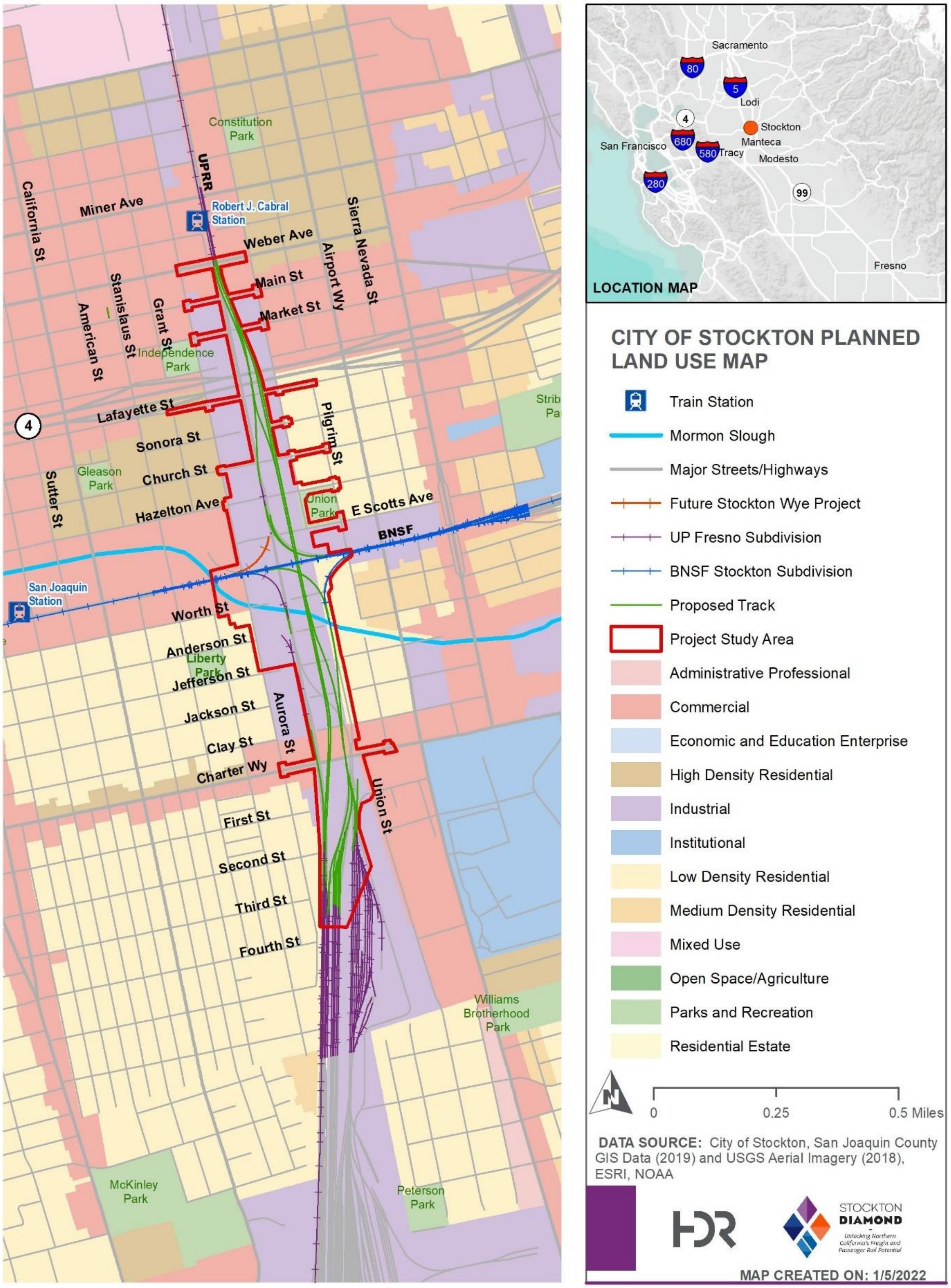
Existing Setting

According to the City of Stockton General Plan Land Use Map, as shown in Figure 3.1-1, the Project construction limits are located in an industrial area of Stockton. Land use designations generally align in the RSA; the railroad corridor and adjacent parcels are designated as General Industrial. High- and low-density residential uses bound the RSA to the west and east.

Commercial land uses are located in Downtown Stockton, generally north and west of the Project construction limits and along the arterials in the Project Study Area. There are also several parks located in the Project Study Area.

As Figure 3.1-1 illustrates, the north-to-south-oriented UP railroad corridor physically divides the communities to its east and to its west. There are existing roadway-rail at-grade crossings at East Weber Avenue, East Main Street, East Market Street, East Lafayette Street, East Church, East Hazelton Avenue, and East Scotts Avenue that provide access from one side of the rail corridor to the other; however, the industrial corridor is wide and does not facilitate safe and efficient movement across the tracks. Additionally, the Mormon Slough crosses the proposed alignment just north of Anderson Street.

Figure 3.1-1: City of Stockton Planned Land Use Map



3.1.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences of the Project Alternatives on land use and the City of Stockton's ability to meet its land use objectives within the land use and planning RSA. It includes an analysis of the Project's potential to cause land use conversions from current land use designations.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented, there would be no short-term effects on existing or planned land uses within the land use and planning RSA. Therefore, no direct or indirect short-term effects to land use and planning are anticipated under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, existing land use would remain the same, future development would follow current trends, and land use is expected to be consistent with current zoning and land use objectives. As a result, no long-term effects would occur with the implementation of the No Action Alternative. Therefore, no direct or indirect long-term effects to land use and planning are anticipated under the No Action Alternative.

Project

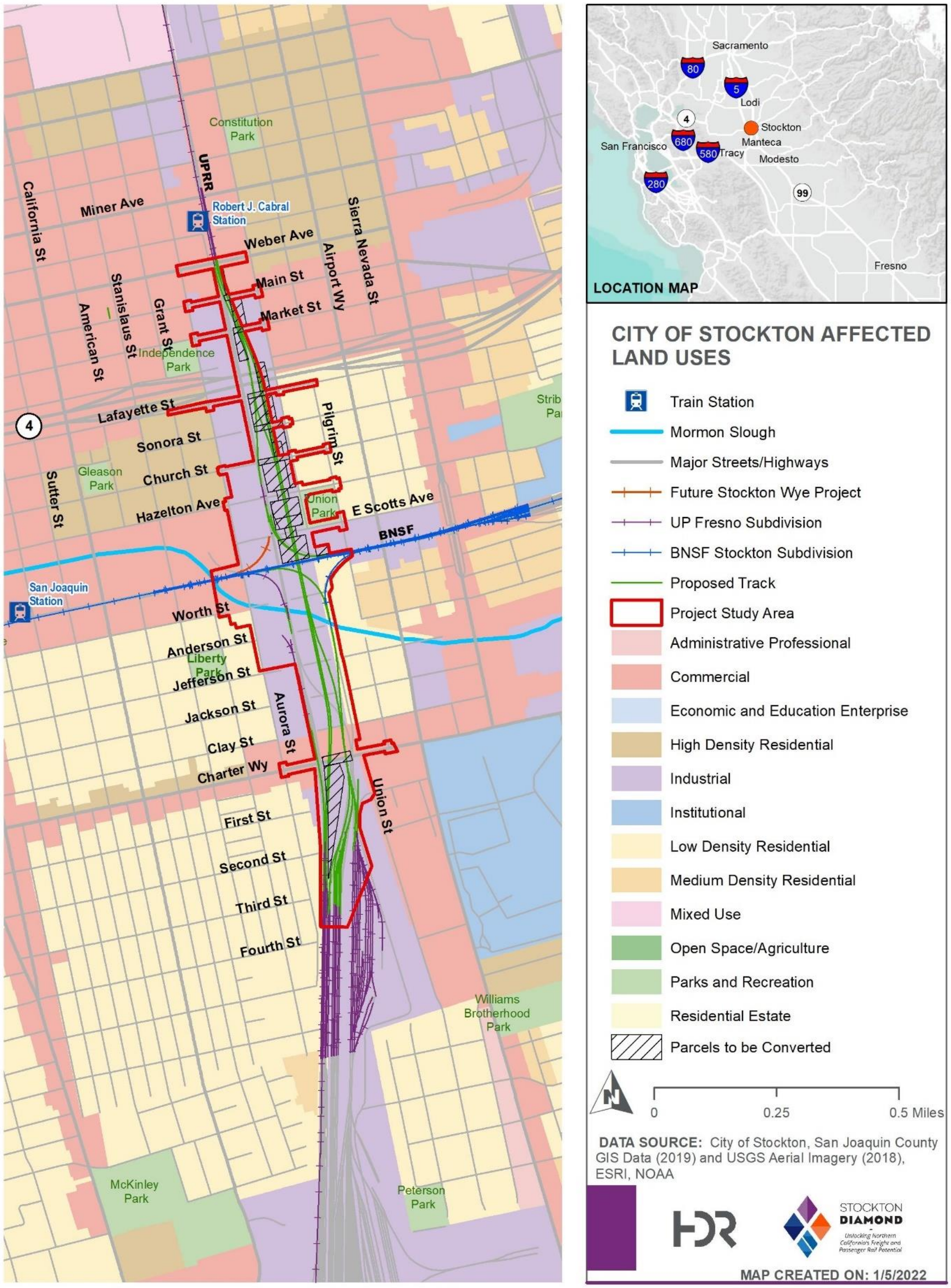
Short-term Effects

No short-term effects related to consistency with federal, state, regional, or local goals and policies are anticipated. Therefore, no direct or indirect short-term effects on land use and planning are anticipated under the Project.

Long-term Effects

The Project would permanently convert several industrial parcels (all are zoned General Industrial) to a transportation use, reducing the available industrial land use in the area by 10.87 acres. The Project would require minor changes to existing land use designations in the City of Stockton (see Figure 3.1-2), which would result in direct moderate adverse effects due to the inconsistencies with the existing land use designations. However, implementation of Measure MM LU-1 (General Plan Amendment) will mitigate the moderate adverse effects by ensuring that the new land use designations will be captured within the City's General Plan through a general plan amendment. Therefore, with the implementation of Measure MM LU-1, no direct or indirect long-term adverse moderate effects are anticipated under the Project.

Figure 3.1-2: City of Stockton Affected Land Uses



3.1.4 MITIGATION MEASURES

The following mitigation measure associated with land use and planning will be applied to the Project.

MM LU-1: **General Plan Amendment.** During final design and prior to construction, SJRRC will coordinate with the City of Stockton to ensure that the City of Stockton's General Plan is amended to reflect the land use designations consistent with what has been identified by the Project.

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3.2 Community Effects and Growth

This section describes the regulatory setting and affected environment for community effects and growth, which accounts for race, ethnicity, poverty status, employment, housing, and overall community character and cohesion. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on the community and to growth during construction and operation of the Project. If short-term or long-term effects on the community or to growth are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects on the community or to growth are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects on the community or to growth within the community and growth RSA.

3.2.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of community effects and growth is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655)

NEPA Requirements to Analyze Growth

State Plans, Policies, and Regulations

Senate Bill 375 and Regional Transportation Plan/Sustainable Communities Strategy

Policy: Enhance the environment for existing and future generations and conserve energy

Policy: Increase safety and security

Policy: Preserve the efficiency of the existing transportation system

Policy: Support economic vitality

Policy: Promote interagency coordination and public participation for transportation decision making and planning efforts

Policy: Improve quality of life for residents

Local Plans, Policies, and Regulations

San Joaquin County General Plan

Goal TM-1.17: The County shall minimize social and economic disruptions to communities resulting from the maintenance and construction of the transportation system.

Goal ED-3.3: Ensure Adequate Transportation Improvements. The County shall strive to provide an adequate circulation system to support job growth and economic development, connect critical goods movement facilities, and minimize conflict with other transportation needs.

San Joaquin County Community Response to Homelessness Strategic Plan 2020

Goal 1: Establish a coordinated and engaged regional system of care.

Goal 2: Increase access and reduce barriers to homeless crisis response services.

Goal 3: Ensure households experiencing homelessness have access to affordable and sustainable permanent housing.

City of Stockton General Plan

Action CH-1.1A: Plant and maintain appropriate shade trees along all City streets to reduce heat exposure, prioritizing areas of the city with significantly less tree canopy; provide a buffer between the travel way and bicycle and pedestrian facilities; and provide other amenities like well-marked crosswalks, bulb-outs, and pedestrian scale street lighting.

Policy CH-2.2: Prioritize maintenance of streets and improvement of sidewalks, parks, and other infrastructure in areas of the city that historically have been comparatively underserved by public facilities, including implementation of complete streets where needed, especially in conjunction with infrastructure maintenance and improvement projects.

Policy CH-4.2: Support homeless members of the Stockton community with programs to improve quality of life.

Action CH-4.2A: Coordinate with local and regional agencies and community organizations to address the needs of homeless people, including shelter, food, clothing, health care, mental health, and transportation.

Action CH-4.2B: Provide information about shelter and food assistance programs via the range of the City's communication tools.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B, *Applicable Federal, State, and Local Plans, Policies, and Regulations,* of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, in Appendix B of this Final EA, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified. Compliance with the federal EO on environmental justice is covered in Section 3.5, *Environmental Justice.*

3.2.2 AFFECTED ENVIRONMENT

Definition of Resource Study Area

The RSA for community effects and growth is defined by the Project Study Area, which includes the Project footprint and a half-mile buffer. This includes all census tract block groups within the half-mile buffer for the collection and analysis of US Census Bureau data.

Methods for Data Collection and Analysis

This section summarizes the 2018 American Community Survey (ACS) 5-year estimates of data on race and ethnicity, poverty status, employment, housing, and population characteristics in the community effects and growth RSA, San Joaquin County, and the City of Stockton.

There are a total of 22 census tract block groups located in the community effects and growth RSA. These census tract block groups are located in the community effects and growth RSA are identified in Table 3.2-1 and shown in Figure 3.2-1.

Table 3.2-1: Census Tract Block Groups in the Community Effects Resource Study Area

Census Tract	Block Groups	Census Tract	Block Group(s)
1	1, 2, 3, 4	16	2
4.02	1, 2	19	2, 3, 4
5	1, 2	22.01	1, 2
6	1, 2	22.02	2
7	1, 2	23	1, 2, 3

Methods for Effects Analysis

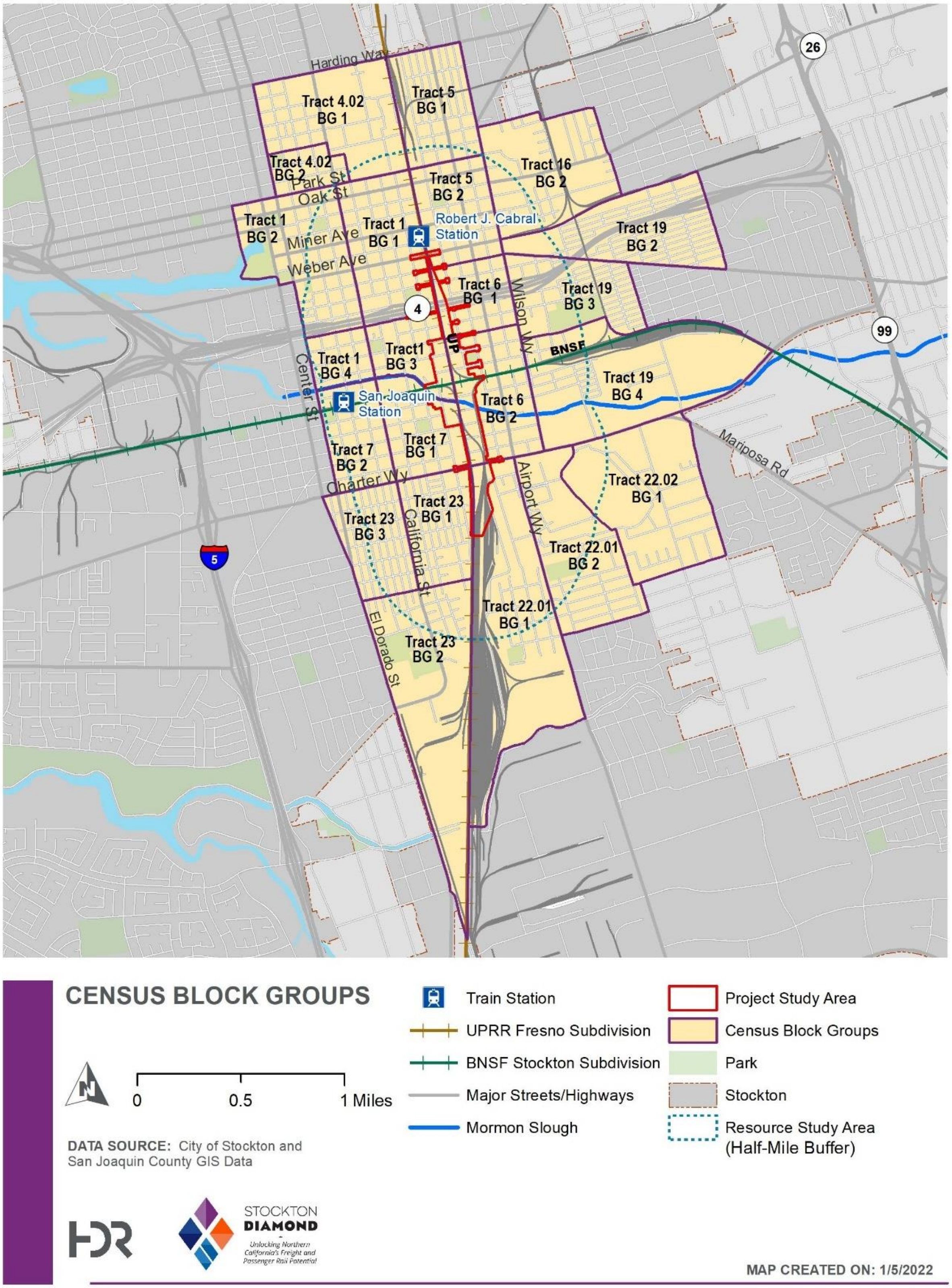
Both quantitative and qualitative analyses were performed in order to evaluate potential effects on communities and growth characteristics, including:

- Review of aerial photographs and utilization of GIS data layers to show spatial relationships between the Project and socioeconomic-related characteristics of the surrounding community and potential short-term or long-term effects on community cohesion.
- Evaluation of potential effects utilizing US Census 2018 5-Year estimate data on the community characteristics, including minority demographics and rates of poverty in affected communities.
- A review of the following relevant planning documents to evaluate the socioeconomic and community characteristics within the region, locality, and community effects and growth RSA:
    - San Joaquin County General Plan (San Joaquin County 2017)
    - City of Stockton General Plan (City of Stockton 2018a)

- City of Stockton FY 2021-2022 Annual Budget (City of Stockton 2020d)
- SJCOG 2018 Regional Transportation Plan/Sustainable Communities Strategy (SJCOG 2018)

- A review of economic and property tax information from the California State Board of Equalization (CBOE).
- A review of historical and current population, housing, and employment data from the California DOF, California Employment Development Department (EDD), and US Census Bureau.
- Examination of temporary and indirect effects on communities and growth during the operation and construction of the Project.

Figure 3.2-1: Census Tract Block Groups in the Community Effects Resource Study Area



The analysis includes assessments of the Project's effect on community character and cohesion, children's health and safety, economic effects, and relocations as a result of property displacements. These are discussed briefly below. It should be noted that an evaluation of potential disproportionate effects on minority populations and low-income populations is included in Section 3.5*, Environmental Justice*.

Community Character and Cohesion

A community "is a population rooted in one place, where the daily life of each member involves contact with and dependence on other members" (Caltrans 2011). Community character is all of the attributes, including social and economic characteristics, and assets that make a community unique and establish a sense of place for its residents; and community cohesion is "the degree to which residents have a 'sense of belonging' to their neighborhood, a level of commitment of the residents to the community, or a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Cohesion refers to the degree of interaction among the individuals, groups, and institutions that make up a community" (Caltrans 2011). Community cohesion also represents the access to and usage of local businesses and facilities in the neighborhood. Potential effects on community cohesion may include displacements of residents or businesses, physical barriers, or other effects that may affect the community's use of resources.

Property Displacements and Relocations

Displacement occurs when a property must be acquired in order for Project work to be feasible. Relocations are necessary to maintain residence or business operations for those who are displaced.

Economic Effects

Economic effects can either be beneficial or adverse. Temporary and permanent road closures may potentially effect employees getting to work at nearby businesses, or businesses may be adversely affected during construction work. Operational phase economic effects may be positive, with improvements in railroad operations and traffic movement with new grade crossings, or the potential for increased job opportunities. Adverse economic effects may result if displaced businesses and the employment provided are not able to be relocated due to permanent property acquisitions.

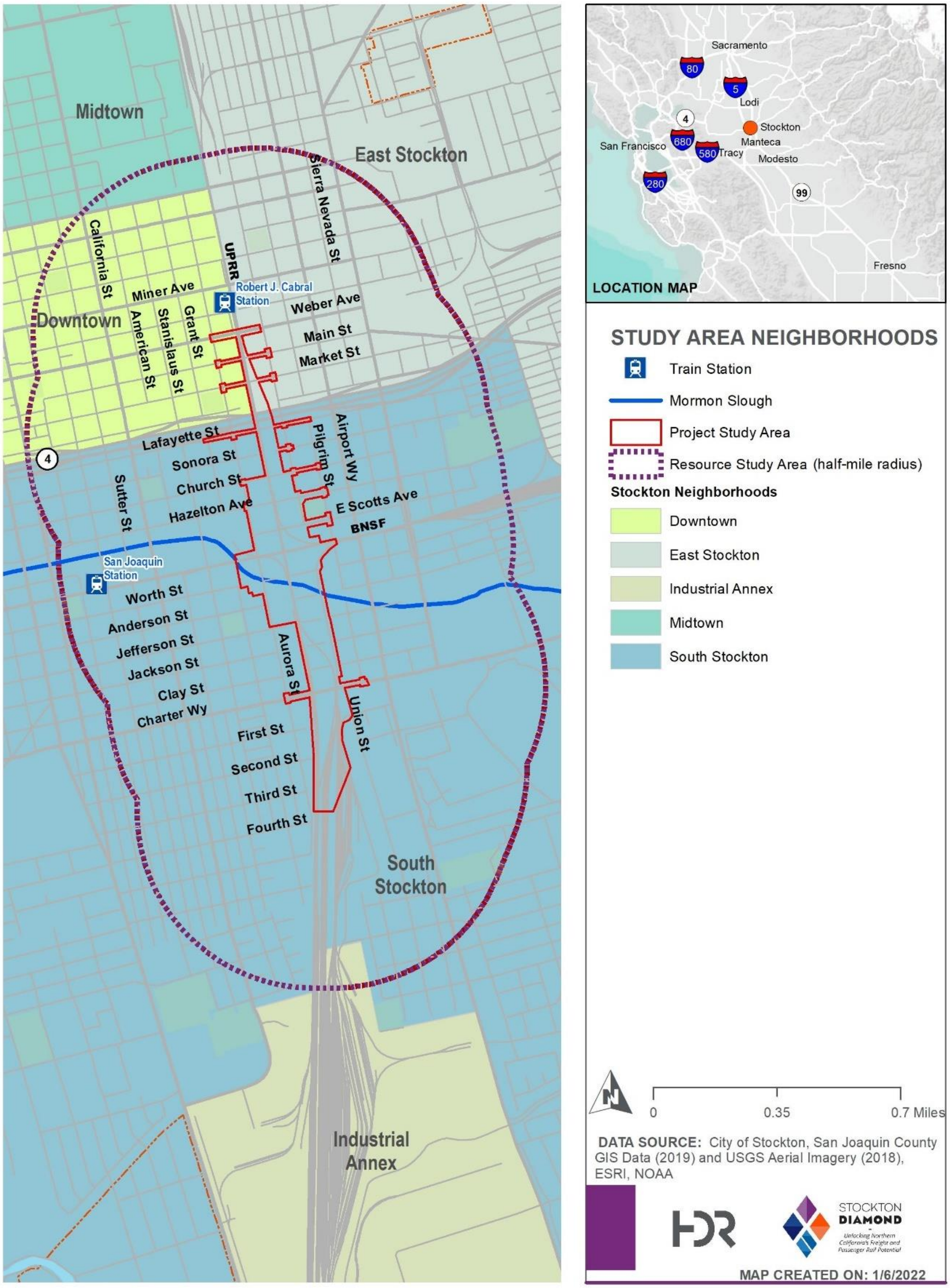
Existing Setting

The information below is a summary of the census data tables and demographic information provided in Appendix C, *Demographic and Growth Data,* of this Final EA.

Neighborhoods

As seen in Figure 3.2-2, the Project overlaps with three neighborhoods: Downtown, East Stockton, and South Stockton. The Downtown neighborhood is characterized by a traditional street grid system; compact, mostly urban development; prominent visitor-serving buildings; warehouses; low-intensity commercial use buildings; grand historic buildings; an old auto row along Miner Avenue; older single-family homes north of Fremont Street; and the Robert J. Cabral Station, which is just north of the Project's northern terminus (City of Stockton 2018d).

Figure 3.2-2: Neighborhoods within the Community Effects and Growth RSA



East Stockton is an eastern gateway into the City of Stockton with SR-99 as one of the main regional corridors. Most of the East Stockton neighborhood is unincorporated. Major characteristics are the major arterials that cut through the urban street grid and residential neighborhoods, the auto-oriented commercial and industrial businesses, lack of streetscape, large parcels with industrial use clusters around the freeway interchanges, and older single-story homes adjacent to commercial use buildings and thoroughfares (City of Stockton 2018d).

The majority of the Project Study Area is located within the South Stockton neighborhood. Portions of the South Stockton neighborhood are within unincorporated areas; however, the Project Study Area is located entirely within the incorporated portion of the City of Stockton. The South Stockton neighborhood is characterized by residential neighborhoods from various time periods and the San Joaquin County Fairgrounds. The neighborhood is split by Airport Way, which is considered a gateway corridor that connects Downtown to the Stockton airport. There is a commercial node along this gateway corridor at Charter Way and Airport Way, which serves the surrounding residential communities. The northern portion of the South Stockton neighborhood has a traditional street grid system with compact residential neighborhoods, while the southern portion is characterized as not having a clear pattern of development or building orientation (City of Stockton 2018d).

Community Facilities and Services

Community facilities and services are an important aspect of neighborhood identity that can serve as critical public resources for the community. Figure 3.2-3, shows the location of community facilities within the community effects and growth RSA that provide community gathering places or neighborhood services for traditionally underserved populations—typically minority populations and low-income populations (see Section 3.5, *Environmental Justice*). Existing police stations, fire stations, and major medical facilities are located just outside of the community effects and growth RSA.

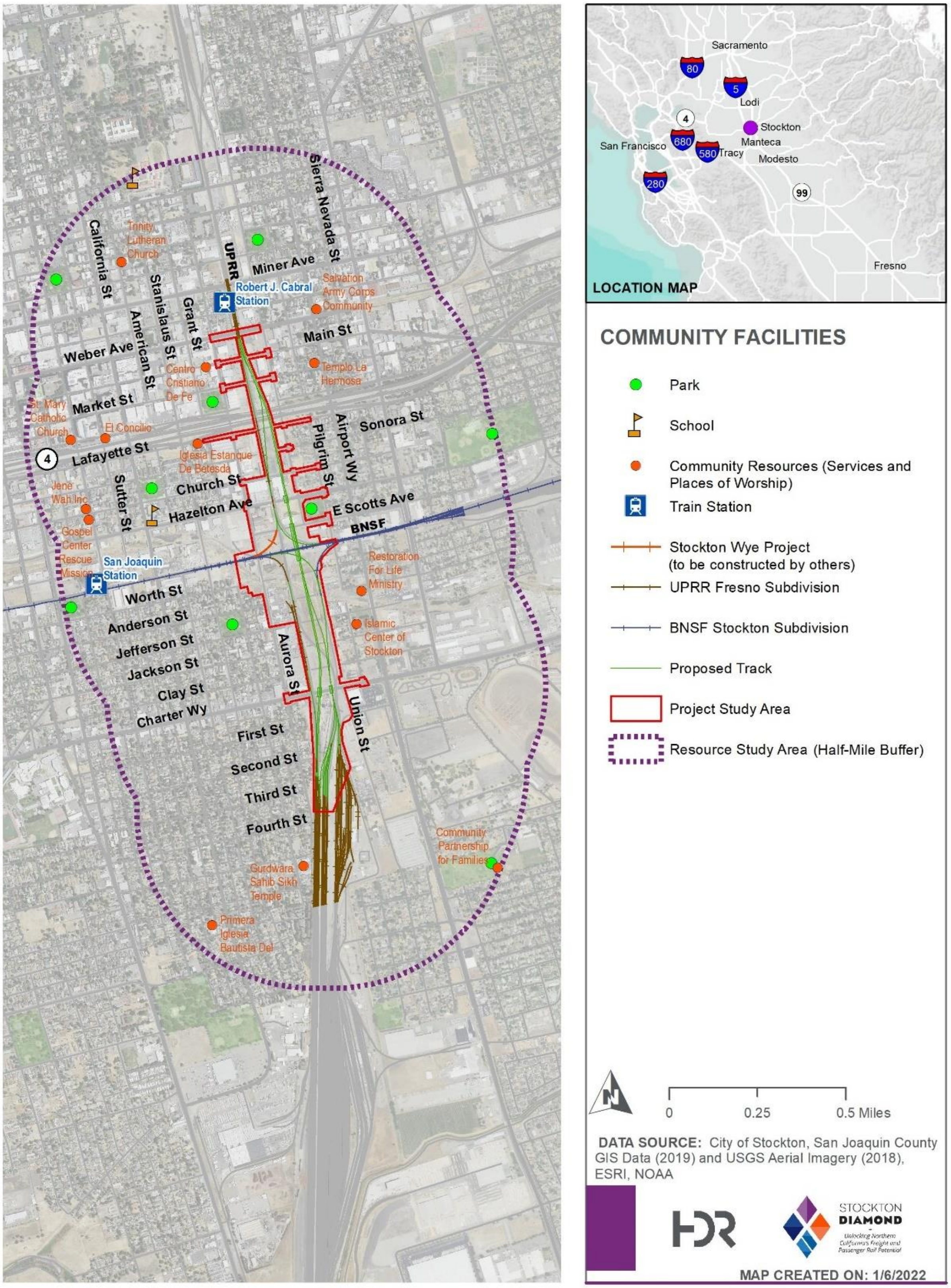
Regional and Local Economic Setting

Industry and Employment

SAN JOAQUIN COUNTY

San Joaquin County makes up 43 percent of employment in the San Joaquin Valley. Given that San Joaquin County is geographically located near I-5, I-99, I-205, and the Port of Stockton, San Joaquin County serves as the employment center for the San Joaquin Valley by serving as a warehousing and distribution center for products and goods moving through Northern California and elsewhere (San Joaquin 2017). Over the past 20 years San Joaquin County has transitioned from a predominantly agricultural economy towards newer economic drivers such as tourism, clean-green industries, trade, transportation, retail, and business services in an effort to diversify the county's economy and supplement the current economic foundation. The County's centralized and diverse transportation network, which includes highway, rail, air, and seaport facilities, maintains San Joaquin County as the center for major goods movement in the region (SJCOG 2018).

Figure 3.2-3: Communities Facilities within the Community Effects and Growth RSA



CITY OF STOCKTON

The City of Stockton is the largest of the seven cities within San Joaquin County and makes up approximately 42 percent of the County's population, as referenced in Table C.1-2 in Appendix C of this Final EA (SJCOG 2018). Additionally, the City is considered a transportation hub within the region. The City has gone through improvements of its industrial and business parks, which are all easily accessible by freeway, adjacent to either the airport or seaports, or immediately accessible by rail. Over the past 20 years, the City has been able to diversify its economy from a historically agricultural base to include several pockets of intense office or retail development that serve as central business districts within the City.

The City of Stockton's economy benefits from having 11 of the top 25 major employers in San Joaquin County (City of Stockton 2018a). These include three major governmental entities, two health care providers, two major growers and shippers of fruit and vegetable products, one aircraft servicing and maintenance company, a major home appliance manufacturer, the University of the Pacific, and two Walmart Supercenters. Between 2015 and 2040, projections for job growth are estimated to be more than 37,900 new jobs within the City of Stockton.

Property Tax

The revenues from property taxes, along with other state revenue sources, provide counties, cities, schools, and special districts a major source of revenue and support vital local government services for residents and taxpayers.

As referenced in Table C.1-1 in Appendix C of this Final EA, property tax levies in San Joaquin County increased by over $62 million over 7 years (36.4 percent). The City of Stockton receives about $0.16 per $1.00 of property tax paid by property owners (City of Stockton 2020e). According to the City of Stockton's FY 2021-2022 Annual Budget, property tax revenue increased due to the higher assessed valuation of residential and commercial properties; however, in FY 2021-2022, the applied Consumer Price Index (CPI) is only 1.02 percent due to the COVID-19 pandemic's effects on the assessed value growth. The FY 2021-2022 Annual Budget projects a $1.4 million (2.3 percent) increase in overall property taxes compared to the FY 2020-2021 year-end projection. While revenue growth will be lower with a CPI of less than 2 percent, the City has not experienced significant declines in property values and sales.

Regional and Local Demographic Characteristics

Race and Ethnicity Characteristics

A minority population is comprised of those who are of Hispanic or Latino origin, Black/African American, American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, or some other race. As referenced in Table C.1-2 in Appendix C of this Final EA, minority populations account for 67.5 percent of San Joaquin County's population and 79.2 percent of the City of Stockton's population.

Socioeconomic and Housing Characteristics

As referenced in Table C.1-3 in Appendix C of this Final EA, in San Joaquin County, approximately 12.7 percent of households have household incomes that fall below the poverty level. In the City of

Stockton, the percentage of households with income below the poverty level is 17.1 percent. Approximately 8.7 percent of San Joaquin County's and 10.2 percent of the City of Stockton's civilian labor force are unemployed. Renter-occupied housing units are estimated at 44.4 percent within San Joaquin County and 52.5 percent within the City of Stockton.

Community Demographic Characteristics

Race and Ethnicity Characteristics

As referenced in Table C.1-4 in Appendix C of this Final EA, the average minority population of the block groups within the community effects and growth RSA is 91.6 percent, which is significantly higher than San Joaquin County (67.5 percent) and the City of Stockton (79.2 percent).

The northern section of the community effects and growth RSA has a slightly lower percentage of minority populations when compared to the rest of the community effects and growth RSA. The areas closer to the Project Study Area have a larger percentage of Black or African American individuals in comparison to the county overall. The central section has a substantially larger percentage of overall minority population when compared to the county overall, and the areas closer to the Project Study Area have a larger percentage of Hispanic or Latino populations compared to the county as a whole. The southern section is also largely Hispanic or Latino, and the areas closer to the Project Study Area have a larger percentage of Hispanic or Latino individuals than the other areas of the community effects and growth RSA.

Socioeconomic Characteristics

As referenced in Table C.1-5 in Appendix C of this Final EA, all except one block group (Census Tract 7, Block Group 1) within the community effects and growth RSA have a higher percentage of households below the poverty level compared to the County as a whole. In general, the areas closer to the Project Study Area have larger percentages of households below the poverty level than the other areas within the community effects and growth RSA. Most block groups have unemployment percentages that exceed the county and city average; however, the unemployment percentages are generally higher in the northern section and west of the UP Fresno Subdivision tracks.

Housing Characteristics

As depicted in Figure 3.1-1 in Section 3.1, *Land Use and Planning*, there are low density, medium density, and high-density residential areas adjacent to the Project Study Area. Within the community effects and growth RSA, approximately 52.7 percent of existing housing units are single-family homes, and smaller multi-family units ranging from 2-9 units are the second highest housing unit type at 21.6 percent (US Census Bureau 2018). Overall, multi-units make up 46.5 percent of the total housing units. Similar to the employment patterns discussed above, the percentage of renter-occupied housing units within the community effects and growth RSA is higher than the county percentage in most block groups and higher to the west of the UP Fresno Subdivision tracks.

Other Population Characteristics

In addition to the community characteristics summarized above, the community within the community effects and growth RSA has other key population characteristics to note, which are discussed below.

TRANSIENT POPULATIONS

The community effects and growth RSA also includes a large unhoused transient population that inhabits the dry Mormon Slough that runs through the center of the community effects and growth RSA, just south and west of the Stockton Diamond. Generally, they are not located along the railroad corridor; however, depending on weather conditions, railroad maintenance activities, and other circumstances, their numbers and locations may vary east or west of the railroad corridor. These populations are not legally permitted to live in this location and may or may not have been counted by the US Census Bureau; however, these transient populations are large and would require relocation prior to and during Project construction.

Figure 3.2-4 illustrates the locations of the existing unhoused and transient encampments within the Mormon Slough. Generally, as the photo shows, the unhoused transient populations occupy the part of the slough area to the west of the existing UP Fresno main line tracks.

Figure 3.2-4: Existing Transient Population Homeless Encampments in the Mormon Slough

Growth Characteristics

Population

Although San Joaquin County's population growth rate has slowed in recent years, it has the 5th fastest forecasted growth rate among the counties in California and remains one of the one of the state's fastest growing regions (SJCOG 2018). Through 2060, San Joaquin County is projected to have an average 1.3 percent growth rate compared to the state and 0.6 percent compared to the nation. San Joaquin County also has a relatively young population compared to the state and nation, with those 19 years old and younger making up 30 percent and those 60 years and over making up 17 percent of the population in 2016. However, this is expected to average out between 2035 and 2040 (SJCOG 2018).

Between 2000 and 2010, the City of Stockton and San Joaquin County experienced their highest population growth rate at 1.8 percent per year, which was 1.0 percent more than the state average. The growth rate began declining after 2010 when in-migration slowed substantially. This also led to a reduction in the number of households, particularly in the downtown area (City of Stockton 2016).

As referenced in Table C.1-6 in Appendix C of this Final EA, San Joaquin County had a 37.3 percent increase in total population from 2000 to 2020 (DOF 2012; DOF 2020b). The City of Stockton grew at a slightly lower annual rate than San Joaquin County from 2000 to 2020, at 30.7 percent. Populations are projected to increase by 68.2 percent in San Joaquin County and 64.9 percent in Stockton between 2000 and 2035 (DOF 2012; DOF 2020b; SJCOG 2018). However, the percent change from 2020-2025 is projected to be 18.4 percent for San Joaquin County and 20.8 percent in the City of Stockton, which is significantly lower than the 20-year period from 2000-2020.

Housing

As referenced in Table C.1-7 in Appendix C of this Final EA, due to the recession in 2010, San Joaquin County experienced a decline in housing values, with construction permits bottoming out at fewer than 800 units in 2009. However, housing construction permits are now approaching the 2000-2015 historical average of 3,500 units per year (SJCOG 2018). According to DOF, single-family homes comprised approximately 78.2 percent of the total number of housing units in 2020 for San Joaquin County. San Joaquin County had an average household size of 3.23 persons per unit and a vacancy rate of 5.7 percent. The City of Stockton had a slightly smaller percentage of single-family homes (72.0 percent), a similar number of persons per household (3.26 persons), and a slightly higher vacancy rate (6.1 percent) than San Joaquin County as a whole (DOF 2020b).

Employment

As referenced in Table C.1-9 in Appendix C of this Final EA, the total number of civilian laborers employed in San Joaquin County increased by 25.6 percent from 2000 to 2020 while the City of Stockton had a slightly lower percent change from 2000 to 2020 (EDD 2021). However, based on the projection for 2035, the City of Stockton is expected to surpass San Joaquin's' growth rate (percent change from 2000-2035) for employment. Employment is projected to increase by 27.0 percent for San Joaquin County and 38.2 percent for the City of Stockton (US Census 2000, US. Census 2010; SJCOG 2018).

3.2.3 ENVIRONMENTAL CONSEQUENCES

This section compares the potential environmental effects on growth and community character and cohesion of the Project alternatives. It includes an analysis of the City of Stockton's ability to meet its goals and policies to support existing communities and future growth characteristics as it relates to population, housing, and employment needs within the community effects and growth RSA with the implementation of the Project.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no direct or indirect short-term effects on growth and the community would occur under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, population, housing, and employment growth trends would follow current projections; and future shifts related to socioeconomic and community characteristic and resources would follow current trends and projects identified in the City of Stockton's General Plan, Annual Budgets, and SJCOG's RTP/SCS. Therefore, no direct or indirect long-term effects on growth or the community would occur under the No Action Alternative

Project

Table 3.2-2 identifies BMPs that will be incorporated as part of the Project.

Table 3.2-2. Project Best Management Practices

Best Management Practices	Description
BMP COM-1	**Outreach and Engagement Plan.** SJRRC will actively coordinate with the City, County, and local stakeholder groups before and during Project construction to prepare and implement an Outreach and Engagement Plan to address the homeless encampments that are present within the Mormon Slough area. The Outreach and Engagement Plan will include input on goals and strategies from local stakeholder groups, as well as established goals and policies of the County's Community Response to Homelessness Strategic Plan. The Outreach and Engagement Plan will focus on a targeted proactive response for temporary and permanent relocation assistance for transient populations affected by the Project.

Short-term Effects

While the Project would not cause direct effects on the community, there would be indirect affects during construction to vehicular, bicycle, and pedestrian mobility and circulation within the community effects and growth RSA. However, the Project incorporates BMP TRA-7 (TMP), identified in Table 3.7-6 in Section 3.7, *Traffic and Transportation*. Therefore, no direct or indirect short-term adverse effects on mobility and circulation within the community effects and growth RSA would occur under the Project during construction.

Additionally, the Project would potentially provide temporary employment opportunities as a result of construction. It is anticipated that the majority of these jobs are expected to be filled by residents of the City and surrounding communities, and these temporary jobs would cease upon construction completion. Therefore, no direct or indirect short-term effects on growth are anticipated within the community effects and growth RSA under the Project.

Transient populations are not currently located within the UP ROW of the Mormon Slough where construction activities would occur; however, they are occupying areas outside the UP ROW adjacent to the Mormon Slough. It is not anticipated that transient populations would be directly affected during construction activities; and thus, would not require relocation. However, in the event these transient populations trespass and occupy areas within the UP ROW, they would be temporarily relocated with the incorporation of BMP COM-1 (Outreach and Engagement Plan), as identified in Table 3.2-2. With the incorporation of BMP COM-1, no direct or indirect short-term adverse effects on transient populations would occur within the community effects and growth RSA.

Long-term Effects

COMMUNITY CHARACTER AND COHESION

As stated under *Affected Environment*, community cohesion relates to the access to and usage of local businesses and facilities in the neighborhood and potential effects on community cohesion may include displacements of residents or businesses, physical barriers, or other effects that may affect the community's use of resources.

As discussed in Section 3.3, *Relocations and Real Property Acquisition*, of this Final EA, seven existing active businesses will require full acquisition and displacement as part of the Project. The remaining five parcels that would be fully acquired consist of one truck and RV parking lot uses or are currently vacant. Two parcels would be partially acquired as part of the Project. However, the partial acquisitions of these two parcels would not change the functionality of their existing use.

As discussed in Section 3.3, *Relocations and Real Property Acquisition*, of this Final EA, the Project's direct long-term moderate adverse effect on real property and relocations as a result of full and partial property acquisitions would be mitigated through the implementation of Measure MM RLC-1 (Relocation Assistance), which specifies that all displaced properties will be offered relocation assistance to set up operations in another location and there would be fair compensation for the loss of private industrial property.

Further, remnant portions of existing parcels may result from the permanent acquisition of existing parcels as part of the Project, which may result in indirect long-term moderate adverse effects in the absence of mitigation. These direct effects on real property from remnant properties would be mitigated through the implementation of Measure MM RLC-2 (Property Ownership and Agreement Coordination Efforts), which would require SJRRC to coordinate with the City of Stockton and UP to determine appropriate property ownership and establish agreements prior to the ROW acquisition process for these parcel remnants.

Thus, with the implementation of Measures MM RLC-1 (Relocation Assistance) and MM RLC-2 (Property Ownership and Agreement Coordination Efforts), no direct or indirect long-term adverse effects on real property would occur under the Project, and the implementation of the Project would also provide improved safety, accessibility, and mobility for residents within the community effects and growth RSA, improving long-term community character and cohesion. As a result, there would be direct and indirect long-term beneficial effects on the community, as it relates to community character and cohesion, under the Project.

Additionally, because the Project would construct a grade separation on an existing rail facility, it is not considered growth inducing. The Project would address current deficiencies in passenger and freight mobility and accommodate for current trends and projections identified in the City of Stockton's General Plan and SJCOG's RTP/SCS. Therefore, no direct or indirect long-term effects on growth are anticipated within the community effects and growth RSA, and no additional residential properties would be necessary to accommodate the implementation of the Project.

PROPERTY DISPLACEMENTS AND RELOCATIONS

As discussed in Section 3.3, *Relocations and Real Property Acquisition*, of this Final EA, seven existing active businesses will require full acquisition and displacement as part of the Project. Additionally, remnant portions of existing parcels may result from the permanent acquisition of existing parcels as part of the Project, which may result in indirect long-term moderate adverse effects in the absence of mitigation. However, with the implementation of Measures MM RLC-1 (Relocation Assistance) and MM RLC-2 (Property Ownership and Agreement Coordination Efforts), no direct or indirect long-term adverse effects on the community would occur, as it relates to property displacements and relocations, under the Project.

ECONOMIC EFFECTS

As discussed in Section 3.7, *Traffic, Transportation, Pedestrian, and Bicycle Facilities*, of this Final EA, although the Project would require permanent road closures of East Lafayette Street and East Church Street, current traffic volumes on East Lafayette Street and East Church Street are considered low, and the vehicles that would normally use these streets would be diverted to other nearby streets after Project completion. Further, all intersections affected by the Future Year (2045) traffic redistribution of East Lafayette Street and East Church Street would operate at an acceptable LOS after traffic is redistributed. Long-term traffic and circulation redistributions as a result of permanent road closures would be further addressed with the incorporation of BMP TRA-8 (CPUC GO 88B Diagnostic Review Process), which requires SJRRC to formalize all road closures as part of CPUC GO 88B diagnostic review process. The CPUC GO 88B diagnostic review process will include the evaluation of circulation for all modes of travel in coordination with the City of Stockton, CPUC, UP, and Caltrans, as well as evaluating potential permanent effects related to access for pedestrians, bicycles, automobiles, and trucks. With the incorporation of BMP TRA-8, no direct or indirect, long-term, adverse effects related to permanent road closures would occur under the proposed Project. Therefore, no long-term adverse effects related to employees getting to work at nearby businesses, would occur.

As discussed in Section 3.3, *Relocations and Real Property Acquisition*, of this Final EA, seven existing active businesses will require full acquisition and displacement as part of the Project. However, these active businesses will be relocated to other available commercial properties within the City. Thus, there would be no permanent loss of income to the City in relation to these relocated businesses. Although the City owned truck and RV parking lot would result in a loss of revenue for the City, and Caltrans would also experience a loss of income with the acquisition of the two truck and RV lots, these revenue losses would be minor when compared to the benefits of the Project. The Project would improve safety, accessibility, and mobility for residents in the community; thereby accommodating the City's future planned commercial and fiscal growth.

3.2.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for this resource topic; therefore, no specific community or growth-related mitigation measures are required.

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3.3 Relocations and Real Property Acquisition

This section describes the regulatory setting and affected environment for relocations and real property acquisition. In particular, the relocations and real property acquisition analysis focuses on the displacement and relocation of residences and/or businesses in the RSA for relocations and real property acquisition. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects due to relocations and real property acquisition during construction and operation of the Project. If short-term or long-term effects from relocations or real property acquisition are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects from relocations and real property acquisitions are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the relocations and real property acquisition RSA.

3.3.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of relocations and real property acquisitions is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. 4601-4655, 49 CFR Part 24)

State Plans, Policies, and Regulations

California Relocation Assistance Act and California Code of Regulations (Cal. Gov't Code 7260 et seq.)

Local Plans, Policies, and Regulations

There are no applicable local plans, policies, or regulations related to this resource topic.

A detailed discussion of the content under these applicable federal state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, in Appendix B of this Final EA, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.3.2 AFFECTED ENVIRONMENT

Definition of Resource Study Area

The RSA for effects on real property is limited to the Project Study Area as shown in Figure 3.3-1. The Project Study Area is defined as the area of short-term disturbance by the Project during construction activities, including staging and temporary construction easements (TCE), and the area where long-term changes to the existing alignment of the tracks would occur.

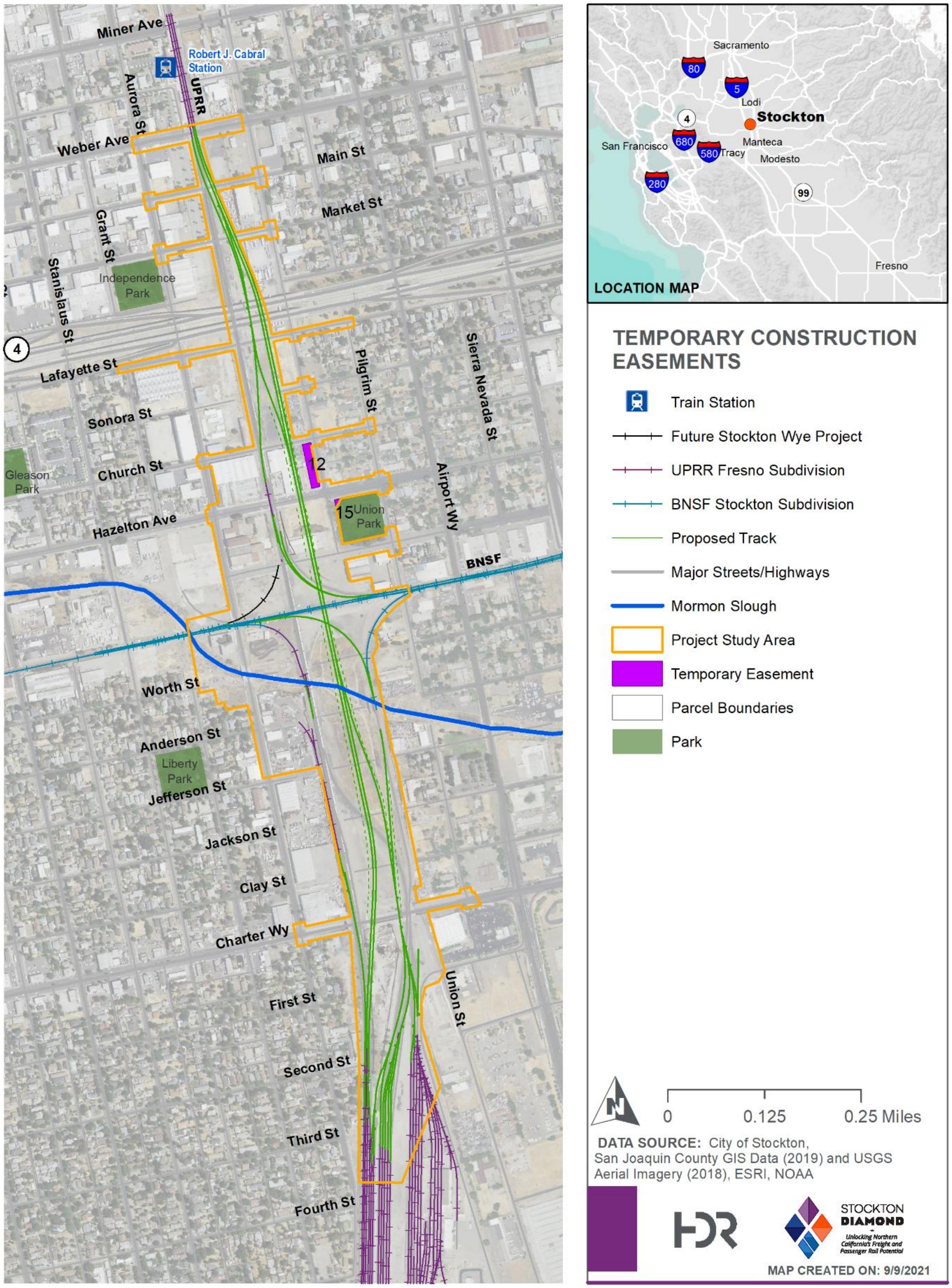
Methods for Data Collection and Analysis

Aerial imagery and design information were used to identify existing land uses and locations where property acquisition would result from the Project. Construction methods, right-of-way (ROW), and staging areas were reviewed to determine potential land use effects and any temporary or permanent property acquisitions.

Existing Setting

Please refer to Section 3.1, *Land Use and Planning*, and Section 3.2, *Community Effects and Growth* for a description of the existing land uses, neighborhoods, and economic setting within and surrounding the Project Study Area.

Figure 3.3-1: Temporary Construction Easements in the Real Property Resource Study Area



3.3.3 ENVIRONMENTAL CONSEQUENCES

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no short-term direct or indirect effects resulting from relocation or real property acquisitions are anticipated under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, no real property acquisitions would occur because the Project would not be implemented, and existing conditions would remain. Therefore, no direct or indirect long-term effects from relocation or real property acquisitions are anticipated under the No Action Alternative.

Project

Short-term Effects

Parcels 12 and 15 would need TCEs as part of the Project and are identified in Table 3.3-1 and shown in Figure 3.3-1.

Table 3.3-1: Temporary Construction Easements with the Project

Map ID	Property APN	Parcel Effects (ac)	Occupant Type	Zoned Land Use
12	15128004	0.34	Vacant Parcel	General Industrial
15	15128038	0.03	Union Park	Open Space

Note: ac=acre; APN=Accessors Parcel Number; ID=Identification

Union Park, which is in Parcel 15 and would require a TCE, is a park and recreation Section 4(f) resource. A full discussion of all potential Section 4(f) and 6(f) resources, which includes Union Park, is provided in Appendix D of this Final EA. All TCE areas would be restored to previous conditions once the Project's construction is complete; therefore, no direct or indirect short-term adverse effects on real property would occur during construction.

Long-term Effects

As shown in Table 3.3-2 and Figure 3.3-2, the Project will result in direct long-term moderate adverse effects due to 12 full acquisitions and two partial acquisitions of real property consisting of partially vacant parcels used for truck and RV parking and seven active businesses.

Table 3.3-2: Property Acquisitions with the Project

Map ID	Property APN	Type of Effect	Parcel Effects (ac)	Occupant Type	Zoned Land Use
1	15120209	Full Acquisition	0.85	Import Glass Corporation	Light/Limited Industrial
2	15124002	Partial Acquisition	0.03[1]	Truck, RV parking	Light/Limited Industrial
3	15124071	Full Acquisition	0.42	City of Stockton – Truck and RV parking	Light/Limited Industrial
4	15124067	Full Acquisition	0.35	Truck and RV parking	Light/Limited Industrial
5	15124068	Full Acquisition	0.35	Truck and RV parking	General Industrial
6	15124070	Partial Acquisition	0.01[2]	Truck, RV parking	General Industrial
7	15126003	Full Acquisition	0.57	Vacant Land	General Industrial
8	15126004	Full Acquisition	0.11	Overflow lot for Freedom Towing & Transport	General Industrial
9	15126034	Full Acquisition	0.69	Freedom Towing & Transport	General Industrial
10	15126035	Full Acquisition	0.34	Lopez Truck Repair	General Industrial
11	15128003	Full Acquisition	1.76	Ramirez Auto Body & Paint/ Morales Auto Repair	General Industrial
13	15128036	Full Acquisition	1.31	Vacant Parcel	General Industrial
14	15128035	Full Acquisition	0.70	Airgas (currently vacant)	General Industrial
16	16902004	Full Acquisition	3.38	Camco Recycling	General Industrial

Note: ac=acre; APN=Accessors Parcel Number; ID=Identification
[1] The remaining acreage for the partial acquisition of APN 15124002 is 0.66 acre
[2] The remaining acreage for the partial acquisition of APN 15124070 is 0.17 acre

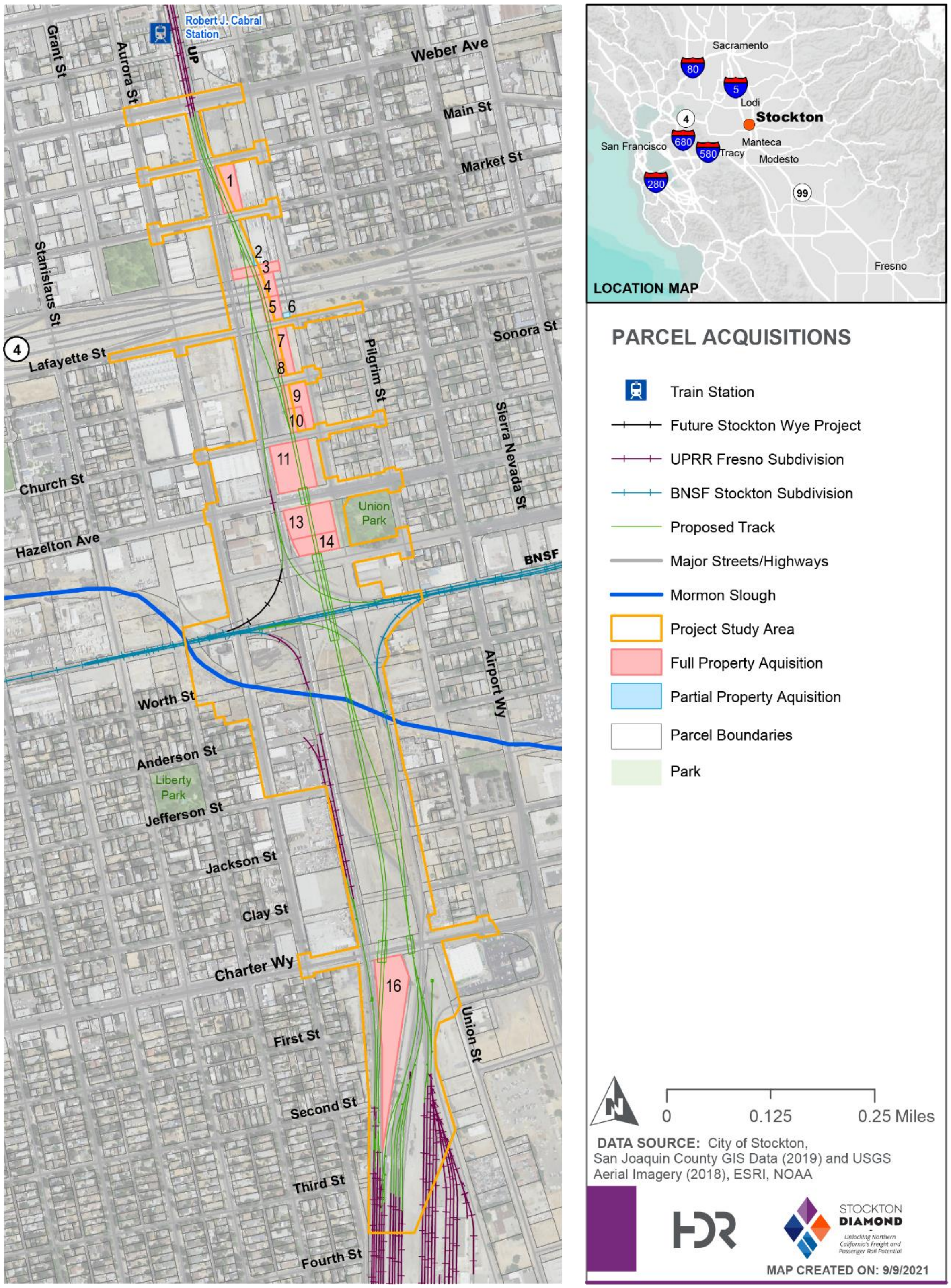
Seven existing active businesses (Map IDs 1, 8, 9, 10, 11, 14, and 16) will require full acquisition and displacement as part of the Project. The remaining five parcels that would be fully acquired (Map ID: 3, 4, 5, 7, and 13) consist of one City owned truck and RV parking lot, two Caltrans owned truck and RV parking lots, one privately owned truck and RV parking lot that appears to not be operational, and a vacant lot. Map IDs 7 and 13 have no existing businesses located on the property that would require relocation. The City owned truck and RV parking lot would result in a loss of revenue for the City. Caltrans would also experience a loss of income with the acquisition of the two truck and RV lots.

Additionally, there are two parcels (Map IDs 2 and 6) that would be partially acquired as part of the Project. However, the partial acquisitions of these two parcels would not change the functionality of their existing use. The Project's direct long-term moderate adverse effect on real property and relocations as a result of full and partial property acquisitions would be mitigated through the implementation of Measure MM RLC-1 (Relocation Assistance), which specifies that all displaced properties will be offered relocation assistance to set up operations in another location and there would be fair compensation for the loss of private industrial property. With the implementation of Measure MM RLC-1, the Project would be compliant with the Uniform Relocation Assistance and Real Property Acquisition Policies Act and the California Relocation Assistance Act.

Remnant portions of existing parcels may result from the permanent acquisition of existing parcels as part of the Project, which may result in indirect long-term moderate adverse effects in the absence of mitigation. These direct effects on real property from remnant properties would be mitigated through the implementation of Measure MM RLC-2 (Property Ownership and Agreement Coordination Efforts), which would require SJRRC to coordinate with the City of Stockton and UP to determine appropriate property ownership and establish agreements prior to the ROW acquisition process for these parcel remnants. Implementation of Measure MM RLC-2 would help avoid the potential of moderate adverse effects from large open space areas becoming voids in the Downtown area fabric.

Based on the discussion above, with the implementation of Measures MM RLC-1 and RLC-2, no direct or indirect long-term adverse effects on real property would occur as a result of the Project.

Figure 3.3-2: Acquisitions in the Real Property Resource Study Area



3.3.4 MITIGATION MEASURES

The following mitigation measures associated with relocations and real property acquisition(s), will be applied to the Project.

MM RLC-1 **Relocation Assistance.** During final design, SJRRC will ensure that the loss of private industrial property be mitigated by payment of fair market compensation and provision of relocation assistance in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. For these non-residential displacements, the following would be provided to business operators:

- Relocation advisory services
- Minimum 90 days written notice to vacate prior to acquisition
- Reimbursement for moving and reestablishment expenses

MM RLC-2 **Property Ownership and Agreement Coordination Efforts.** During final design SJRRC will ensure coordination with the City and UP to determine appropriate property ownership and establish agreements prior to the ROW acquisition process. Options to address property ownership may include, but not be limited to:

- Continuing City ownership and maintenance of the street corridors with permanent easements required for the railroad corridor; or
- SJRRC and/or railroad company ownership and maintenance of the properties within the railroad corridor with either SJRRC or private ownership of adjacent remnant parcels. Public Utility easements would be necessary for this option.

3.4 Parks and Recreation and Section 4(f) Resources

This section describes the regulatory setting and affected environment for parks and recreation. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on parks and recreation during construction and operation of the Project. Section 3.4.5 summarizes the analysis supporting whether the Project will result in a use under Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. 303(c)) (Section 4(f)). If short-term or long-term effects on parks, recreation, or Section 4(f) resources are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects are parks, recreation, or Section 4(f) resources, mitigation measures (if necessary) will be identified to mitigate these effects on resources within the parks and recreation and Section 4(f) resources RSA.

3.4.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of parks and recreation and Section 4(f) resources is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC 303, 23 USC 138, 23 CFR Part 774)

Section 6(f) Land and Water Conservation Fund Act (PL 88-578, 16 USC 460l-4-460l-11)

State Plans, Policies, and Regulations

California Public Park Preservation Act of 1971 (Cal PCR 5400 et seq.)

Local Plans, Policies, and Regulations

San Joaquin County General Plan

Goal LU-8: Protect open space for its recreational, agricultural, safety, and environmental value and provide adequate parks and open space areas throughout the County.

Goal LU-8.1: The County shall limit, to the extent feasible, the conversion of open space and agricultural lands to urban uses and place a high priority on preserving open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water resource protection, and overall community benefit.

City of Stockton General Plan

Policy LU-5.2: Protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources from encroachment or destruction by incompatible development.

Policy LU-6.3: Ensure that all neighborhoods have access to well-maintained public facilities and utilities that meet community service needs.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.4.2 AFFECTED ENVIRONMENT

This section defines the parks and recreation RSA and describes the methods used to determine the effects of Project construction and operation on parks and recreation. Additionally, information from the *Section 4(f) and 6(f) Evaluation (*Appendix D of this Final EA) was used to identify and evaluate effects to public recreational properties and historic resources subject to the protection of Section 4(f).

Definition of Resource Study Area

As shown in Figure 3.4-1, the RSA for effects on parks, recreation, and public facilities encompasses a 1,000-foot buffer, which includes the Project Study Area and the surrounding areas adjacent to the Project Study Area. This accounts for potential direct and indirect effects on access to and from recreational facilities during Project construction and operation. This is the same RSA used to identify park and recreation resources protected by Section 4(f). The area of potential effect (APE) used for the Section 106 process, described in Section 3.9 of this Final EA, is the RSA for historic resources protected by Section 4(f).

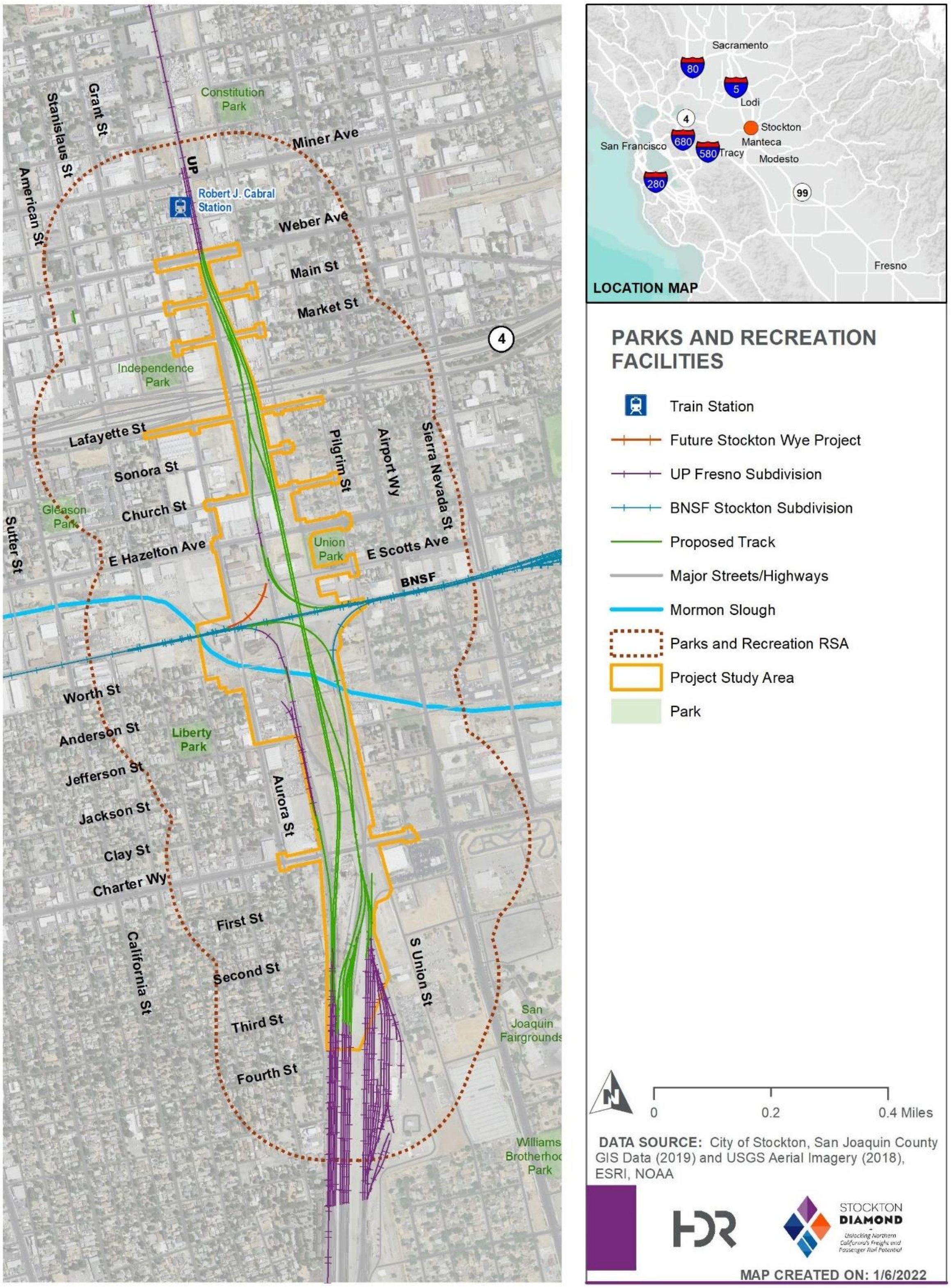
Methods for Data Collection and Analysis

For the analysis, GIS data and aerial imagery were collected on parks and recreation facilities within the parks and recreation RSA. Potential effects from construction and operation of the Project on these resources were evaluated through the following methods:

- Aerial imagery from Google Earth and collection of GIS data from the City of Stockton to identify parks and recreation facilities within a 1,000-foot radius of the Project Study Area (that is, the RSA)
- GIS analysis to measure the distance of the parks and recreational facilities from the Project Study Area and the proposed tracks
- Analysis of the construction methods, rights-of-way, and staging areas to identify if there would be any access barriers

- Evaluation of temporary construction easement locations and construction activity that could affect the community use of parks and recreational facilities
- Analysis of the requirements for all plans, policies, and regulations listed in the regulatory context noted above.

Figure 3.4-1. Parks and Recreation Facilities



Existing Setting

This section describes the existing parks, recreational facilities, public facilities, and Section 4(f) properties. Figure 3.4-1 depicts the location of parks, recreational facilities, and public facilities within the RSA.

The following parks and recreational facilities overlap with the RSA:

- **Independence Park:** Independence Park is located at East Market Street and wraps around South Grant Street, Washington Street, and Aurora Street. The park consists of a grassy open space. This park is located approximately 380 feet west of the Project Study Area.
- **Union Park:** Union Park is located between East Hazelton Avenue, South Union Street, South Pilgrim Street, and East Scotts Avenue. The park consists of a grassy open space. A portion of the park is located within the Project Study Area.
- **Gleason Park:** Gleason Park is located on East Sonora Street and east of California Street. It is adjacent to Spanos Elementary School. The park consists of a grassy open space and playground area for young children. This park is located approximately 800 feet west of the Project Study Area.
- **Liberty Park:** Liberty Park is located between East Anderson Street, South Stanislaus Street, South Grant Street, and East Jefferson Street. The park consists of a grassy open space, playground for young children, basketball court, and small walking trail within the perimeter of the park. This park is approximately 340 feet west of the Project Study Area.
- **San Joaquin County Fairgrounds:** The San Joaquin County Fairgrounds are located at 1658 South Airport Way. They provide a large area for community events including music concerts, carnivals, and food and local exhibits. More specific events include the annual San Joaquin County Fair, Delta Speedway, California Central Valley Archery, Open Air Market, Stockton Dirt Track, Go Cart Track, and Soccer for Kids. The fairgrounds are located approximately 850 feet east of the Project Study Area.

3.4.3 ENVIRONMENTAL CONSEQUENCES

This section describes potential environmental consequences on parks and recreation facilities that could result from implementing the No Action Alternative and the Project.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented, and there would be no Project-related construction activities. Thus, no direct or indirect short-term effects would occur under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented, the parks and recreational facilities within the parks and recreation RSA would continue to operate as they currently do, and no use of Section 4(f) properties would occur. Thus, no direct or indirect long-term effects would occur under the No Action Alternative.

Project

Short-term Effects

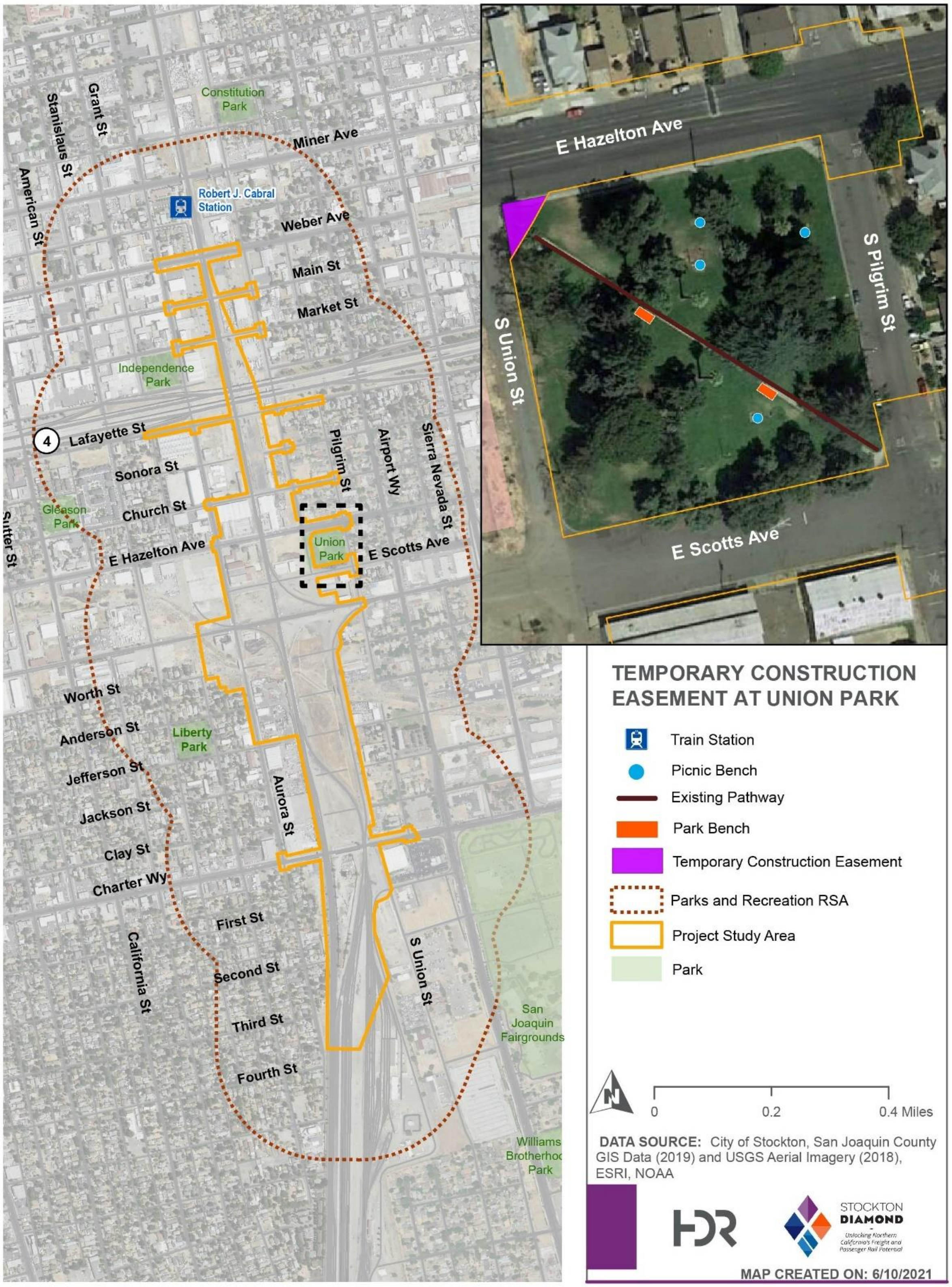
As discussed in Section 3.8, *Visual and Aesthetics*, short-term adverse effects would occur due to the presence of construction equipment and staging areas near Union Park and adjacent to other recreational facilities. However, these effects are considered temporary in nature and would cease upon completion of construction. Additionally, short-term light pollution and glare during construction would only occur during night construction, when recreational users would not be present. Therefore, no direct or indirect short-term adverse effects on visual aesthetics would occur in relation to park and recreational users as a result of the Project.

During construction, the Project would require a 0.03-acre (1,316 square feet) TCE in the northwest corner of Union Park, located in the southeast quadrant of the intersection between East Hazelton Avenue and South Union Street, to construct the underpasses at East Hazelton Avenue and East Scotts Avenue, as shown in Figure 3.4-2. This TCE would provide temporary construction access to East Hazelton Avenue during the construction of the underpass over a 2- to 3-month period due to required full street closures of East Hazelton Avenue and East Scotts Avenue. Access to the existing facilities or features at Union Park would not be directly affected during construction.

Although, closures on East Hazelton Avenue and East Scotts Avenue would not occur at the same time in order to maintain traffic flow and uninterrupted access to Union Park throughout Project construction, access to Independence Park, located in the southwest quadrant of South Aurora Street and East Market Street, would be affected temporarily by the closure of South Market Street during construction.

These indirect, short-term, adverse effects related to access to parks and recreational facilities during construction will be minimized with the incorporation of BMP TRA-2 (Construction Transportation Plan), BMP TRA-4 (Pedestrian Construction Management Plan), and BMP TRA-7 (TMP), which are provided in Table 3.7-6 in Section 3.7, *Traffic and Transportation/Pedestrian and Bicycle Facilities*. Additionally, indirect short-term adverse effects on these parks and recreational facilities would occur due to potential noise, vibration, and dust generated during construction. These indirect, short-term, adverse effects will be minimized with the incorporation of BMP AQ-1 (Compliance with EPA's Tier 4 Exhaust Emission Standards) and BMP AQ-2 (Fugitive Dust), which are provided in Table 3.13-2 in Section 3.13, *Air Quality*, and BMP NV-1 (Noise Control Plan) and BMP NV-2 (Vibration Control Plan), which are provided in Table 3.14-4, in Section 3.14, *Noise and Ground-borne Vibration*. With the incorporation of the BMPs identified above, no direct or indirect short-term adverse effects on parks and recreation resources would occur under the proposed Project.

Figure 3.4-2. Temporary Construction Easement at Union Park



Long-term Effects

After construction of the Project is completed, the affected area of the park property would be returned to its prior condition, and no permanent modifications to Union Park's recreational features would occur. Further, access to and from all recreational properties would not be permanently impeded. Although changes to the existing visual setting would occur, as discussed in Section 3.8, *Visual and Aesthetics*, the Project would not alter the current level of visual quality and would be consistent with the visual quality of the Visual and Aesthetics RSA. Potential long-term adverse effects will be minimized with the incorporation of BMP AES-1 (Lighting Plan), BMP AES-2 (Coordinate Design Elements to Reduce Visual Effects), and BMP AES-3 (Street Tree Planting), identified in Table 3.8-1 in Section 3.8. In the long-term, construction of the flyover structure would enhance the design coherence of the Project corridor and result in an overall beneficial effect with the removal of railroad and industrial artifacts along the railroad corridor that currently degrade the visual quality of the area. Therefore, no direct or indirect, long-term, adverse effects on parks and recreation would occur under the Project.

3.4.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified under parks and recreation; therefore, no specific parks and recreation mitigation measures are required.

3.4.5 SECTION 4(F)

This section provides the analysis to support CHSRA's preliminary determinations to comply with the provisions of Section 4(f). Under Section 4(f), an operating administration of USDOT may not approve a transportation project that uses protected properties unless there are no prudent or feasible alternatives to such use and the project includes all possible planning to minimize harm to such properties or if the use would have a *de minimis* impact on the property. Section 4(f) protected properties are publicly owned lands of a park, recreation area, or wildlife and waterfowl refuge or a historical site, publicly or privately owned, that is listed or determined eligible for listing in the National Register of Historic Places (NRHP). There are two Section 4(f) resources within the Project Study Area: Union Park and the Stockton Downtown Commercial Historic District.

SECTION 4(F) ANALYSIS FOR UNION PARK

Union Park would be the only park and recreation Section 4(f) resource affected by the Project, due to the TCE required for access. For the purposes of Section 4(f), this TCE would be considered a temporary occupancy exception of use of the park property, consistent with 23 CFR 774.13(d). On April 9, 2021, SJRRC and CHSRA sent the City of Stockton, the official with jurisdiction (OWJ) over the property, a letter requesting concurrence with the preliminary determination that the TCE at Union Park would be considered a temporary occupancy exception of use of the park property and not result in a Section 4(f) use of Union Park. The concurrence letter from the City of Stockton was received on September 9, 2021. The City of Stockton's written concurrence has been used by CHSRA in its preliminary determination of temporary occupancy exception of Section 4(f) use for Union Park. For a detailed discussion of all potential Section 4(f) and 6(f) resources, refer to the *Section 4(f) and Section 6(f) Evaluation* in Appendix D of this Final EA.

SECTION 4(F) ANALYSIS FOR THE STOCKTON DOWNTOWN COMMERCIAL HISTORIC DISTRICT

There are five historic properties and one historic district within the cultural resources APE under Section 106 of the National Historic Preservation Act that also qualify for protection under Section 4(f) as historic properties. Refer to Appendix D, *Section 4(f) and Section 6(f) Evaluation,* of this Final EA for additional information regarding these six properties protected under Section 4(f). For a historic property, Section 4(f) allows CHSRA to make a *de minimis* impact determination if CHSRA determines that, in accordance with the Section 106 process, the Project would have no effect or no adverse effect on historic properties, has received written concurrence from the OWJ over the property, and has taken into account the views of consulting parties to the Section 106 process as required by 36 C.F.R. Part 800. The California State Historic Preservation Officer (SHPO) is the OWJ over these six historic properties.

Of the six properties, the Stockton Downtown Commercial Historic District would be the only historic Section 4(f) resource affected by the Project due to temporary construction areas proposed in the eastern edge of the district necessary for utility relocation, protection in place, and/or removal, as described in Appendix D. All modifications to utilities would be conducted within the public ROW and there would be no permanent encroachment into the district or construction activity within any historic property boundary of the district's contributing buildings. In accordance with the Section 106 process and after consultation with interested Native American tribes, on December 9, 2021, SHPO agreed with the project finding of "no adverse effect" (FOE) as detailed in Section 3.9 of this Final EA. For the purposes of Section 4(f), CHSRA has used SHPO's written concurrence in the FOE to preliminarily determine that the TCE for utilities in the Stockton Downtown Historic District would have *de minimis* impacts. On April 11, 2022, CHSRA informed SHPO, per CFR 774.5(b)(1), of its intent to make a preliminary *de minimis* impact determination based on SHPO's December 9, 2021, concurrence on the Section 106 finding of "no adverse effect."

For a detailed discussion of all potential Section 4(f) properties, refer to the *Section 4(f) and 6(f) Evaluation* in Appendix D of this Final EA.

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3.5 Environmental Justice

This section describes the regulatory setting and affected environment for environmental justice (EJ) communities, which consist of low-income populations and minority populations. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on these EJ communities during construction and operation of the Project. If short-term or long-term effects on EJ communities are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to EJ communities are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the EJ RSA.

The preliminary EJ analysis and determination were previously released for public comment pursuant to 23 USC Section 327 and the terms of the NEPA Assignment Memorandum of Understanding (FRA and State of California 2019.) Thereafter, SJJRC continued to conduct EJ outreach and engagement as reflected in this Final EA.

The data used in the analysis are derived from the 2018 dataset of the US Census Bureau ACS 5-Year Estimates and presented in Section 3.2, *Community Effects and Growth*, and Appendix C of this Final EA.

3.5.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of EJ is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Title VI of the Civil Rights Act (42 U.S.C. 2000d et seq)

Federal Actions to Address EJ in Minority Populations (Executive Order 12898)

Presidential Memorandum Accompanying (Executive Order 12898)

Actions to Address EJ in Minority Populations and Low-Income Populations (US Department of Transportation Order 5610.2c)

Improving Access to Services for Persons with Limited English Proficiency (Executive Order 13166)

State Plans, Policies, and Regulations

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601-4655)

California Government Code 11135(a)

Local Plans, Policies, and Regulations

There are no local applicable plans, policies, or regulations related to this resource topic.

A detailed discussion of the content under the applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with the applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal and state plans, policies, and regulations identified.

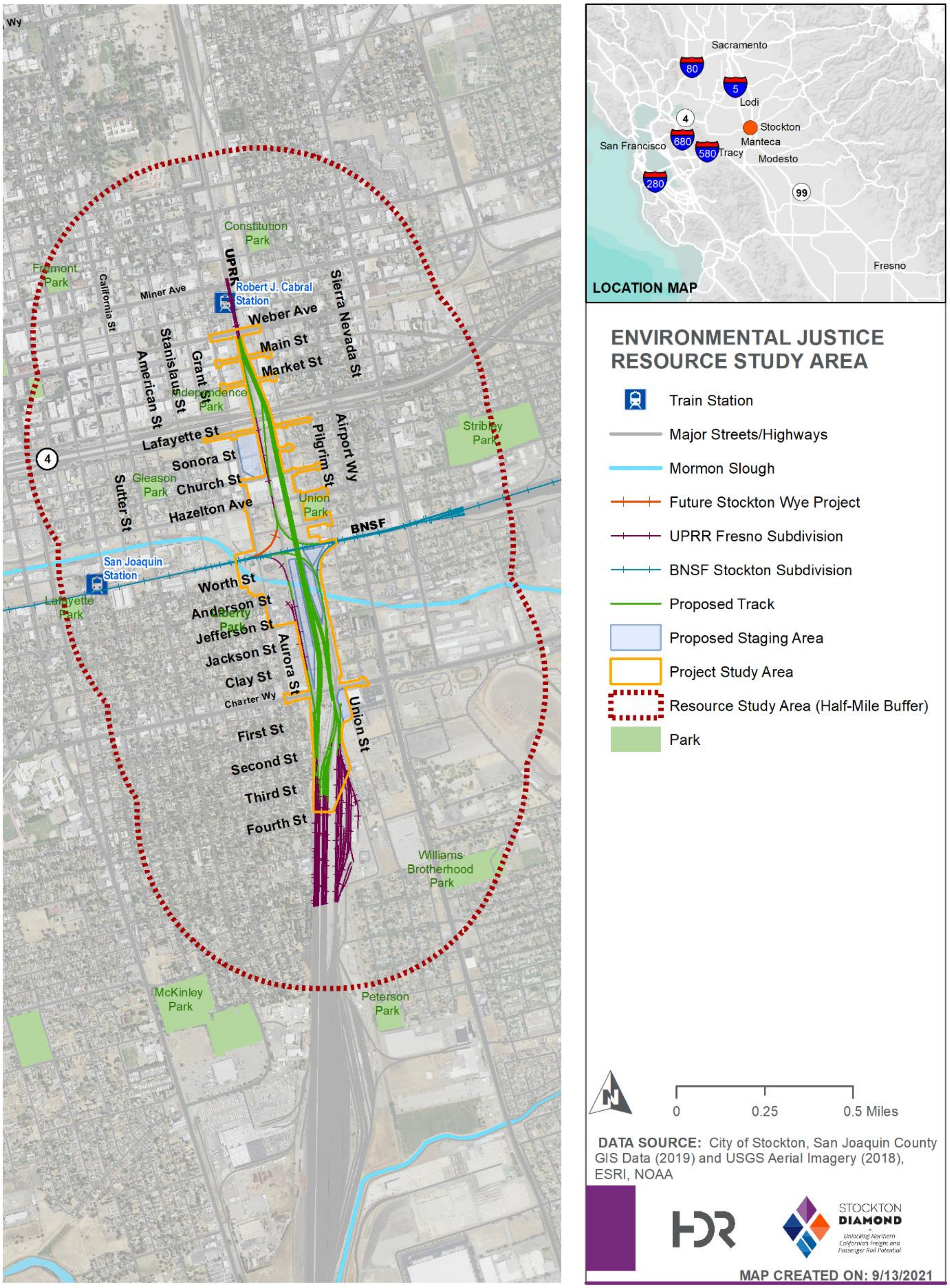
3.5.2 AFFECTED ENVIRONMENT

The evaluation of effects on minority populations and low-income populations is a federal requirement of EO 12898, as defined in Section 3.5.1. The following sections summarize the RSA and the methods used to analyze effects on minority populations and low-income populations.

Definition of Resource Study Area and Reference Community

For the environmental justice analysis, the EJ RSA for direct, indirect, and cumulative effects on minority populations and low-income populations is defined as all US Census Bureau census tract block groups that fall partially or completely within a 0.5-mile radius of the Project Study Area (see Table 3.2-1 and Figure 3.2-1 in Section 3.2, *Community Effects and Growth*). The EJ RSA is located entirely within the City of Stockton. For this analysis, San Joaquin County is defined as the reference community, with which Project effects within the EJ RSA are compared to identify the potential for disproportionately high and adverse effects borne by minority populations and low-income populations in the City of Stockton.

Figure 3.5-1: Environmental Justice Resource Study Area



Methods for Analysis of Effects on Minority Populations and Low-Income Populations

Definitions

As identified in the EJ Guidance under NEPA (FHWA 2011) and USDOT Order 5610.2c (USDOT 2021), SJRRC and CHSRA used the following definitions in the environmental justice analysis:

- Minority Individuals are defined as members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black; or Hispanic.
  - Minority population is considered readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons who will be similarly affected by a proposed DOT program, policy, or activity.
  - Minority populations should be identified where either:
    - The minority population of the affected area exceeds 50 percent.
    - When the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (i.e., reference community).
- Low-income refers to a person whose median household income is at or below the Department of Health and Human Services (DHHS) poverty guideline.
- Low-income population is considered any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed or transient persons who will be similarly affected by a proposed DOT program, policy, or activity.

Data Collection and Identification of Minority Populations and Low-Income Populations

In order to determine if an EJ population would be disproportionately and adversely effected by the Project, the existence and location of EJ populations within the EJ RSA must first be determined. For each of the 22 census tract block groups within the EJ RSA (see Table 3.5-1**.**) and for San Joaquin County, data on low-income and minority populations were obtained from the US Census Bureau's ACS 2018 5-Year Estimates. To support the analysis, GIS data illustrates the percentages of minority populations and low-income populations for potential EJ populations within the EJ RSA. Additional information on local community resources was collected and mapped using GIS.

Effects Analysis

Based on the definitions above, the following analysis defines EJ populations as census block populations that meet either of the following criteria:

- A minority population of the affected area exceeds 50 percent
- When the median household income for an affected community or census tract is below the 2018 US DHHS Poverty Guideline income of $25,100 (DHHS 2018)

Once minority populations and low-income populations are identified and an EJ analysis is required, a determination must be made as to whether there would be a disproportionately high and adverse effect on human health or the environment. This requires comparing the burdens and benefits that would be experienced by EJ populations with the burdens and benefits that would be experienced by non–EJ populations. US DOT Order 5610.2c (US DOT 2021), defines a disproportionately high and adverse effect as one that would meet either of the following characteristics:

- The adverse effect would be predominantly borne by a minority or low-income population
- The adverse effect suffered by the minority or low-income population would be appreciably more severe

To determine the potential for the Project to result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations, the Project effects discussed in the resource sections in Section 3, *Affected Environment, Environmental Consequences, and Mitigation Measures*, were reviewed, and the likelihood of any of these effects to affect minority populations and low-income populations was assessed. The EJ effect analysis also considers the USDOT Order 5610.2c definition of adverse effects, which are the totality of significant individual or combined negative environmental, human health effects of DOT activities.

A review of the temporary construction and permanent operational effects of the Project was conducted, and the magnitude of the effects, whether effects are adverse or beneficial, the duration of effects (temporary or permanent), and the geographic location of the effects on the identified minority populations and low-income populations within the RSA were identified.

Where the Project would result in no adverse effects on populations in general, and thereby not disproportionately affecting minority populations and low-income populations, no further analysis was conducted.

Whether adverse effects would be disproportionately high and adverse includes the consideration of the totality of:

- The location of adverse effect in relation to minority populations and low-income populations
- The severity of the adverse effect and the success of the proposed mitigation measures in reducing the effect
- Whether mitigation measures reduce effects equally for both minority populations and low-income populations as for non-minority populations and non-low-income populations
- The benefits that minority populations and low-income populations would receive from the Project

Existing Setting

This section provides overall demographic information for the County as the reference community and EJ RSA, and a more detailed presentation showing the distribution of minority populations and low-income populations in the EJ RSA.

Minority Populations

According to the 2018 ACS 5-Year Estimate data, San Joaquin County has a total of 732,212 residents, 67.6 percent of whom are part of one or more minority groups, that is, they do not consider themselves non-Hispanic white of only one race. The population within the RSA is 26,402, and 91.9 percent of these residents consider themselves as part of one or more minority groups. Hispanic/Latino residents comprise 41.1 percent of the county population and 70.9 percent of the RSA population. Table 3.5-1 provides the racial and ethnic breakdown of the county and EJ RSA populations.

As referenced in Table C.1-4 in Appendix C of this Final EA, all 22 census tract block groups that comprise the EJ RSA exceed the 50-percent minority population threshold described in Section 3.5.2 and are also significantly greater than the county as the reference community (67.6 percent) with a range of 68.2 percent to 100 percent minority population and an overall 92.9 percent minority population within the RSA. Therefore, all census tract block groups—the entirety of the EJ RSA—are considered to have an EJ minority population.

Table 3.5-1: Race and Ethnicity Characteristics in San Joaquin County and the Resource Study Area

Race / Ethnicity	San Joaquin County		Resource Study Area	
	Total Estimate	Percentage of Population	Total Estimate	Percentage of Population
Total Population	732,212	100.0%	26,402	100%
White alone, non-Hispanic	237,887	32.4%	2,137	8.1%
Black or African American alone, non-Hispanic	49,926	6.8%	2,863	10.8%
Asian alone, non-Hispanic	110,164	15.0%	2,211	8.4%
Other 1	32,979	4.5%	480	1.8%
Hispanic or Latino (all races)	301,256	41.1%	18,711	70.9%

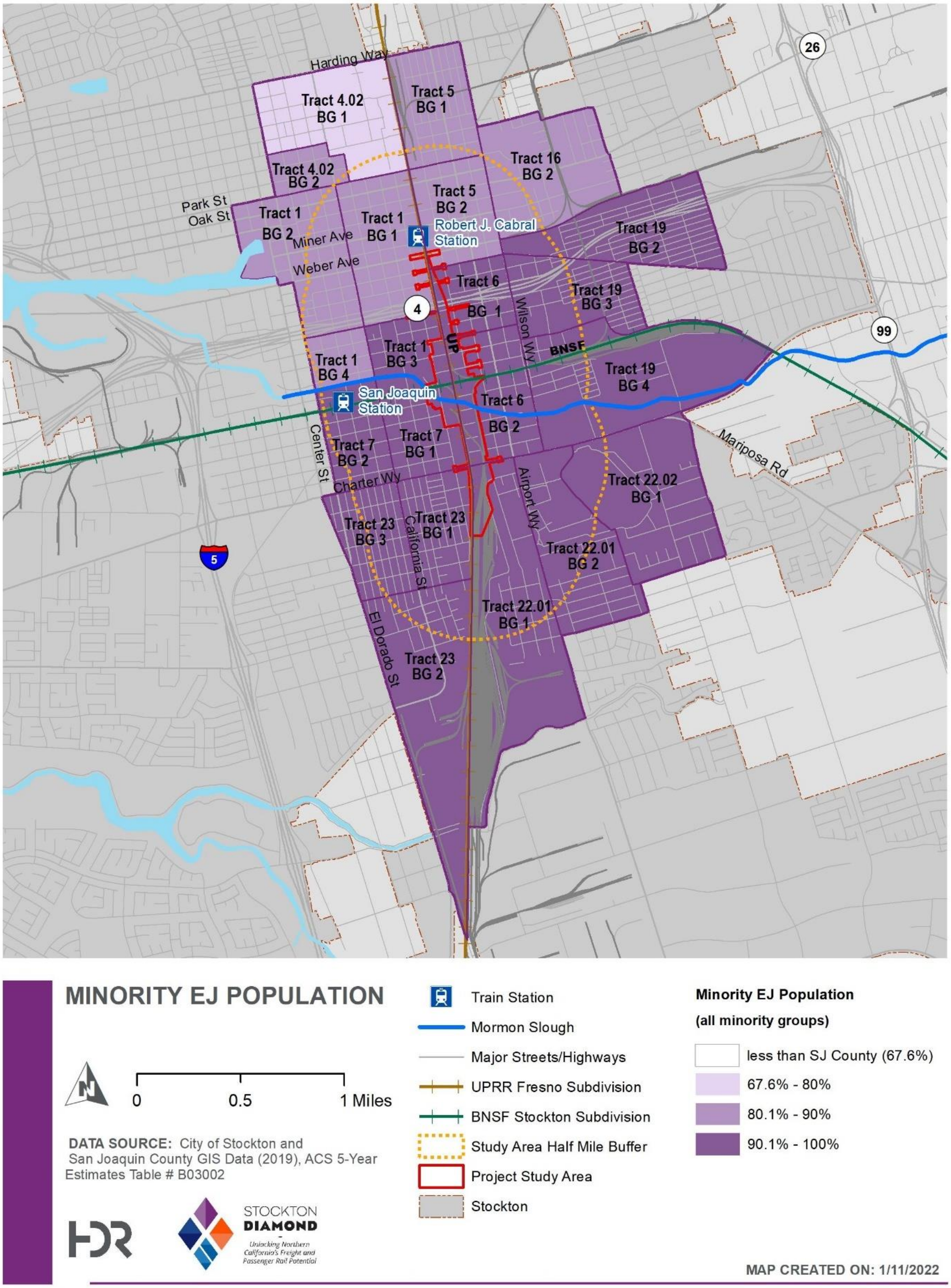
Source: US Census Table B03002 2018 ACS 5-Year Estimates Table

[1] "Other" includes non-Hispanic Native Hawaiian and Other Pacific Islander alone, non-Hispanic American Indian and Alaska Native alone, non-Hispanic Some other race, and non-Hispanic Two or more races.

Figure 3.5-2 provides a visual representation of the locations of these census tract block groups and to what degree the minority percentages exceed the County threshold. As shown in Figure 3.5-2 and illustrated in Table C.1-4 in Appendix C of this Final EA, the northern section of the RSA has slightly lower percentages of minority populations compared to the balance of the RSA.

The data in Table C.1-4 in Appendix C of this Final EA also shows that all except three census tract block groups have percentages of Hispanic or Latino populations that exceed the County percentage of 41.4 percent, revealing that the Project is located in a predominantly Hispanic/Latino community. Higher percentages of Hispanic or Latino persons reside closer to SR 4 and the southern section of the RSA. Twelve of the 22 census tract block groups also have percentages of Black or African American populations that exceed the County percentage of 6.8 percent.

Figure 3.5-2: Minority EJ Populations in Resource Study Area



Low-Income Populations

As defined previously, low-income refers to a person whose median household income is at or below the DHHS 2018 poverty guideline which is $25,100 for a household of four. Table 3.5-2 (DHHS 2018). The County has a median income of $61,145 per the 2018 ACS 5-year estimates. The third column in Table 3.5-2 shows that 10 census blocks have households that are below the DHHS 2018 poverty guideline. Therefore, within the RSA, these 10 census blocks are considered to have low-income EJ populations, as shown in in Table 3.5-2. Figure 3.5-3 illustrates the locations of each of these census tract block groups and which have lower median incomes than the DHHS 2018 poverty guideline.

Table 3.5-2: Low-Income Environmental Justice Population in the Resource Study Area

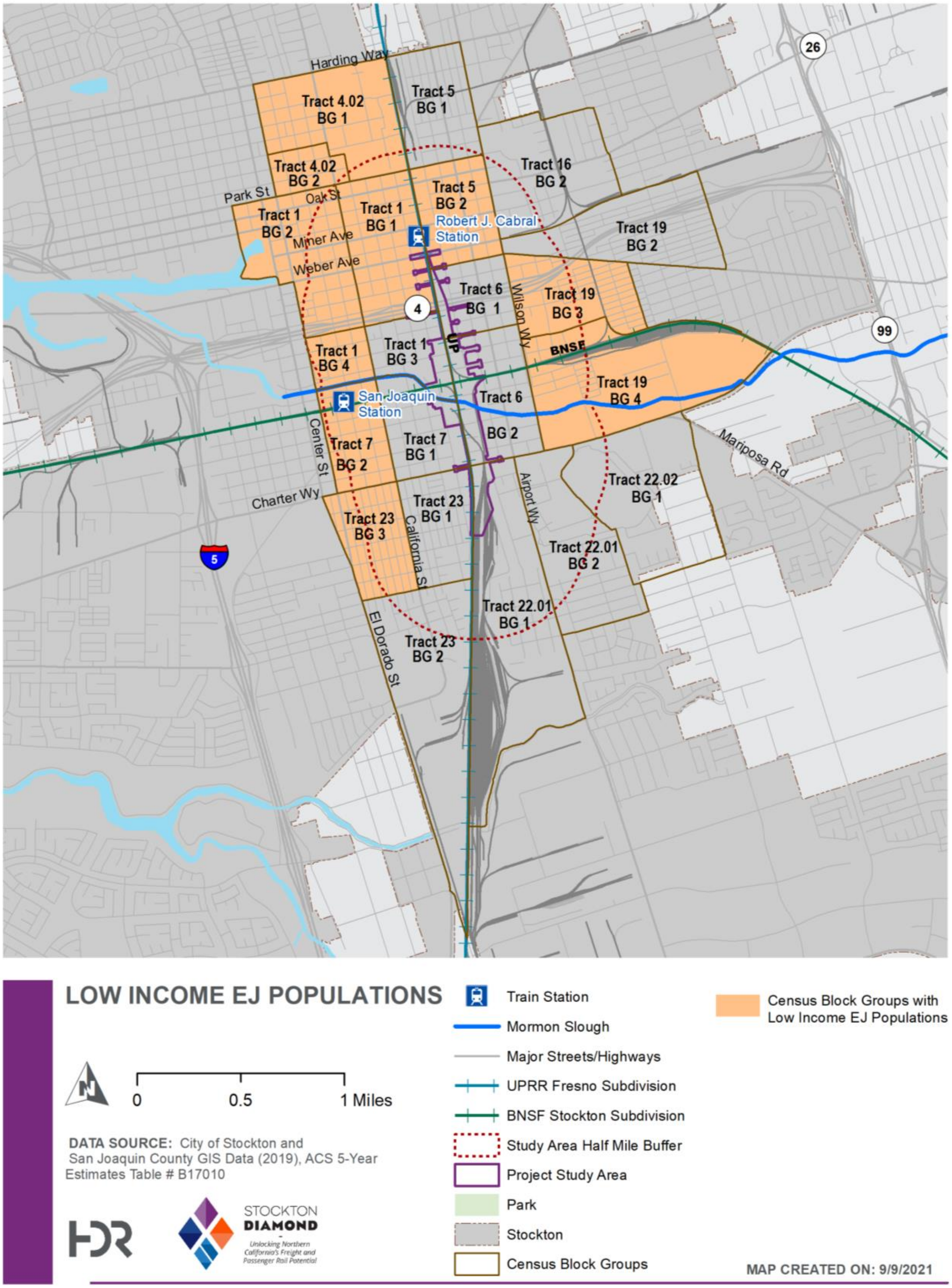
Poverty	Median Household Income	Above DHHS 2018 Poverty Guidline ($25,100)	Low-Income EJ Population
CT 1 / BG 1	$15,457	No	**Yes**
CT 1 / BG 2	$13,766	No	**Yes**
CT 1 / BG 3	$45,500	Yes	No
CT 1 / BG 4	$12,240	No	**Yes**
CT 4.02 / BG 1	$14,714	No	**Yes**
CT 4.02 / BG 2	$13,963	No	**Yes**
CT 5 / BG 1	$30,427	Yes	No
CT 5 / BG 2	$22,188	No	**Yes**
CT 6 / BG 1	$26,429	Yes	No
CT 6 / BG 2	$27,917	Yes	No
CT 7 / BG 1	$27,406	Yes	No
CT 7 / BG 2	$21,914	No	**Yes**
CT 16 / BG 2	$34,397	Yes	No
CT 19 / BG 2	$27,194	Yes	No
CT 19 / BG 3	$24,667	No	**Yes**
CT 19 / BG 4	$24,706	No	**Yes**
CT 22.01 / BG 1	$33,971	Yes	No
CT 22.01 / BG 2	$25,185	Yes	No
CT 22.02 / BG 2	$51,000	Yes	No
CT 23 / BG 1	$39,900	Yes	No
CT 23 / BG 2	$43,182	Yes	No
CT 23 / BG 3	$23,550	No	**Yes**

Source: US Census Table B19013 2018 ACS 5-Year Estimates; DHHS 2018

Note:

1. *DHHS= Department of Health and Human Services*

Figure 3.5-3: Low-Income EJ Populations in the Resource Study Area



Other Indications of Minority Populations and Low-Income Populations in the RSA

Limited English Proficiency

Within the county, 26.0 percent of the households speak Spanish, and 20.6 percent of the Spanish-speaking households are considered LEP households. Overall, 8.3 percent of the county households are considered LEP households (not just Spanish-speaking households). The communities that surround the Stockton Diamond have a high percentage of residents that speak Spanish compared to San Joaquin County as a whole. In the EJ RSA, 51.1 percent of the households speak Spanish, as per the 2018 ACS 5-year estimate, and 38 percent of these Spanish-speaking households are considered 'limited English proficiency" households, meaning that they speak English "not very well" or "not at all." In the RSA, 22.8 percent of all households are considered LEP households (not just Spanish-speaking households).

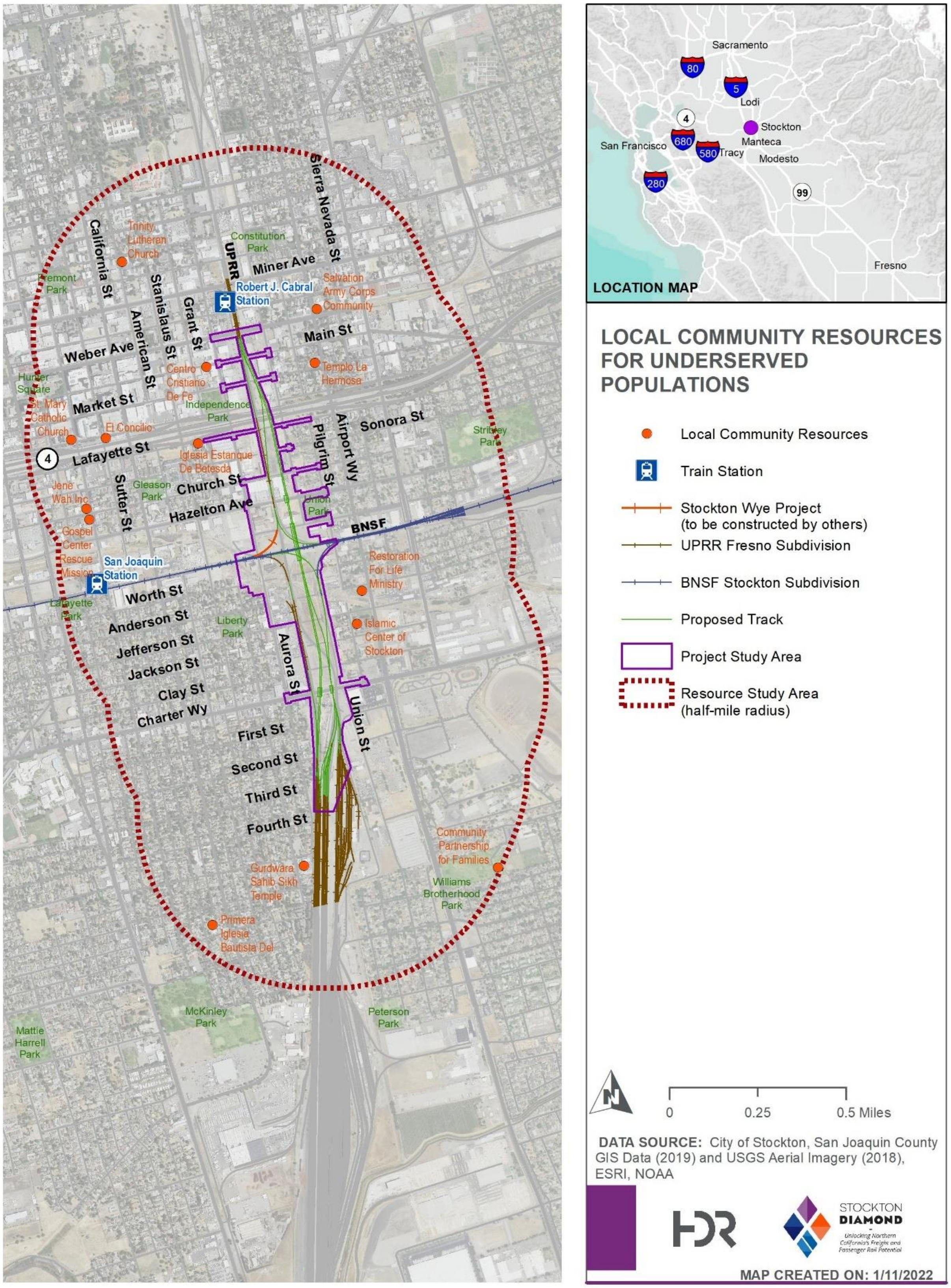
Community Resources

In the EJ RSA, there are a number of community resources that provide community gathering places or neighborhood services for traditionally underserved populations—typically minority populations and low-income populations. The dispersion of these resources, which include faith-based and social service organizations, is shown in Figure 3.5-4.

Transient Populations

The EJ RSA also includes a large unhoused transient population that inhabits the dry Mormon Slough that runs through the center of the RSA just south and west of the Stockton Diamond. These populations are not legally permitted to live in this location and may or may not have been counted by the US Census Bureau; however, as transient populations, they are protected by the provisions of EJ per USDOT Order 5610.2c (USDOT 2021). Figure 3.2-4 in Section 3.2 shows the locations of the existing homeless encampments within the Mormon Slough. Generally, as the photo shows, the unhoused transient populations are occupying the part of the slough to the west of the existing UP Fresno Subdivision main line tracks.

Figure 3.5-4: Community Resources for Underserved Populations in Resource Study Area



3.5.3 ENVIRONMENTAL JUSTICE ENGAGEMENT

This section describes the ongoing outreach activities used to engage the local community in the planning and assessment of the Project's environmental effects. Although in-person outreach efforts as part of the EIR were curtailed due to COVID 19 mandates, the Project team ensured that project information was made available and accessible to minority populations and low-income populations, including the RSA EJ populations, as well as transient populations within and adjacent to the Project Study Area. A summary of outreach efforts conducted as part of the EIR is provided below.

Stakeholder Outreach

Prior to the split of the Draft EIR/EA and in accordance with CEQA requirements, a formal public scoping process was conducted as a part of the EIR to build awareness of the Project. With EJ populations within the Project Study Area in mind, a multilingual Communications Plan was developed at the Project's inception to identify opportunities for public engagement and input throughout the planning and environmental review process. This Communication Plan, which has also been used for the basis to meet requirements under NEPA for the EA process, focuses on delivering a multi-faceted communications program to reach and engage diverse audiences effectively. A central component of the Communications Plan is a database that identifies and maintains a diverse list of regional and local stakeholders; organizations; project partners who may be interested, affected, and influential; and property owners and/or occupants who reside within the area of the Project alignment. The combined contacts not only receive information about the Project but were also asked to partner with the Project team to disseminate valuable information to priority populations, such as EJ or transient populations. Communication with the Project contacts has continued through a variety of tools such as in-person discussions, presentations, distribution of media alerts or electronic information blasts, and other Project related materials.

The following is a summary of environmental justice outreach efforts for EJ and transient populations conducted for the Project during the EIR process.

On Aug. 19, 2020, SJRRC issued a NOP of an EIR with a 45-day public comment period, an additional 15 calendar days from the normal 30-day period, to allow additional time for stakeholders and members of the public to provide their input on the Project. Due to the global pandemic and the Governor's stay-at-home orders/health mandates at that time, three scoping public meetings (one in Spanish only) and one Stakeholder Working Group meeting were held virtually via WebEx to solicit feedback from the public and key stakeholders (who represent RSA EJ populations) on the scope of the EIR environmental analysis. In addition, several bilingual public engagement tactics were developed to raise awareness, including alerts on the Project's website and an informational hotline, posts on SJRRC/ACE social media platforms, media releases, ads, mailers, electronic notices, and ongoing coordination via telephone interviews and virtual briefings with key community leaders to identify ways to help reach and engage with priority populations within the Project Study Area.

A total reach of over 275,000 community members was achieved through the following efforts:

- 16 bilingual social media posts on three platforms and 1 bilingual social media advertisement
- 11 electronic notices (eight from the Project, one from the Latino Times publication, and two from San Joaquin Joint Powers Authority (SJJPA to ACE ridership)
- 6,065 mailers distributed to the Project's contact database (regional stakeholders, property owners, and occupants within a 1-mile radius)
- Two advertisements, one in the Stockton Record and Vida en el Valle (People of color population: Latino) each
- Three press releases distributed to 235 media outlets (including 25 multilingual outlets) resulting in 11 earned articles

During the scoping period, comments could be submitted through several different mediums to provide convenience to participants. Electronic comment submittal was established through the bilingual website, email, and bilingual virtual public meetings. For equity purposes, comments were also able to be submitted via hard copy mailers or voicemail on the Project bilingual informational hotline.

To raise awareness of the availability of the Draft EIR for public review and comment, several notices and other activities were undertaken pursuant to CEQA requirements. All communications were implemented in English and Spanish and included the following:

- Two Notice of Availability (NOA) publication advertisements: Stockton Record and Vida en el Valle (People of color population: Latino)
- One press release distributed to 235 media outlets including 25 multilingual outlets
- Eight bilingual, standard social media posts (included four boosted posts) on three platforms and one bilingual social media advertisement
- Eight email blasts to the Project's stakeholder database containing 600 contacts (134 were stakeholders who work with priority populations within the Project Study Area)
- One email blast to the Latino Times (People of color population: Latino) database containing over 100,000 readers
- Multiple email blasts to ACE ridership of 600 contacts
- 5,463 mailers with a perforated comment card were distributed to the Project contact database (regional stakeholders, property owners, and occupants within a 1-mile radius of the Project Study Area)
- A bilingual poster with comment cards displayed at 13 priority population repositories and stakeholder locations in Stockton (see list below). The poster was also emailed to the Project's stakeholder database to help post via their locations and established online tools
    - Cafe Coop – 42 N Sutter Street #208, Stockton, CA (People of color population: Latino)
    - Catholic Charities Stockton – 1106 N El Dorado Street, Stockton, CA (Low-income, seniors, transient/homeless and people of color populations: Latino)

  - Cesar Chavez Central Library – 605 N El Dorado Street, Stockton, CA (Low-income and people of color populations: Asian and African American)
  - Community Partnership for Families: Dorothy L. Jones/CUFF Family Resource Center – 2044 Fair Street, Stockton, CA (Low-income and people of color populations: Latino and African American)
  - Fair Oaks Library – 2370 E Main Street, Stockton, CA (Low-income and people of color populations: Latino and African American)
  - Huddle Cowork by Launch Pad – 110 N San Joaquin Street. 2nd Floor, Stockton, CA (People of color populations: Latino and African American)
  - In-Season Market – 215 E Alpine Avenue, Stockton, CA (General population)
  - Maya Angelou Branch Library – 2324 Pock Lane, Stockton, CA (General population)
  - Bishop Bridges, Restoration for Life Ministries – 1234 E Anderson Street, Stockton, CA (Low-income and transient/homeless populations)
  - San Joaquin County Administration Building – 44 N San Joaquin Street, Stockton, CA (General population)
  - Stockton City Hall – 425 N El Dorado Street, Stockton, CA (General population)
  - Margaret Troke Library – 502 W Benjamin Holt Drive, Stockton, CA (General population)
  - Weston Ranch Branch Library – 4606 McCuen Avenue, Stockton, CA (General population)
- A mass text alert sent from a local Stockton realtor and friend of an SJRRC employee to 3,128 local property owners within the Project Study Area. The Project team confirmed there were no privacy violations prior to the text being sent on April 20, 2021

The Draft EIR was also made available on the Project and SJRRC websites, (https://stocktondiamond.com/), on CD if requested, and printed copies of the Draft EIR (along with comment cards) were available for review at:

- Catholic Charities Diocese of Stockton – 1106 N. El Dorado Street, Stockton, CA (Low-income, seniors and transient/ homeless and people of color populations: Latino)
- Café Coop – 42 N Sutter Street, Stockton, CA (People of color population: Latino)
- El Concilio – 445 N San Joaquin Street, Stockton, CA (People of color population: Latino)
- Bishop Bridges, Restoration for Life Ministries – 1234 Anderson Street, Stockton, CA (Low-income and transient/homeless populations)
- San Joaquin Regional Rail Commission – 949 E Channel Street, Stockton, CA (General population)
- California High Speed Rail Authority – 770 L Street, Suite 620, Sacramento, CA (General population)
- Stockton City Hall – 425 N El Dorado Street, Stockton, CA (General population)
- San Joaquin County Administration Building – 44 N San Joaquin Street, Stockton, CA (General population)

In an effort to reach all interested and potentially affected public members during the Draft EIR public comment period, as well as allow convenient participation in a safe environment while social distancing due to continued COVID-19 mandates, the Project team identified additional engagement opportunities, including:

- Hosting a bilingual virtual public meeting on April 6, 2021, in both English and Spanish concurrently.
- Developing a bilingual Citizen's Guide to serve as a quick reference about the Project including local benefits, key findings of the Draft EIR, and details on how to comment. The guide condensed and streamlined very technical information with simplified content and graphics to tell the story to the public visually. An electronic copy was distributed to key stakeholders so they could help disseminate it to priority populations. The electronic Citizen's Guide was also posted on the Project's bilingual website and social media. Hardcopies of the guide were also place at the eight repository locations (listed above) and eight additional locations throughout Stockton (listed below).
    - Fair Oaks Library – 2370 E Main Street, Stockton, CA (Low-income and people of color populations: Latino and African American)
    - Cesar Chavez Central Library – 605 N El Dorado Street, Stockton, CA (Low-income and people of color populations: Asian and African American)
    - Margaret Troke Library – 502 W Benjamin Holt Drive, Stockton, CA (General population)
    - Weston Ranch Branch Library – 4606 McCuen Avenue, Stockton, CA (General population)
    - Maya Angelou Branch Library – 2324 Pock Lane, Stockton, CA (Low-income and people of color populations: Latino, Spanish-speaking and African American)
    - In-Season Market – 215 E Alpine Avenue, Stockton, CA (General population)
    - Community Partnership for Families – Dorothy L. Jones/CUFF Family Resource Center: 2044 Fair Street, Stockton, CA (Low-income and people of color populations: Latino and African American)
    - Huddle Cowork by Launch Pad – 110 N San Joaquin Street, 2nd floor, Stockton, CA (People of color populations: Latino and African American)

During release of the Draft EIR for the Project, the Project team also hosted five virtual stakeholder forums (see below). These stakeholder meetings were timed to provide opportunities for two-way communications at key environmental milestones. While presentations were incorporated into these meetings, all participants were encouraged to ask questions and provide comments both through the virtual meetings application as well as by telephone.

- Downtown Stockton Alliance (Small and Spanish-speaking businesses) – Virtual presentation on March 17, 2021, to give an overview of the Project and a summary of the Draft EIR's key findings
- Rise Stockton (Homeless/transient and people of color populations: Latino) – Virtual presentation on April 15, 2021, to give an overview of the Project and a summary of the Draft EIR's key findings

- Stockton Rotary (Local businesses and professional leaders) – Virtual presentation on April 21, 2021, to give an overview of the Project and a summary of the Draft EIR's key findings
- Catholic Charities Healthy Neighborhood Collaborative (Environmental Justice population) – Virtual presentation on April 21, 2021, to remind attendees that there was still time to submit input and provide information on how to comment
- San Joaquin Partnership (Local businesses and local governmental officials) – Virtual presentation on April 22, 2021, to remind attendees that there was still time to submit input and provide information on how to comment.

In addition, through operation of the Project's bilingual informational hotline, updates to and monitoring of the Project bilingual website, and regular engagement through bilingual social media posts, the community was provided a range of opportunities to continue engagement throughout the environmental process. That said, 84 comments were submitted during the 45-day project scoping public comment period, some of which included comments on environmental justice, community benefits, and business displacements.

SJRRC understands the importance of public input; therefore, the Project team went above and beyond the required outreach requirements to engage the aforementioned community groups throughout the environmental process so that populations that included people of color, low income, seniors, transient/homeless, etc. were represented throughout the public outreach and Stakeholder Working Group process.

Feedback from stakeholder outreach events and comments solicited during the 45-day Draft EIR public circulation period identified the following key concerns:

- Traffic, circulation, and access in the Project Study Area during construction and operation
- Long-term air quality and climate change effects with the implementation of the Project
- Changes in visual quality within and adjacent to the Project Study Area as a result of the Project
- Short-term and long-term effects on EJ communities and transient communities in the Project Study Area as a result of the Project
- ROW acquisitions and types of relocations required as part of the Project
- Planned communication strategies and additional efforts to meet with stakeholder and partner agencies through all stages of the Project to provide feedback.

Consistent with the requirements of NEPA, SJRRC continued the same outreach and engagement efforts, as conducted during the previous milestones, and implemented the following activities throughout the EA process:

- Coordinated Facebook Live event with reporter Alejandra Quezada from Telemundo (People of color populations: Latino) television media outlet
- Displayed bilingual poster and comment card at additional priority population locations:
    - Stockton Diocese Parishes:
        - Cathedral of Annunciation – 425 W. Magnolia (General population)
        - St. Mary of the Assumption – 203 E. Washington (Low income and people of color populations: Latino and Spanish-speaking)
        - St. George Church – 120 W. Fifth (General and people of color populations: Latino)
        - St. Gertrude Church – 1663 E. Main Street (Low income and people of color populations: Latino and Spanish-speaking)
        - Zion Lutheran Church – 808 Porter Avenue (General population)
    - Local Businesses, Community Centers, Shelters:
        - La Raza Market – 1201 E. Market Street (Low-income and people of color populations: Spanish-speaking)
        - Los Dos Carnales Meat Market – 1149 E. Market Street (Low-income and people of color populations: Spanish-speaking)
        - Stribley Community Center – 1760 E. Sonora Street (Low-income and people of color populations: Spanish-speaking)
        - The Barrow Foundation – 719 E. Market Street (Low-income, transient/homeless and people of color populations: Latino)
        - Salvation Army – 1305 E. Weber Avenue (Low-income and transient/homeless populations)
        - Gospel Center Rescue Mission – 224 S. San Joaquin Street (Low-income and transient/homeless populations)
        - Stockton Shelter for the Homeless – 411 S. Harrison Street (Low-income and transient/homeless populations)
        - Emergency Food Bank – 7 W. Scotts Avenue (Low-income and transient/homeless populations)
        - Interfaith Food Bank – 2209 E. Main Street (Low-income and transient/homeless populations)
        - El Concilio Food Bank – 234 Fremont Street (Low-income and transient/homeless and people of color populations: Spanish-speaking)

    - Pentecostal Church of Jesus Christ – 24 Grant Street (Low-income and transient/homeless and people of color populations: Latino)
    - Restoration for Life Ministries – 234 E Anderson Street (Low-income and transient/homeless populations)
  - Transit Stations:
    - Amtrak San Joaquins Stockton Station – 735 South San Joaquin Street (General population, but location is mostly low income and people of color populations: African American, Latino and Spanish-speaking)
    - Altamont Corridor Express Station – 949 E. Channel Street (General population)
    - San Joaquin Regional Transit District Stations
      - Downtown Transit Center – 421 E. Weber Avenue (General population, but location is mostly low income and people of color populations: African American, Latino and Spanish-speaking)
      - Hammer Triangle Station – N. Lower Sacramento Road and Thornton Road (General population, but location is mostly low income and people of color populations: African American, Latino and Spanish-speaking)
      - Mall Transfer Station – Pacific Avenue (General population, but location is mostly low income and people of color populations: Latino and African American)
      - Union Transfer Station – Union Street (General population, but location is mostly low income and people of color populations: Latino and African American)
- Hosted several enagement opportunties to inform and engage with priority population including:
  - A Stakeholder Working Group Meeting prior to the release of the Draft EA for public circulation (members represent priority population within the Project Study Area)
  - A Neighborhood Meet and Greet at La Raza Market during the public circulation period of the Draft EA – 1201 E. Market Street (General population, but location is mostly low income and people of color populations: Latino)
  - A Public Open House at Stribley Community Center during the public circulation period of the Draft EA – 1760 E. Sonora Street (General population, but location is mostly low income and people of color populations: Spanish-speaking)

3.5.4 ENVIRONMENTAL CONSEQUENCES

This section summarizes potential adverse effects of the No Action Alternative and the Project on human health and environmental resources. The majority of the EJ RSA includes minority populations and low-income populations; therefore, the EJ analysis focuses on general community effects and benefits. Specific locations of Project effects for the purpose of identifying potentially disproportionately high and adverse effects are limited, and included where possible, since the communities have similar demographic compositions in the RSA. After considering the totality of the adverse effects, beneficial effects, and cumulative effects, a determination is made whether the Project would result in a disproportionately high and adverse effect on minority populations and low-income populations.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented and none of the Project improvements would be developed. Therefore, no direct or indirect short-term effects from construction would affect the community, which is predominately comprised of RSA EJ populations. No disproportionately high and adverse effects on EJ populations would occur in the RSA under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented and none of the Project components would be developed. While there would be no long-term effects as a result of Project effects to the EJ populations in the RSA, there would also be no benefits to these EJ communities. Freight and passenger rail trains would continue to experience delays due to conflicts at the Stockton Diamond. Existing roadway-rail crossings would continue to function as they currently do, with lengthy gate-down time affecting local mobility and circulation. Safety at the crossings would not improve. Therefore, direct or indirect long-term effects would occur on the community, which is predominately comprised of RSA EJ populations. As a result, disproportionately high and adverse effects on EJ populations may occur in the EJ RSA under the No Action Alternative.

Project

Short-term Effects

COMMUNITY EFFECTS AND GROWTH

As discussed in Section 3.2, *Community Effects and Growth*, no direct short-term effects on residents would occur within the community effects and growth study area, which is primarily comprised of RSA EJ populations. Additionally, indirect short-term adverse effects on access, as it relates to mobility and circulation within the community effects and growth RSA, would be minimized with the incorporation of BMP TRA-7, in Table 3.7-6, of Section 3.7, *Traffic and Transportation/Pedestrian and Bicycle Facilities*.

Further, as discussed in Section 3.2, *Community Effects and Growth*, even though transient populations are not currently located within the UP ROW of the Mormon Slough where construction activities would occur, they occupy areas outside the UP ROW adjacent to the Mormon Slough. Transient populations are not anticipated to be directly affected during construction activities and would not require relocation. However, in the event that these transient populations trespass and occupy areas within the UP ROW, they would be temporarily relocated with the incorporation of BMP COM-1 (Outreach and Engagement Plan), which involves SJRRC working with local human services agencies to identify options and assist with transitions prior to the start of and during construction activities. The Outreach and Engagement Plan will be guided by the Communication Plan's goals and objectives to identify target audiences, risk(s), and strategies with SJRRC and SJJPA as partnering agencies. This specifically includes the affected transient populations.

The Project's location is fixed as it would separate the existing at-grade crossing of the UP and BNSF tracks to address the needs and current deficiencies of the existing at-grade Stockton

Diamond crossing. Therefore, the location of the Project cannot be located in another location to address this specific deficiency on the existing rail facility. Although the Project's minimal short-term burdens on community effects and growth would be predominately experienced by the local minority communities and low-income communities within the EJ RSA, on balance, the burdens would be outweighed by the overall long-term benefits such as reduced local congestion, improved air quality, and improved safety, which would predominately benefit the same RSA EJ populations as a result of the Project. As such, the Project would not result in disproportionately high or direct or indirect short-term adverse effects on mobility and access, as well as growth in the community, which is predominately comprised of RSA EJ populations. Therefore, no disproportionately high and adverse effects on EJ populations would occur within the RSA as it relates to short-term community effects. Indeed, the Project will reduce historical burdens on the RSA EJ populations. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

RELOCATIONS AND REAL PROPERTY ACQUISITION

As discussed in Section 3.3, *Relocations and Real Property Acquisition*, no short-term adverse effects would occur as a result of the Project requiring TCEs on one vacant parcel and a portion of Union Park during construction, as all TCE areas temporarily affected at Union Park would be restored to previous condition once Project construction is complete and the community's access to and use of the recreational features at Union Park, which would include RSA EJ populations, would not be affected during construction activities.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed and the long-term benefits of the Project would outweigh the minimal short-term effects related to TCE areas.

Therefore, the Project would not result in disproportionately high and direct or indirect short-term effects on the community, which is predominately comprised of RSA EJ populations. No disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to short-term relocations and real property acquisitions. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

PARKS AND RECREATION

As shown in Figure 3.4-2 of Section 3.4, *Parks and Recreation and Section 4(f) Resources*, Union Park would require a TCE that would occupy the northwest corner of the park to accommodate park adjacent construction activities for the East Hazelton Avenue underpass. As previously stated, the area affected by a TCE would be restored to pre-construction conditions and construction activities would not directly affect existing access to or use of the park facilities.

Specifically, with the Project's incorporation of BMP TRA-2 (Construction Transportation Plan), BMP TRA-4 (Maintenance of Pedestrian Access), BMP TRA-5 (Maintenance of Bicycle Access), and BMP TRA-7 (Transportation Management Plan), identified in Table 3.7-6, in Section 3.7, *Traffic and Transportation/Pedestrian and Bicycle Facilities*) no indirect short-term adverse effects to users of Union Park and other nearby recreational facilities would occur. The community's access to and use of the recreational features at Union Park, which would include RSA EJ populations, would not be adversely affected during construction activities.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed, and the minimal short-term effects related to Union Park recreational features would be outweighed by the overall long-term benefits of the Project. Therefore, the Project would not result in disproportionately high or direct or indirect short-term adverse effects on the community related to parks and recreation, which is predominately comprised of RSA EJ populations. No short-term disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to parks and recreation. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

HAZARDOUS WASTE AND MATERIALS

As discussed in Section 3.12, *Hazardous Waste and Materials*, construction would involve the handling, storage, transport, and disposal of hazardous materials, as well as ground disturbance and structure demolition. The use of hazardous materials, ground disturbance, and demolition could cause an accidental release posing a hazard to construction employees, the public, and the environment. Therefore, as identified in Table 3.12-2 in Section 3.12, *Hazards and Hazardous Materials*, the Project incorporates BMP HAZ-1 (Construction Hazardous Materials Management Plan), BMP HAZ-2 (Phase I and II Environmental Site Assessments), BMP HAZ-3 (General Construction Soil Management Plan), BMP HAZ-4 (Parcel-Specific Soil Management Plans and Health and Safety Plans), BMP HAZ-5 (Project Construction Health and Safety Plan), BMP HAZ-6 (LUST Site Coordination with DTSC), BMP HAZ-7 (Halt of Construction), and BMP HAZ-8 (Pre-Demolition Investigation). These BMPs will minimize the potential risk of accidental releases so that the Project would not result in direct or indirect short-term adverse effects on the community, which is predominately comprised of RSA EJ populations.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed, and the minimal short-term effects related to construction-related use, storage, transport, and disposal of hazardous materials and ground disturbance would be outweighed by the overall long-term benefits of the Project.

Therefore, no short-term disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to hazards and hazardous materials. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

AIR QUALITY

As discussed in Section 3.13 (and incorporated herein), *Air Quality*, the Project would result in adverse air quality effects during construction. Therefore, as identified in Table 3.13-2 in Section 3.13, *Air Quality*, the Project incorporates BMP AQ-1 (Compliance with EPA Tier 4 Exhaust Emission Standards), BMP AQ-2 (Fugitive Dust Control Plan), and BMP AQ-3 (Compliance with Stockton Community Emissions Reduction Program), to reduce potential air pollution exposure on sensitive receptors within the RSA so that the Project would not result in direct or indirect short-term adverse effects on the community, which is predominately comprised of RSA EJ populations.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal short-term effects from construction-related adverse air quality effects would be outweighed by the overall long-term benefits of the Project.

Therefore, no disproportionately high and adverse effects on RSA EJ populations would occur in the RSA as it relates to short-term air quality. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

NOISE AND GROUND-BORNE VIBRATION

As discussed in Section 3.14, *Noise and Ground-borne Vibration*, the potential for noise effects would be greatest during structures work at locations where pile driving is required for bridge construction. Therefore, as identified in Table 3.14-4 in Section 3.14, *Noise and Ground-borne Vibration*, the Project incorporates BMP NV-1 (Noise Control Plan) and BMP NV-2 (Vibration Control Plan) to ensure that the City of Stockton's standards will not be violated during construction of the Project and to reduce the effects of temporary construction-related vibration on nearby vibration-sensitive land uses.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal short-term effects from construction-related noise and vibration would be outweighed by the overall long-term benefits of the Project.

Therefore, the Project would not result in direct or indirect short-term adverse effects on the community, which is which is predominately comprised of RSA EJ populations. No disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to short-term noise and vibration. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

GEOLOGY AND SOILS

As discussed in Section 3.11, there is a possibility for earthquake-induced liquefaction to occur at the Project site. Additionally, much of the Stockton area is underlain by expansive soils that exhibit moderate shrink-swell potential and near-surface soils at the Project site are anticipated to consist of expansive clay. Therefore, with the incorporation of BMPs GEO-1 (Geological Hazards), GEO-2 (Geology and Soils), and BMP GEO-3 (Implement Geotechnical Recommendations), the Project would not result in direct or indirect adverse short-term effects on the community, which is predominately comprised of RSA EJ populations.

As detailed previously in this section for the Short-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal short-term effects from geology, soils, and seismicity would occur during construction-related activities would be outweighed by the overall long-term benefits of the Project.

Therefore, no short-term disproportionately high and adverse effects on minority or low-income RSA EJ populations would occur in the RSA as it relates to geology, soils, and seismicity. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

CUMULATIVE SHORT-TERM EFFECTS ON ENVIRONMENTAL JUSTICE POPULATIONS

Based on the discussion of short-term effects related to community and growth effects, relocation and real property acquisitions, parks and recreation, hazardous waste and materials, air quality, and noise, and ground-borne vibration, with the identified BMPs incorporated, these short-term direct and indirect adverse effects are considered minimal on the community, and thus, no disproportionately high and adverse effects on EJ populations would occur in the RSA as part of the Project.

As discussed in further detail in Section 3.16 (and incorporated herein), *Cumulative Effects*, no development (other than transportation-related) projects were identified, either residential or commercial in nature, within the cumulative RSA, which consisted of a 0.5-mile radius of the Project Study Area. Four transportation projects were identified within the cumulative RSA. As discussed in Section 3.16, the cumulative projects either would not physically overlap geographically, and/or there would be no overlap of planned construction activities or sensitive receptors with the Project. In addition, it is anticipated that these four other cumulative projects will incorporate the appropriate standard measures and mitigation measures similar in nature to those identified in this Final EA which are expected to avoid or minimize short-term effects. As such, with the implementation of similar types of required minimization and mitigation measures for CEQA compliance and other state and federal permitting requirements, the Project's minimal cumulative impacts, along with the minimal or avoided contributions from the other four cumulative project would still yield a combined minimal level of short-term cumulative effects. Therefore, the Project, in combination with the other identified cumulative projects, would result in no disproportionately high and adverse cumulative effects in the short-term on EJ populations in the RSA as it relates to community and growth effects, relocation and real property acquisitions, parks and recreation, hazardous waste and materials, air quality and noise, and ground-borne vibration.

Long-term Effects

COMMUNITY EFFECTS AND GROWTH

As discussed in Section 3.2, *Community Effects and Growth*, no long-term effects on residents would occur within the community effects and growth study area, which is comprised primarily of RSA EJ populations, as there would be no acquisition of residential properties as part of the Project. Additionally, the Project would construct a grade separation on an existing rail facility and is not considered growth inducing, nor would it cause substantial changes to the community. Further, once in operation, the Project would reduce train congestion that causes vehicle delays at roadway-rail crossings and creates potential motor vehicle, rail, bicycle, and pedestrian conflicts. The reliability of rail operation is also essential for those residing and working in the region who need improved access to essential services and economic centers.

Further, as discussed in the short-term effects section, transient populations are not currently located within the UP ROW of the Mormon Slough, but do exist in areas outside the UP ROW, adjacent to the Mormon Slough. It is not anticipated that transient populations would be directly affected or would require relocation during operation of the Project. However, in the event that these transient populations trespass and occupy areas within the UP ROW, they would be relocated permanently with the incorporation of BMP COM-1 (Outreach and Engagement Plan) in Table 3.2-2, in *Section 3.2, Community Effects and Growth*. Under this BMP, SJRRC will work with local human services agencies and stakeholders with specific knowledge of challenges that these transient populations face, in order to best serve and relocate the transient community residing within UP ROW. With the incorporation of BMP COM-1, the Project would not result in direct or indirect long-term adverse effects on the community, which is predominately comprised of RSA EJ populations.

As discussed previously, the Project's location is fixed as it would separate the existing at-grade crossing of the UP and BNSF tracks to address the needs and current deficiencies of the existing at-grade Stockton Diamond crossing. Therefore, the location of the Project cannot be located in another other location to address this specific deficiency on the existing rail facility.

Although the Project contributes minimal long-term burdens related to the relocation of transient populations in the event these populations trespass within the UP ROW; once in operation, the Project would provide benefits to community and accommodate future planned growth in the area, which would provide direct benefits to EJ minority populations and low-income populations within the EJ RSA, including reduced local congestion, improved air quality, and improved safety.

Therefore, no disproportionately high and adverse effects on RSA EJ populations and transient populations would occur within the RSA as it relates to long-term community effects. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

RELOCATIONS AND REAL PROPERTY ACQUISITION

As discussed in Section 3.3, *Relocations and Real Property Acquisitions*, the Project would require full and partial acquisitions of property from 12 industrial parcels, 7 of which have active businesses that would be displaced and relocated. The City has identified available industrial zoned properties elsewhere in the City that are suitable for relocation of these 7 displaced businesses. Even though the RSA is comprised predominantly of EJ communities, there are ample properties within the community to which these businesses, which are generally auto- and truck-related, can relocate. Moreover, these businesses serve larger areas, and they would still be able to serve the local neighborhoods after relocation. Further the implementation of Measure MM RLC-1 (Uniform Relocation Act) and MM RLC-2 (Property Ownership and Agreement Coordination Efforts) will address the moderate adverse effects related to relocations and real property acquisitions. With application of these mitigation measures, the Project will not result in adverse effects to EJ populations within the EJ RSA. As such, Measure MM RLC-1 (Uniform Relocation Act) will be implemented to mitigate such direct, long-term, adverse effects.

Additionally, as discussed in Section 3.3, remnant portions of existing parcels may result from the permanent acquisition of existing parcels as part of the Project. However, with the implementation of Measure MM RLC-2 (Property Ownership and Agreement Coordination Efforts), these long-term, indirect, adverse effects would be mitigated.

As detailed previously in this section for the Long-term Effects for *Community Effects and Growth*, the Project's location is necessarily fixed and there are expected minimal long-term effects to the RSA EJ populations stemming from relocations and permanent real property acquisitions. However, on balance, the effects would be outweighed by the overall long-term benefits of the Project which will predominately benefit the RSA EJ population.

Therefore, no long-term disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to property acquisitions and displacements. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

PARKS AND RECREATION

The Project would not result in permanent effects on parks, recreational, and other community facilities within the RSA once construction is complete. Therefore, the existing parks and recreational facilities available to the community, and specifically to RSA EJ populations, would not change as a result of the Project, the Project would not result in direct or indirect long-term effects on the community, as it relates to parks and recreational resources.

Therefore, no long-term disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to parks and recreation. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

HAZARDOUS WASTE AND MATERIALS

During operation, the Project would be required to adhere to federal, state, and local regulations, as it relates to the excavation, demolition, handling, transport, and disposal of hazardous waste and materials, to minimize the potential risk of accidental releases.

As detailed previously in this section for the Long-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal long-term effects resulting from the excavation, demolition, handling, transport, and disposal of hazardous waste and materials relocations would not outweigh the overall long-term benefits of the Project. Therefore, the Project would not result in adverse direct or indirect long-term effects on the community as it relates to hazardous waste and materials, and no long-term disproportionately high or adverse effects on RSA EJ populations would occur as it relates to hazards and hazardous materials. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

AIR QUALITY

As discussed in Section 3.13, *Air Quality*, the Project would result in long-term reductions in criteria pollutant emissions and an overall benefit to the community surrounding the RSA. Reductions in air pollutant emissions can lead to long-term health benefits for residents and employees along the existing rail corridors, addressing health problems associated with air pollution such as lung irritation, inflammation, asthma, heart and lung disease, and worsening of existing chronic health conditions. Therefore, there would be an overall beneficial effect on the community; and thus, on RSA EJ populations present in the community. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

Additionally, based on comments received during the public circulation period of the Draft EIR, SJRRC incorporated BMP AQ-4 (Vegetative Barriers and Urban Greening), identified in Table 3.13-2 in Section 3.13, that will evaluate the feasibility of incorporating vegetative barriers and urban greening during final design in order to further reduce potential air pollution exposure on sensitive receptors within the RSA from potential long-term adverse effects during Project operation. Therefore, with the incorporation of BMP AQ-4, the Project would not result in direct or indirect long-term adverse effects on the community. The incorporation of BMP AQ-4 (Vegetative Barriers and Urban Greening) will lead to further benefits to the community; and thus, RSA EJ populations present in the community, as EJ populations are predominant within the RSA.

In addition to the long-term air quality benefits the Project will provide to local communities, as detailed previously in this section for the Long-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal long-term effects from potential air pollution exposure to sensitive receptors would be outweighed by the overall long-term benefits of the Project. Indeed, these long-term benefits would predominately benefit, and reduce historical impacts and burdens on, the RSA EJ population.

Therefore, no disproportionately high and adverse effects on EJ populations in the RSA would occur as it relates to long-term air quality. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

NOISE AND GROUND-BORNE VIBRATION

As discussed in Section 3.14, *Noise and Ground-borne Vibration*, the Project would result in 12 severe noise effects during operations because of the relocated tracks and the elevation of the new tracks. The 12 severe effects are located in high-minority areas, as is the majority of the RSA; however, they are located in census tract block groups that have lower percentages of low-income households than many other census tract block groups in the RSA.

All severe noise effects are effects on residences located in close proximity to the railroad corridor between East Jefferson Street and East Clay Street and the railroad corridor and South Pilgrim Street. The implementation of Measure MM NV-1 (Reductions for Severe Noise Effects) would mitigate these long-term effects. Therefore, with the severity of the long-term adverse effects mitigated, the Project would not result in direct or indirect adverse long-term effects on the community, which is predominately comprised of RSA EJ populations.

As detailed previously in this section for the Long-term Effects for *Community Effects and Growth*, the Project's location is fixed and the minimal long-term effects from resulting from noise would be outweighed by the overall long-term benefits of the Project. These long-term benefits would predominately benefit, and reduce historical impacts and burdens on, the RSA EJ population.

Therefore, no disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to long-term noise. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

GEOLOGY AND SOILS

As discussed in Section 3.11, there is a possibility for earthquake-induced liquefaction to occur at the Project site. Additionally, much of the Stockton area is underlain by expansive soils that exhibit moderate shrink-swell potential and near-surface soils at the Project site are anticipated to consist of expansive clay. Therefore, with the incorporation of BMPs GEO-1 (Geological Hazards), GEO-2 (Geology and Soils), and BMP GEO-3 (Implement Geotechnical Recommendations), the Project would not result in direct or indirect adverse long-term effects on the community, which is predominately comprised of RSA EJ populations.

As discussed above, the Project's location is fixed and the minimal long-term effects to geology and soils would be outweighed by the overall long-term benefits of the Project.

Therefore, no long-term disproportionately high and adverse effects on minority or low-income EJ populations would occur in the RSA as it relates to geology, soils, and seismicity. Please refer to Section 3.5.6, for further discussion regarding the environmental justice determination for this Project.

CUMULATIVE LONG-TERM EFFECTS ON EJ POPULATIONS

Based on the discussion of long-term effects related to community effects and growth, relocation and real property acquisitions, parks and recreation, hazardous waste and materials, air quality, noise and ground-borne vibration, and geology and soils, with the identified BMPs incorporated and MM measures implemented, no adverse long-term direct and indirect effects would occur; thus, no disproportionately high and adverse effects on EJ populations would occur in the RSA as it relates to these long-term effects.

As discussed in further detail in Section 3.16, *Cumulative Effects*, no development (other than transportation-related) projects were identified, either residential or commercial in nature, within the cumulative RSA, which consisted of a 0.5-mile radius of the Project Study Area. Four transportation projects were identified within the cumulative RSA. As discussed in Section 3.16, when compared with the Project, the cumulative projects either would not physically overlap geographically, would not have overlapping sensitive receptors, would not require property acquisition or relocations or operations would not substantially increase noise levels beyond existing conditions. In addition, it is anticipated that these four other cumulative projects will incorporate the appropriate and required standard measures and mitigation measures, similar in nature to those identified in this Final EA which are expected to minimize or avoid long-term effects. As such, with the implementation of similar types of required minimization and mitigation measures, the Project's minimal cumulative contributions, along with the minimal contributions from the other four cumulative project would still yield a combined minimal level of long-term cumulative effects. Therefore, the Project, in combination with the other identified cumulative projects, would result in no disproportionately high and adverse cumulative effects in the long-term on EJ populations in the RSA as it relates to community and growth effects, relocation and real property acquisitions, parks and recreation, hazardous waste and materials, air quality, noise and ground-borne vibration, and geology and soils.

3.5.5 OFFSETTING BENEFITS

The key purpose of the Project is to provide operational benefits that enhance passenger rail service through uninterrupted flow of passenger and freight rail through the Stockton Diamond. The diamond is the busiest and most congested rail bottleneck in California, which results in delays to service that moves goods and people throughout the region. These delays not only result in unreliable rail services, but also result in congestion at the nearby at-grade roadway-rail crossings for vehicles, bicycles, and pedestrians.

With implementation of the Project, the following benefits to the community, specifically including the RSA EJ population, are anticipated:

- **Long-term Benefits in Air Quality.** The Project will provide overall long-term benefits to the community, specifically the RSA EJ populations, through the reduction in criteria pollutant emissions by reducing idling and emissions from trains and vehicles. The reduction of emissions will lead to long-term health benefits for residents and employees along the existing rail corridors and address health problems associated with air pollution such as lung irritation, inflammation, asthma, heart and lung disease, and worsening of existing chronic health conditions.

- **Long-term Benefits in Pedestrian and Bicycle Access.** The Project includes a number of other safety improvements in the community. The Project would reconstruct new railroad crossing surfaces at locations where the at-grade crossing would remain; these improvements include new pavement, curb, gutter, and sidewalks for pedestrians and bicyclists, which would benefit the RSA EJ populations.
- **Long-term Benefits to ACE and San Joaquins Passenger Rail Users.** ACE and San Joaquins passenger rail users include local residents residing near the Project, in the City of Stockton, and the larger region in general. Among these users are minority populations and low-income populations that would benefit from improved transportation access to employment, recreational, shopping, educational, and community resource opportunities.
- **Long-term Benefits in Safety and Mobility.** In addition to improving passenger rail reliability for ACE and San Joaquins rail service, the Project would improve the safety and mobility of the community, including the RSA EJ populations, when crossing UP Subdivision tracks. The shorter gate-down time that would result from improved operations would improve local mobility. The closures of some crossings, and creation of grade separations of other existing crossing, would improve safety at these locations.

The Project's location is fixed as it would separate the existing at-grade crossing of the UP and BNSF tracks to address the needs and current deficiencies of the existing at-grade Stockton Diamond crossing. Therefore, the Project cannot be located in another location to address this specific deficiency on the existing rail facility. Although the Project's minimal short-term and long-term burdens would be predominantly experienced by the local minority communities and low-income communities within the EJ RSA, the long-term benefits would also be predominantly realized by the RSA EJ population, thereby reducing historical impacts and burdens. Therefore, the overall benefits of the Project outweigh its impacts.

3.5.6 ENVIRONMENTAL JUSTICE DETERMINATION

As discussed in Section 3.5.4, the Project when mitigation measures are applied would not result in adverse effects on minority populations and low-income populations. The determination of whether the Project results in disproportionately high and adverse effects is based on the totality of the following considerations:

- The location of adverse effect in relation to minority populations and low-income populations
    - The Project's location is fixed and would separate the existing at-grade crossing of the UP and BNSF tracks to address the needs and current deficiencies of the existing at-grade Stockton Diamond crossing. As identified above in Section 3.5.2, all 22 census blocks within the EJ RSA have low-income populations or minority populations or both which are above the thresholds in which they would be considered EJ populations as defined in Section 3.5.2. Without mitigation, implementation of the Project would result in adverse effects within the EJ RSA, which may affect EJ populations, particularly within and adjacent to the construction limits. Therefore, based on location of the existing EJ population and existing rail

infrastructure, the Project's burdens would be experienced by the local minority communities and low-income communities within the EJ RSA. However, because of the location and concentration of the RSA EJ populations relative to the Project, the RSA EJ populations would predominately benefit from the long-terms benefits of the Project thus reducing historical impacts and burdens on this population.

- The severity of the adverse effect and the success of the proposed mitigation measures in reducing the effect
  - An adverse level of effect was only determined for the resource categories of property acquisitions and displacements and noise. Mitigation measures identified in Chapter 3 of the Final EA to address the potentially adverse effects related to these resource categories would mitigate these potentially adverse effects of the Project. With application of these mitigation measures, the Project will not result in adverse effects to EJ populations within the EJ RSA.
- Whether mitigation measures reduce effects equally for both minority populations and low-income populations as for non-minority populations and non-low-income populations
  - The mitigation measures applied to the Project would mitigate any Project effects equally on EJ populations within the EJ RSA.
- The Project benefits that minority populations and low-income populations would be received
  - As discussed in Section 3.5.5, once in operation, the local communities, which are identified as having EJ minority populations and low-income populations, would predominantly receive the benefits from the Project, such as reduced local congestion, improved air quality, and improved safety. The Project would therefore reduce historical impacts and burdens on the RSA EJ population.

Based on the evaluation of potential adverse effects (burdens) related to EJ, as presented in Section 3.5.4, and the off-setting benefits discussed in Section 3.5.5, the Project would not result in disproportionately high and adverse human health and environmental effects, including social and economic effects, on EJ minority population and low-income populations.

3.5.7 MITIGATION MEASURES

No additional environmental justice-specific adverse effects requiring mitigation have been identified for RSA EJ populations; therefore, no specific EJ mitigation measures are required.

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3.6 Utilities and Emergency Services

This section describes the regulatory setting and affected environment for utilities and emergency services. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on utilities or emergency services during construction and operation of the Project. If short-term or long-term effects on utilities or emergency services are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to utilities or emergency services are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the utilities and emergency services RSA.

This section describes the potential effects of Project construction and operation on utilities and emergency services.

3.6.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of utilities and emergency services is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

State Plans, Policies, and Regulations

Water Conservation Act of 2009 (SB X7-7)

California Integrated Waste Management Act of 1989 (AB 939)

California Government Code

Local Plans, Policies, and Regulations

San Joaquin County General Plan

Objective IS-1.8: Infrastructure Financing, Design, and Construction: The County shall require new development to fund the initial financing, design, and construction of required infrastructure facilities. All financing (including operation and maintenance) and improvement plans shall be subject to County review and approval.

City of Stockton General Plan

Policy LU-6.3: Ensure that all neighborhoods have access to well-maintained public facilities and utilities that meet community service needs.

Action LU-6.3C: Coordinate, to the extent possible, upgrades and repairs to roadways with utility needs, infrastructure upgrades, and bicycle and pedestrian improvements.

Stockton Municipal Code

- Chapter 8.28 Construction and Demolition Debris Waste Reduction
- Chapter 13.36 Regulations and Procedures for the Removal of Overhead Utility Facilities and the Installation of Underground Facilities in Underground Utility Districts

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.6.2 AFFECTED ENVIRONMENT

Definition of Resource Study Area

The utilities RSA includes the Project Study Area and the service area of the utility and service systems providers within the Project Study Area. The emergency services RSA is the Traffic Study Area, as defined in Section 3.7, *Traffic and Transportation,* of this Final EA.

Methods for Data Collection and Analysis

Utility impact analysis began in April 2020. A Project vicinity map and a Project description with Project Study Area was mailed to all utility agencies that serve the City of Stockton. Thirteen utility agencies responded to the mailing. Five of those agencies did not have utilities within the Project Study Area. The eight remaining agencies sent facilities map information that was added to a utility base file. The impacted agencies include the following:

- AT&T
- California Water Service Company (Cal Water)
- Century Link/Level 3
- City of Stockton Sewer and Storm Drain
- Level 3
- Verizon
- PG&E Gas and Electric
- Sprint

In October 2020, utility conflict exhibits were generated and are located in Appendix E, Utilities Exhibits, of this Final EA. These exhibits identify all utilities within the Project Study Area and any potential conflicts. An individual utility conflict letter was generated for each agency informing them about potential conflicts. The utility conflict letters also requested any vertical information to help identify additional conflicts, including as-builts or known vertical data. The responses from the utility agencies, in conjunction with a literature review of existing planning documents that includes, but is not limited to, the City of Stockton General Plan, City of Stockton General Plan EIR, Utility Master Plan Supplements, 2035 Wastewater Master Plan, Sewer System Management Plan (2016–2020), and Stockton Municipal Code, helped identify potential utility conflicts with the Project.

Existing Setting

This section describes the affected environment related to utilities and emergency services.

Utilities

WATER

There are two water service providers serving the Stockton area: Cal Water Stockton District, which serves roughly 42,000 service connections, and the City of Stockton Municipal Utilities Department, which serves roughly 48,000 service connections. Cal Water serves the central part of the Stockton area, which is where the Project is located. The City of Stockton Municipal Utilities Department serves northern and southern Stockton outside of the Project Study Area.

The following City and Cal Water water lines are located within the Project Study Area and will need to be protected in place by having a concrete cap or steel sleeve added, or they will need to be lowered or relocated to avoid a potential conflict. Utilities requiring relocation will remain in the City or Cal Water easement area or within the Project Study Area:

- 6-inch pipe in East Main Street – Protect in place
- 4-inch pipe in East Market Street – Protect in place
- 10-inch pipe in East Sonora Street – Protect in place
- 8-inch pipe in East Hazelton Avenue – Protect in place or lower
- 12-inch pipe south of the Diamond – Protect in place

WASTEWATER

The City of Stockton's sewer system consists of 914 miles of sewer lines and 28 sewer pump stations. The sewer system encompasses the greater Stockton area, including the unincorporated areas. The Stockton Regional Wastewater Control Facility (RWCF) is where wastewater is treated and then discharged to the San Joaquin River. Wastewater from residential, commercial, and industrial customers is treated at RWCF with tertiary treatment: dual media filtration, chlorination, and dichlorination. RWCF treats 32 million gallons per day (mgd) of wastewater as of 2015. Utilities conflict maps for wastewater is available in Appendix E of this Final EA.

STORMWATER

Within the utilities RSA and the City of Stockton, stormwater falls into the City's municipal storm drain system and ultimately drains into local streams, creeks, and rivers that carry it to the Sacramento San Joaquin Delta. The majority of the storm drain system is a gravity flow pipe network. Storm drainpipes, drainage inlets, and manholes that are impacted by the Project will be protected in place, relocated, or raised to grade as necessary, as shown in Appendix E of this Final EA.

As discussed in Section 3.10, *Hydrology, Floodplains, and Water Quality*, the Project's receiving water body is the Mormon Slough, which is under the purview of CVFPB. Coordination will be required with the City of Stockton, Stockton East Water District (SEWD), the County of San Joaquin, and San Joaquin Area Flood Control Agency (SJAFCA). Areas within the Project Study Area would require access during construction and permanent access for maintenance of these improvements would be required after construction is complete. Therefore, an encroachment permit may be required for the Project under CVFPB's regulations.

SOLID WASTE

SOLID WASTE COLLECTION SERVICES

The City of Stockton has contracted Republic Services and Waste Management to collect solid waste from residential and non-residential customers. Residential services include weekly trash, recycling, green waste, and food waste collection. Construction debris, if disposed by a third party outside the construction crew, must be disposed by an industrial waste collector or a commercial recyclable material collector that is authorized by the City with a necessary solid waste hauling permit. Service routes overlap with the utilities RSA.

LANDFILLS

Solid waste collected in Stockton is taken to the Forward Landfill in Manteca, the North County Landfill and Recycling Center in Lodi, or the Foothill Sanitary Landfill in Linden. Construction and demolition material are processed at the East Stockton Transfer Station.

ELECTRICITY AND NATURAL GAS

PG&E is the primary electricity and natural gas provider in the City of Stockton. In the utilities RSA, PG&E's electrical transmission lines transport electricity in both underground and overhead lines. Utilities conflict maps for electricity and natural gas are available in Appendix E of this Final EA. PG&E's high pressure gas transmission pipelines deliver natural gas to residential and commercial connections through smaller, lower pressure neighborhood distribution pipelines.

A combination of underground gas pipes, underground electric, overhead 12 kilovolt (kV) distribution lines, and 60kV overhead transmission poles are located within the Project Study Area and shown in the utility conflict maps in Appendix E. The 60kV lines are considered high voltage lines and are a high-risk utility (see Figure 3.6-1).

The 60kV poles within the Project Study Area are at the following locations:

- South side of East Hazelton Avenue from South Aurora Street to South Union Street
- Along East Anderson Street from South Aurora Street to South Pilgrim Street
- South side of East Charter Way

Telecommunications

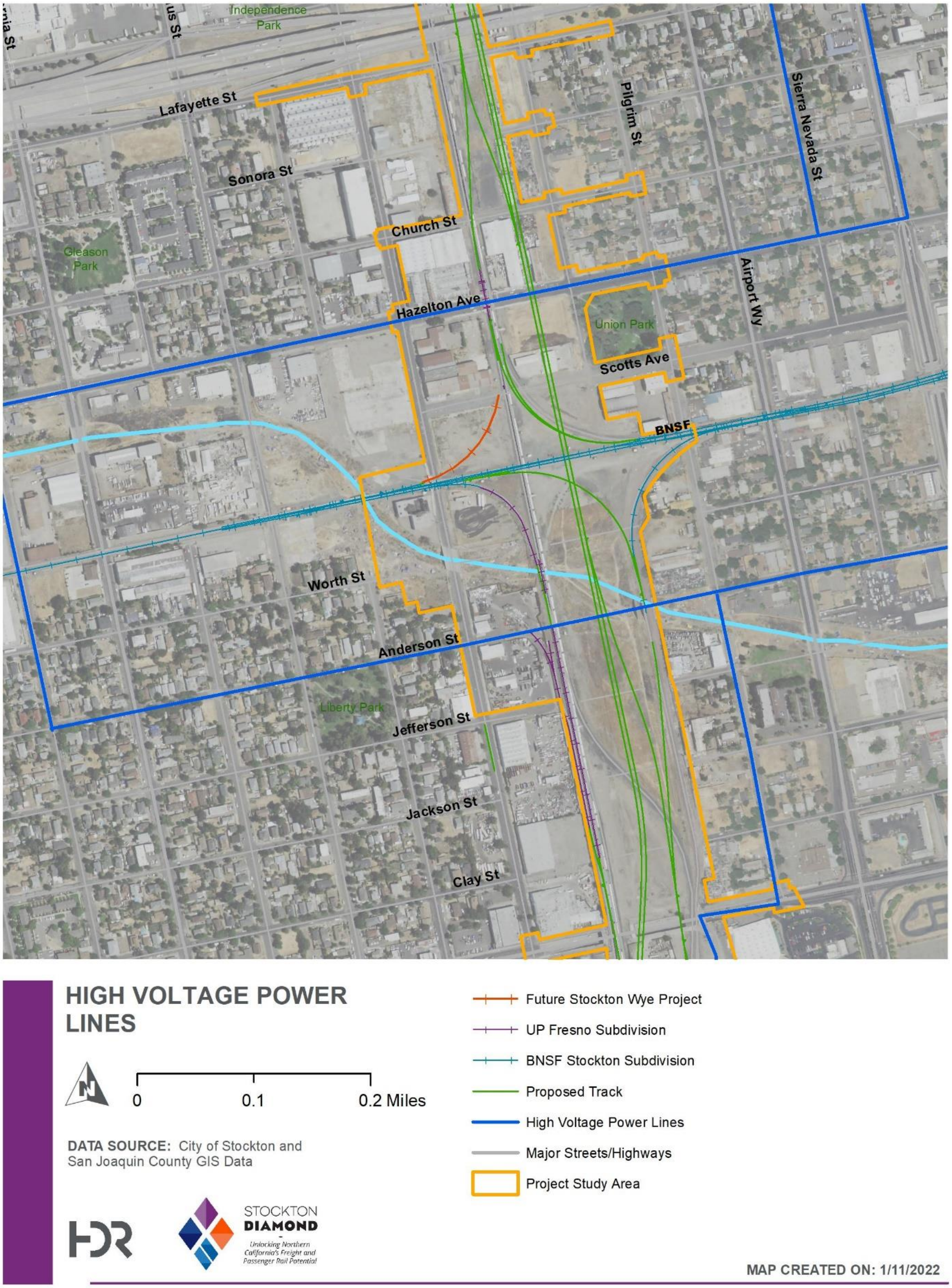
There are a variety of telecommunication lines (such as fiber optic, television, telephone, and internet) in the utilities and service systems RSA. The telecommunication lines are owned and operated by private providers including Comcast (overhead), AT&T (overhead and underground), Verizon (underground), Sprint (underground), Level 3 (underground), and Century Link (underground). Utilities conflict maps for telecommunications lines are available in Appendix E of this Final EA.

Emergency Services

Two City of Stockton Fire Department stations that serve the Project Study Area and RSA are located within the emergency services RSA. Fire Station 3 (1116 East First Street) is the fire station nearest the Project and accesses the Traffic Study Area via South Airport Way. Fire Station 2 (110 West Sonora Street) uses SR-4 and East Lafayette Street as primary routes for emergency response.

The Stockton Police Department (SPD) provides service to 320,600 people in a 65-square-mile area within the city limit. There are three police stations in the City of Stockton; however, none of these are located in the Project Study Area or emergency services RSA. The closest police station is located at 22 E Market Street Stockton, CA 95202, approximately 0.2 mile west of the emergency services RSA.

Figure 3.6-1: High Voltage Power Lines in the Project Study Area



3.6.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences that utilities and emergency services could experience as a result of implementing the Project.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented, and no construction activities related to the Project would be carried out. Therefore, no short-term effects on utilities or emergency services would occur under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. Under the No Action Alternative, no changes to existing emergency response routes would occur. Therefore, no long-term effects on utilities and emergency services would occur under the No Action Alternative.

Project

Table 3.6-1 identifies the BMPs that will be incorporated as part of the Project.

Table 3.6-1. Project Best Management Practices

Best Management Practices	Description
BMP UTL-1	**Notify Stakeholders of Utility Service Interruptions.** During final design and prior to construction, SJRRC will ensure compliance with Section 4216 of the California Government Code, that requires Project proponents to notify and inform relevant stakeholders prior to construction, thereby reducing the adverse impacts associated with temporary disruptions in utility services. SJRRC will coordinate with all utility providers during final design and construction planning phases to develop a Utility Relocation Plan (URP) to minimize service disruption. The URP will also include efforts to communicate and inform utility service customers of potential planned service interruptions.
BMP UTL-2	**Minimize Utility and Service System Disruptions.** During final design, SJRRC will ensure that utility disruptions and service system inconveniences are avoided, where possible, and will consider design opportunities to avoid permanent impacts to existing utility infrastructure, where practical.

Best Management Practices	Description
BMP UTL-3	**Utility Avoidance Coordination.** SJRRC, will coordinate with the City and other utility providers during final design to address utility relocation impacts. The following methods will be implemented to avoid permanent impacts to utilities and access to existing or future planned utilities: • **Protect in Place.** SJRRC will evaluate protect in place options to maintain the utility in its current location. These options include evaluation of load above the utility and reinforcement options, to be approved by the utility provider. Bridge columns and other bridge-related subsurface work will be designed in coordination with the utility provider affected to avoid impacting the utility. Accurate horizontal and vertical location of the utility will be gathered to support the avoidance and protection design. • **Access.** SJRRC will work with the utility provider during the final design phase to prepare a design that maintains provider access to the utility for inspection and maintenance, as well as to not preclude future potential replacement of the utility. • **Underground Service Alert.** Prior to grading activities, SJRRC will require the design/build contractor to notify Underground Service Alert (USA) at least 2 days prior to excavation by calling 811 to require that all utility owners within the Project disturbance limits identify the locations of underground transmission lines and other utility facilities.

Short-term Effects

UTILITIES

The Project will incorporate BMP UTL-1 (Notify Stakeholders of Utility Service Interruptions) in Table 3.6-1, which will require SJRRC to notify stakeholders and work with utility provides to prepare a URP to limit service disruptions. Additionally, the Project will incorporate BMP UTL-2 (Minimize Utility and Service System Disruptions) and BMP UTL-3 (Utility Avoidance Coordination), also in Table 3.6-1, which will require SJRRC to work with service providers to limit service disruptions, where possible, during construction and allow them to work with the Project team during the final design process to make sure that their access to the utility is maintained for inspection and maintenance. Additionally, BMP UTL-3 will require coordination with the City and other utility providers to provide at least 2 days advance notice to USA and incorporate standard best practices, such as identify and marking any areas to be disturbed with paint, prior to excavation activities. BMP UTL-3 will also require that future potential replacement of the utility would not be precluded from Project design.

As previously stated, construction of the Project would generate solid waste from construction activities. The solid waste created would be reused or recycled, where possible. The remainder would be disposed of in local solid waste landfills. The three local landfills (Forward Landfill in Manteca, the North County Landfill and Recycling Center in Lodi, and the Foothill Sanitary Landfill in Linden) would have sufficient capacity to accommodate the solid waste generated from the Project.

Based on the discussion above, with the incorporation of BMP UTL-1 through BMP UTL-3 in Table 3.6-1, no direct or indirect short-term adverse utility effects are anticipated as a result of the Project.

EMERGENCY SERVICES

Fire Station 3 (1116 East First Street) accesses the emergency services RSA via South Airport Way, and Fire Station 2 (110 West Sonora Street) uses SR-4 and East Lafayette Street as primary routes for emergency response. The SPD station located at 22 East Market Street would access the Project Study Area and emergency services RSA via East Market Street and East Lafayette Street.

As a result of the Project, short term indirect adverse effects may occur related to emergency vehicle access, including fire and police vehicle access, which may be impeded during construction due to nearby temporary road closures. It is assumed that the contractor will likely start at one end of the Project and work in one direction, closing one street at a time for the minimal amount of time possible to allow for safe working conditions and to minimize traffic interruptions for emergency vehicles, including fire and police services.

Additionally, the Project will incorporate BMP TRA-7 (Transportation Management Plan), identified in Table 3.7-6 in Section 3.7, *Traffic and Transportation*. BMP TRA-7 will identify detours for emergency service routes that serve hospitals, fire/police stations, and other facilities that provide essential services in times of emergencies within the RSA, and that access to residences and businesses experience limited disruptions. Therefore, with the incorporation of BMP TRA-7, no direct or indirect, short-term, adverse effects are anticipated in relation to emergency response interruptions with the temporary road closures of East Weber Avenue, East Main Street, East Market Street, East Hazelton Avenue, East Scotts Avenue, and East Charter Way during construction.

Long-term Effects

UTILITIES

After construction of the Project, operations would not require or result in the increased demand for water supply or an increase in demand for sewer system use, as the improvements are limited to operational improvements to an existing rail facility.

Further, with the incorporation of BMP UTL-3 (Utility Avoidance Coordination), identified in Table 3.6-1, no direct or indirect, long-term, adverse effects are anticipated in relation to utilities, including the permanent relocation of utilities.

EMERGENCY SERVICES

During operation of the Project, emergency vehicles would benefit from improved local mobility. With the proposed grade separation, there would be fewer delays at crossings since there would be substantially less "gate down" time for trains to travel through the rail corridor.

Although the Project would result in permanent road closures at East Lafayette and East Church Streets, nearby parallel streets would remain accessible, allowing emergency access vehicles, including fire and police vehicles, to use other routes to cross the tracks. Additionally, the permanent road closures and alternative routing plans would be addressed comprehensively in coordination with the City of Stockton during final design of the Project. The Project plans to incorporate BMP TRA-8 (Road Closure Formalization Process), identified in Table 3.7-6 in Section 3.7. BMP TRA-8 will require that road closures as part of the CPUC GO 88B diagnostic review process will be formalized during final design. The CPUC GO 88B diagnostic review process will include a circulation evaluation for all modes of travel in coordination with the City of Stockton, CPUC, and UP. Therefore, with the incorporation of BMP TRA-8, identified in Table 3.7-6 in Section 3.7, no direct or indirect long-term adverse effects are anticipated in relation to emergency services access, including fire or police access, will occur under the Project.

3.6.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for utilities and emergency services; therefore, no specific utilities or emergency services mitigation measures are required.

3.7 Traffic, Transportation, Pedestrian, and Bicycle Facilities

This section describes the regulatory setting and affected environment for traffic, transportation, pedestrian, and bicycle facilities. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on these facilities during construction and operation of the Project. If short-term or long-term effects on traffic, transportation, pedestrian, and bicycle facilities are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to these facilities are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects on these facilities within the traffic and transportation RSA.

Due to traffic analyses being generally technical in nature, references to Appendix F, *Traffic Study*, are made throughout this section to refer the reader to the Project's detailed traffic analysis.

3.7.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of traffic, transportation, pedestrian, and bicycle facilities is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

CEQ 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Federal Passenger Rail Investment and Improvement Act (Public Law No. 110-432, Division B)

Title 23 of the USC for Highways, Statewide Planning

State Plans, Policies, and Regulations

There are no applicable state plans, policies, or regulations related to this resource topic.

Local Plans, Policies, and Regulations

San Joaquin County of Governments Regional Transportation Plan and Sustainable Communities Strategy

San Joaquin Regional Rail Commission Plans

San Joaquin County General Plan

City of Stockton General Plan

City of Stockton Bicycle Master Plan

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the

Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.7.2 AFFECTED ENVIRONMENT

This section defines the traffic and transportation RSA and describes methods used to analyze the potential for the Project to result in effects on transportation facilities or mobility within the RSA during construction and operations.

Definition of Resource Study Area

The RSA for effects on traffic and transportation encompasses the areas directly or indirectly affected by Project construction and operations. These areas include the Project Study Area for the Project and the transportation network facilities. Specifically, the traffic and transportation RSA for the Project includes the Project Study Area, proposed staging areas, and the area bounding Weber Avenue to the North, South Wilson Way to the east, San Joaquin Street to the west and Charter Way to the south as shown in Figure 3.7-1.

Methods for Data Collection and Analysis

Transportation data were collected from both available and new sources to develop the existing traffic conditions for turning movements and volumes that encompass both the intersections and roadways in the traffic and transportation RSA. These data were collected, combined, and formatted to represent the existing 2019 average weekday traffic conditions, which is being used as the base year for the traffic analysis for existing conditions and future conditions. Existing traffic conditions were defined to represent average weekday traffic conditions for 2019 based on the following factors:

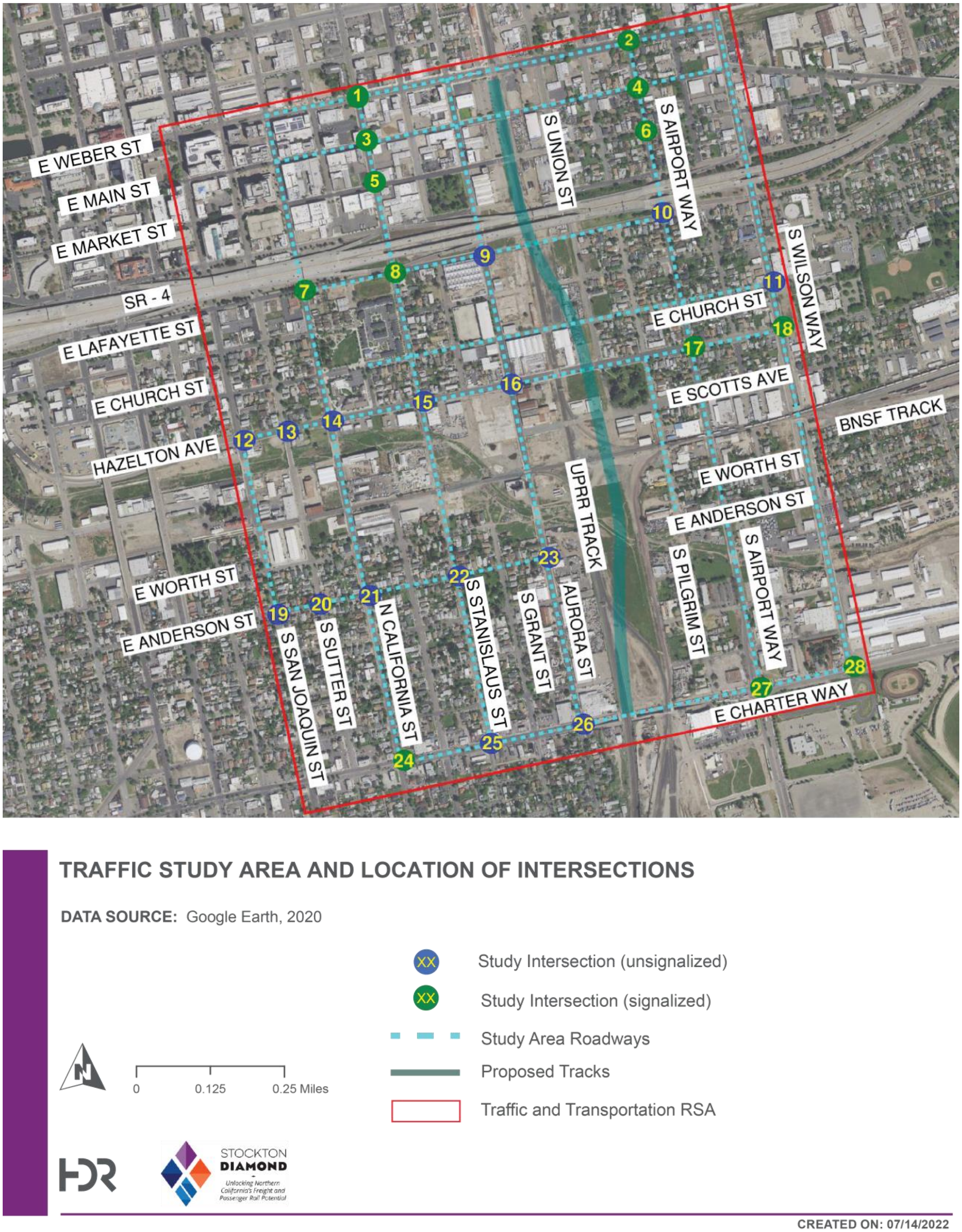
- While detailed analysis for the proposed Project started in early 2020, the circumstances and effects of COVID-19, in particular the reduction of typical weekday travel throughout the traffic and transportation RSA, led to the development of existing conditions reflecting an earlier year representing typical traffic demand. A robust set of 2019 traffic data (see sources below) were available to support the development of 2019 existing conditions as the base year.

In order to develop a more complete profile of existing turning movements for the traffic and transportation RSA intersections, Streetlight data were purchased to provide turning movements for each of the 28 intersections in the traffic and transportation RSA. Due to COVID-19 circumstances (as described above), Streetlight data is being used throughout the industry to estimate roadway traffic volumes and intersection turning movements in place of new, observed turning movement counts traditionally used to support this type of analysis. This data provided a meaningful set of accurate turning movement volumes to supplement the other available information collected for the study.

Analysis Methods

This section presents the analysis methods applied to the traffic and transportation RSA for roadway performance, pedestrians and bicycle, transit route coverage, freight, safety and crash inventories.

Figure 3.7-1: Traffic Analysis Study Area and Location of Intersections



Intersection Level of Service

Accepted, state of the practice traffic analysis methodology is applied to "grade" the intersection operations with Level of Service (LOS) A through LOS F, characterized by the average stopped delay time per vehicle. This technique models volumes of vehicles moving through an intersection compared to the capacity of the intersection, which is adjusted accordingly given varying lane widths, on-street parking availability, pedestrian movements, traffic composition, and shared lane movements at any given intersection. Table 3.7-1 presents the LOS definitions and criteria used for this analysis.

Table 3.7-1: Definitions for Signalized Intersection LOS

Average Stopped Delay Per Vehicle (seconds)	LOS Descriptions and Typical Characteristics
<10.0	LOS A: the volume-to-capacity ratio is low and either progression is exceptionally favorable, or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
10.1–20.0	LOS B: the volume-to-capacity ratio is low and either progression is highly favorable, or the cycle length is short. More vehicles stop than with LOS A.
20.1–35.0	LOS C: progression is favorable, or the cycle length is moderate. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is substantial, although many vehicles still pass through the intersection without stopping.
35.1–55.0	LOS D: the volume-to-capacity ratio is high and either progression is ineffective, or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable
55.1–80.0	LOS E: the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.
>80.0	LOS F: the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual (2010)

The City of Stockton's current General Plan designates LOS E or better as acceptable operating conditions for intersections within the Downtown area (i.e., area bounded by Harding Way, the Union Pacific railroad tracks, Dr. Martin Luther King Jr. Boulevard, I-5, and Pershing Avenue). For all other intersections within the City limits, LOS D or better is considered to be acceptable. The majority of the Traffic Study Area intersections are within the Downtown area; and thus, are subject to the LOS standard of LOS E or better based on the City's designated thresholds. The Traffic Study Area intersections along South Airport Way and South Wilson Way are not within the Downtown area; and thus, are subject to the LOS standard of LOS D or better. Therefore, for purposes of this analysis, an adverse effect would occur if project-generated traffic would degrade intersection operations within the Traffic Study Area from acceptable to unacceptable conditions (i.e., LOS F within the Downtown area and LOS E or worse outside of the Downtown area) based on the applicable LOS standards detailed above.

ROADWAY PERFORMANCE

Roadway segments were evaluated using a volume-to-capacity (v/c) ratio to measure performance. A v/c analysis is a traditional measure used to assess roadway operations. If the v/c ratio is greater than 1.0, the roadway is over capacity and likely experiences delays. The Highway Capacity Manual, (HCM) 6th Edition, is used on a national level to evaluate roadway performance, and each jurisdiction applies the guidance to their own operating threshold requirements. Thus, the Project evaluated roadway operating conditions consistent with the City's LOS requirements, which continue to use LOS to evaluate the operating conditions of select congested roadway segments and intersections within Stockton's city limits. LOS is a description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Roadway LOS definitions are shown in Table 3.7-2.

Table 3.7-2: Definitions for Roadway Level of Service

LOS Level	LOS Description
LOS A	Free Flow or Insignificant Delays: Operations with very low delay. Most vehicles do not stop at all.
LOS B	Stable Operation or Minimal Delays: An occasional approach phase is fully utilized. Some drivers feel restricted.
LOS C	Stable Operation or Acceptable Delays: Drivers begin having to wait through more than one red signal. Most drivers feel somewhat restricted.
LOS D	Approaching Unstable or Tolerable Delays: Drivers may have to wait through more than one red signal. Queues may develop, but dissipate rapidly, without excessive delays.
LOS E	Unstable Operation or Significant Delays: Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
LOS F	Forced Flow or Excessive Delays: Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

The City of Stockton strives to maintain LOS D or better for daily roadway segment operations; however, in Downtown areas of the City, LOS E is acceptable. Exceptions to this standard are permissible to support other goals, such as encouraging safe travel by other modes of transportation than a car.

Within the traffic and transportation RSA, SR 4 and South Airport Way are considered Regional Congestion Management Program (RCMP) facilities by SJCOG. The LOS standard established for RCMP facilities in the Downtown area is LOS E, with the exception of the LOS F standard for SR 4 segments located in the traffic and transportation RSA. Therefore, for purposes of this analysis, an adverse effect would occur if Project-generated traffic would substantially affect roadway segment operations such that LOS would degrade from acceptable to unacceptable conditions based on the applicable LOS standards detailed above.

PEDESTRIANS AND BICYCLE INVENTORY

Pedestrian movements were identified from limited available data to provide a general inventory of pedestrian movements in the traffic and transportation RSA. Availability of pedestrian crossings for the at-grade roadway crossings with both railroads (UP and BNSF) were identified in the traffic and transportation RSA. The traffic and transportation RSA does not currently include any of the City of Stockton's Class 1 – Off-Road Bike Trail, Class 2 – On-Road Bike Lane, Class 3 – Bike Route – Mixed Traffic, and/or Class 4 – Separated Bikeway designations documented in the *City of Stockton General Plan* and *Utility Master Plan Supplements Draft EIR*, June 2018 and *City of Stockton Bike Master Plan*, 2017. Proposed projects that have secured Measure K funding[1] were included in the analysis.

TRANSIT ROUTE COVERAGE INVENTORY

An inventory of the San Joaquin RTD transit routes and schedules that currently provide access to the RSA was prepared, including designated Express Routes, Hopper Routes, and Local Routes. Figure 4-4 in Appendix F, *Traffic Report,* shows the transit routes in the RSA.

FREIGHT INVENTORY

An inventory of the existing truck routes and intermodal (truck and rail) facilities were documented for City Truck Routes, in the *City of Stockton's General Plan and Utility Master Plan Supplemental Draft EIR*, June 2018.

SAFETY/CRASH INVENTORY

Crash data from 2017 to 2019 were compiled from UC Berkeley's Transportation Injury Mapping System. This data encompasses detailed crash (all modes) history by intersection and roadway locations in the traffic study categorized by fatality, severe injury, other vehicle injury, and complaint of pain injury. These categories are typical of the data collected for crashes by Caltrans and are typical of how safety is analyzed in these analyses.

Existing Setting

Surrounding Area

REGIONAL ACCESS AND LOCAL ACCESS

Regional access to and from the RSA is provided primarily by SR 4, the freeway traveling east-west through the northern portion of the RSA, between I-5 to the west and SR 99. The roadways by functional classification in the RSA are shown in Figure 1-2 in Appendix F.

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[1] Measure K is a local half-cent sales tax for transportation improvements. The program has financed numerous highway expansions, pedestrian-friendly projects, bike paths, and local road improvements throughout San Joaquin County and has generated millions in new revenues for rail and public transit networks. More information on Measure K is available at: www.sjcog.org.

Existing Traffic Conditions

This section presents the Existing Year (2019) traffic conditions in the traffic and transportation RSA. Traffic, pedestrian, bicycle, transit, and truck conditions were evaluated to provide a multimodal assessment of the transportation system consistent with the approach used by the City of Stockton. The Traffic Report prepared for the Project is included in Appendix F.

The traffic and transportation RSA shown in Figure 3.7-1 includes the intersections, roadways, and multimodal transportation systems being analyzed for existing and future conditions. The intersections and roadways identified in the traffic and transportation RSA provide the foundation for the comprehensive transportation effects analysis for Existing Year (2019), Future Year (2045) No Action, and Future Year (2045) Project conditions.

EXISTING TRAFFIC DELAYS AT RAIL CROSSINGS

In the Existing Year (2019) conditions, 2 freight trains and 3 passenger trains go through the traffic and transportation RSA at-grade rail crossings during AM and PM peak hours. Table 3.7-3 summarizes the estimated average daily passenger and freight trains for Existing Year (2019) condition and the number of trains going through the traffic and transportation RSA during the AM and PM peak hours.

Table 3.7-3: Average Daily Passenger and Freight Trains on Union Pacific Railroad

Scenarios	Diamond Route Freight Trains[1]	NE Connector Route Freight Trains[2]	Diamond Route Passenger Trains	NE Connector Route Passenger Trains
2019 Existing Conditions	36	8	8	4
AM Peak	1	1	1	2
PM Peak	1	1	1	2

[1] Diamond Route is thru train traffic.

[2] NE Connector Route is trains on the NE wye connection track, between the UP Fresno Subdivision, and BNSF Stockton Subdivision.

Table 3.7-4 shows at-grade rail crossing train occupancy; that is, the total amount of time within each peak hour when the road is unavailable to automobile traffic at the at-grade rail crossings while trains pass in the Existing Year (2019) condition. This includes the minimum activation time of warning devices at the crossing (for example, bells, flashing light signals, and gates), prior warning time, and the time it takes for the grade crossing warning devices to recover after the passing of a train. Total estimated train occupancy times for the existing conditions were calculated by multiplying the estimated number of trains by the occupancy time per train.

Table 3.7-4: Total Train Occupancy Time by Location and AM and PM Peak Hour

Road Name/RR Crossing	2019 Existing Total Occupancy Time/Peak Hour (HH:MM:SS)
East Weber Avenue/UP	00:12:16
East Main Street/UP	00:12:11
East Market Street/UP	00:12:11
East Lafayette Street/UP	00:12:11
East Church Street/UP	00:15:16
East Hazelton Avenue/UP	00:15:22
East Scotts Avenue/UP	00:15:16

AM and PM peak hour delay per auto (in seconds) at each of the railroad crossings for the Existing Year (2019) conditions are shown in Table 3.7-5. Over the course of an hour, each auto traveling eastbound has approximately 21 seconds of delay and approximately 23 seconds traveling westbound in the Existing Year (2019) AM peak hour. In the PM peak hour, each auto travelling eastbound and westbound has approximately 23 seconds of delay in the Existing Year (2019) conditions.

Table 3.7-5: Existing Year (2019) Conditions AM and PM Peak Hour Average Individual Vehicle Delay

Road Name/RR Crossing	Direction	Existing Year (2019) AM Delay (sec)	Existing Year (2019) PM Delay (sec)
East Weber Avenue/UP	EB	18.2	20.8
	WB	26.5	24.5
East Main Street/UP	WB	18.1	16.5
East Market Street/UP	EB	16.3	16.9
East Lafayette Street/UP	EB	20.0	21.9
	WB	16.8	16.3
East Church Street/UP	EB	24.8	25.4
	WB	25.8	25.1
East Hazelton Avenue/UP	EB	25.7	27.4
	WB	27.8	29.7
East Scotts Avenue/UP	EB	24.9	25.8
	WB	26.3	25.4

EXISTING INTERSECTION LEVEL OF SERVICE

Existing LOS analysis for each of the 28 RSA intersections was completed for both AM and PM peak hours. Figure 2-3 and Figure 2-4 in Appendix F show the AM and PM Peak Hour Roadway Volumes in the traffic and transportation RSA under Existing Year (2019) traffic volumes, respectively. Results for Existing Year (2019) AM and PM peak hour LOS and average delay at each intersection can be referenced in Table 4-1 in Appendix F.

The Existing Year (2019) AM peak hour analysis shows that the majority of the intersections currently operate at LOS C or better except for East Lafayette Street and South Stanislaus Street intersection, which operates at LOS F.

Similarly, in the 2019 PM peak hour, most of the intersections also operate at LOS C or better except for the following four intersections:

- East Lafayette Street and South Stanislaus Street (operating at LOS F)
- East Lafayette Street and South Airport Way (operating at LOS F)
- East Charter Way and South Stanislaus Street (operating at LOS F)
- East Hazelton Avenue and South Stanislaus Street (operating at LOS E).

ROADWAY SEGMENTS

The roadway segments for both AM and PM peak hours in the traffic and transportation RSA were evaluated using v/c ratios to measure performance. The following parameters and methods from the HCM 2010 were used to analyze roadway v/c ratios for local roads, arterials, collectors, and freeways:

- 1,200 Vehicles/hour/lane capacity on Local Roadways
- 1,780 Vehicles/hour/lane capacity on Arterials and Collectors
- 2,400 Vehicles/hour/lane capacity on Freeways (SR 4 Crosstown Freeway)

With the exception of SR 4 (Crosstown Freeway), all of the roadway levels of service in the traffic and transportation RSA perform at LOS D or better as established in the RCMP. The resulting v/c ratios for roadways in the Existing Year (2019) AM and PM peak hours are shown in Figure 5-5 and summarized in Table 5-6 in Appendix F.

TRANSIT

Public transit service in the traffic and transportation RSA is primarily provided by San Joaquin RTD. There are 12 transit routes within the traffic and transportation RSA. East Weber Avenue, San Joaquin Street, South Stanislaus Street, South Airport Way, South Wilson Way, East Charter Way, and East Weber Ave are all designated transit routes within the traffic and transportation RSA. Figure 4-4 in Appendix F shows the transit routes in the RSA.

PEDESTRIAN

There is limited data available to identify pedestrian activity in the traffic and transportation RSA. Currently there are seven at-grade roadway crossings of UP tracks and seven at-grade roadway crossings of BNSF tracks in the traffic and transportation RSA. The pedestrian inventory, as referenced as Table 4-2 in Appendix F, identified that only four of the 14 intersections meet ADA compliance.

TRUCKS

Truck route designations include Surface Transportation Assistance Act (STAA) Truck Routes, City Truck Routes, County Truck Routes, Flammable Liquid-Other Routes, and Truck Routes operating from 7am to 10pm.

Currently, with the exception of County Truck Routes, the traffic and transportation RSA includes the following roadways with truck route designations:

- **Surface Transportation Assistance Act Truck Routes** on East Charter Way
- **City Truck Routes** on South Airport Way, East Hazelton Avenue, East Lafayette Street, East Market Street, East Weber Avenue, South Aurora Street, and South Union Street
- **Flammable Liquid-Other Routes** on East Charter Way, South Wilson Way, and South Airport Way
- **Truck Route** – 7 am to 10 pm on South Stanislaus Street

BICYCLE

Based on information obtained from the City of Stockton, bicycle movements mirror the low level of activity shown with pedestrian movements in the traffic and transportation RSA. For both the AM and PM peak hours, bicycle movements are less than 1 percent of traffic volumes at a sample of traffic and transportation RSA intersections. There are no currently designated bicycle network routes and facilities and limited bicycle access available in the traffic and transportation RSA.

3.7.3 ENVIRONMENTAL CONSEQUENCES

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented, and no construction activities related to the Project would be carried out. Therefore, no short-term effects on traffic and transportation would occur under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. However, continued planned growth and development would still occur within the traffic and transportation RSA. Therefore, long-term, moderate, adverse effects on traffic and transportation as it relates to automobile delays at rail crossings and intersection LOS would occur under the No Action Alternative. A detailed discussion of these direct and indirect, long-term, moderate adverse effects for traffic delays at rail crossings and intersection LOS is provided, below and in Appendix F.

NO ACTION FUTURE YEAR (2045) TRAFFIC DELAYS AT RAIL CROSSINGS

In the No Action Future Year (2045) condition there are 3 freight trains and 3 passenger trains that go through the traffic and transportation RSA at grade rail crossings during AM and PM peak hours. The Future Year (2045) condition estimates of trains were developed based on expected increases in freight and passenger rail activity from available forecasts, including 1 additional freight train and (no change in passenger trains) from Existing Year (2019) conditions.

It is estimated that approximately 5 minutes will be added to train occupancy times in the Future Year (2045) No Action conditions compared to Existing Year (2019) conditions. This is due to the estimated increase in length of the trains and the addition of 1 more freight train during each of the AM and PM peak hours. The delays per auto in the Future Year (2045) No Action condition are expected to be higher than Existing Year (2019) conditions. This is due to the increase in train occupancy times (including potential number of trains and length of trains anticipated in the future) and the growth in traffic demand. The AM and PM peak hour delay per auto at each of the railroad crossings for the No Action Future Year (2045) and Existing Year (2019) conditions can be referenced in Table 6-5 and Table 6-6 in Appendix F.

Based on the information, above, train occupancy times and automobile delays would increase in the Future Year (2045) under the No Action Alternative. Therefore, direct and indirect, long-term, moderate adverse effects, as it relates to traffic delays at rail crossings, would result under the No Action Alternative.

INTERSECTION LOS

No Action Alternative intersection operations were analyzed for Future Year (2045) conditions at the study intersections. As was done for the assessment of the Existing Year (2019) conditions, intersection operations in Future Year (2045) were evaluated for the AM and PM peak hours. As discussed in the *Affected Environment* section, LOS E or better represents the acceptable LOS in City of Stockton.

The intersection LOS results for the No Action Future Year (2045) AM and PM conditions can be referenced in Table 5-3 and Table 5-4 in Appendix F. All intersections operate at an acceptable LOS under the No Action Future Year (2045) condition, except for the following:

- East Lafayette Street and South Stanislaus Street – This intersection is anticipated to operate at LOS F during the AM and PM peak hour.
- East Lafayette Street and South Airport Way – This intersection is anticipated to operate at LOS F during the PM peak hour.

Based on the information above, under the No Action Alternative, intersection LOS under the No Action Future Year (2045) condition would not operate at acceptable levels and would not be consistent with current local goals, regulations, and policies. Therefore, direct and indirect, long-term, moderate adverse effects, as it relates to intersection operations, would result under the No Action Alternative.

ROADWAY SEGMENTS

Roadway segment operations were analyzed for Future Year (2045) in the No Action condition. As was done for the assessment of the Existing Year (2019) conditions, roadway segments were evaluated using v/c ratios to measure the roadway performance, where a v/c ratio of 1.0 or above represents failure or LOS F.

With the exception of SR 4 (Crosstown Freeway), all of the roadway levels of service in the traffic and transportation RSA perform at LOS E or better in the No Action condition (acceptable per the RCMP). The resulting v/c ratios for the No Action Future Year (2045) condition are shown Table 5-5 in Appendix F. However, these operations would occur with or without the implementation of the Project. Therefore, no direct or indirect long-term effects as it relates to roadway segments would result under the No Action Alternative.

TRANSIT

The No Action Alternative would not permanently alter existing transit routes. Therefore, no direct or indirect long-term effects on existing transit routes would occur in the traffic and transportation RSA under the No Action Alternative.

PEDESTRIAN

Under the No Action Alternative, no changes to existing intersection geometry, land uses, and sidewalks or crosswalks in the vicinity would occur, nor would there be changes to existing pedestrian access. Therefore, no direct or indirect long-term effects on pedestrian access would occur in the traffic and transportation RSA under the No Action Alternative.

BICYCLE

Under the No Action condition, the City's proposed bicycle facilities in the traffic and transportation RSA, shown in Figure 5-7 in Appendix F, would be implemented as separate projects. These planned facilities, separate from the Project, are considered part of the No Action condition and would be considered a beneficial improvement to the existing bicycle facilities in the traffic and transportation RSA. Therefore, no direct or indirect long-term effects on bicycle access in the traffic and transportation RSA would occur under the No Action Alternative.

PARKING AND LOADING

Under the No Action Alternative, no changes to existing parking and loading conditions would occur. Therefore, no direct or indirect long-term effects on parking and loading would occur under the No Action Alternative.

PERMANENT ROAD CLOSURES

There are no proposed permanent road closures in the No Action Alternative. Therefore, no direct or indirect long-term effects on traffic and transportation facilities, as it relates to road closures, would occur under the No Action Alternative.

Project

Table 3.7-6 identifies the BMPs that will be incorporated as part of the Project.

Table 3.7-6: Project Best Management Practices

Best Management Practice	Description
BMP TRA-1	**Protection of Public Roadways during Construction.** Prior to construction, SJRRC will ensure that the contractor will provide a photographic survey documenting the condition of the public roadways along truck routes providing access to the Project site to restore such routes utilized by the Project during construction to their previous condition.
BMP TRA-2	**Construction Transportation Plan.** Prior to construction, SJRRC will ensure that the contractor will prepare a detailed Construction Transportation Plan (CTP) for the purpose of minimizing the effect of construction and construction traffic on adjoining and nearby roadways in close consultation with the local jurisdiction having authority over the site. The development of the CTP will include coordination and collaboration with the San Joaquin Regional Transit District (RTD).
BMP TRA-3	**Off-Street Parking for Construction-Related Vehicles.** During construction, SJRRC will ensure that the contractor will identify adequate off-street parking for all construction-related vehicles throughout the construction period to minimize effects on public on-street parking areas.
BMP TRA-4	**Maintenance of Pedestrian Access.** Prior to construction, SJRRC will ensure that the contractor will prepare a specific CMP to address maintenance of pedestrian access during the construction period.
BMP TRA-5	**Maintenance of Bicycle Access.** Prior to construction, SJRRC will ensure that the contractor would prepare a specific CMP to address maintenance of bicycle access during the construction period.
BMP TRA-6	**Protection of Freight and Passenger Rail During Construction.** During construction, SJRRC will ensure that the contractor will repair any structural damage to freight or public railways that may occur during the construction period and return any damaged sections to their original structural condition.
BMP TRA-7	**Transportation Management Plan.** During final design, SJRRC will ensure that a Project TMP will be drafted, approved, and filed with the City of Stockton Engineering and Transportation Department, or other agency with jurisdiction over the road, prior to any road closures. SJRRC will also coordinate and collaborate regularly with the RTD during final design to coordinate elements of the TMP. The plan would include alternative routing plans and methods and details for early public outreach.
BMP TRA-8	**Road Closure Formalization Process.** During final design, SJRRC will ensure that all Project road closures will be formalized as part of CPUC GO 88B diagnostic review process. The CPUC GO 88B diagnostic review process will include the evaluation of circulation for all modes of travel in coordination with the City of Stockton, CPUC, UP, and Caltrans, as well as evaluating potential permanent effects related to access for pedestrians, bicycles, automobiles, and trucks.

Short-term Effects

TRAFFIC DELAYS AT RAIL CROSSINGS

Under the Project, short-term traffic delays at rail crossings would occur during construction. However, the Project plans to incorporate BMP TRA-2 (Construction Transportation Plan), identified in Table 3.7-6, which requires SJRRC to prepare a Construction Transportation Plan to minimize the effects of construction and construction traffic on adjoining and nearby roadways. Additionally, BMP TRA-7 (Transportation Management Plan), also identified in Table 3.7-6, requires SJRRC to prepare a Project TMP that would include alternative routing plans to minimize traffic delays, including at rail crossings. With the incorporation of BMP TRA-2 and BMP TRA-7, no direct or indirect short-term adverse effects related to delays at rail crossings would occur under the Project.

ROAD CLOSURES

Roads that would require temporary closures during construction of the at-grade crossings and/or grade separations include:

- East Weber Avenue
- East Main Street
- East Market Street
- East Hazelton Avenue
- East Scotts Avenue
- East Charter Way

During construction, the contractor would likely start at one end of the Project and work in one direction, closing one street at a time for the minimal amount of time possible to allow for safe working conditions and to minimize traffic interruptions. If the work is along existing tracks and work is minor, then a full roadway closure could potentially last one week in duration. Alternatively, depending on the extent of the work, work could also be accomplished with lane closures and flagging. Restrictions would be placed on the contractor to close every other crossing and no detours would be allowed to overlap. Further, Variable Message Signs would be required to be posted two weeks in advance of closures and through the duration of closure.

However, since transportation and circulation may still be affected temporarily during construction activities, the Project will incorporate BMP TRA-2 (Construction Transportation Plan) and BMP TRA-7 (Transportation Management Plan). With the incorporation of BMP TRA-2 and BMP TRA-7, no direct or indirect short-term adverse effects related to temporary road closures during construction would occur under the Project.

INTERSECTION LOS

As discussed above, transportation and circulation may be affected during construction activities, which could result in decreased LOS at intersections within the traffic and transportation RSA. However, similar to how these affects were addressed previously, the Project will incorporate BMP TRA-2 (Construction Transportation Plan) and BMP TRA-7 (Transportation Management Plan). With the incorporation of BMP TRA-2 and BMP TRA-7, no direct or indirect short-term adverse effects related to temporary decreases in LOS at RSA intersections during construction would occur under the Project.

ROADWAY SEGMENTS

Based on the discussion above regarding intersection LOS, roadway segments within the RSA may experience delays during construction activities. However, the Project will incorporate BMP TRA-2 (Construction Transportation Plan) and BMP TRA-7 (Transportation Management Plan). With the incorporation of BMP TRA-2 and BMP TRA-7, no direct or indirect short-term adverse effects related to short-term delays along road segments during construction would occur under the Project.

TRANSIT

The Project would require the construction of two new bridges across Charter Way and demolishing a portion of an existing bridge. However, potential adverse effects from temporary structural damage to freight or public railways that may occur during the construction period would be fixed by the contractor and any damaged sections would be returned to their original structural condition with the Project's incorporation of BMP TRA-6 (Protection of Freight and Passenger Rail Facilities During Construction) identified in Table 3.7-6.

Additionally, during construction of the two new bridges across Charter Way, temporary adverse effects related to traffic circulation and access would occur due to traffic control needs and limited closures under and through the underpass. However, the Project plans to incorporate BMP TRA-7 (Transportation Management Plan), which will require coordination with the City and San Joaquin Regional Transit District (SJRTD) to minimize effects to SJRTD transit service along Charter Way (MLK Jr. Boulevard).

Based on the discussion above, with the incorporation of BMP TRA-6 and BMP TRA-7, no direct or indirect short-term adverse effects on existing transit routes would occur during construction of the Project.

PEDESTRIAN

During construction, existing pedestrian access may be affected within the traffic and transportation RSA. However, the Project will incorporate BMP TRA-4 (Maintenance of Pedestrian Access), identified in Table 3.7-6, which requires that SJRRC prepare a Construction Management Plan (CMP) that will address maintenance of pedestrian access during the construction period. With the incorporation of BMP TRA-4, no direct or indirect short-term adverse effects on existing pedestrian routes would occur during construction of the Project.

BICYCLE

Although bicyclists may use the existing roadways for access, there are no existing dedicated bicycle facilities in the traffic and transportation RSA. Since existing, non-dedicated bicycle access within the traffic and transportation RSA may be affected during construction, the Project will incorporate BMP TRA-5 (Maintenance of Bicycle Access), identified in Table 3.7-6, which requires SJRRC to prepare a specific CMP that will address maintenance of bicycle access during the construction period. With the incorporation of BMP TRA-5, no direct or indirect short-term adverse effects on existing bicycle access would occur during the construction of the Project.

PARKING AND LOADING

During construction, existing parking and loading may be affected within the traffic and transportation RSA. However, the Project plans to incorporate BMP TRA-3 (Provision of Off-Street Parking for Construction-Related Vehicles), identified in Table 3.7-6, which requires that SJRRC identify adequate off-street parking for all construction-related vehicles throughout the construction period to minimize effects on public on-street parking areas. Therefore, with the incorporation of BMP TRA-3, no direct or indirect short-term adverse effects related to parking and loading would occur during construction of the Project.

TRUCK TRAFFIC

Truck routes on the State Highway system and major arterial streets within the City would be used during construction, including portions of East Charter Way, South Airport Way, East Hazelton Avenue, East Lafayette Street, East Market Street, East Weber Street, South Aurora Street, South Union Street, South Wilson Way, and South Stanislaus Street.

Truck Route Designations operating in the traffic and transportation RSA are shown in Figure 4-5 in Appendix F, and STAA Truck Route Designations in the traffic and transportation RSA are shown in Figure 4-6 in Appendix F. Due to increased truck traffic along these specific corridors during construction, and the wear and tear on these roads, the Project will incorporate BMP TRA-1 (Protection of Public Roadways during Construction), identified in Table 3.7-6, which requires SJRRC to restore these truck routes to their previous condition after construction of the Project is complete. With the incorporation of BMP TRA-1, no direct or indirect short-term adverse effects related to truck traffic during construction would occur under the Project.

Long-term Effects

TRAFFIC DELAYS AT RAIL CROSSINGS

During operation of the Project Future Year (2045) condition, the East Lafayette/UP crossing location and East Church Street/UP crossing location will be permanently closed to through traffic. Therefore, there are no train occupancy times at those crossings estimated for the Future Year (2045) Project condition.

As shown in Tables 6-5 and 6-6 in Appendix F, *Traffic Study*, of the Final EA, when comparing the No Action Future Year (2045) condition to the Project Future Year (2045) condition, the average vehicular delay during AM and PM peak hours would result a maximum increase of 1 second per vehicle. As such, this increase is considered negligible and would not likely be perceptible to most motorists.

Further, there would be a substantial reduction in vehicular delay at East Hazelton Avenue/UP crossing and East Scotts/UP crossing. Refer to Table 6-5 and Table 6-6 in Appendix F reference the AM and PM peak hour delay per auto at East Hazelton Avenue/UP crossing and East Scotts Street for the Project Future Year (2045) condition, No Action Future Year (2045), and Existing Year (2019) conditions. Therefore, no direct or indirect long-term effects related to traffic delays at rail crossings under the Project would occur.

ROAD CLOSURES

East Lafayette Street and East Church Street will be permanently closed as part of the Project. East Lafayette Street would be closed due to the multiple at-grade rail crossings of the at-grade main tracks and wye connection tracks (that is, four crossings within two blocks). In addition, East Church Street would be closed because it would not meet the UP/BNSF required minimum flyover vertical clearance of 16.5 feet for a vehicle crossing under the rail structure and would not be consistent with the American Association of State and Highway Transportation Officials' design criteria for change in grade for a local roadway.

Figures 6-1 through 6-4 in Appendix F show the AM and PM peak hour traffic redistribution due to permanent closure of East Lafayette Street. Figure 6-5 in Appendix F shows the AM and PM peak hour traffic redistribution based on the closure of East Church Street. As shown on Figures 6-1 through 6-5, current traffic volumes on East Lafayette Street and East Church Street are considered low, and the vehicles that would normally use these streets would be diverted to other nearby streets after Project completion.

The Project Future Year (2045) traffic volumes were analyzed based on the redistribution of the No Action Future Year (2045) traffic volumes for East Lafayette Street and East Church Street to adjacent roadways. Based on that analysis, all intersections affected by the Future Year (2045) traffic redistribution of East Lafayette Street and East Church Street would operate at an acceptable LOS after traffic is redistributed.

Additionally, long-term traffic and circulation redistributions as a result of permanent road closures would be further addressed with the incorporation of BMP TRA-8 (CPUC GO 88B Diagnostic Review Process), identified in Table 3.7-6, which requires SJRRC to formalize all road closures as part of CPUC GO 88B diagnostic review process. The CPUC GO 88B diagnostic review process will include the evaluation of circulation for all modes of travel in coordination with the City of Stockton, CPUC, UP, and Caltrans, as well as evaluating potential permanent effects related to access for pedestrians, bicycles, automobiles, and trucks. With the incorporation of BMP TRA-8, no direct or indirect, long-term, adverse effects related to permanent road closures would occur within the traffic and transportation RSA under the proposed Project.

INTERSECTION LOS

Table 6-1 and Table 6-2 in Appendix F compare the intersection LOS results in the No Action Future Year (2045) conditions with the Project Future Year (2045) during the AM and PM peak hours. The intersections of East Lafayette Street and South Airport Way, and East Lafayette Street and South Aurora Street, would improve their LOS because of the closure of the East Lafayette Street at-grade crossing of the UP tracks. LOS would be impaired at the intersection of East Hazelton Avenue and Aurora Street, and East Hazelton Avenue and South Stanislaus Street, due to the closure of the East Lafayette Street at-grade crossing at the UP tracks. However, after the redistribution of traffic, both intersections would still operate at an acceptable LOS after completion of the Project. Therefore, no direct or indirect long-term effects related to intersection LOS within the traffic and transportation RSA would occur under the Project.

ROADWAY SEGMENTS

Table 6-3 and Table 6-4 in Appendix F compare the roadway v/c ratio and LOS results in the No Action Future Year (2045) conditions with the Project Future Year (2045) during the AM and PM peak hours. Similar to the No Action Future Year (2045) conditions, with the exception of SR 4 (Crosstown Freeway), all of the roadway levels of service in the traffic and transportation RSA perform at LOS E or better (acceptable per the RCMP). Therefore, no direct or indirect long-term effects would occur within the traffic and transportation RSA, as it relates to roadway segments, under the Project.

TRANSIT

After the completion of the Project, traffic conflicts and train staging that occur currently, as trains wait on one railroad's main track for trains using the other railroad's main track to pass through the Stockton Diamond crossing, would be reduced. Additionally, the at-grade crossing of the UP and BNSF main tracks would be removed permanently, eliminating the resulting train delays created while this crossing is shut down for these maintenance activities. Therefore, the Project would have a direct and indirect, beneficial long-term effect on existing transit routes in the traffic and transportation RSA under the Project.

PEDESTRIAN

The Project would construct roadway-rail at-grade crossing infrastructure and sidewalk improvements on Weber Avenue, Main Street, Market Street, Hazelton Avenue, Scotts Avenue, and Charter Way, including ADA compliant ramps. After the completion of the Project, safer pedestrian access would be provided within the traffic and transportation RSA compared to the existing. Therefore, a direct and indirect long-term beneficial effect on pedestrian access within the traffic and transportation RSA would occur under the Project.

BICYCLE

Future bicycle facilities planned by the City of Stockton in the traffic and transportation RSA, shown in Figure 5-7 in Appendix F, are proposed on East Weber Avenue, East Main Street, East Market Street, East Hazelton Avenue, and South Aurora Street. The Project is being designed so as to not preclude implementation of the future bicycle facilities identified. Improvements to the at-grade crossings include new curbs, gutter and sidewalk extensions, and new rail crossing panels, which would improve conditions for bicycles. Additional features, such as lighting and signage, will be determined during the PS&E phase. Proposed grade separations of the main rail lines at East Scotts Avenue and East Hazelton Avenue will reduce bicycle delays at these crossings and improve safety by substantially reducing the number of potential train-bicycle conflicts. The proposed permanent closures of East Lafayette Street and East Church Street would require detours for bicyclists north to East Market Street and East Main Street, or south to East Hazelton Avenue. Maximum out-of-direction travel for bicyclists would be approximately 0.3 to 0.4 mile. Therefore, no direct or indirect long-term adverse effects on bicycle access within the traffic and transportation RSA would occur under the Project.

PARKING AND LOADING

Effects to Long-term parking due to the Project in the traffic and transportation RSA are shown in Table 3.7-7 and summarized below.

Table 3.7-7: Effects on Parking in the Project Future Year (2045)

Street	Limits to	Limits From	On-Street Parking – Existing	On-Street Parking – Project (2045)	Jurisdiction
E Weber Ave	Aurora St	S Union St	Yes	Yes	Public
E Main St	Aurora St	S Union St	Yes	Yes	Public
E Market St	Aurora St	S Union St	Yes	Yes	Public
E Lafayette St	S Grant St	S Pilgrim St	No	No (street to be closed)	Public
E Sonora St	UP Tracks	S Union St	Yes	No	Private west of tracks
E Church St	Aurora St	S Union St	Yes	No	Private west of tracks
E Hazelton Ave	Aurora St	S Pilgrim St	Yes	No	Public
E Scotts Ave	Aurora St	S Pilgrim St	Yes	Yes	Public
E Charter Way	Aurora St	S Pilgrim St	No	No	Public

No existing parking spaces would be removed on Weber Avenue, Main Street, Market Street, or Scotts Avenue, and the parking spaces along Church Street, Sonora Street, and Hazelton Avenue, would no longer be needed with the acquisition of nearby businesses as a result of the Project. Therefore, no direct or indirect long-term adverse effects related to loss of existing parking within the traffic and transportation RSA would occur under the Project.

TRUCK TRAFFIC

During operation of the Project, primary truck routes in the City will rely on the state highway system and major arterials, primarily on SR 99 and I-5 outside of the Traffic Study Area, with SR 4 crossing through the Traffic Study Area. Truck route designations in the Traffic Study Area will carry forward from existing conditions in the Project, with the exception of East Lafayette Street, a City designated truck route, which would be closed permanently as part of the Project. However, with the incorporation of BMP TRA-8 (CPUC GO 88B Diagnostic Review Process), identified in Table 3.7 6, these long-term effects would be minimized through the CPUC GO88B process, as it will identify and address changes to designated truck routes to ensure that permanent closure of East Lafayette Street will not degrade intersection operations or roadway conditions, along other City truck routes beyond the levels predicted for the Future Year (2045) No Action condition. Therefore, with the incorporation of BMP TRA-8, no adverse direct or indirect long-term effects related to truck traffic within the traffic and transportation RSA would occur under the Project.

3.7.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for traffic, transportation, pedestrian, and bicycle facilities; therefore, no specific traffic, transportation, pedestrian, and bicycle facilities mitigation measures are required.

3.8 Visual Quality and Aesthetics

This section describes the regulatory setting and affected environment for visual quality and aesthetics. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on visual quality and aesthetics during construction and operation of the Project. If short-term or long-term effects on visual quality and aesthetics are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects on visual quality and aesthetics are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects on visual resources within the visual quality and aesthetics RSA.

3.8.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of visual quality and aesthetics are provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

State Plans, Policies, and Regulations

There are no applicable state plans, policies, or regulations related to this resource topic.

Local Plans, Policies, and Regulations

Title 15 of the Stockton Municipal Code—Chapter 15.32, Maintenance, Security and Rehabilitation of Abandoned and Vacant Property

City of Stockton General Plan

Action LU-1.3B: Work with transportation agency partners and private property owners to improve maintenance, code enforcement, screening, and landscaping of viewsheds along major transportation routes into Stockton, including rail corridors, Highway 99, Highway 4, and Interstate 5.

Action LU-5.1C: Require landscape plans to incorporate native and drought-tolerant plants in order to preserve the visual integrity of the landscape, conserve water, provide habitat conditions suitable for native vegetation, and ensure that a maximum number and variety of well adapted plants are maintained.

Action LU-5.3A: At the interface between development and rural landscapes, use landscaping and other attractive edging instead of soundwalls and similar utilitarian edges of developments to maintain the visual integrity of open space.

Action LU-6.3D: Design public facilities and infrastructure to maintain and improve the visual quality of the urban environment, including through the following approaches:

- Designing buildings and infrastructure to fit into and complement their ultimate surroundings
- Buffering buildings and infrastructure from their surroundings as appropriate to shield unsightly areas from public view
- Providing appropriate landscaping

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders are provided in Table B-1 in Appendix B.

Based on the consistency analysis within Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.8.2 AFFECTED ENVIRONMENT

This section describes the existing conditions within the visual and aesthetic RSA and Project Study Area.

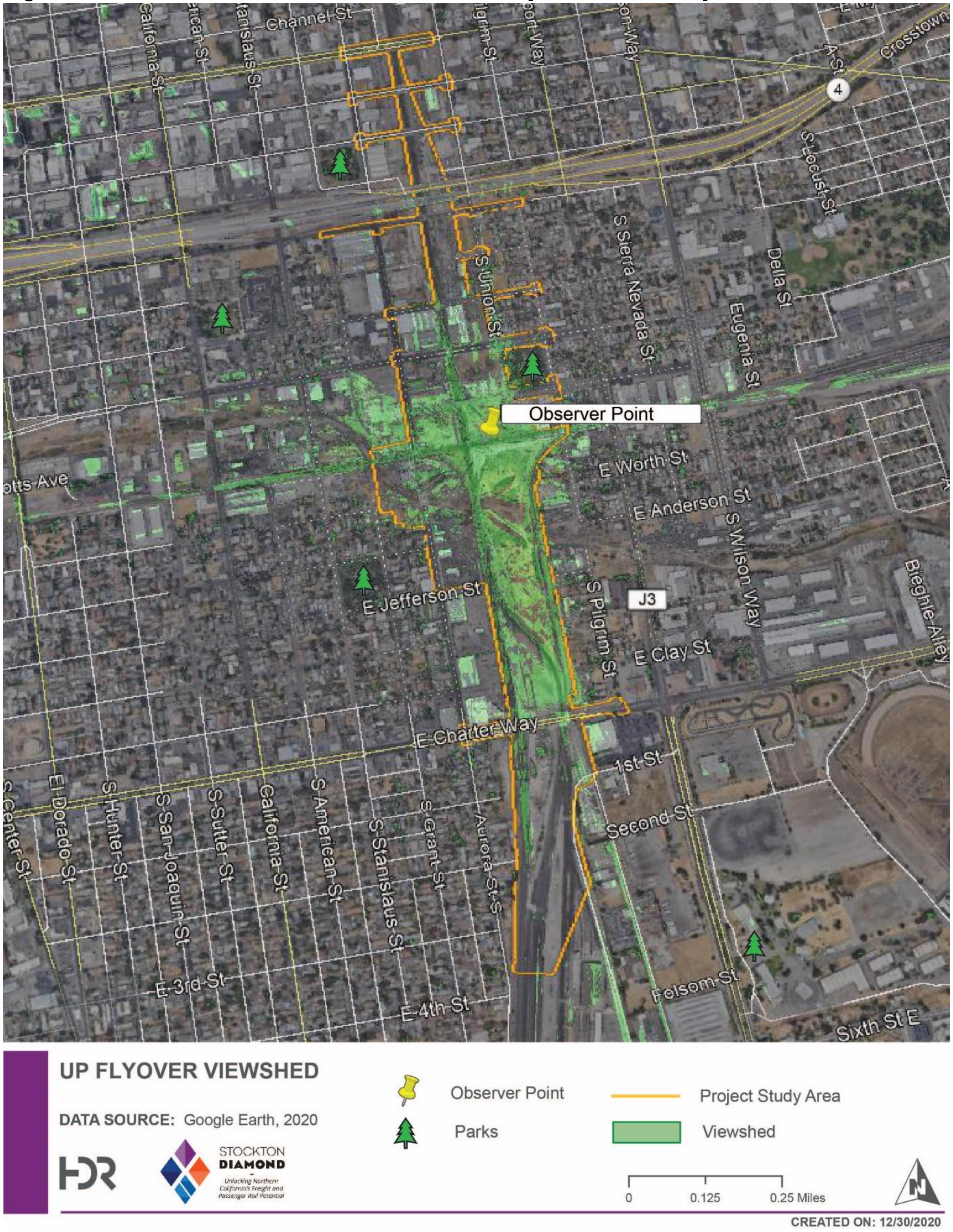
Definition of Resource Study Area

For the evaluation of effects on aesthetics, the visual and aesthetic RSA encompasses the areas directly or indirectly affected by construction and operation of the Project. The visual quality and aesthetics RSA includes the Project Study Area, the area that can be viewed from the Project flyover, and the surrounding area, or viewshed, from which the Project flyover can be viewed. The visual quality and aesthetics RSA is depicted in Figure 3.8-1.

Methods for Data Collection and Analysis

To determine the community's visual preferences, information was gleaned from municipal documents, in particular the City of Stockton's General Plan and its Municipal Code found in Appendix G. Several online sources narrating the history of the community, its demographics, landscape, architecture, and its railroads were also examined to establish the community's visual preferences.

Figure 3.8-1: Visual and Aesthetics Resource Study Area and UP Flyover Viewshed



The information in this section was prepared in accordance with the guidance outlined in the Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015). The visual impact assessment process includes four phases: establishment, inventory, analysis, and design. Each phase is defined by the interaction between the environment and people.

- **Establishment Phase:** Define the area of visual effect, which for this project is the visual and aesthetic RSA. This phase will also identify the Project's visual character and visual resources.
  - **Visual Character:** Visual character is defined as the visible attributes of a scene or object typically using artistic terms such as form, line, color, and texture.
  - **Visual Resources:** Visual resources are defined as components of the natural, cultural, or project environments that are capable of being seen.
- **Inventory Phase:** Determine the existing visual quality. Visual quality defines the existing status of the affected environment and the affected population. Visual quality is a relationship between viewers (neighbors, those that can see the project, and travelers, those that use the Project) and their environment (visual character/visual resources).
- **Analysis Phase:** Evaluate the visual effects, or changes to visual resources, viewers, or visual quality. on visual quality as a result of the project. Visual effects can be beneficial, adverse, or neutral.
  - **Beneficial Visual Effect:** project that either enhances visual resources or creates better views of those resources and improves the experience of visual quality for viewers.
  - **Adverse Visual Effect:** project that degrades visual resources or obstructs or alters desired views.
  - **Neutral Visual Effect:** project that does not beneficially or adversely effect the existing visual quality for viewers.
- **Design Phase:** Define mitigation measures or best management practices to address potentially adverse effects to visually quality.

Existing Setting

The Project location and setting provides the context to assess changes to the existing visual environment. The visual quality and aesthetics RSA is defined as the area of land that is visible from, adjacent to, and outside the Project Study Area and is determined by topography, vegetation, structures, and viewing distance.

Landscapes are composed of multiple visual resources that can be divided into two primary categories: natural visual resources (such as water bodies, landforms, and vegetation) and cultural visual resources (buildings, art, other structures, or artifacts). For the Project, these two categories of visual resources are sufficient for analyzing effects to visual quality outside the railroad ROW. Within the railroad ROW, visual elements are categorized as Project corridor visual elements.

Cultural visual resources dominate the landscape outside of the railroad ROW, although some natural visual resources are also prevalent. Within the RSA, the existing railroad ROW is flanked by a grid of local streets lined mostly with single- or two-story industrial buildings, warehouses, or single- or two-story residences. These structures typically are composed of wood, stucco, or brick.

The general level of building maintenance and appearance is varied and inconsistent throughout the visual quality and aesthetics RSA. Some buildings are well-maintained while others are derelict or abandoned. A few of the buildings within the visual quality and aesthetics RSA are considered historic (see Section 3.9, *Cultural Resources*). Many of the buildings on properties where the flyover would be constructed have recently been demolished, creating vacant lots, several with building pads still visible. Similarly, the appearance of streets and sidewalks ranges from being poorly maintained (with some nearly abandoned) to new streetscapes with decorative pavements, ornamental lighting, and median planters.

Existing natural visual resources are limited primarily to the RSA's topography, vegetation, and daytime views of the sky. The area is flat except for one major drainageway, Mormon Slough, that slices diagonally across the Project Study Area. Most mature trees are located on private property, typically in the residential areas. Street trees on the public rights-of-way of local streets are relatively sparse. The largest concentration of mature trees is in publicly owned parks, such as Union Park, located to the east of the proposed flyover structure.

Existing Project corridor visual elements are artifacts associated with the railroad, such as railroad tracks, ties, ballast, signals, maintenance and operational facilities, trackside material storage, piles of scrap, and vacant ROW from which tracks have been removed.

According to the State Scenic Highway Program, no eligible or officially designated state scenic highways exist within the visual quality and aesthetics RSA. The San Joaquin General Plan identifies I-5, north of SR 4, as a scenic county route. Although, the portion of I-5 identified as a scenic county route is located within the Stockton city limits, it is not located within the visual quality and aesthetics RSA. Additionally, based on the review of Stockton's General Plan, no City designated scenic highways or routes exist within the City limits. Further, Stockton's General Plan states that scenic vistas or significant scenic resources are primarily located on the outskirts or edges of the City, outside of the RSA.

Existing Visual Character within the RSA

The northern part of the visual quality and aesthetics RSA is dominated by urban land uses. The architecture of earlier structures reflects the use of materials and forms associated with railroad-related commerce. The existing Robert J. Cabral Station is north of East Weber Avenue, which is outside of, but visible from, the Project Study Area. There are no residential buildings within the Project Study Area.

The visual character in the northern part of the visual quality and aesthetics RSA (north of the Stockton Diamond) is dominated by single-story architecturally ordinary commercial buildings of various ages and condition. Some commercial property adjacent to these buildings is used for storage and is fenced with 6-foot metal sheets. Most parcels, however, are unfenced and vacant. Figure 3.8-2 is an image taken from South Union Street just north of SR 4, looking north and is representative of residential areas within the visual quality and aesthetics RSA adjacent to the railroad ROW.

Figure 3.8-2: Existing View from South Union Street

Source: Google Maps. 199 S Union Street (looking north). Stockton, California.

The visual character along South Union Street adjacent to Union Park is similar to the visual character along South Union Street north of the Stockton Diamond. However, Union Park offers a sense of natural harmony within the landscape for neighbors and travelers. A representative view to South Union Street from Union Park is show in Figure 3.8-3.

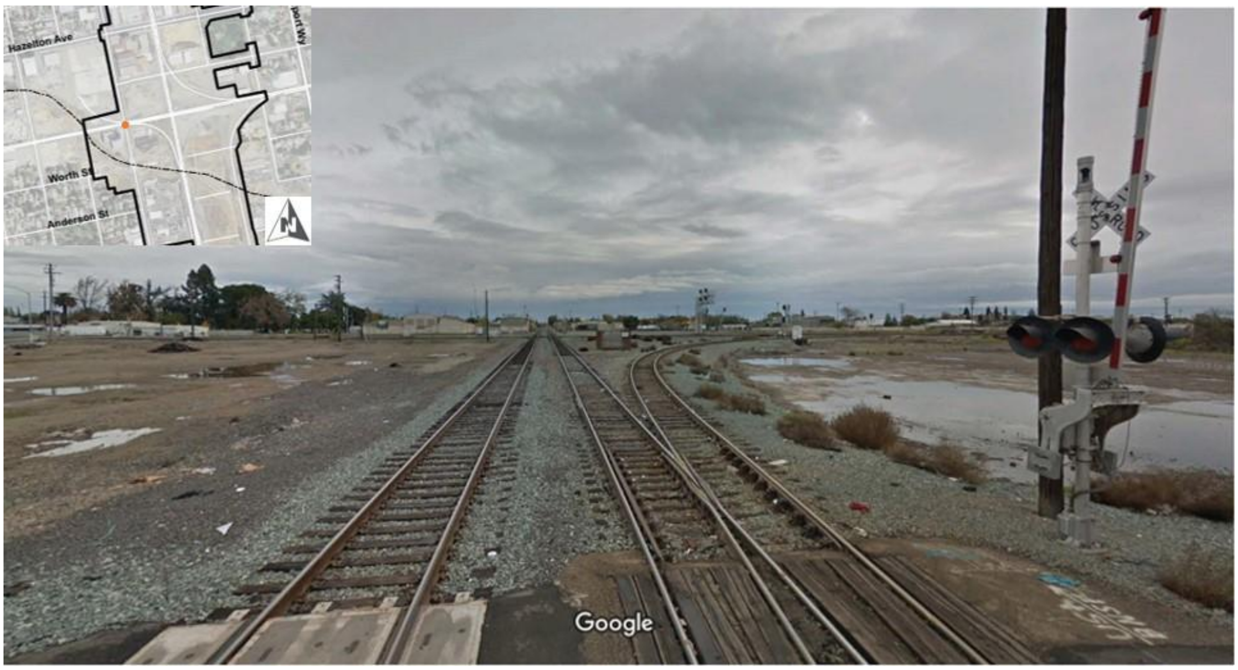
Figure 3.8-3: Existing View of South Union Street and Union Park

Source: Google Maps 699 S Union St. (looking north) Stockton, California.

On the south side of the park, the eastern half of East Scotts Avenue has residential properties while the block's western half has older brick and metal commercial structures creating various textures and colors within the view. On the west side of the park, across Union Street, are vacant land and a walled service yard creating a lack of harmony with the various forms, lines, textures, and built and natural elements. South Union Street was previously vacated and is currently in disrepair.

At the Stockton Diamond, the BNSF and UP tracks currently cross each other and interconnect at grade forming various linear features and built elements within these views. Views of the tracks contain varying textures with similar colors and forms throughout. These views are not considered memorable or unique to viewers. An image of the crossing as seen looking east from South Aurora Street along the BNSF tracks toward the existing UP main line tracks is shown in Figure 3.8-4.

Figure 3.8-4: Existing View of the At-grade Crossing at the Stockton Diamond



Source: Google Maps

In the southern part of the visual quality and aesthetics RSA, south of the Stockton Diamond, the existing visual character is dominated by industrial forms and textures within and abutting the railroad ROW. Many properties in this portion of the visual quality and aesthetics RSA are vacant. Figure 3.8-5 provides an image of the UP property over East Charter Way. The Mormon Slough, which is home to several transient encampments, runs underneath the railroad south of the Stockton Diamond (see Figure 3.8-6).

Figure 3.8-5: Existing View of UP Property from Bridge Over East Charter Way

Source: Google Maps

Figure 3.8-6: Existing View of Mormon Slough

Source: Google Maps

Viewers and Viewer Sensitivity

Using the 2015 FHWA Visual Impact Assessment guidance, there are two principal types of viewers: neighbors and travelers. Neighbors are those people who are outside of the railroad ROW and who would experience changes to the views of the railroad corridor with the Project. Travelers are considered those within the railroad ROW, including train passengers and operators, who would experience changes to the views from the railroad corridor with the Project.

Existing Visual Quality

The center of the visual quality and aesthetics RSA, within the Project Study Area, is comprised of industrial and railroad uses that dominate the visual elements and views. There is a preponderance of abandoned and derelict buildings, abandoned or stored cars and trucks, and piles of discarded materials and trash that are not seen as being orderly by neighbors and travelers.

The visual quality of the visual quality and aesthetics RSA outside of the railroad ROW and industrial land uses, is defined by neatly arranged single- and multifamily houses along residential streets and some well-maintained commercial structures (see Figure 3.8-7). Parks within the visual quality and aesthetics RSA, such as Union Park, Liberty Park, and Independence Park, are characterized by vibrant green shapes and textures, such as grass and trees, and harmonious built elements, such as pathways, that present natural harmony within the urbanized community (see Figure 3.8-8 and Figure 3.8-9). These areas within the visual quality and aesthetics RSA outside of the railroad ROW are located outside of the Project and comprise less than half of the visual quality and aesthetics RSA. Therefore, it is determined that the overall existing visual quality for the visual quality and aesthetics RSA is low.

Figure 3.8-7: Representative Neighborhood View Outside of Railroad Right-of-Way

Figure 3.8-8: View of Union Park

Figure 3.8-9: View of Liberty Park

3.8.3 ENVIRONMENTAL CONSEQUENCES

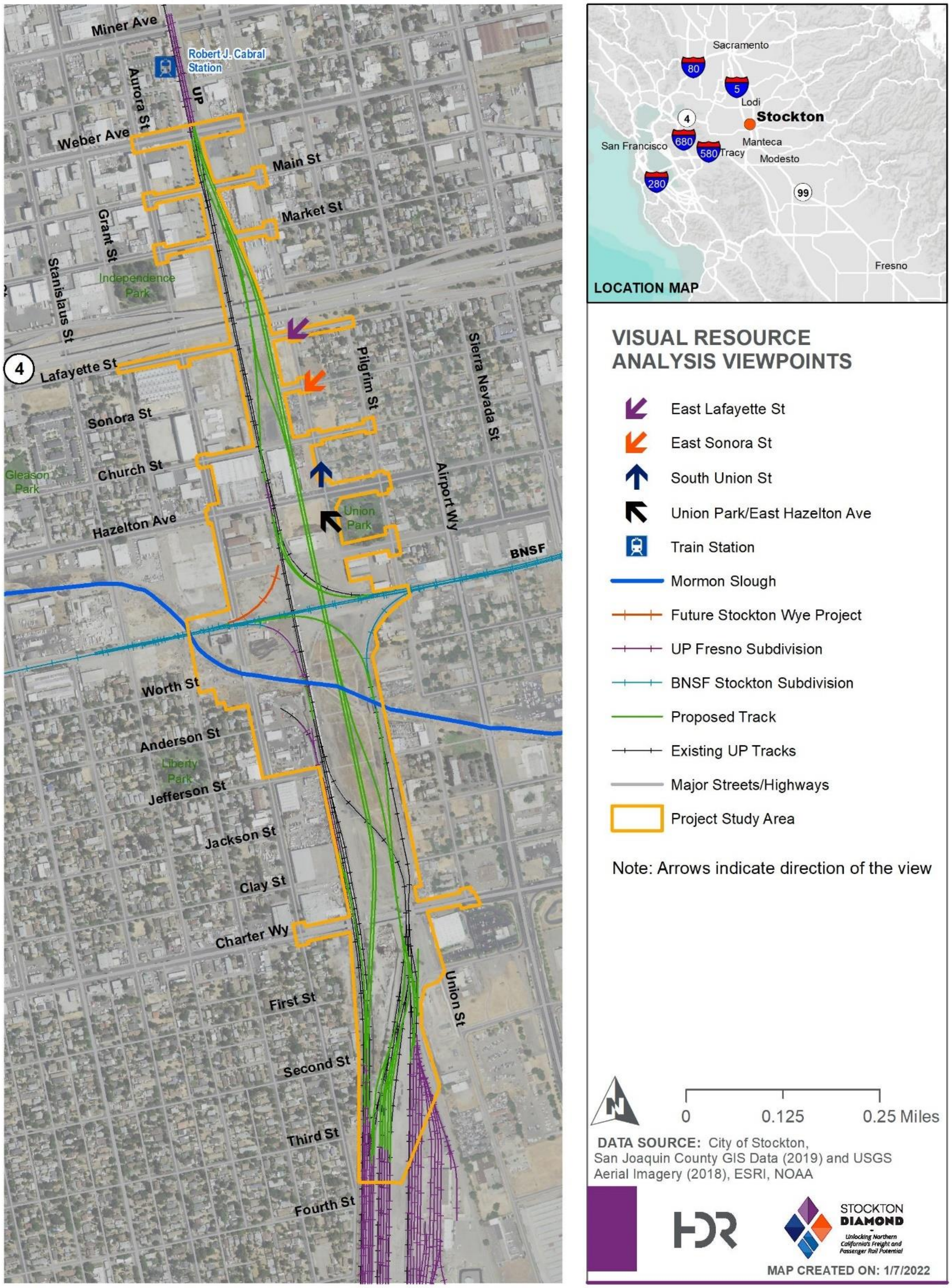
As previously stated, the visual effects assessment process includes four phases: establishment, inventory, analysis, and design. The environmental consequences section discusses the analysis phase, which evaluates the visual effects with the implementation of the Project. Visual effects can be beneficial, adverse, or neutral.

Viewpoints

Since it is not feasible to analyze all the views from which the Project would be seen to evaluate the visual resources and resource change for the visual and aesthetic RSA, four viewpoints were identified. The location of the viewpoints is shown on Figure 3.8-10. The viewpoints identified for the Project represent the viewers that may experience effects as a result of the Project, considering the viewers exposure and sensitivity.

The four viewpoints were identified to represent the areas with the most amount of change and potential to have a change in visual quality. Additionally, the viewpoints were selected to capture representative changes that may occur in more than one location, such as street closures or new railway alignment. The viewpoint locations were placed on the eastern side of the Project Study Area to capture the views seen by neighbors and travelers in a residential setting rather than from the industrial setting on the west side. Due to the industrial nature of the western side of the Project Study Area, near the Stockton Diamond, there would be very few neighbors viewing the Project. Neighbors viewing the Project improvements from the industrial areas are anticipated to have limited exposure and sensitivity compared to those in residential areas.

Figure 3.8-10: Visual Resource Analysis Viewpoints



East Lafayette Street Viewpoint

Fully closing East Lafayette Street would result in an improvement in visual quality by increasing the perception of cultural order of those viewers currently crossing the UP tracks on East Lafayette Street as shown in Figure 3.8-11 through Figure 3.8-12. At East Lafayette Street, with either the embankment or retaining wall option, the railroad tracks and a passing train would be slightly elevated from their existing at-grade height. The retaining wall option would transition to an earthen fill or berm prior to East Lafayette Street, as shown in Figure 3.8-12, due to the low elevation of the tracks at this section. The embankment and retaining wall options would appear fairly similar to viewers. Additional lighting during construction or operation of the Project may occur within this viewpoint. Although the Project would shift the existing track alignment closer in this viewpoint, viewers are not anticipated to perceive substantial change in the visual quality from the existing built-out industrial nature of the viewpoint. Additionally, the Project would eliminate the existing typical railroad and industrial corridor visual elements, which have a low visual quality due to the lack of cohesion and harmony. It is anticipated that neighbors and travelers would perceive an overall direct and indirect beneficial long-term visual effect on visual quality and aesthetics within the RSA due to the introduction of natural elements and the increase in natural harmony within the view, similar to the preferred view of the community.

Figure 3.8-11: Existing View of East Lafayette Street

Figure 3.8-12: Project View of East Lafayette Street

East Sonora Street Viewpoint

Farther south along South Union Street, the elevation with the proposed flyover continues to rise. The existing views of the railroad and industrial land uses would be replaced with the view of the low (4-foot-high) embankment or retaining wall structure for the flyover (Figure 3.8-13 through Figure 3.8-15). Given the very low elevation of the tracks at this location, there would be no viaduct option. An open industrial driveway west of South Union Street—not a through street—would be closed and replaced with guard rails. Additional lighting during construction or operation of the Project may occur within this viewpoint. Similar to the previous view from East Lafayette Street, while the Project would shift the existing track alignment closer in this viewpoint, there would be no substantial change in the visual quality from the existing built-out industrial and railroad uses of the viewpoint. Additionally, the Project would remove the existing industrial and railroad elements currently creating a low visual quality and introduce natural elements that would increase harmony and cohesion within the view. It is anticipated that viewers (neighbors and travelers) would perceive an increase in Project cohesion and an overall beneficial visual effect for the existing visual quality and aesthetics within the RSA.

Figure 3.8-13: Existing View of East Sonora Street

Figure 3.8-14: Project View of East Sonora Street with Embankment Option

Figure 3.8-15: Project View of East Sonora Street with Retaining Wall Option

South Union Street Viewpoint

Between East Church Street (proposed to be closed with the Project) and East Hazelton Avenue (proposed to remain open with an underpass), South Union Street is flanked by a residential area to the east and the railroad and industrial corridor to the west. Looking north along South Union Street, the similar visual characteristics on either side of the street, although different land uses, would be replaced with a contrasting view of either an embankment or retaining wall structure on the west side of the street (Figure 3.8-16 through Figure 3.8-18). At this location, the flyover structure would be approximately 10 to 12 feet higher than the current at-grade track height. The increasingly higher elevation would start to obstruct views across the tracks. Viewers, especially neighbors adjacent to the Project, would have increased sensitivity and exposure to the Project due to their proximity and the alignment of the existing rail tracks being shifted slightly closer to these viewers. Additional lighting during construction or operation of the Project may occur within this viewpoint.

However, the Project would remove industrial visual elements and replace them with an embankment or retaining wall creating a clear boundary from the edge of the residential area to the transportation features. This would improve the visual quality by providing more unity of the view, allowing for consistent visual patterns. Additionally, the viewshed would be more intact due to the more unified land use elements with fewer non-residential visual intrusions.

Figure 3.8-16: View of Existing South Union Street

Figure 3.8-17: Project View of South Union Street with Embankment Option

Figure 3.8-18: Project View of South Union Street with Retaining Wall Option

Union Park and East Hazelton Avenue

At East Hazelton Avenue, the flyover would be 18 feet high and would allow for a grade-separated crossing of East Hazelton Avenue via an underpass. The views from Union Park of the proposed flyover would improve the neighboring visual quality, particularly the views west and northwest toward East Hazelton Avenue (Figure 3.8-19 through Figure 3.8-22). The change from open, vacant land to being enclosed by the flyover structure (either with a viaduct, embankment, or retaining wall structure) would truncate the view west from Union Park. The viaduct and embankment design options would allow for more light to pass through the flyover structure and potentially offer more visual interest than the retaining wall design option, if a design is not installed on the retaining wall. The flyover structure may result in additional lighting within the City ROW. The Project would shift the existing track alignment from the viewpoint's background to the middleground. Similar to the South Union Street viewpoint, the visual quality would improve as the unity of the view would allow for consistent visual patterns. The defining and bounding of the space adjacent to Union Park would also provide clarity, enhancing both cultural order and Project corridor coherence; therefore, resulting in overall beneficial visual effect in the existing visual quality and aesthetics within the RSA.

Figure 3.8-19: View of Existing Union Park

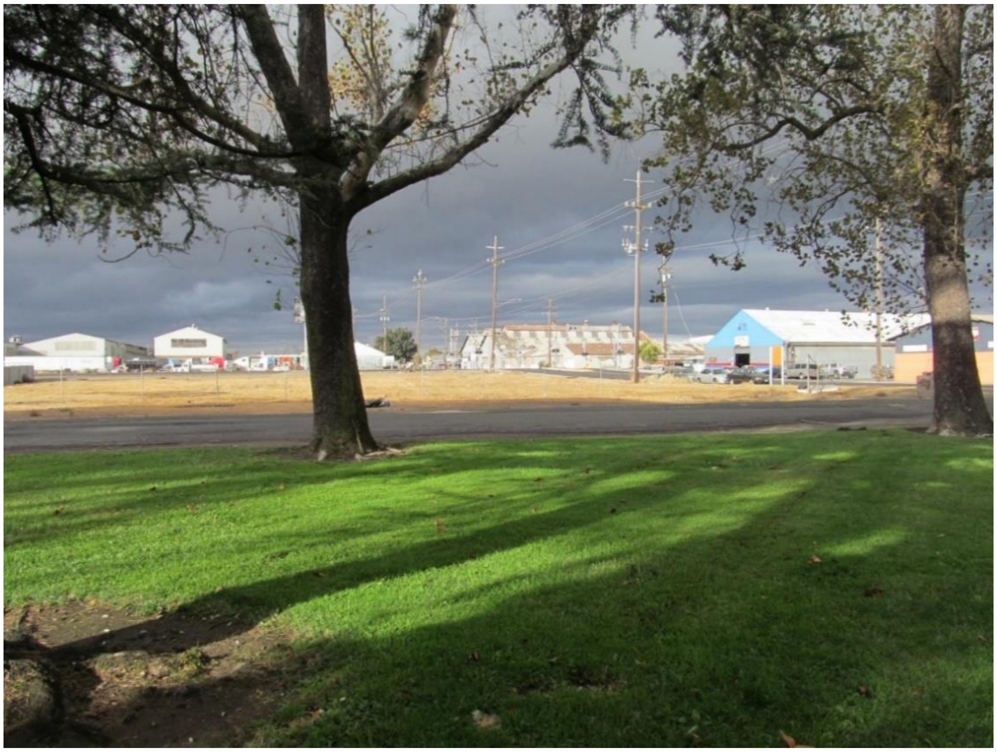


Figure 3.8-20: Project View of South Union Street with Viaduct Option

Figure 3.8-21: Project View of South Union Street with Embankment Option

Figure 3.8-22: Project View of South Union Street with Retaining Wall Option

No Action Alternative

Short-Term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no direct or indirect short-term effects to visual quality and aesthetics are anticipated under the No Action Alternative.

Long-Term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no direct or indirect long-term effects to aesthetics and visual quality are anticipated under the No Action Alternative.

Project

The Project will incorporate the BMPs identified in Table 3.8-1. BMP AES-2 and BMP AES-3 were incorporated into the Project in response to comments received from key stakeholders and the public received during the public circulation of the Project Draft EIR.

BMP AES-2 requires SJRRC to ensure that all infrastructure within the corridor owned by UP and all materials and aesthetic features will be reviewed and approved by UP during final design. Additionally, the detail design of the elements in the Project corridor and the selection of the flyover's specific materials and forms will be coordinated with UP to further reduce visual effects and further enhance existing visual quality.

BMP AES-3 requires SJRRC to coordinate with the City of Stockton and UP on the incorporation of trees along the west side of South Union Street for the viaduct and retaining wall design options.

Table 3.8-1: Project Best Management Practices

Best Management Practice	Description
BMP AES-1	**Lighting Plan.** During final design, SJRRC will ensure that a lighting plan will be developed that will select temporary and permanent lighting fixtures to minimize glare on adjacent properties and into the night sky. As defined in the City's Municipal Code, permanent lighting fixtures will be selected to ensure that the light beam is controlled and not directed across a property line or upward into the sky. Lighting will be shielded with non-glare hoods or reflectors and focused within the Project ROW. The lighting plan will be reviewed and approved by the City of Stockton prior to construction to ensure compliance with the City's Municipal Code and General Plan.

Best Management Practice	Description
BMP AES-2	**Coordinate Design Elements to Reduce Visual Impacts.** During final design, SJRRC will ensure that all infrastructure within the corridor owned by UP and all materials and aesthetic features will be reviewed and approved by UP. The detail design of the elements in the Project corridor and the selection of the flyover's specific materials and forms will be rigorously coordinated to reduce visual effects and enhance existing visual quality. For retaining wall options, this would include but not be limited to the wall type (cast-in-place, mechanically stabilized earth, or other types), the materials used in wall construction (concrete, block, stone, or metal), and the architectural treatment of its façade (dimensions, jointing, colors, textures). For the viaduct option, the bridge type, proportions for the openings, and design of piers would be coordinated, especially when located adjacent to a retaining wall or embankment structure, to achieve design coherence. For the embankment option, seed mixes will be selected to provide vigorous growth and seasonal variety. Coordination regarding potential sculpting of the embankments to be responsive to the public's interest in visual quality would be incorporated. For any of the design options, the type and placement of fencing, railings, and lighting to provide safety and security would be carefully considered and incorporated into the Project during the design phase in coordination with UP.
BMP AES-3	**Street Tree Planting.** During final design, SJRRC will ensure coordination with the City of Stockton on the incorporation of trees along the west side of South Union Street for the viaduct and retaining wall design options. The incorporation of trees would improve the visual quality of the flyover structure. SJRRC will coordinate with the City of Stockton and UP on the locations and types of plantings along the street to provide the visual screening of the viaduct or retaining wall structures.

Short-Term Effects

During the construction of the Project, construction equipment and materials, construction staging areas, temporary roadside barriers, construction and detour signage within the Project Study Area, and construction activities—such as truck hauling, excavation activity, and grading activities—would occur within the RSA. However, these activities are considered temporary in nature and would cease upon completion of construction. The Project will incorporate BMP AES-1 (Lighting Plan), which will address light pollution and glare during construction. With the incorporation of BMP AES-1, no direct or indirect short-term adverse effects on visual quality and aesthetics are anticipated within the RSA under the Project.

Long-Term Effects

The Project would provide an overall improvement to the long-term visual quality within the visual quality and aesthetics RSA. The construction of the flyover structure would enhance the design coherence of the Project corridor by eliminating, or screening from view, industrial land uses, such as salvage yards, that are usually considered by residential neighbors to be undesirable.

Additionally, views of the railroad corridor currently degrade the visual quality of the area. In order to further improve visual quality within the RSA, the Project will incorporate BMP AES-1 (Lighting Plan), BMP AES-2 (Coordinate Design Elements to Reduce Visual Impacts), and BMP AES-3 (Street Tree Planting), as identified in Table 3.8-1. BMP AES-1 will require SJRRC, and the City to develop a lighting plan to minimize glare and reduce light into the night sky while also replacing or installing additional lighting where needed within the City ROW. The incorporation of BMP AES-2 and BMP AES-3 will add additional visual interest with cultural or natural elements to improve the visual quality in the visual quality and aesthetics RSA.

Therefore, with the incorporation of BMP AES-1 through BMP AES-3, there would be direct and indirect beneficial long-term effects on visual quality and aesthetics within the RSA under the Project.

3.8.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for visual quality and aesthetics; therefore, no specific visual quality and aesthetics mitigation measures are required.

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3.9 Cultural Resources

This section describes the regulatory setting and affected environment for cultural resources. Cultural resources include historic built resources, and prehistoric- and historic-era archaeological sites, objects, and artifacts as well as cultural properties that are important to local Native American tribes. Those cultural resources that are on or determined eligible for the NRHP are referred to as historic properties and are protected under Section 106 of the National Historic Preservation Act (NHPA) and under Section 4(f) of the US Department of Transportation National Historic Preservation Act of 1966 (Section 4[f]). The term "historic built resources" refers to buildings, engineering structures, districts, or landscapes built in or before 1975. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on cultural resources during construction and operation of the Project. If short-term or long-term effects on cultural resources are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to cultural resources are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the cultural resources RSA, or APE.

3.9.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of cultural resources is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

National Historic Preservation Act of 1966, as amended (80 Stat. 915, [former] 16 U.S.C. 470 et seq.) [see 54 U.S.C. 300101 et seq)

Implementing Regulations for Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108)

Section 4(f) of the Department of Transportation Act of 1966, as amended (49 USC 303, 23 USC 138, 23 CFR Part 774)

State Plans, Policies, and Regulations

California Register of Historic Resources

Local Plans, Policies, and Regulations

City of Stockton General Plan

Goal LU-5: Protect, maintain, and restore natural and cultural resources.

Policy LU-5.2: Protect natural resource areas, fish and wildlife habitat, scenic areas, open space areas, agricultural lands, parks, and other cultural/historic resources from encroachment or destruction by incompatible development.

Action LU-5.2D: Require the following tasks by a qualified archaeologist or paleontologist prior to project approval: (1) Conduct a record search at the Central California Information Center located at California State University Stanislaus, the University of California Museum of Paleontology at Berkeley, and other appropriate historical or archaeological repositories; (2) conduct field surveys where appropriate; (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation or other appropriate standards; and (4) where development cannot avoid an archaeological or paleontological deposit, prepare a treatment plan in accordance with appropriate standards, such as the Secretary of the Interior's Standards for Treatment of Archaeological Sites.

Action LU-5.2E: Continue to consult with Native American representatives, including through early coordination, to identify locations of importance to Native Americans, including archaeological sites and traditional cultural properties.

Action LU-5.2F: If development could affect a tribal cultural resource, require the developer to contact an appropriate tribal representative to train construction workers on appropriate avoidance and minimization measures, requirements for confidentiality and culturally appropriate treatment, other applicable regulations, and consequences of violating State laws and regulations.

Action LU-5.2G: Comply with appropriate State and federal standards to evaluate and mitigate impacts to cultural resources, including tribal, historic, archaeological, and paleontological resources.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.9.2 AFFECTED ENVIRONMENT

This section provides an overall framework for conducting the Project cultural resources assessment, including outreach and consultation efforts, delineation of the APE/RSA, historic built resources and archaeological resources identification procedures, assessment of effects, and treatment of historic properties.

Definition of Resource Study Area

The RSA is the area within which environmental investigations specific to each resource topic are conducted. The RSA, referred to as the APE for historic properties under Section 106 of the NHPA, includes a study area for historic built resources that encompasses all legal parcels intersected by the Project as well as adjacent parcels if the built resources on those parcels may be affected by visual, noise, and vibration effects caused by the introduction of rail service and/or a rail or roadway grade separation where no such similar structure previously existed. The APE also includes a study area for archaeological resources that was established based on an undertaking's potential for direct effects from ground-disturbing activities, including ground disturbance beyond the immediate footprint, which includes all preconstruction, construction, and operation activities. The horizontal APE consists of the current and proposed ROW, temporary staging areas, utility easements, and laydown area.

The vertical APE extends from the existing ground surface to the final depth necessary for the railbed and for footings or foundations of structural components. Depths will be determined during final design but are typically expected to be approximately five feet below ground surface (bgs) for at-grade work. Utilities and storm drains are expected to extend between 10 and 12 feet bgs. Under the flyover bridge structures, drilled holes will range from 15 to 20 feet bgs and pile driving could extend to depths beyond 100 feet bgs. The APE is shown on Figure 3.9-1.

Methods for Data Collection and Analysis

Records Search and Background Research

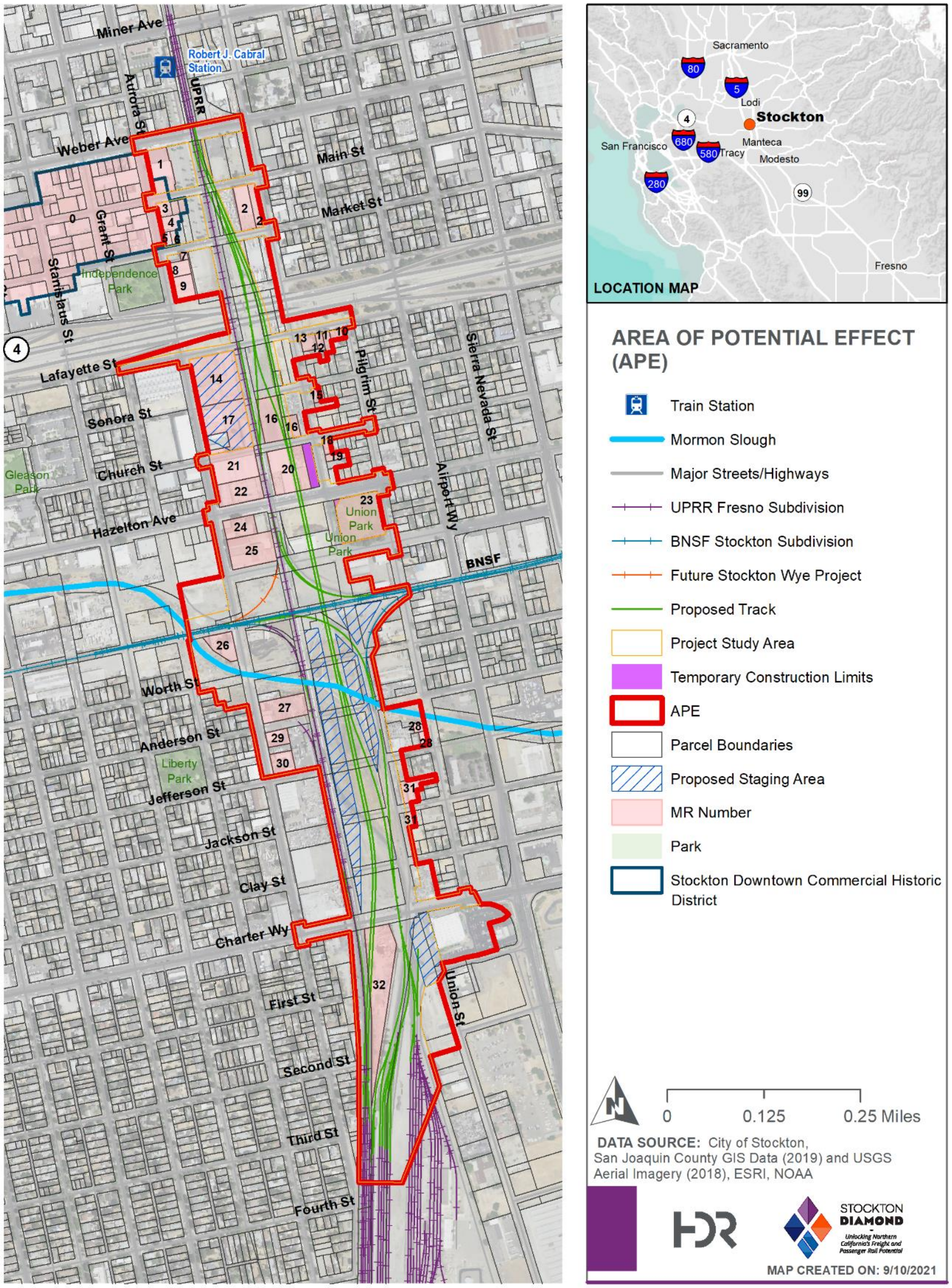
A records search for the Project was conducted by staff at the Central California Information Center in April 2020 (Record Search File No. 11370L) to identify previous investigations and previously recorded cultural resources within the APE and a quarter-mile buffer area surrounding the APE. Standard sources of information also reviewed included the California Historical Resources Information System operated through the Office of Historic Preservation (OHP); OHP Built Environment Resources Directory; the NRHP; the California Register of Historical Resources (CRHR); Caltrans Historic Bridge Inventory; the City of Stockton's Historic Landmark and Historic Districts, Historic Sites and Structure of Merits listings, as well as previous historic resources inventory and evaluation surveys and reports, including the Revised Draft Stockton Downtown Historic Resource Inventory (dated September 1, 2000). In addition, historic maps and aerial photographs of the APE were reviewed to identify potential historic-age resources that may not have been identified from the records search.

The searches and research noted above identified 23 previously inventoried and/or evaluated built historic resources and one historic district within the APE. Two of the 23 properties have been demolished since they were recorded; of these, one was previously identified as a contributor to the Stockton Downtown Commercial Historic District. Four of the 23 properties were previously identified as contributors to the Stockton Downtown Commercial Historic District. One additional property is individually eligible for the NRHP.

In addition, the records search identified three previously recorded archaeological sites and one instance of noted but not recorded (NBNR) human remains within the Project APE or its 0.25-mile buffer area. One historic-age refuse deposit (P-39-005114/CA-SJO-000338H) is recorded within the

APE; the historic-age burial place of John Brown (Juan Flaco: P-39-000532) is recorded immediately adjacent to the APE. The NBNR human remains and one multi-component site consisting of historic-age refuse and lithic flakes (P-39-004164/CA-SJO-000272/H) are within the 0.25-mile buffer outside the APE. These archaeological resources are further described in "*Description of Archaeological Resources within or Adjacent to the APE,*" later in this section.

Figure 3.9-1: Area of Potential Effect



Interested Parties Consultation

Potential local interested parties for historic built resources were identified for this Project and notification letters sent on October 29, 2020. Follow-up communication was conducted on January 14, 2021. No responses were received. The letters and follow-up communication were sent to:

- San Joaquin County Historical Society and Museum
- City of Stockton Cultural Heritage Board
- Haggin Museum
- San Joaquin Genealogical Society

Tribal Consultation and Coordination

A Sacred Lands File search was requested from the Native American Heritage Commission (NAHC) on May 8, 2020, to identify sensitive or sacred Native American resources that could be affected by the Project. The NAHC responded on May 12, 2020, and reported that the search of the Sacred Lands File revealed positive results for the relevant area. No additional information on the location or nature of the positive finding was provided; however, the NAHC recommended that the North Valley Yokuts Tribe be contacted for more information. Because the search does not include an exhaustive list of Native American tribal cultural resources, the NAHC provided a list of two Native American tribal organizations who may have direct knowledge of tribal cultural resources in or near the APE:

- North Valley Yokuts Tribe – Katherine Perez
- The Confederated Villages of Lisjan – Corrina Gould

Outreach letters were sent to tribal governments providing information about the Project and seeking input from the tribal community. Section 106 consultation with Native American tribal governments is being conducted by CHSRA and was formally initiated in December 2020.

Representatives of CHRSA met with a representative of the North Valley Yokuts Tribe and the Confederated Villages of Lisjan in January and February 2021, respectively. BMP Measures to ensure proper treatment of any inadvertent discoveries of interest to tribal representatives during Project construction activities were discussed and have since been agreed to. These BMP are presented in Table 3.9-3. For detailed information regarding the Project's Section 106 efforts, including the letters sent to tribes, please refer to Appendix H, *Section 106 Consultation Efforts,* of this Final EA.

Field Survey and Results

Survey of historic built resources was conducted October 22-23, 2020. Thirty-two historic built resources (resources that were 45 years or older at the time of survey in 2020) within the APE were evaluated through field survey, along with a record search and background research. Of the 32 historic built resources, 20 resources had not been previously studied for historic significance, while 12 were evaluated in previous surveys or inventories and identified as eligible for listing in the NRHP, CRHR and/or a local historic registry.

An archaeological reconnaissance survey was conducted on October 1, 2020. The field visit consisted of a pedestrian survey of all accessible undeveloped areas of the APE. No undisturbed native sediment was observed during the field survey. Most of the alignment has been paved and developed with much of the railway alignment covered with imported gravel. No evidence of historic-age refuse deposit P-39-005114/CA-SJO-000338H was observed during the field survey. No newly identified archaeological resources were identified as a result of the survey.

The archaeological reconnaissance survey was supplemented by a geoarchaeological study to consider the Project's potential for encountering as-yet undocumented buried prehistoric archaeological sites. The analysis was conducted using the results of the field survey, records search, and a review of geological and topographic maps of the APE and vicinity.

The overall archaeological sensitivity of the Project APE is moderate for buried archaeological resources. The surface of the APE is heavily disturbed and developed from the construction of railroad lines and infrastructure. These disturbed sediments and fill material within the APE have low potential to contain intact archaeological material. The Project is adjacent to water sources and a historic-age cemetery is adjacent to the northern portion of the Project's APE. As a result, undisturbed native soils below the level of disturbed sediments and fill material have a moderate potential of containing subsurface historic-age and prehistoric materials.

Existing Setting

Description of Historic Built Resources within the APE

Five of the 12 previously evaluated historic built resources within the APE, as described below, as well as the Stockton Downtown Commercial Historic District, of which 4 of the resources are contributors, are historic properties under Section 106 of the NRHP.

HISTORIC BUILT RESOURCES ELIGIBLE FOR THE NRHP

Four of the five historic built resources in the APE that are eligible for listing in the NRHP (see Table 3.9-1) are contributors to the Stockton Downtown Commercial Historic District. The APE includes a small portion of the eastern-most area of the historic district. In addition, one resource is individually eligible for the NRHP. The five resources, along with the historic district itself, are historic properties under Section 106.

These six historic properties qualify for protection under Section 4(f). Refer to Section 3.4.5, *Section 4(f),* and Appendix D, *Section 4(f) and Section 6(f) Evaluation,* of this Final EA for additional information regarding these Section 4(f) properties.

Table 3.9-1: Historic Properties under the NRHP within the APE

MR No.[a]	Historic Name	Address	Year Built	OHP Code[b]
N/A	Stockton Downtown Commercial Historic District	N/A	N/A	3S, 5S2
3	Imperial Hotel	902 East Main Street	1896	3D, 5S2
4	Imperial Garage N/A	20 South Aurora Street 30 South Aurora Street	ca. 1915 1918	3D, 5S2
5	Hotel New York	34 South Aurora Street	1910	3D, 5S2
6	N/A	915 East Market Street	ca. 1926	3D, 5S2
7	Waldemar Apartments	920 East Market Street	1918	3S,5S2

[a] Map Reference Number

[b] OHP Codes: 3D=Appears eligible for the NRHP as a contributor to a NHRP eligible historic district (has not yet received SHPO concurrence or agency determination), 5S2=Individually eligible for local listing or designation

Stockton Downtown Commercial Historic District

The APE intersects the Stockton Downtown Commercial Historic District. Comprised of 84 contributing buildings within its approximate 21 city-block boundary, only four legal parcels at the district's easternmost boundary are within the APE. A previous evaluation of the district concluded that it was eligible for listing in the NRHP. The present study updated previous evaluations of four of the district's contributing buildings located along South Aurora and East Market streets in the APE.

The district is significant at the local level under NRHP Criterion A within the context of commercial development of Stockton during a period of significance from 1880-1940. The boundary of the district was previously identified as generally extending east-west along Weber, Main, and Market streets between El Dorado and the Union Pacific Railroad. Character-defining features would include the integrity of its contributing buildings and structures, including the four buildings in the APE, as well as the historic transportation grid street pattern.

Imperial Hotel (Map Reference No. 3)

The Imperial Hotel is a one-story, Victorian Eclectic-style building constructed of brick (Figure 3.9-2). The building was found to be eligible to the NRHP at the local level under NRHP Criterion A as a contributor to the Stockton Downtown Commercial Historic District. The character-defining features identified for this Project include its arched window and door openings, Corinthian columns, terra cotta window and door surrounds, brick work detailing, and corner quoining. The period of significance for this historic property is 1896, the year it was constructed, through 1940, the end of the historic district's period of significance. The historic property boundary of this building is its current legal parcel.

Figure 3.9-2: Imperial Hotel, Map Reference No. 3.

Source: JRP Historical Consulting, LLC

Imperial Garage and 30 South Aurora Street (Map Reference No. 4)

The Imperial Garage at 20 South Aurora Street (Figure 3.9-3) and the similar, adjacent structure at 30 South Aurora Street are one-story Early Commercial buildings. Both rectangular buildings are of brick construction and have symmetrical facades with stepped parapets. The buildings were found to be eligible to the NRHP at the local level under NRHP Criterion A as a contributor to the Stockton Downtown Commercial Historic District. Character-defining features identified for this Project include their symmetrical facades, stepped parapets, three bays, and decorative brickwork. The period of significance for these buildings is ca. 1915 and 1918, respectively, the years they were constructed, through 1940, the end of the historic district's period of significance. Located on a single parcel, the historic property boundary for these buildings is their current legal parcel.

Figure 3.9-3: Imperial Garage and 30 South Aurora Street, Map Reference No. 4

Source: JRP Historical Consulting, LLC

New York Hotel (Map Reference No. 5)

The New York Hotel (Figure 3.9-4) is a four-story brick building with stepped parapets and corbeled cornice. It has a modified first floor with stucco siding. Fenestration is generally symmetrical, with double-hung, wood-frame windows on the upper portion of each facade. The building was found to be eligible to the NRHP at the local level under NRHP Criterion A as a contributor to the Stockton Downtown Commercial Historic District. Character-defining features identified for this Project include its brick construction, symmetrical fenestration on upper floors, parapeted roof with corbeled cornice, belt courses, window lintels and sills, and construction date plaque. The period of significance for this historic property is 1910, the year it was constructed, through 1940, the end of the historic district's period of significance. The historic property boundary is its current legal parcel.

Figure 3.9-4: New York Hotel, Map Reference No. 5

Source: JRP Historical Consulting, LLC

915 East Market Street (Map Reference No. 6)

The building at 915 East Market Street (Figure 3.9-5) is a two-story brick structure with a hipped roof and parapets with corbeled cornice. The building was found to be eligible to the NRHP at the local level under NRHP Criterion A as a contributor to the Stockton Downtown Commercial Historic District. Character-defining features identified for this Project include, but are not limited to, Flemish bond brick construction, brick parapet, and brick window surrounds that incorporate soldier and header courses. The period of significance for this historic property is ca. 1926, the year it was constructed, through 1940, the end of the historic district's period of significance. The historic property boundary is its current legal parcel.

Figure 3.9-5: 915 East Market Street, Map Reference No. 6

Source: JRP Historical Consulting, LLC

Waldemar Apartments (Map Reference No. 7)

The Waldemar Apartments (Figure 3.9-6) is an early twentieth century, three-story, brick building with Classical details. It has a flat roof, symmetrical façade, corbeled parapet, diamond-patterned belt course, and double-hung wood windows. The building is eligible for the NRHP at the local level under NRHP Criterion C, as a representative example of a multi-storied, masonry apartment building constructed in the early twentieth century. Its period of significance is 1918, the year it was constructed, and its character-defining features are its scale and massing; corbeled parapet; diamond-patterned belt course; flat roof; symmetrical fenestration that appears to still contain one-over-one, double-hung wood sash windows with brick lentils and sills; belt course between first and second floors; Flemish-bond, multi-colored brick; and primary and secondary entrances. The boundary of the property is its current legal parcel.[1]

[1] Architectural Resources Group, *Revised Draft Downtown Stockton Historic Resources Survey*, prepared for the City of Stockton, September 1, 2000, Appendix One.

Figure 3.9-6: Waldemar Apartments, Map Reference No. 7

Source: JRP Historical Consulting, LLC

Ineligible Historic Built Resources

27 of the 32 historic built resources identified within the APE are ineligible for listing in the NRHP because they lack significance and/or do not retain sufficient historic integrity. None of these resources are historic properties under Section 106.

Description of Archaeological Resources within or Adjacent to the APE

Three archaeological resources and one instance of NBNR human remains were identified in the records search for the Project. One historic-age refuse deposit (P-39-005114/CA-SJO-000338H) is recorded within the APE but could not be relocated during pedestrian field survey and is likely no longer extant. The historic-age burial place of John Brown (Juan Flaco: P-39-000532) is recorded immediately adjacent to, but outside of, the APE. The NBNR human remains and one multi-component site consisting of historic-age refuse and lithic flakes (P-39-004164/CA-SJO-000272/H) are located approximately 0.12-mile and 0.25-mile outside of the APE, respectively. Additional details from the records search regarding P-39-000532 and P-39-004164/CA-SJO-000272/H are provided below; however, both are outside of the Project's APE.

P-39-000532

John Brown, or "Juan Flaco" was an express rider who carried word of the siege of Los Angeles to Commodore Stockton in September 1846. He was a citizen of Stockton from 1851 to his death on December 12, 1859, and was buried in the former Citizen's Cemetery. When the bodies were taken from this site to a new burial location in the 1890s, Brown had no relatives to pay for the move, thus his remains are said to still be in the Citizen's Cemetery, which has since been abandoned and occupied by commercial structures. The site of his burial was designated CHL-513, and a marker was erected September 13, 1969, at 1100 East Weber Avenue, reading:

> In 1846, during American conquest of California, John Brown, nicknamed "Juan Flaco," rode from Los Angeles to San Francisco in four days to warn Commodore Stockton of the siege of Los Angeles. As a result, troops were sent and the city secured. The "Paul Revere of California" lived in Stockton from 1851-59 and is buried in the former Citizen's Cemetery near this site.

The site is located outside of, but immediately adjacent to, the northern portion of the APE. No additional documentation is necessary.

P-39-004164/CA-SJO-000272/H

This site consists of domestic refuse and structural debris dating from the mid-1860s along with five lithic flakes. A salvage-only excavation consisting of one backhoe trench was completed in 2000. Excavation extended to a depth of 1.5 meters below ground surface and identified a variety of household and structural debris along with five Franciscan chert lithic flakes. None of the five flakes exhibited signs of further working. This site is located 0.25-mile outside the APE, and no additional documentation is necessary.

3.9.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects to cultural resources from the construction and operation of the Project, as well as measures necessary to reduce Project effects.

Criteria of Adverse Effect

The Criteria of Adverse Effect are presented in 36 CFR 800.5. An "adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."[2]

[2] 36 CFR 800.5, "Assessment of adverse effects," incorporating amendments effective August 5, 2004.

Table 3.9-2 lists examples of adverse effects, as provided in 36 CFR 800.5(a)(2).

Table 3.9-2: Adverse Effects in 36 CFR 800.5(a)(2)

Adverse effects on historic properties described in 36 CFR 800.5 include, but are not limited to:	
(i)	Physical destruction of or damage to all or part of the property;
(ii)	Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR Part 68) and applicable guidelines;
(iii)	Removal of the property from its historic location;
(iv)	Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;
(v)	Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
(vi)	Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
(vii)	Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.[a]

[a] *36 CFR 800.5, "Assessment of adverse effects," incorporating amendments effective August 5, 2004.*

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, the No Action Alternative would have no direct or indirect short-term effects on historic properties within the APE.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, the No Action Alternative would have no direct or indirect long-term effects on historic properties within the APE.

Project

CHSRA, as NEPA Lead Agency, has determined that the Project would have no adverse effect on historic properties within the APE. The Project Finding of Effect (FOE) Report was submitted to SHPO on August 4, 2021; an Addendum to the FOE Report was submitted in November 2021. SHPO agreed with the Project finding of no adverse effect on December 9, 2021, given the Project BMPs identified in Table 3.9-3, below, will be incorporated as part of the Project. See Appendix H for FOE and SHPO concurrence information.

Table 3.9-3: Project Best Management Practices

Best Management Practice	Description
BMP CUL-1	**Archaeological and Tribal Monitoring.** Prior to issuance of grading permits, SJRRC shall retain an archaeological monitor as well as Native American monitors from the North Valley Yokuts Tribe and The Confederated Villages of Lisjan. The archaeological monitor, working under the direct supervision of a qualified archeologist, shall be present for Project earth-moving activities that occur within undisturbed, original ground in the Project Area. Earth moving activities include, but are not necessarily limited to, excavation, trenching, grading, and drilling. One Native American monitor from the North Valley Yokuts Tribe and one Native American monitor from The Confederated Villages of Lisjan shall also be requested to be on-site during Project earth-moving activities that occur within undisturbed, original ground in the Project Area. Attendance is ultimately at the discretion of the tribes. Areas identified for archaeological and Native American monitoring will be further refined in consultation with interested Native American tribes. All archaeological monitors shall be familiar with the types of historical and prehistoric resources that could be encountered within the Project Area. The qualified archaeologist shall have the ability to recommend, with written and photographic justification, the termination of monitoring efforts to SJRRC and should SJRRC and the Native American monitors concur with this assessment, then monitoring shall cease. If an inadvertent discovery of archaeological materials is made during project-related construction activities, the qualified archaeologist shall immediately be notified regarding the discovery and shall follow the process laid out under 36 CFR 800.13. If prehistoric or potential tribal cultural resources are identified, the Native American monitors shall also immediately be notified. The archaeological monitor shall have the authority to halt ground disturbing activities within 50 feet of the resource(s) and an Environmentally Sensitive Area physical demarcation shall be established. The qualified archaeologist, in consultation with SJRRC and Native American monitors—should the find be prehistoric or a potential tribal cultural resource it shall determine whether

Best Management Practice	Description
	the resource is potentially significant under Section 106 of NHPA. Next, CHSRA shall determine actions that SJRCC can take to resolve adverse effects and notify SHPO and interested tribes within 48 hours of the discovery. If avoidance is not feasible, the qualified archaeologist, in consultation with SJRRC, shall prepare and implement a detailed treatment plan. Treatment for most archaeological resources would consist of, but would not necessarily be limited to, in-field documentation, archival research, subsurface testing, and excavation. No work will continue within the 50-foot buffer until the qualified archaeologist, and SJRRC along with the Native American monitors—should the find be prehistoric or a tribal cultural resource—agree to appropriate treatment.
BMP CUL-2	**Worker Environmental Awareness Protection Training.** Prior to initiating earth-moving construction activity, a qualified archaeologist, meeting the Secretary of the Interior's Standards for professional archaeology, shall ensure that a Worker Environmental Awareness Protection (WEAP) training, presented by a qualified archaeologist and with participation requested by Native American representative(s), is provided to all construction and managerial personnel involved with the Project. The WEAP training shall provide an overview of cultural (prehistoric and historic) and tribal cultural resources and outline regulatory requirements for the protection of cultural resources. The WEAP training can be in the form of a video or PowerPoint presentation. Printed literature (handouts) can accompany the training and can also be given to new workers and contractors to avoid the necessity of continuous training over the course of the Project.
BMP CUL-3	**Archaeological and Tribal Monitor.** Prior to issuance of grading permits, SJRRC shall retain an archaeological monitor. The archaeological monitor, working under the direct supervision of the qualified archeologist, shall be present for all ground-disturbing activities that occur in native soil within the APE. All archaeological monitors shall be familiar with the types of historical and prehistoric resources that could be encountered within the APE. Ground disturbing activities include, but are not limited to, brush clearance, grubbing, excavation, trenching, grading, and drilling. A sufficient number of archaeological monitors shall be present

Best Management Practice	Description
	each workday to ensure that simultaneously occurring ground disturbing activities receive thorough levels of monitoring coverage. The qualified archaeologist shall have the ability to recommend, with written and photographic justification, the termination of monitoring efforts to SJRRC, and should SJRRC and the Native American participants concur with this assessment, then monitoring shall cease. If an inadvertent discovery of archaeological materials is made during Project-related construction activities, the archaeological monitor shall have the authority to halt ground disturbing activities within 50 feet of the resources and an Environmentally Sensitive Area physical demarcation shall be constructed. The qualified archaeologist shall be notified regarding the discovery. If prehistoric or potential tribal cultural resources are identified, the interested Native American participants shall be notified. The qualified archaeologist, in consultation with SJRRC (and Native American participants should the find be prehistoric), shall determine whether the resource is potentially significant as per Section 106 (that is, whether it is an historical resource, a unique archaeological resource). If avoidance is not feasible, a qualified archaeologist, in consultation with SJRRC, shall prepare and implement a detailed treatment plan. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of, but would not be limited to, in-field documentation, archival research, subsurface testing, and excavation. No work will continue within the 50-foot buffer until the qualified archaeologist, and Lead Agencies (along with the Native American participants should the find be prehistoric) agree to appropriate treatment. One Native American monitor from the North Valley Yokuts Tribe and one Native American monitor from The Confederated Villages of Lisjan shall be requested to be on-site during all ground disturbing activities that occur in native soil and attendance is at the discretion of the tribes.

Best Management Practice	Description
BMP CUL-4	**Inadvertent Discovery of Human Remains During Construction.** In the event of the inadvertent discovery of human remains, SJRRC will ensure that their designated contractor shall immediately notify the county coroner and SJRRC. If the county coroner determines the remains are Native American in origin, the coroner shall contact the Native American Heritage Commission in accordance with Health and Safety Code Section 7050.5 subdivision c, and Public Resources Code Section 5097.98 (as amended by AB 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per Public Resources Code 5097.98. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendent regarding their recommendations, if applicable. If the remains are determined to be neither of forensic value to the coroner, nor of Native American origin, provisions of the California Health and Safety Code (7100 37 et seq.) directing identification of the next-of-kin will apply.

Short-term Effects

ARCHAEOLOGICAL PROPERTIES

No archaeological resources have been identified within the APE; therefore, none have been identified as significant under Section 106 of the NHPA. Ground disturbing activities associated with the Project, however, may affect unknown buried cultural resources. However, the Project has incorporated BMPs to assist in the avoidance and minimizations of such effects. With the incorporation of BMP CUL-1, BMP CUL-2, BMP CUL-3, and BMP CUL-4, identified in Table 3.9-3, no direct or indirect short-term adverse effects on archeological properties are anticipated under the Project. All archaeological BMPs agreed upon by SHPO and the consulting tribes are documented in the addendum Finding of Effect report (November 2021).

HISTORIC BUILT RESOURCES

As summarized in Table 3.9-4, CHSRA has determined that the Project would have no adverse effect on built historic properties, including the Stockton Downtown Commercial Historic District, within the APE. The Project FOE Report was submitted to SHPO on August 4, 2021, and an addendum to the FOE Report was submitted in November 2021. SHPO agreed with the Project finding of no adverse effect on the historic properties within the APE, including the Stockton Downtown Commercial Historic District, on December 9, 2021, given the Project BMPs identified in

Table 3.9-3 will be incorporated as part of the Project. See Appendix H for FOE and SHPO concurrence information.

Table 3.9-4: Summary of Historic Properties and Effects Finding

Map Reference Number	APN	Resource Name	Address	Year Built	Effect Finding
N/A	N/A	Stockton Downtown Commercial Historic District	N/A	N/A	No Adverse Effect
3	151-190-001	Imperial Hotel	902 East Main Street	1896	No Adverse Effect
4	151-190-080	Imperial Garage N/A	20 South Aurora Street 30 South Aurora Street	ca. 1915 1918	No Adverse Effect
5	151-190-007	Hotel New York	34 South Aurora Street	1910	No Adverse Effect
6	151-190-060	N/A	915 East Market Street	ca. 1926	No Adverse Effect
7	151-220-020	Waldemar Apartments	920 East Market Street	1918	No Adverse Effect

The Project would not result in adverse effects as defined in 36 CFR 800.5(a), since the Project would not affect the existing character or use of any built historic property within the APE, as there are no direct physical effects to the resources. Further, no visual or audible effects that would alter their character-defining features (36 CFR 800.5(a)(1)) would occur based on the FTA guidance manual regarding assessment of train noise and vibration effects.[3] Construction vibration as a result of the Project would not exceed the FTA recommended vibration thresholds for historic buildings and structures through the use of impact pile driving within 75 feet of a fragile historic structure (Category IV) and/or other heavy construction, such as compactor, bulldozer, or vibratory roller, within 25 feet of a non-engineered timber or masonry historic structure (Category III), as all built environment historic properties in the APE are all Category III or higher.

Additionally, all impact pile driving for the Project would occur 75 feet or more from historic properties, and the use of compactors, bulldozers, and vibratory rollers during construction would occur at a distance of more than 25 feet from all historic buildings analyzed herein.[4] Therefore, no

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[3] Cross-Spectrum Acoustics, Inc, *Technical Memorandum, Noise and Vibration*, prepared for Stockton Diamond Grade Separation Project, November 9, 2020; Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123 (Washington, DC: USDOT, FTA, Office of Planning and Environment, September 2018) CHSRA and SJRRC follow FTA transit noise and vibration impact assessment procedures to evaluate improvements to conventional passenger rail lines and stationary rail facilities and for horn noise assessment.

[4] Personal communication with Mike Higgins, Senior Project Manager, and Angie Kung, Environmental Sciences Highway Section Manager, both of HDR, June 14, 2021.

short-term construction ground-borne vibration effects on built historic properties would occur in the APE under the Project.

Long-term Effects

ARCHAEOLOGICAL PROPERTIES

No archaeological resources have been identified within the APE; hence, no archaeological resources have been identified as significant under Section 106 of the NHPA or under NEPA. Therefore, no direct or indirect long-term effects on archaeological properties are anticipated under the Project.

HISTORIC BUILT RESOURCES

The Project would not cause direct or indirect long-term adverse effects to any of the built historic properties in the APE from the introduction of new visual elements that would diminish the integrity of any of the historic properties' significant historic features (36 CFR 800.5(a)(2)(iv) and (v)), nor would it cause direct or indirect long-term adverse effects from vibration and noise under 36 CFR 800.5(a)(2)(v), as the Project would not generate sufficient operational ground-borne vibration to modify any of the characteristics that qualify the historic properties for inclusion in the NRHP. Furthermore, the Project would not cause direct or indirect long-term adverse effects to any of the historic properties from any anticipated operational noise (36 CFR 800.5(a)(2)(iv) and (v)) because none of the historic properties are considered noise sensitive. Therefore, no direct or indirect long-term adverse effects on built historic properties in the APE are anticipated under the Project. For a more detailed discussion of long-term Project effects on built historic properties, see the Finding of Effect Report in Appendix H of this Final EA.

3.9.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for cultural resources; therefore, no specific cultural resources mitigation measures are required.

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3.10 Hydrology, Floodplains, and Water Quality

This section describes the regulatory setting and affected environment for hydrology, floodplains, and water quality. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on hydrology, floodplains, and water quality during construction and operation of the Project. If short-term or long-term effects on hydrology, floodplains, and water quality are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects on hydrology, floodplains, and water quality are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects on these resources within the hydrology, floodplains, and water quality RSA.

3.10.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of hydrology, floodplains, and water quality are provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Clean Water Act of 1972, as amended (33 U.S.C 1251-1387) Executive Order 11988

State Plans, Policies, and Regulations

Porter-Cologne Water Quality Control Act (Water Code, §13000 et seq.)

State Water Resources Control Board and Regional Water Quality Control Board

Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2009-0009-DWQ, as amended)

Local Plans, Policies, and Regulations

Regional Water Quality Control Board Basin Plan

Central Valley Flood Protection Board (California Code Regs. Title 23, Division 1)

City of Stockton – Mormon Channel Specific Plan

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders are provided in Table B-1 in Appendix B.

Based on the consistency analysis within Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.10.2 AFFECTED ENVIRONMENT

This section defines the hydrology, floodplains, and water quality RSA and describes the existing setting of the Project.

Definition of Resource Study Area

The hydrology, floodplains, and water quality RSA encompasses a number of watersheds and a groundwater basin crossed by the Project. These include the Mormon Slough watershed and the Eastern San Joaquin Groundwater Basin.

Existing Setting

Regional and Local Hydrology

According to the Water Quality Planning Tool (California Department of Transportation 2012), the RSA is located primarily within undefined Hydrologic Sub-Area (531.30) of the Lower Calaveras Hydrologic Area within the North Valley Floor Hydrologic Unit. The RSA extends into an undefined Hydrologic Sub-Area of the Duck-Littlejohns Hydrologic Area within the North Valley Floor Hydrologic Unit.

The Project is primarily located within the McLeod Lake-Mormon Slough Subwatershed of the Mormon Slough Watershed. The southern portion of the RSA crosses the Burns Cutoff-San Joaquin River Subwatershed of the Fivemile Creek-San Joaquin River Watershed, as well as the Walker Slough-French Camp Slough Subwatershed of the French Camp Slough Watershed.

Surface Waters

The Project's receiving water body, and only waterbody present within the RSA, is the Mormon Slough as shown in Figure 3.10-1. When stormwater falls within the RSA, it is collected and conveyed through a system of culverts or sheet flows directly into Mormon Slough.

Historically, Mormon Slough conveyed water frequently and acted as a flood channel, but with the implementation of the Stockton Diverting Canal that re-routed flows, Mormon Slough is now fed mainly through intermittent surface water runoff and does not convey water year-round. The Project discharges to Mormon Slough, which drains west into the San Joaquin River ultimately draining into the Pacific Ocean.

The beneficial uses of water are defined in the Central Valley Basin Plan (2018) as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms. A beneficial use may be classified as intermittent when water conditions do not allow the beneficial use to occur year-round. The Central Valley Basin Plan does not list beneficial uses for Mormon Slough. The following beneficial uses are listed for undefined Hydrologic Sub-Area (531.30) as having beneficial uses for cold freshwater habitat, fish spawning, and fish migration.

The San Joaquin Region recognizes 23 beneficial uses; the beneficial uses for Hydrologic Sub-Area (531.30) are listed as follows:

- **Municipal and Domestic Supply (MUN)** – Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Cold Freshwater Habitat (COLD)** – Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
- **Migration of Aquatic Organisms (MIGR)** – Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.
- **Spawning, Reproduction, and/or Early Development (SPWN)** – Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

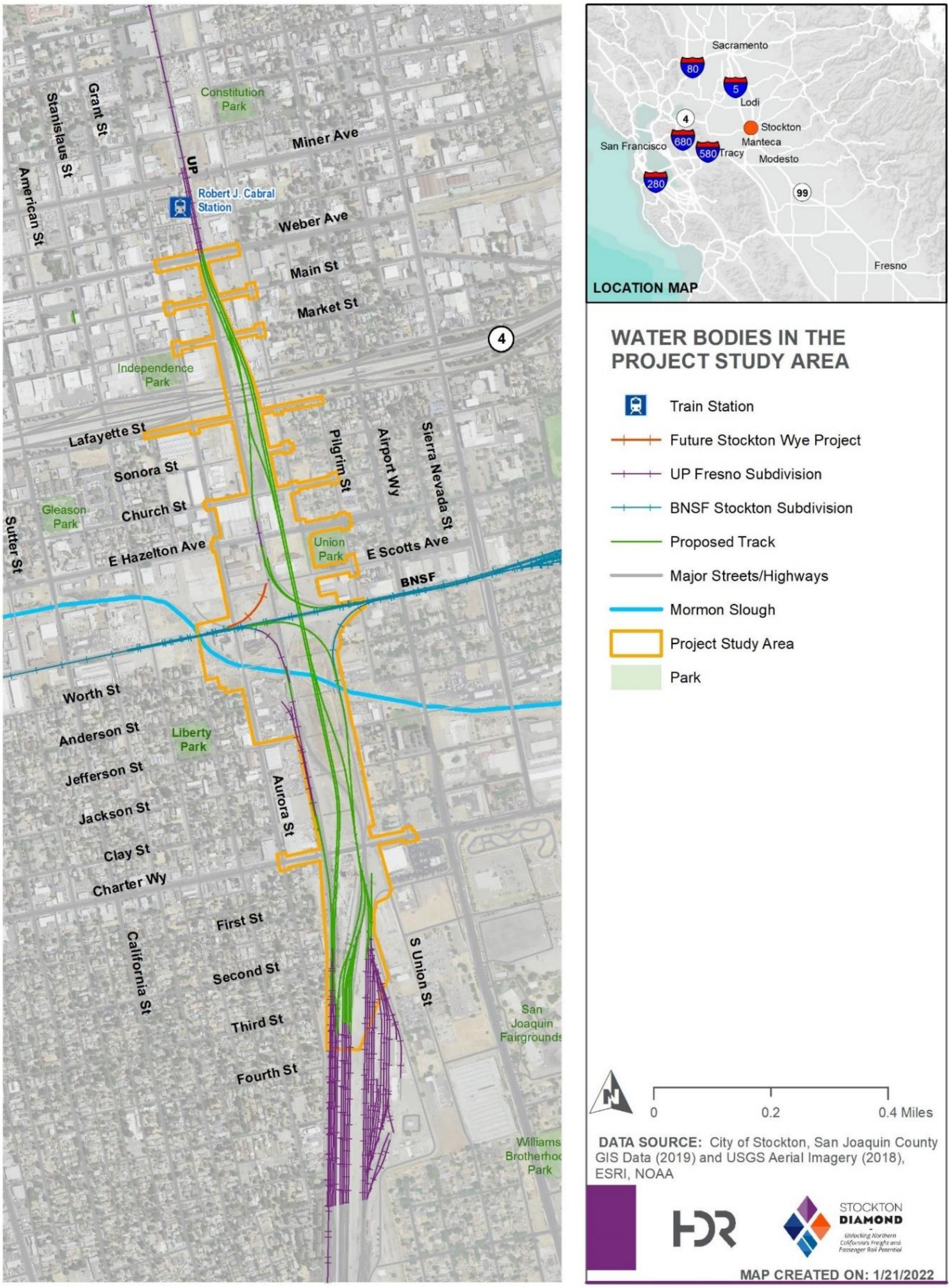
The Central Valley RWQCB Basin Plan establishes beneficial uses of the water within the Central Valley region and water quality objectives to protect those uses. Water quality objectives are measurable or descriptive quantities that a pollutant is found in a water body that ensures the water quality is sufficient to protect a designated beneficial use when those limits are not exceeded.

The Central Valley RWQCB Basin Plan has identified water quality objectives for all surface waters within the Sacramento and San Joaquin River basins. Surface waters, such as Mormon Slough, which cross the Project Study Area, have water quality objectives such as chemical constituents, floating materials, radioactivity, oil and grease, pH, pesticides, taste and odor, and toxicity.

Water quality objectives for chemical constituents identifies thresholds or maximum concentrations in surface waters for certain chemicals including, but not limited to, organic chemicals, such as nitrogen, and inorganic chemicals, such as nickel and lead. Similar to chemical constituents, water quality objectives for radioactivity, oil and grease, and pesticides have set thresholds that limit the maximum amount that can be found in surface waters, including Mormon Slough. Water quality objectives including floating material, taste and odor, and toxicity have narrative definitions of allowable level or a zero tolerance, as the floating material water quality objective states.

The Central Valley RWQCB Basin Plan has established a water quality objective for the pesticide Chlorphyrifos for Mormon Slough (Stockton Diverting Canal to Bellota Weir—Calaveras River). The Basin Plan specifies that the maximum concentration for acute objective as 0.025 μg/L with a 1 hour averaging period and chronic objective of 0.015 μg/L with a 4-day averaging period.

Figure 3.10-1: Water Bodies in the Project Study Area



303(D) LIST OF IMPAIRED WATERS

The U.S. EPA has created a 303(d) Program as a part of the CWA that assists states, territories, and authorized tribes in (1) submitting lists of impaired and threatened waters and (2) developing TMDLs based on the severity of the pollution and sensitivity of the waters. Though Mormon Slough is dry and fed mainly through intermittent surface runoff, Mormon Slough is listed on the Final 2016/2018 California Integrated Report (Clean Water Act Section 303[d] List / 305[b] Report) (SWRCB 2021) for the pollutants listed in Table 3.10-1.

Table 3.10-1: 303(d) Listed Pollutants

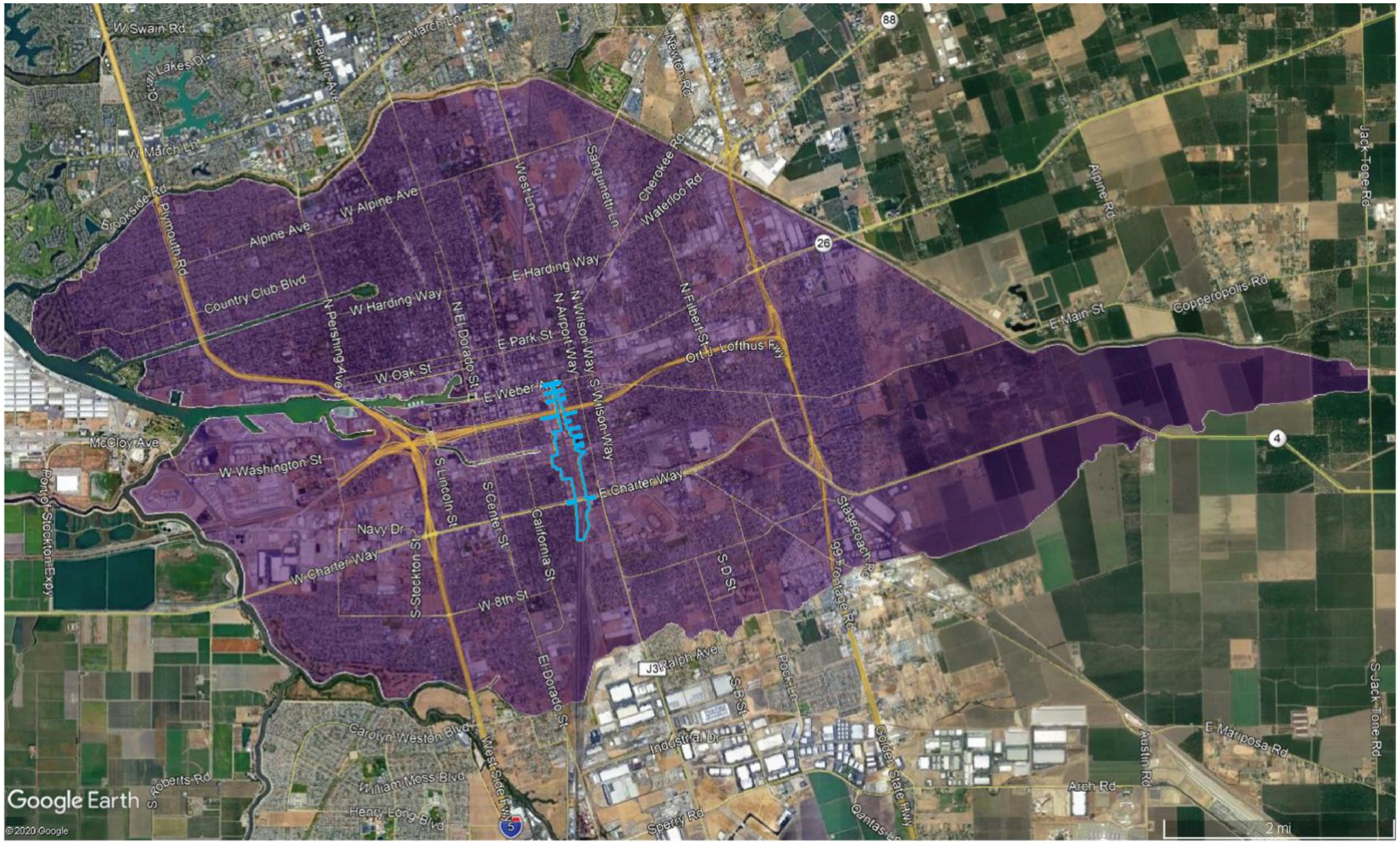
Water Body	Pollutant	Potential Source	Estimated TMDL Completion Date
Mormon Slough (from Stockton Diverting Canal to Bellota Weir—Calaveras River)	Chlorpyrifos	Agricultural	2026
	Toxicity	Source Unknown	2027
Mormon Slough (Stockton Diverting Canal to Commerce Street)	Indicator Bacteria	Source Unknown	2027
Mormon Slough (Commerce Street to Stockton Deep Water Channel; partly in Delta Waterways, eastern portion)	Indicator Bacteria	Source Unknown	EPA Approved May 13, 2008
	Organic Enrichment/Low Dissolved Oxygen	Source Unknown	2027

A large portion of the Project falls within the Mormon Slough Stockton Diverting Canal to Commerce Street segment. This segment is outside the Stockton Urban Water Bodies Pathogen TMDL; however, the downstream segment (Mormon Slough from Commerce Street to Stockton Deep Water Channel) is on the 303[d] list for indicator bacteria and organic enrichment/low dissolved oxygen.

Floodplains

According to USACE's National Levee Database, the Mormon Slough – Calaveras River left bank – Reclamation District 0404 – Duck Creek levee system has been identified as an existing levee system in the portion of the Lower San Joaquin and Tributaries Project and the Duck Creek Project, large-scale levee projects. Based on a May 17, 2019, risk assessment, the Mormon Slough – Calaveras River left bank is classified as a "very high" risk. The Mormon Slough – Calaveras River left bank – Reclamation District 0404 – Duck Creek levee system is comprised of levees authorized by congress and non-federal levees that were locally constructed and are locally operated and maintained. The maps of the levee system in Figure 3.10-2 and Figure 3.10-3 show the leveed area, which would be prone to flooding in the absence of a levee.

Figure 3.10-2: Mormon Sough – Calaveras River Left Bank



MORMON SLOUGH CALAVERAS LEFT BANK

DATA SOURCE: USACE, Google Earth 2020

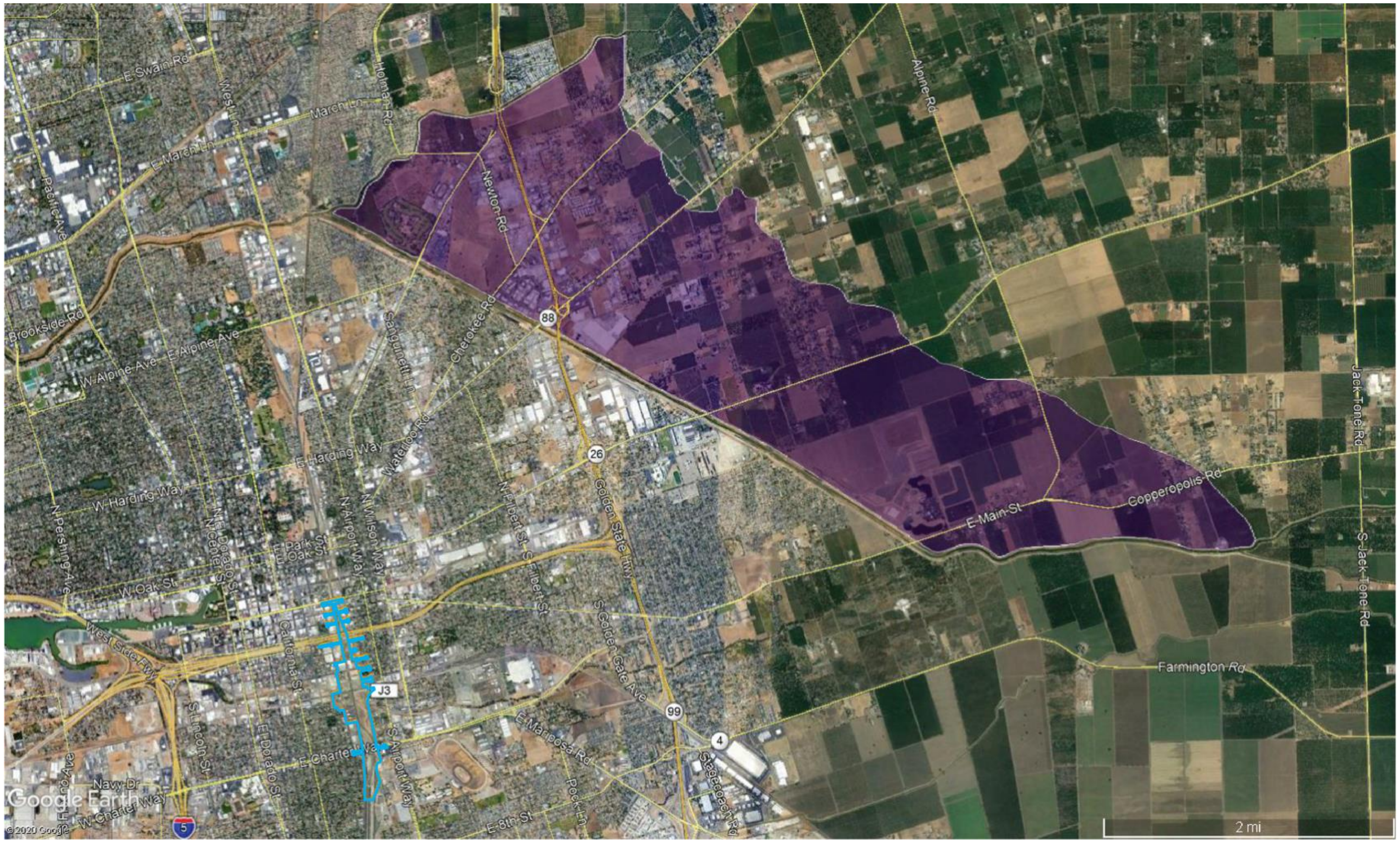
Project Study Area

Leveed Area

STOCKTON DIAMOND
Unlocking Northern California's Freight and Passenger Rail Potential

CREATED ON: 01/27/2021

Figure 3.10-3: Mormon Sough – Diverting Canal Right Bank



MORMON SLOUGH DIVERTING CANAL RIGHT BANK

DATA SOURCE: USACE, Google Earth 2020

Project Study Area

Leveed Area

HDR

STOCKTON DIAMOND
Unlocking Northern California's Freight and Passenger Rail Potential

N

CREATED ON: 01/27/2021

The CVFPB, the San Joaquin Area Flood Control Agency, and the San Joaquin County Flood Control and Water Conservation District are the non-federal sponsors and are the responsible agencies for operation and maintenance of the levee system.

The Mormon Slough – Diverting Canal right bank has not been screened for risk level, though it has been identified as an existing levee system in the portion of the Mormon Slough Project, a large-scale levee project authorized by the 87th Congress (House Document Numbered 576). The Mormon Slough – Diverting Canal right bank levee system reduces the risk of flooding for urban, rural, and agricultural areas in San Joaquin County from flood waters in the Mormon Slough, Diverting Canal, and Calaveras River.

The FEMA FIRM identifies the Project site to be within FIRM Number 06077C0460F. As shown in Figure 3.10-4, the Project and railroad intersection is in within Zone X, indicating an area of minimal flood hazard, due to levee protection. The Project also crosses the Zone A region along Mormon Slough. Zone A represents areas subject to inundation by the 100-year or 1 percent annual chance flood event.

Groundwater

The Project is in the San Joaquin Valley – Eastern San Joaquin Groundwater Subbasin (5-22.01), as shown in Figure 3.10-5. This basin is in the San Joaquin River hydrologic region and comprises an area of approximately 707,000 acres in San Joaquin, Stanislaus, and Calaveras Counties (Central Valley RWQCB 2006). The Eastern San Joaquin Subbasin is bounded on the south, southwest, and west by the Modesto, Delta-Mendota, and Tracy Subbasins, respectively, and on the northwest and north by the Solano, South American, and Cosumnes Subbasins. The Solano and South American are subbasins of the Sacramento Valley Groundwater Basin. The Central Valley RWQCB Basin Plan identifies the following beneficial uses for the Eastern San Joaquin Groundwater Basin:

- **Municipal and Domestic Supply (MUN)** – Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Agricultural Supply (AGR)** – Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- **Industrial Process Supply (PRO)** – Includes uses of water for industrial activities that depend primarily on water quality.
- **Industrial Service Supply (IND)** – Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization. Water quality objectives applicable to all groundwaters have been set for bacteria, chemical constituents, radioactivity, tastes and odors, and toxicity (Central Valley RWQCB Basin 2018).

Figure 3.10-4: FEMA Floodplain

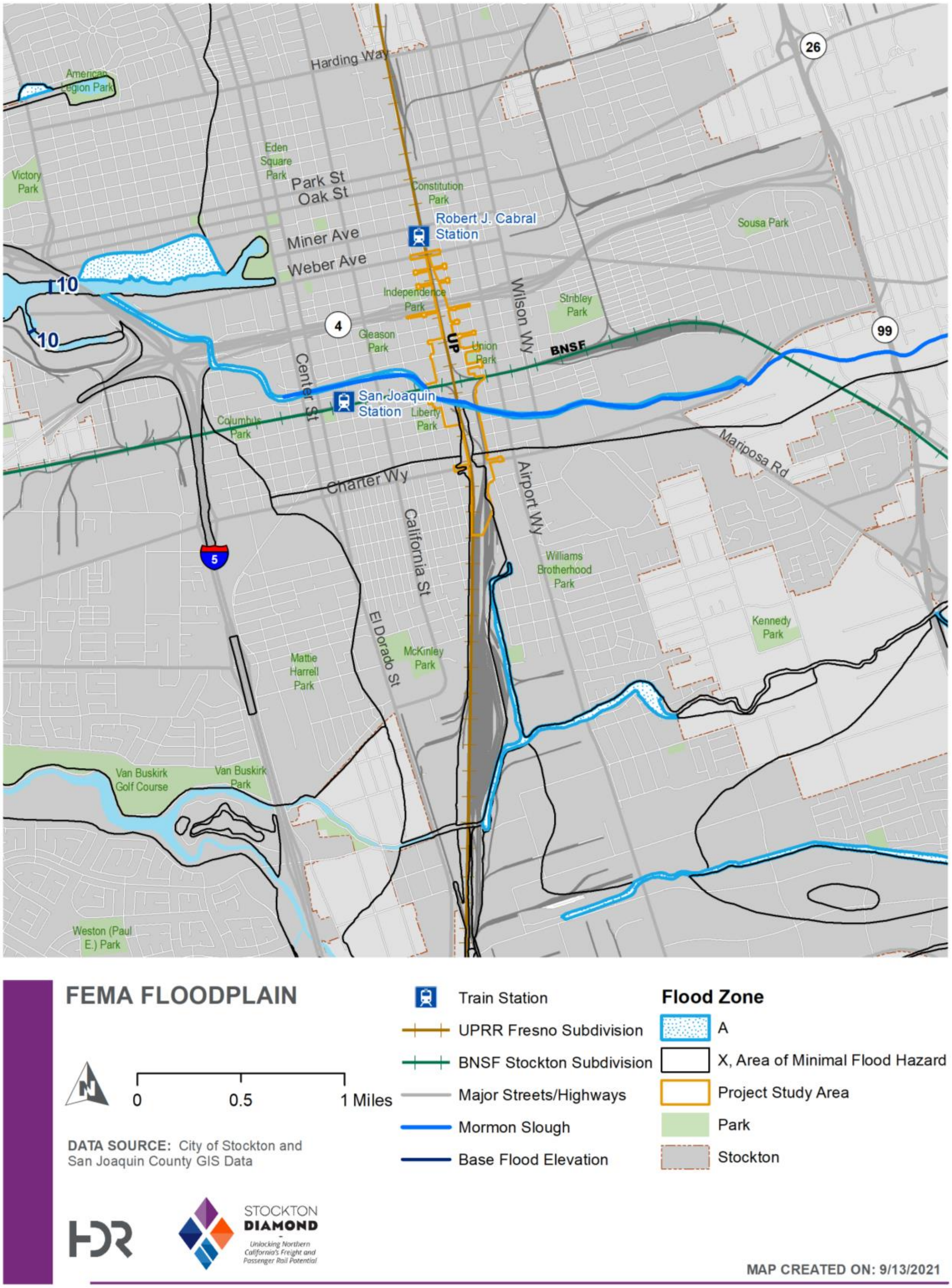
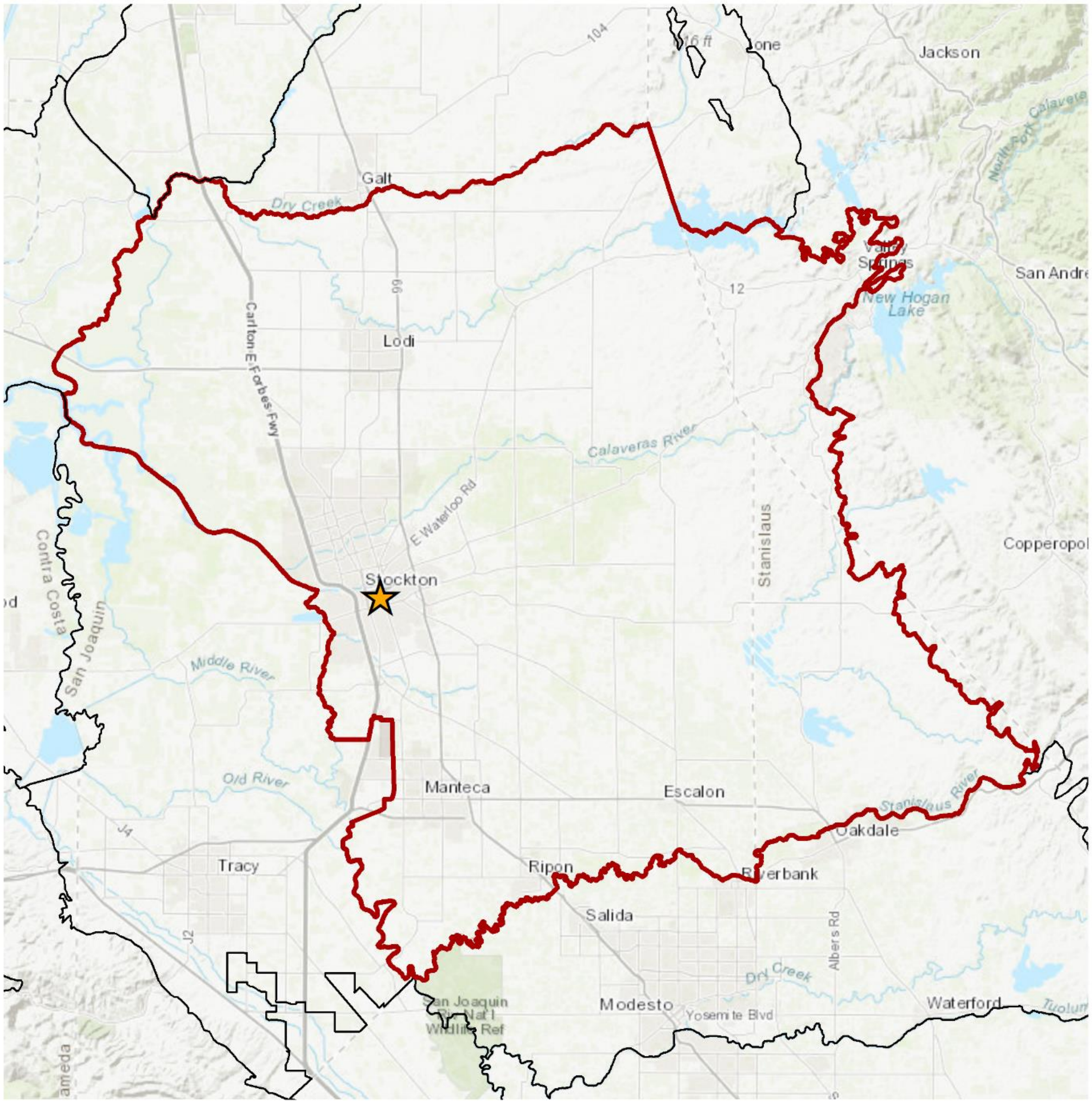


Figure 3.10-5: Groundwater Basin



GROUNDWATER BASIN

0 5 10 Miles

★ Project Location

San Joaquin Valley – Eastern San Joaquin Groundwater Subbasin

Other Subbasin

DATA SOURCE: City of Stockton and San Joaquin County GIS Data (2019), California Department of Water Resources - California's Groundwater (Bulletin 118)

HDR

STOCKTON DIAMOND
Unlocking Northern California's Freight and Passenger Rail Potential

MAP CREATED ON: 2/6/2022

3.10.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences on hydrology and water quality. It includes an analysis of the Project's potential to cause adverse effects.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, there would be no direct or indirect short-term effects on hydrology, floodplains, or water quality within the hydrology, floodplains, and water quality RSA as a result of the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, there would be no direct or indirect long-term effects on hydrology, floodplains, or water quality within the hydrology, floodplains, and water quality RSA under the No Action Alternative.

Project

Table 3.10-2 identifies the BMPs that will be incorporated as part of the Project.

Table 3.10-2: Project Best Management Practices

Best Management Practice	Description
BMP HYD-1	**Stormwater Management and Treatment Plan.** Prior to construction, SJRRC will ensure that the contractor prepares a Project specific stormwater management and treatment plan, and all aspects of the Stormwater Management and Treatment Plan are implemented during construction activities.
BMP HYD-2	**Flood Protection.** Prior to construction, SJRRC will ensure that the contractor prepares and implements a flood protection plan for the Project.
BMP HYD-3	**Construction Stormwater Pollution Prevention Plan.** Prior to construction (that is, any ground-disturbing activities), SJRRC will ensure that the contractor complies with SWRCB CGP, which requires the preparation and implementation of a SWPPP. The construction SWPPP will propose BMPs to minimize potential short-term increases in sediment transport caused by construction, including erosion control requirements, stormwater management, and channel dewatering for affected stream crossings.

Best Management Practice	Description
BMP HYD-4	**Industrial Stormwater Pollution Prevention Plan.** Prior to construction of any facility classified as an industrial facility, SJRRC will ensure that the contractor will comply with existing water quality regulations. The industrial general permit requires preparation of a SWPPP and a monitoring plan for industrial facilities that discharge stormwater from the site, including vehicle maintenance facilities associated with transportation operations. The permit includes performance standards for pollution control.
BMP HYD-5	**Drainage Report.** SJRRC will ensure that a Project-specific Drainage Report will be developed in coordination with the City of Stockton during final design. The Drainage Report will be prepared consistent with standards set by the City of Stockton. In addition, the Drainage Report will be utilized to prepare a Project-specific Stormwater Quality Control Plan that conforms with the requirements of the City of Stockton and County of San Joaquin Stormwater Quality Control Criteria Plan (August 2020).

Short-term Effects

HYDROLOGY AND FLOODPLAINS

The Project would result in work within and adjacent to Mormon Slough during construction. The Project would require an encroachment permit from CVFPB for work in and adjacent to Mormon Slough, as identified in BMP HYD-1 (Stormwater Management) shown in Table 3.10-2.

According to the FEMA Flood Insurance Rate Maps (FIRM), Mormon Slough is located in a 100-year floodplain. Potential short-term adverse effects on Mormon Slough would result from construction access and excavation activities required for the proposed box culverts. The section of Mormon Slough within the RSA is primarily dry and barren with scattered vegetation. Since the construction of the Stockton Diverting Canal, Mormon Slough is dry most of the year and receives water mainly through surface runoff during large storm events. Prior to construction, the contractor will prepare a flood protection plan to ensure proper floodplain protection measures are in place during construction, as identified in BMP HYD -2 (Floodplain Protection), as well as a treatment plan for water quality and floodplain effects. Additionally, the Project will prepare a stormwater pollution prevention plan (SWPPP), as identified in BMP HYD-3, which documents erosion and sediment control BMPs that will be utilized during construction.

As a result, with the incorporation of BMP HYD-1, BMP HYD-2, and BMP HYD-3 no direct or indirect, short-term, adverse effects on hydrology and floodplains are anticipated under the Project.

SURFACE WATERS AND WATER QUALITY

The Project would comply with the requirements as stated under the NPDES permit (Order No. R5-2016-0040; CAS0085324), Central Valley Basin Plan, City of Stockton plans and policies, Construction General Permit (CGP) (Order No. 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ, NPDES No. CAS000002), and Industrial General

Permit (IGP) (Order No. 2014-0057-DWQ as Amended by Order No. 2015-0122-DWQ and Order No. 2018-XXXX-DWQ; NPDES No. CAS000001).

Construction will be required within and adjacent to Mormon Slough, which could result in the resuspension and dispersal of fine-grained bottom sediments within the water column, as well as disturb soil and promote erosion of the channel banks. The erosion of soils could result in the transport of solid materials in surface runoff. Therefore, sediment discharges from construction activities upgradient from Mormon Slough could result in increased turbidity and total suspended solids (TSS) during construction. In addition, oil, grease, and chemical pollutants from construction activities and vehicles could also enter surface waters from accidental spills or from stormwater runoff. Uncontrolled discharge of debris and rubbish, such as packaging and used construction materials, could enter surface waters during construction.

Additionally, the Project may require a temporary concrete batch plant during construction, which would require coverage under the Industrial NPDES permit (Order No. 2014-0057-DWQ, CAS000001). Concrete batch plant related pollutants, such as petroleum products, chemicals, concrete waste and/or slurries, and concrete curing compounds, can have a detrimental effect on water quality individually or in combination with other pollutants. Wash water can easily introduce pollutants to surface waters or seep into groundwater. Any spills within the Project limits have the potential to enter nearby storm drains or watercourses. The impact of toxic construction-related materials on water quality would vary, depending on the quantity spilled.

Therefore, the Project will prepare and incorporate both a construction SWPPP (BMP HYD-3) in compliance with the CGP and an industrial SWPPP (BMP HYD-4) in compliance with the IGP to minimize temporary effects on water quality.

The SWPPPs would incorporate non-stormwater management and material management BMPs to prevent chemical pollutants from entering surface waters such that the Project complies with receiving water limitations for storm water discharges and authorized non-stormwater discharges. Non-stormwater management BMPs and source control BMPs would also be identified within the SWPPP and incorporated during the construction phase, which would prevent pollution by limiting or reducing potential pollutants at their source, or eliminating off-site discharges, such as procedures and practices that have been designed to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning, fueling, maintenance operations and concrete batch plant operations to stormwater drainage systems or watercourses. BMP-HYD-3 will also ensure the Chlorpyrifos water quality objective set for Mormon Slough is not violated throughout construction.

As discussed under the existing setting, the designated beneficial uses for Hydrologic Sub-Area 531.3 are MUN, COLD, MIGR, and SPWN. No direct or indirect short-term effects would occur on MUN or GWR beneficial uses under the Project, as there are no municipal or domestic water supply reservoirs or groundwater percolation facilities within the RSA. Although COLD, MIGR, and SPWN beneficial uses could result in short-term direct and indirect moderate adverse effects on important habitat characteristics within the Mormon Slough during the construction phase, these potential moderate adverse effects would be mitigated with the implementation of Measure MM-BIO-2, identified in Section 3.15, *Biological Resources*.

Therefore, with the incorporation of BMP HYD-3 and BMP HYD-4, identified in Table 3.10-2, and the implementation of Measure MM-BIO-2, identified in Section 3.15, *Biological Resources*, no direct or indirect, adverse, short-term effects on surface waters and water quality are anticipated under the Project.

GROUNDWATER

Construction of the Project, including the flyover over structure, would require dewatering for the flyover structure footings. In 2012, depth to groundwater was last recorded at 42-feet below ground surface at Well No. 379516N1212646W001 by the CA Department of Water Resources. Well No. 379516N1212646W001 is located approximately 0.5 mile east of the Project Study Area in Stribley Community Park. A Preliminary Foundation Memorandum prepared for the Project in June 2020, indicates that groundwater elevation within the Project Study Area is anticipated between 20 to 25 feet below ground surface (Kleinfelder 2020).

Although groundwater dewatering would be necessary during construction in localized areas, such as construction of the flyover structure, these activities would result in only temporary reductions in groundwater levels within and directly adjacent to construction areas. Dewatering activities would be subject to the requirements of the Central Valley RWQCB. The Project will obtain a dewatering permit (Order No. R8-2015-0004, NPDES No. CAG998001) from the Central Valley RWQCB prior to dewatering activities. Dewatering BMPs will be used to control sediment and pollutants, and the discharges will comply with the waste discharge requirements issued by the Central Valley RWQCB. Therefore, no direct or indirect short-term effects on groundwater would occur under the Project.

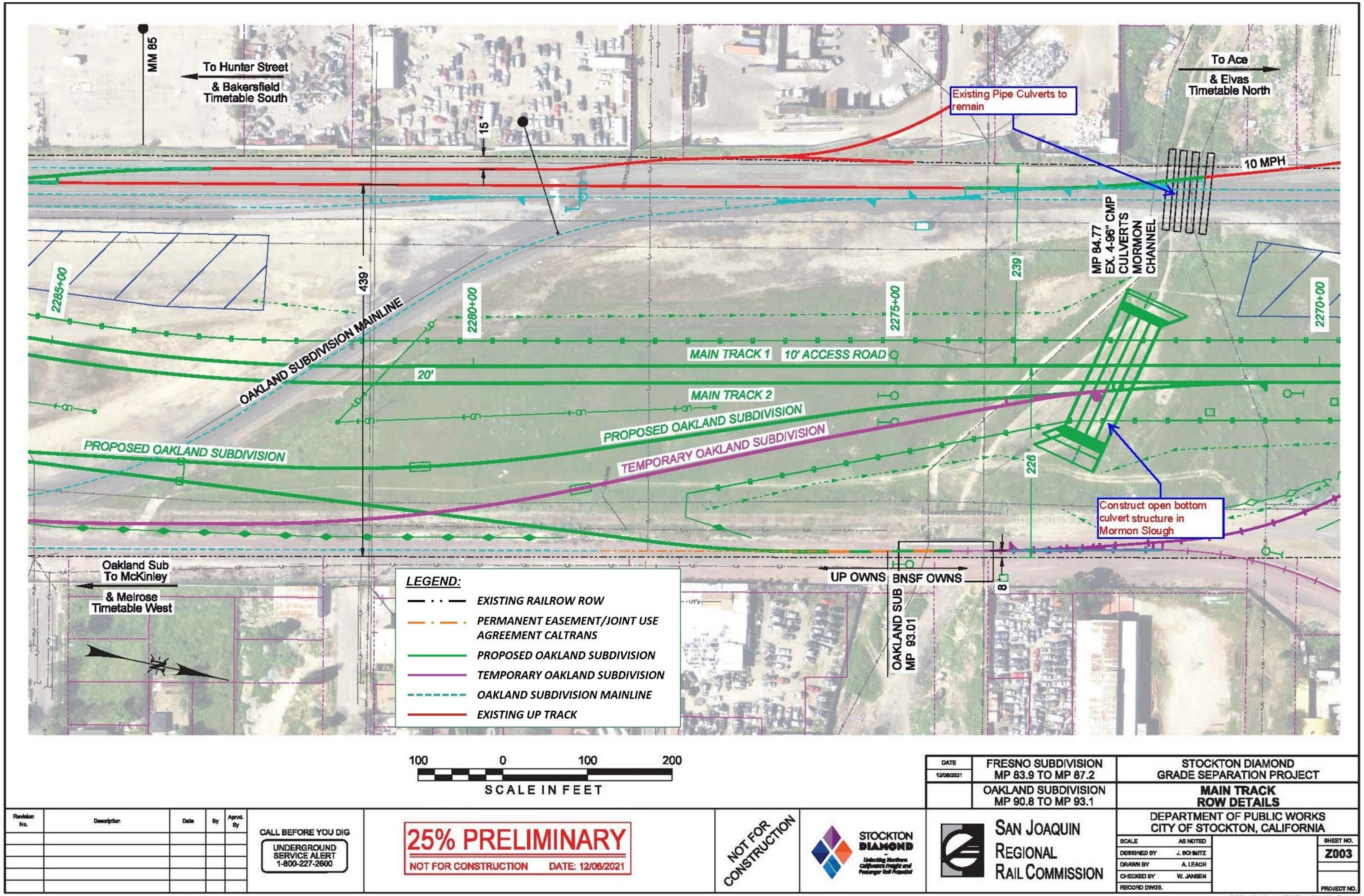
Long-term Effects

HYDROLOGY AND FLOODPLAINS

A permanent drainage structure would be constructed to span the Mormon Slough just south of the existing pipe culverts, as shown in Figure 3.10-6. Hydraulic analyses within the slough would be conducted prior to determining the final design of the proposed drainage structure using three separate criteria: (1) Union Pacific Railroad current 50- and 100-year flood flows, (2) a projected future flow of 1,550 cubic feet per second (according to the San Joaquin Area Flood Control Agency's [SJAFCA] Strategic/Capital Plan) and (3) City of Stockton Specific Plan future flow of 3,000 cubic feet per second (City of Stockton 1989) through the Mormon Slough for the existing and proposed crossings. The Project would be designed to allow for current and both projected future flow cases but would leave the existing Fresno Subdivision culverts in place.

Drainage structures for passing flows beneath the railroad flyover may be box culverts, arch openings, or a bridge. The Project will prepare a site-specific drainage report, as identified in BMP HYD-5, during final design to ensure that any structure designed for this location would be designed for both existing conditions and proposed future conditions, provided by SJAFCA and the City of Stockton. Box culverts or arch openings would require fill within the existing dry channel, but since it is a dry channel, direct and indirect, long-term, adverse effects are not anticipated under the Project.

Figure 3.10-6. Proposed Mormon Slough Drainage Structure



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As previously stated, the Project will incorporate BMP HYD-1, BMP-HYD-2, and BMP HYD-5 (Drainage Report) (identified in Table 3.10-2); incorporate Design Pollution Prevention (DPP) measures (identified in Table 3.10-3); and incorporate treatment BMPs (outlined in Table 3.10-4) to avoid or minimize effects on hydrology and floodplains. Additionally, the Project will implement Measure MM-BIO-2, identified in Section 3.15, *Biological Resources*, in order to mitigate direct and indirect, long-term, moderate adverse effects on important habitat characteristics within the Mormon Slough. Measure MM BIO-2 will also require SJRRC to implement a crossing type for the flyover structure that will span the Mormon Slough so that it can retain a natural substrate stream channel bottom, as well as avoid using rip-rap to armor the channel at this location.

Table 3.10-3: Potential Design Pollution Prevention (DPP) Project Features BMPs

Project Feature (BMP)	Purpose
Slope/Surface Protection Systems	
Hydroseed	Water-based mixture of wood/paper fiber (straw), stabilizing emulsion (tackifier), fertilizer, compost, and native seed mix to be applied on unvegetated slopes.
Permanent Fiber Rolls	Degradable fibers rolled tightly and placed on the toe and face of slopes to intercept runoff.
Erosion Control Netting/Blankets	Netting/blankets placed on steep slopes to reduce soil erosion.
Preservation of Existing Vegetation	
Protection of Existing Vegetation	Protection of existing trees and/or landscaped areas that would not be disturbed from Project activities.

Therefore, with the incorporation of BMP HYD-1, BMP HYD-2, BMP HYD-5, treatment BMPs outlined in Table 3.10-3, DPP measures identified in Table 3.15-2, and the implementation of Measure MM BIO-2 from Section 3.15, no direct or indirect, long-term, moderate adverse effects on hydrology and floodplains are anticipated under the Project.

SURFACE WATERS AND WATER QUALITY

Approximately 2.4 acres of potential new permanent impervious surfaces would be added depending on the flyover structure type chosen. The additional impervious area prevents runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow. However, the Project will incorporate DPP BMPs (see As previously stated, the Project will incorporate BMP HYD-1, BMP-HYD-2, and BMP HYD-5 (Drainage Report) (identified in Table 3.10-2); incorporate Design Pollution Prevention (DPP) measures (identified in Table 3.10-3); and incorporate treatment BMPs (outlined in Table 3.10-4) to avoid or minimize effects on hydrology and floodplains. Additionally, the Project will implement Measure MM-BIO-2, identified in Section 3.15, Biological Resources, in order to mitigate direct and indirect, long-term, moderate adverse effects on important habitat characteristics within the Mormon Slough. Measure MM BIO-2 will also require SJRRC to implement a crossing type for the flyover structure that will span the Mormon Slough so that it can retain a natural substrate stream channel bottom, as well as avoid using rip-rap to armor the channel at this location.

Table 3.10-3). DPPs are permanent design features, such as permanent fiber rolls, to address additional stormwater created by the increase in impervious surfaces and collect flows to reduce pollution discharges (for example, reduce erosion, manage non-stormwater discharges) after construction is complete.

The Project is subject to the IGP which regulates stormwater discharges from any facility associated with 10 broad categories of industrial activities, including rail activities. As such, the Project will incorporate BMPs and Treatment BMPs (identified in Table 3.10-4) that will minimize these effects by requiring the Project to examine and evaluate long-term treatment control BMPs, such as biofiltration or bioretention systems or trash control devices, consistent with the requirements of the IGP. Treatment BMPs collect stormwater runoff and treat the stormwater through various methods of filters or infiltration.

Table 3.10-4: Treatment BMPs

Project Feature (BMP)	Purpose
Biofiltration/Bioretention Systems	Vegetated channels/strips that intercept stormwater runoff and remove sediment and pollutants through infiltration.
Detention Devices	Areas that intercept stormwater runoff and remove sediment and pollutants through detention/infiltration.
Media Filters	Sand filters that remove sediment and total suspended solids (metals, trash, nutrients).
Trash Control Devices	Devices designed to remove trash and other pollutants from stormwater runoff.

The Project will also prepare a Drainage Report (BMP HYD-5) to ensure drainage during operation will capture runoff and minimize adverse effects on downstream developments and water quality from stormwater runoff. As previously stated, the Project will conduct hydraulic analyses to be designed to comply with the City of Stockton Mormon Channel Specific Plan to protect the Mormon Slough.

Therefore, with the incorporation of DPP BMPs from Table 3.10-3, Treatment BMPs from Table 3.10-4, and BMP HYD-5, no direct or indirect, long-term adverse effects on surface waters and water quality are anticipated under the Project.

GROUNDWATER

The Project would not require groundwater during operation. The Project's increase in new impervious area is approximately 2.4 acres, which is less than 0.000012% of the Hydrologic Sub-Area Watershed. During operation, the increase in impervious area will result in slight changes to peak flows and stormwater runoff volumes increasing the potential for erosion, sediment, and pollution in surface waters, which can contribute to a violation of water quality standards. The Project will incorporate BMP HYD-5 that will require the Project to prepare a Drainage Plan that will address the additional stormwater runoff created as a result of the Project. Additionally, the Project Treatment BMPs, identified above, will capture and treat the stormwater runoff including the additional 2.4 acres of impervious surface. Therefore, no direct or indirect long-term effects are anticipated with regards to groundwater.

3.10.4 MITIGATION MEASURES

With the implementation of MM BIO-2, in Section 3.15, Biological Resources, of this Final EA, no moderate adverse effects will occur to floodplains or water quality. No specific floodplain or water quality mitigation measures are required. Refer to Section 3.15 of this EA for specific mitigation language identified in MM BIO-2.

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3.11 Geology, Soils, Seismicity, and Paleontology

This section describes the regulatory setting and affected environment for geology, soils, seismicity, and paleontology. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on these resources during construction and operation of the Project. If short-term or long-term effects on these resources are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects on these resources are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects on these resources within the geology, soils, seismic, and paleontological RSA.

The evaluation discussed in this section includes a review of the *Preliminary Geotechnical Desktop Study Stockton Diamond Grade Separation Altamont Commuter Express Stockton, California*, which presents preliminary geotechnical recommendations for ground improvement options and the foundation, embankment, and retaining wall designs for the Project. Additional detail regarding paleontological resources requirements, project setting, and effects can be found in the *Paleontological Technical Study* (Paleo Solutions, Inc. 2021) prepared for the Project and located in Appendix I of this EA.

3.11.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of geology, soils, seismicity, and paleontology are provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Clean Water Act of 1972, as amended (33 U.S.C 1251-1387)

Paleontological Resources Preservation Act (16 U.S.C. 470aaa)

American Antiquities Act (16 U.S.C. 431-433)

National Pollutant Discharge Elimination System Permit (33 U.S.C. 1342)

State Plans, Policies, and Regulations

Alquist-Priolo Earthquake Fault Zoning Act (CA PRC § 2621)

California Public Resources Code

Seismic Hazards Mapping Act of 1990 (CA PRC, Chapter 7.8, § 2690-2699.6)

California Building Code

Local Plans, Policies, and Regulations

Stockton Municipal Code—Section 15.48.050, Construction and Application

City of Stockton General Plan

Action LU-5.2D: Require the following tasks by a qualified archaeologist or paleontologist prior to project approval:

- Conduct a record search at the Central California Information Center located at California State University Stanislaus, the University of California Museum of Paleontology at Berkeley, and other appropriate historical or archaeological repositories.
- Conduct field surveys where appropriate.
- Prepare technical reports, where appropriate, meeting California Office of Historic Preservation or other appropriate standards.
- Where development cannot avoid an archaeological or paleontological deposit, prepare a treatment plan in accordance with appropriate standards, such as the Secretary of the Interior's Standards for Treatment of Archaeological Sites.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders are provided in Table B-1, in the same appendix.

Based on the consistency analysis within Table B-1, in Appendix B of this EA, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.11.2 AFFECTED ENVIRONMENT

This section defines the RSA and describes the methods used to determine the effects of Project construction and operations on geology, soils, seismic, and paleontological resources.

Definition of Resource Study Area

The RSA for geology, soils, and seismicity is limited to the Project Study Area. The RSA for paleontological resources is defined as the Project Study Area plus a half-mile buffer surrounding the Project Study Area.

Methods for Data Collection and Analysis

Geology, Soils, and Seismicity

Effects associated with geotechnical considerations have been identified from a review of official seismic hazard zone maps, geologic and topographic maps, and other publications of the California Geological Survey, the California Department of Conservation, the United States Geological Survey (USGS), and the Preliminary Geotechnical Desktop Study Stockton Diamond Grade Separation Altamont Commuter Express Stockton, California.

Paleontological Resources

Geologic maps, literature, and online databases were reviewed for the *Paleontological Technical Study* (Paleo Solutions, Inc 2021), as was the geology underlying the paleontological RSA. A paleontological pedestrian survey was conducted that included a review of the geology of the RSA. The Bureau of Land Management (BLM) Potential Fossil Yield Classification (PFYC) system (Bureau of Land Management 2016) was used to complete a paleontological sensitivity analysis of the RSA using the results of data reviews and field survey. PFYC is a commonly used predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources using a scale of 1 (very low potential) to 5 (very high potential). The PFYC ranking system is summarized in Table 3.11-1. Additional detailed information regarding the PFYC ranking system is provided within the Paleontological Technical Study found in Appendix I of this Final EA.

Table 3.11-1: Potential Fossil Yield Classification

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
1 = Very Low Potential	Geologic units that are not likely to contain recognizable paleontological resources. Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low Potential	Geologic units that are not likely to contain paleontological resources. Field surveys have verified that significant paleontological resources are not present or are very rare. Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Management concern is moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources. Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown Potential	Geologic units that cannot receive an informed PFYC assignment. Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information is known about the actual paleontological resources of the unit or area.

Scientifically significant fossils are generally not known from artificial fill since any discovered resource would lack stratigraphic context. These deposits have a low paleontological potential (PFYC 2) using BLM (2016) guidelines.

The early Holocene- to late Pleistocene-age Modesto Formation, if encountered at unknown depth beneath the surface of artificial fill and disturbed sediment, is considered to have a moderate paleontological potential (PFYC 3) using BLM (2016) guidelines since this geologic unit has produced scientifically significant vertebrate fossils in the Project vicinity.

Existing Setting

Regional Geology

The Project site lies in the San Joaquin Valley in central California, in the southern portion of the Great Valley Geomorphic Province. The Great Valley Geomorphic Province is a topographically flat, northwest-trending, structural trough (or basin) that is approximately 50 miles wide and 450 miles long. It is bordered by the Tehachapi Mountains on the south, the Klamath Mountains on the north, the Sierra Nevada on the east, and the Coast Ranges on the west.

The San Joaquin Valley is filled with a thick sequence of marine and non-marine sedimentary rocks that accumulated during portions of the last 130 million years. Large alluvial fans have developed on each side of the San Joaquin Valley. The sediments that form the east side of the San Joaquin Valley floor were derived largely from Sierra Nevada erosion, while those on the west side are derived from erosion of the Coast Ranges. The smaller and steeper sloping fans on the west side of the San Joaquin Valley overlie deformed sedimentary rocks more exposed in the foothills of the Coast Ranges. The larger and more gently sloping fans on the east side of the San Joaquin Valley overlie metamorphic and igneous basement rocks. These basement rocks are exposed in the Sierra Nevada foothills and consist of meta-sedimentary, volcanic, and granitic rocks.

Project Site Geology

The geology, soils, seismic, and paleontological RSA is entirely underlain by the early Holocene- to late Pleistocene-age Modesto Formation (Wagner et al. 1991). While not mapped within the geology, soils, seismic, and paleontological RSA, aerial photographs also indicate that recent artificial fill related to previous construction is likely present.

MODESTO FORMATION

The Modesto Formation was deposited during the last major period of depositional events of the Pleistocene within the northeastern San Joaquin Valley. It was deposited by the San Joaquin River as a series of alluvial fans and consists of arkosic sand, silt, and clay (Marchand and Allwardt 1981). The Modesto Formation can be divided into upper and lower members. The upper member ranges in age from 26,000 to 9,000 years ago and consists of unconsolidated coarse sand and silt, while the lower member ranges in age from 73,000 to 29,000 years ago and consists of consolidated, well-sorted silt and fine-grained sand, silty sand, and sandy silt (Atwater 1982; Marchand and Allwardt 1981).

ARTIFICIAL FILL

Artificial fill consists of recent deposits of previously disturbed sediments emplaced by construction operations and is found in areas where recent construction has taken place. Color is highly variable, and sediments are mottled in appearance. These sediments are not mapped within the boundaries of the geology, soils, seismic, and paleontological RSA but are likely to be encountered within previously disturbed portions of the RSA. Artificial fill is present starting at the surface and extending 2- to 15-feet deep in the Project vicinity (Kleinfelder 2021).

Seismicity

There are several faults and potential fault traces located within San Joaquin County, concentrated along its eastern and western margins. Faults are classified by their potential for seismic activity based on evidence of past activity. An active fault is defined as one along which displacement has been demonstrated to occur during the Holocene period, or the past 11,700 years. A fault is considered potentially active if there is evidence of movement during the Late Quaternary period, or during the past 700,000 years, and further movement is considered likely. An inactive fault is one that has shown no evidence of movement since the Pre-Quaternary period, or in the past 1.6 million years, and renewal activity is not considered likely.

Comparatively few subsurface faults have been mapped in the northern part of the San Joaquin Valley, and the largest of these subsurface faults is the Stockton Fault. The Stockton Fault is a south-dipping, reverse fault that trends east-west across the Stockton area. According to the Department of Conservation's Fault Activity Map of California, the Stockton Fault is an inactive fault without recognized displacement during the Pre-Quaternary period (California Department of Conservation 2015b).

Stockton is close enough to major earthquake faults to be vulnerable to seismic activity. The nearest active fault is the Greenville Fault, located approximately 22 miles west-southwest of Stockton. Other active faults in the vicinity include the Hayward Fault, located approximately 50 miles west of Stockton, and the Calaveras Fault, located approximately 40 miles southwest of Stockton. The estimated likelihood of a magnitude 6.7 or greater earthquake occurring in the Stockton area before 2036 is 63 percent (City of Stockton 2018a). None of these active faults traverse the Project site.

FAULT RUPTURE

Fault rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface ruptures can generally be assumed to be along an active or potentially active major fault trace. The closest active fault to the Project site is the Greenville Fault. No active faults have been mapped on the Project site.

The Project site is not located within an Alquist-Priolo Earthquake Fault Zone (California Department of Conservation 2019c).

GROUND SHAKING

Ground shaking is a general term referring to all aspects of motion of the Earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The severity of seismic ground shaking depends on many variables, such as earthquake magnitude, epicenter proximity, local geology (including the properties of unconsolidated sediments), groundwater conditions, and topographic setting. In general, ground shaking hazards are most pronounced in areas that are underlain by loosely consolidated soil or sediment.

Based on the presence of several active faults in Stockton's vicinity, the potential exists for the Project site to experience significant ground shaking during earthquakes on the regional faults identified above.

LIQUEFACTION

Liquefaction is a phenomenon in which saturated granular soil materials transform from a solid to a liquid state when subjected to large, rapid loadings, such as strong ground shaking during an earthquake. The transformation to a liquid state occurs due to the tendency of granular materials (e.g., sandy soils) to compress, which consequently results in increased water pressure between the gaps around the soil particles that reduces the strength and stiffness of the soil structure and makes it behave like a liquid instead of solid material. The change of state from solid to liquid occurs most readily in recently deposited loose to moderately dense granular soils. Liquefaction could result in settlement of the retained soil as the soil moves back from a liquid state to a solid state. The potential for an earthquake capable of promoting liquefaction is a possibility during the Project's design life. It is estimated that preliminary total seismic settlements as a result of liquefaction events in the 2- to 4-inch range could be expected during a 2,475-year design level seismic event, which has a 2 percent probability that a certain ground motion level would be exceeded in 50 years (Kleinfelder 2021).

LANDSLIDES

Landslides are gravity-driven movements of earth materials that can include rock, soil, unconsolidated sediment, or combinations of such materials. Due to the gentle topography and lack of steep slopes throughout the Stockton area, the probability of earthquake-induced landslides is very low (City of Stockton 2018b). Further, the Project site is not located within a landslide zone (California Department of Conservation 2019c).

Geologic Hazards

EROSION

Erosion occurs naturally on the Earth's surface as surface materials (that is, rock, soil, debris, etc.) are loosened, dissolved, or worn away, and transported from one place to another by gravity. Wind erosion and water erosion are common types of soil erosion. The potential for erosion generally increases as a result of human activity, primarily through the development of facilities and impervious surfaces and the removal of vegetative cover.

Potential soil erosion associated with construction and development and the resulting effects on water quality are addressed by State of California stormwater permit requirements and the corresponding local implementation plans, ordinances, and standards, including those adopted by the City of Stockton.

EXPANSIVE SOILS

Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wet. Expansive soil can develop wide cracks in the dry season, and changes in soil volume have the potential to damage concrete slabs, foundations, and pavement. Special structure design or soil treatment is often needed in areas with expansive soils. Much of the Stockton area is underlain by expansive soils that exhibit moderate shrink-swell potential (City of Stockton 2018b). Near surface soils at the Project site are anticipated to consist of expansive clay (Kleinfelder 2021).

SUBSIDENCE

Subsidence occurs when a large area of ground surface sinks and the material is displaced vertically downward, with little or no horizontal movement. The San Joaquin Valley and the Sacramento-San Joaquin Delta areas have experienced subsidence. Subsidence is not anticipated outside of the Sacramento-San Joaquin Delta area. Based on a review of the City of Stockton's General Plan, the Project site is not located within the legally defined Sacramento-San Joaquin Delta area.

COLLAPSIBLE SOILS

Collapsible soils undergo a rearrangement of grains and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. Soils prone to collapse are commonly associated with manmade fill, wind-laid sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. During an earthquake, even slight settlement of fill materials can lead to a differentially settled structure and significant repair costs.

Due to the presence of predominantly fine-grained materials, interbedded coarse-grained layers, and relatively shallow groundwater (approximately 25 to 30 feet below ground surface), settlement is anticipated to occur at the Project site (Kleinfelder 2021).

Design Considerations

The exact bridge structure for the flyover is not determined at this time. Structure types under consideration include soil embankment, precast concrete panel system with LCCF, and viaduct bridge structure. The design considerations associated with each structure option are summarized below:

- **Soil embankment:** The embankment construction could use staged construction or include soil improvement methods to obtain the required allowable bearing pressure for the expected loading. Ground improvement with vibro or non-vibro replacement methods or rammed aggregate piers could be used to achieve the required allowable bearing pressure at the Project site. In addition, embankments supported at grade would exert an additional load to the subsurface fine-grained materials, which will produce settlement. This potential settlement may generate additional down-drag loads on nearby structures, such as the piers, where the soil exerts a downward drag on the pier and reduces its loading capacity.
- **Precast concrete panel system with LCCF:** The design of retaining walls supported on shallow footings would include soil improvement methods to obtain the required allowable bearing pressure for the expected loading, if required. Ground improvement with vibro or

non-vibro replacement methods or rammed aggregate piers could be used to achieve the required allowable bearing pressure at the Project site. In addition, retaining walls supported on shallow footings would exert an additional load to the subsurface fine-grained materials, which will produce settlement. This potential settlement may generate additional down-drag loads on nearby structures, such as the piers or piles, where the soil exerts a downward drag on the pier or pile and reduces its loading capacity. If retaining walls supported by driven piles are being considered, down-drag loads from the liquefaction hazard should be considered on deep foundations during seismic activity.

- **Viaduct bridge structure:** Supporting the proposed bridge on driven piles and drilled shafts is feasible. However, down-drag loads on piles from the liquefaction hazard should be considered during seismic activity. The down-drag loads pertain to how soil exerts a downward drag on the pile and reduces its loading capacity.

Paleontological Resources

A paleontological literature review, University of California Museum of Paleontology (UCMP) online paleontological database search, and UCMP records search were conducted. While there are no documented paleontological localities within the paleontological RSA, the records search results indicate that there are three localities within the vicinity of the RSA (Holroyd 2020). UCMP localities V2016003, V2016004, and V2016005 were recorded around the SR 99 and Mariposa Road interchange (Holroyd 2020 and UCMP 2020), approximately 3.5 miles from the RSA. A paleontological field survey was conducted on October 1, 2020, and consisted of a pedestrian survey within the public ROW in the RSA from East Weber Avenue to East 4th Street. Some northern portions of the railroad alignment were not walkable due to the narrow right-of-way.

No undisturbed native sediment was observed. Most of the alignment has been paved and developed, and much of the railway alignment is covered with imported gravel. Disturbed silty sands, from tan to dark gray in color, were observed where foot traffic exposed the underlying sediment, primarily between East Worth Street and East Charter Way.

No paleontological resources were observed.

3.11.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences of the Project implementation on geology, soils, seismicity, and paleontology. It includes an analysis of the Project's potential to directly or indirectly cause adverse effects, including the risk or loss of life, injury or death; damage to property; soil erosion as a result of geologic, soil, and seismic hazards; and destruction of paleontological resources. Direct adverse impacts on surface or subsurface paleontological resources includes destruction by breaking or crushing caused by construction activities such as mass grading, trenching, auguring, or other similar activities.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented and no construction activities would occur. Therefore, no direct or indirect short-term effects to geology, soils, seismicity, and paleontology are anticipated under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented, and the Project components would not be developed. Therefore, no direct or indirect long-term effects to geology, soils, seismicity, and paleontology are anticipated under the No Action Alternative.

Project

Table 3.11-2 identifies BMPs that will be incorporated as part of the Project. The BMPs identified in Table 3.11-2 will serve to avoid or minimize potential geologic, soils, seismic, and paleontological effects related to the Project.

Table 3.11-2: Project Best Management Practices

Best Management Practice	Description
BMP GEO-1	**Geologic Hazards.** Prior to construction, SJRRC will ensure that the contractor shall prepare a Construction Management Plan addressing how the contractor will address geologic constraints and minimize or avoid impacts to geologic hazards during construction. The plan will be submitted to SJRRC for review and approval. At minimum, the plan will address unstable soils and water and wind erosion.
BMP GEO-2	**Geology and Soils.** Prior to construction, SJRRC will ensure that the contractor will issue a technical memorandum documenting the ways in which the following guidelines and standards have been incorporated into facility design and construction: • 2015 AASHTO Load and Resistance Factor Bridge Design Specifications and the 2015 AASHTO Guide Specifications for Load and Resistance Factor Seismic Bridge Design, or their most recent versions.
BMP GEO-3	**Implement Geotechnical Recommendations.** During final design, SJRRC will ensure that a project specific Geotechnical Design Report will be prepared, which will include final geotechnical recommendations for ground improvement options and foundation, embankment, and retaining wall design for the Project.

Best Management Practice	Description
BMP GEO-4	**Preparation and Implementation of a Paleontological Resources Management Plan.** Due to the potential for adverse effects to paleontological resources in the Project subsurface, a Paleontological Resources Management Plan (PRMP) will be prepared during final design. SJRRC will ensure that the PRMP will include provisions for paleontological monitoring (e.g., periodic spot checks) during excavations to check for the presence of the early Holocene- to late Pleistocene-age Modesto Formation, and the implementation of full-time monitoring if the early Holocene- to late Pleistocene-age Modesto Formation is observed. In the event unanticipated paleontological resources are discovered during Project-related activities, SJRRC or their designated contractor will ensure that work in the immediate vicinity of the discovery is halted until it can be evaluated by a qualified paleontologist.

Short-term Effects

FAULT RUPTURE

The nearest active fault to the City of Stockton is the Greenville Fault, which is located approximately 22 miles west-southwest of Stockton. No active faults have been mapped on the Project site and the Project is not located within an Alquist-Priolo Earthquake Fault Zone. Therefore, no direct or indirect short-term effects on geology, soils, and seismicity as it relates to fault rupture is anticipated under the Project.

GROUND SHAKING

The Project will incorporate BMP GEO-1 (Geologic Hazards) and BMP GEO-2 (Geology and Soils), identified in Table 3.11-2. With the incorporation of BMP GEO-1 and BMP GEO-2, no direct or indirect short-term adverse effects to geology, soils, and seismicity as it relates to the City's vulnerability to seismic activity due to its proximity to major earthquake faults or any seismic hazards are anticipated under the Project.

LIQUEFACTION

The Project will incorporate BMP GEO-3 (Implement Geotechnical Recommendations), in Table 3.11-2. With the incorporation of BMP GEO-3, no direct or indirect short-term adverse effects on geology, soils, and seismicity as it relates to the earthquake-induced liquefaction is anticipated under the Project.

EROSION

The Project will incorporate the City of Stockton's Municipal Code Section 15.48.050, *Construction and Application*. In addition, the Project will incorporate BMP GEO-1 and BMP HYD-2 (Construction Stormwater Pollution Prevention Plan), identified in Table 3.10-2 in Section 3.10, *Hydrology, Floodplain, and Water Quality*. With the incorporation of BMP GEO-3 and BMP HYD-2, no direct or indirect short-term adverse effects on geology, soils, and seismicity as it relates to erosion is anticipated under the Project.

EXPANSIVE SOILS

The Project will incorporate BMP GEO-1 through BMP GEO-3, identified in Table 3.11-2. With the incorporation of BMP GEO-1 through BMP GEO-3, no direct or indirect short-term adverse effects on geology, soils, and seismicity, as it relates to the Project's exposure to underlying expansive soils consisting of expansive clay are anticipated under the Project.

PALEONTOLOGY

Although there are no documented paleontological localities within the boundaries of the paleontological RSA, short-term effects from construction activities for the Project, such as grading, trenching, and drilling, may result in effects on paleontological resources if the early Holocene- to late Pleistocene-age Modesto Formation is encountered during Project-related excavations. The Project will incorporate BMP GEO-4 (Preparation and Implementation of a Paleontological Resources Management Plan), identified in Table 3.11-2. With incorporation of BMP GEO-4, no direct or indirect short-term adverse effects on paleontological resources would occur under the Project.

Long-term Effects

FAULT RUPTURE

Please refer to the discussion on fault rupture under short-term effects. Based on the information provided in that section, it is also anticipated that no direct or indirect long-term effects on geology, soils, and seismicity as it relates to fault rupture is anticipated under the Project.

GROUND SHAKING

Please refer to the discussion on ground shaking under short-term effects. Based on the information provided in that section, with the incorporation of BMP GEO-1 and BMP GEO-2, no direct or indirect long-term adverse effects on geology, soils, and seismicity as it relates to ground shaking is anticipated under the Project.

LIQUIEFACTION

Please refer to the discussion on liquefaction under short-term effects. Based on the information provided in that section, with the incorporation of BMP GEO-3, no direct or indirect long-term adverse effects on geology, soils, and seismicity as it relates to liquefaction is anticipated under the Project.

EROSION

Please refer to the discussion on erosion under short-term effects. Based on the information provided in that section, with the incorporation of BMP GEO-3 and BMP HYD-2, no direct or indirect long-term adverse effects on geology, soils, and seismicity as it relates to erosion is anticipated under the Project.

EXPANSIVE SOILS

Please refer to the discussion on expansive soils under short-term effects. Based on the information provided in that section, with the incorporation of BMP GEO-1 through BMP GEO-3, no direct or indirect long-term adverse effects on geology, soils, and seismicity as it relates to expansive soils is anticipated under the Project.

PALEONTOLOGY

Please refer to the discussion on paleontology under short-term effects. Based on the information provided in that section, with incorporation of BMP GEO-4, no direct or indirect long-term adverse effects on paleontological resources from operation and maintenance of the facility are anticipated under the Project, because these activities generally do not involve disturbance of previously undisturbed areas that could contain paleontological resources.

3.11.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for geology, soils, seismicity, and paleontology; therefore, no specific geology, soils, seismicity, and paleontology mitigation measures are required.

3.12 Hazardous Waste and Materials

This section describes the regulatory setting and affected environment for hazardous waste and materials. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects due to the potential presence of hazardous waste and materials during construction and operation of the Project. If short-term or long-term effects from hazardous waste and materials are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects from hazardous waste and materials are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the hazardous waste and materials RSA.

3.12.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of hazardous waste and materials is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Clean Air Act (42 U.S.C. 7609)

Clean Water Act, Section 402(p) (33 U.S.C. 1342(p))

Safe Drinking Water Act (42 U.S.C. 300(f) et seq.)

Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 and 40 C.F.R. Parts 152 to 171)

Emergency Planning and Community Right to Know Act (42 U.S.C. 11001 et seq. and 40 C.F.R. Parts 350.1 et seq.)

Executive Order 12088, Federal Compliance with Pollution Control

Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)

The Hazardous Materials Transportation Act (49 U.S.C. 5101-5127)

National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300 et seq.)

Oil Pollution and Prevention Regulation

Occupational Safety and Health Act (29 U.S.C. §§ 651–678)

Resource Conservation and Recovery Act (42 U.S.C. ch. 82 § 6901 et seq.)

Toxic Substances Control Act (15 U.S.C. §2601 et seq)

Atomic Energy Act of 1946, as amended (42 U.S.C. §2011 et seq.)

State Plans, Policies, and Regulations

Cal/EPA Plans, Policies, and Regulations

Hazardous Materials Release Response Plans and Inventory Act (Business Plan Act)

Hazardous Materials Transportation, California Code of Regulations (CCR) Title 26

Well Safety Devices for Critical Wells (CCR, Title 14, Section 1724.3)

Gas Monitoring and Control at Active and Closed Disposal Sites (CCR, Title 27, Section 20917 et seq.)

Closure and Post Closure Maintenance of Landfills (CCR, Title 27, Subchapter 5)

Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.)

Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.)

Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health and Safety Code, Section 25249.5 et seq.)

Cortese List Statute (California Government Code Section 65962.5)

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)

Underground Storage Tank Program

State of California Emergency Plan

Local Plans, Policies, and Regulations

San Joaquin County Emergency Operations Plan – Hazardous Material Area Plan Annex

San Joaquin County General Plan – Public Health and Safety Element

Goal PHS-7: To protect County residents, visitors, and property from hazardous materials and wastes.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.12.2 AFFECTED ENVIRONMENT

This section defines the hazardous materials RSA and describes methods used to analyze the potential for the Project to increase risks in the hazardous wastes and materials RSA or to disturb potentially contaminated sites during construction and operations.

For the purposes of this section, the term “hazardous materials” refers to both hazardous substances and hazardous wastes. A “hazardous material” is defined by federal regulations as “a substance or material that … is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8).

California Health and Safety Code Section 25501 defines a hazardous material as follows:

Hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that:

> …because of their quantity, concentration, or physical, chemical, or infectious characteristics, [may either] cause, or significantly contribute to an increase in mortality or an increase in serious illness, [or] pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria listed in the CCR Title 22. Cleanup requirements are determined on a case-by-case basis by the agency with lead jurisdiction over the project. Under CCR Title 22, the term “hazardous substance” refers to both hazardous materials and hazardous wastes, both of which are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (CCR Title 22, Chapter 11, Article 3).

ASTM Practice E1527-13 defines “release” as a release of any hazardous substance or petroleum product and has the same meaning as the definition of “release” in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC §9601(22)).

Definition of Resource Study Area

The RSA for hazardous waste and materials encompasses the areas directly or indirectly affected by construction and operation of the Project and is defined as the area within 0.25 mile of the Project Study Area. A 660-foot radius is considered “adjacent” to the Project and is used to determine the potential for contaminated media, such as soil or groundwater, to be disturbed by Project construction or operations. It is assumed that the direct impacts would be confined to the Project Study Area, while indirect impacts could extend to the limits of the RSA.

Data Collection and Analysis

The analysis focuses on Project elements that could result in the release of hazardous materials/waste into the environment or disturb contaminated soils and/or groundwater.

The hazardous wastes and materials analysis conducted for this Final EA is a qualitative analysis of the potential effects hazardous wastes and materials at known or suspected contaminated sites can have on humans and the natural environment. The analysis was based on a review of environmental database records, historic land use records (e.g. topographic maps, aerial photographs, and city directories), agency records from SWRCB GeoTracker and Department of Toxic Substances Control (DTSC) EnviroStor online databases, and the Environmental Data Resources, Inc. (EDR) Radius Map Report with GeoCheck (EDR 2020) (EDR Report). The analysis was conducted in general conformity with American Society for Testing and Materials International (ASTM) Standard E1527-13 (ASTM 2013). Impacts from exposure to hazardous materials and wastes are those that could result from Project activities that are in proximity to, or which could potentially disturb sites containing these materials.

Environmental Database Records

A search of federal, state, local and tribal regulatory agency environmental databases was performed using EDR. The database identifies locations that are regulated under various environmental laws, notably CERLCA, Resource Conservation and Recovery Act (RCRA), and Toxic Substances Control Act (TSCA). It also identifies locations where a release of hazardous substances has occurred or is suspected. The environmental database search was limited to within a one-mile radius of the Project Study Area, per the ASTM Standard, and included 134 environmental databases. Particular attention was given to sites listed on the National Priorities List (NPL), State Priorities List (SPL), Solid Waste Landfill (SWLF), Leaking Underground Storage Tank (LUST), and Cortese databases. A copy of the EDR Report is included as Appendix J of this Final EA.

Historical Records Review

Available historical aerial photographs, topographic maps, and city directories were reviewed to analyze historic land uses and property changes within the hazardous waste and materials RSA to identify potential historical contaminant sources that may adversely impact the Project.

- Historical aerial photographs provided by EDR from 1937, 1940, 1957, 1963, 1968, 1975, 1982, 1984, 1993, 2006, 2009, 2012, and 2016 were reviewed to evaluate previous land uses within the hazardous waste and materials RSA. Copies of these photographs are provided in Appendix J of this Final EA. Railroad tracks within the hazardous waste and materials RSA can be seen as far back as 1937 in the available aerial photographs.
- Historical USGS 7.5-minute quadrangle topographic maps provided by EDR from 1913, 1914, 1952, 1968, 1976, 1987, and 2012 were reviewed to evaluate previous land uses within the hazardous waste and materials RSA. Copies of these topographic maps are provided in Appendix J of this Final EA. Railroad tracks within the hazardous waste and materials RSA can be seen as far back as 1913 and 1914 in the available topographic maps.
- A city directory search was conducted by EDR from the first available directory to the present. Directories were available at approximately 5-year intervals beginning in 1906 and ending in

2017. The directories were reviewed for business listings that may indicate the use or storage of bulk chemicals or other uses within the hazardous waste and materials RSA that may impact the Project if a release had occurred. Copies of the city directories are provided in Appendix J of this Final EA. The city directory search had identified industrial land uses, such as manufacturing and iron and steel fabrication operations, that were within the hazardous waste and materials RSA. Sites that had industrial land use operations included Valley Steel and Welding Works located at 935 Scotts Avenue E (refer to Table 3.12-1 for additional information).

Agencies Record Review

An agency records review was conducted for sites located within the hazardous waste and materials RSA. The agency files were reviewed for the most recent site status information and the nature and extent of contamination, as well as pertinent land uses, geologic, hydrogeologic, and other information that may be used to assess potential impacts on the Project. Files maintained by the DTSC EnviroStor and SWRCB GeoTracker online databases and the EDR Report were reviewed.

Sites of Concern

A site of concern is a site that the investigative process has determined to have sufficient possibility of contamination that may impact the Project. The following criteria were used to determine sites of concern:

- The occurrence of a documented release, based on either database listing or public records
- The physical, chemical, and toxicological characteristics of suspected contaminants released from potential sources, and the media potentially affected (soil, water, and air)
- Distance from the Project Study Area
- Nature of proposed design and construction activities in relation to the location and possible impact from a potential contaminant source
- Hydrogeologic gradient

Based on the investigation process that has been completed, 31 sites within the hazardous waste and materials RSA have been identified as a potential concern to the Project, of which six are located within the Project Study Area and 20 are located within 660 feet to the Project Study Area.

Once a site was determined to have a potential impact to the Project, a risk analysis was conducted. The identified sites of concern were evaluated and ranked as high, moderate, or low risk sites, as defined below.

- **Low:** Low-risk sites are those sites that have few indications of potential for release of hazardous materials. In some situations, sites that have had a hazardous materials issue in the past but have been remediated, with approval of the state environmental agency or local regulatory agencies, may qualify as low risk. Examples of low-risk sites include undeveloped or agricultural property, residential property, or benign commercial properties such as office buildings, warehouses, distribution facilities, or municipal facilities with no listed violation.
- **Moderate:** Moderate-risk sites are those sites that have some indications of possible hazardous materials issues. A moderate risk site may appear on a database as having a permit to handle

hazardous materials but has recorded no violations to date. Another way that a site could be interpreted as moderate risk would be if the environmental records search indicated no listing, but the site is an auto repair facility with visible surface staining. Examples of moderate-risk sites include auto repair garages, welding shops, or manufacturing facilities with minor listings in the environmental databases.

- **High:** High-risk sites are those sites that have a high potential for releasing hazardous materials to the soil or groundwater or have a recorded release issue. Examples of high-risk sites include current service stations, bulk fueling terminals, sites listed in environmental databases as having had a release, or a known release that has not been remediated.

The analysis identified 18 high risk, 6 moderate, and 7 low risk sites within the hazardous waste and materials RSA. A summary of all sites of concern and their risk ranking is provided in Table 3.12-1 and shown on Figure 3.12-1.

Table 3.12-1: Hazardous Materials Listings and Risk Rank Determination

Map ID (EDR ID) [a]	Site Name	Address	Regulatory Listing[b]	Hydrogeologic Gradient	Distance within RSA	Description of Contamination	Determination/Risk Ranking
1 (9, 17, 21)	CAPITOL VENTURE ENTERPRISES / BEAULIEU INDUSTRIES	400 AURORA ST S	LUST, CORTESE, CERS, ENVIROSTOR, VCP, SWEEPS UST, CA FID UST, SEMS-ARCHIVE	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 6/3/1996. Soil contamination as a result waste oil, motor oil, hydraulic oil, and lubricating oil releases. Contaminants of concern include toluene, xylene and benzene. Past use at the facility includes chemicals manufacturing. Global ID: T0607700582	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
2 (25)	SANTA FE RAILWAY	1033 SCOTTS AVE E	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 4/5/1996. Soil contamination as a result of heating oil and fuel oil release. Global ID: T0607700151. Site operated as AIRGAS NCN in 2003.	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
3 (36)	SIMS METAL MANAGEMENT	1000 S AURORA ST	RCRA-LQG, LUST, SWEEPS UST, HIST UST, CA FID UST, FINDS, CORTESE, NPDES, CIWQS	Upgradient	Within Project Study Area	LUST Cleanup Site. Completed – Case Closed Status as of 3/19/1996. Soil contamination as a result of lead release. Global ID: T0607700071	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
4 (45)	SANTA FE RAILWAY	748 UNION ST S	LUST, CORTESE, CERS	Upgradient	Within Project Study Area	Site operated as Pioneer Trucking Co in 1930 and Pioneer Trans & Stge Co in 1955. LUST Cleanup Site. Completed - Case Closed Status as of 8/12/1998. Soil contamination as a result of diesel release. Global ID: T0607700529	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
5 (52)	STOCKTON WAREHOUSE BLDG	935 SCOTTS AVE E	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within Project Study Area	Site operated as Valley Steel and Welding Works between 1935 and 1965, and Insulation Machinery Mfg Co Inc. in 1979. LUST Cleanup Site. Completed - Case Closed Status as of 3/19/1996. Soil contamination as a result of gasoline release. Global ID: T0607700184	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
6 (58)	VETTER PLUMBING	1035 AURORA ST S	LUST, CORTESE, CERS	Upgradient	Within Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 3/19/1996. Soil contamination as a result of gasoline release. Global ID: T0607700184	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
7 (77)	PACIFIC PLUMBING & HEATING	1044 AURORA ST S	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 7/15/1996. Soil contamination as a result of gasoline release. Global ID: T0607700216	High Risk; Closed LUST site. Located in the RSA. Potential for residual soil contamination.
8 (105)	MERLO PROPERTY (FORMER SP RR)	936 WEBER AVE E	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 6/15/2004. A leaking 1,000-gallon gasoline tank was removed from the site. An aquifer used for drinking water supply is the potential media of concern and the potential contaminant of concern is gasoline. Depth to groundwater is 33 to 35 feet bgs. Groundwater flow gradient is NE-NW. 500 gallons of contaminated water were hauled off for disposal during remediation. Global ID: T0607700814	High Risk; Closed LUST site. Groundwater contamination adjoining RSA. Site is upgradient of the Project with contaminated groundwater potentially migrating to the RSA.
9 (140)	HICKINBOTHAM BROS LTD	635 AURORA ST S	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 6/17/1993. Soil contamination as a result of gasoline release. Petroleum hydrocarbons is the potential contaminant of concern. Global ID: T0607700229	High Risk; Closed LUST site adjoining the RSA. Potential for soil contamination.

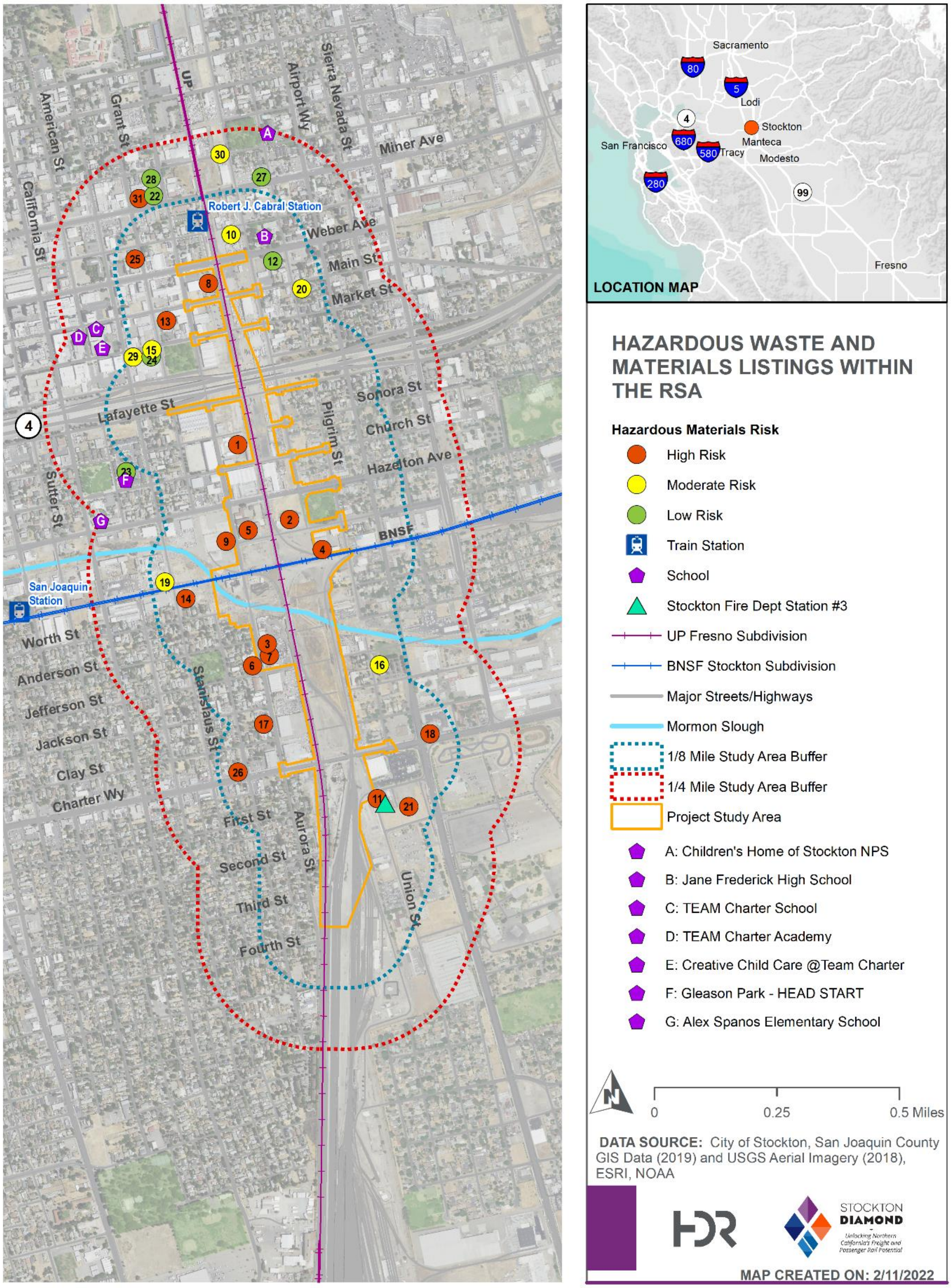
Map ID (EDR ID) [a]	Site Name	Address	Regulatory Listing[b]	Hydrogeologic Gradient	Distance within RSA	Description of Contamination	Determination/Risk Ranking
10 (143)	PRODUCTION CHEMICALS MFR INC	1000 CHANNEL ST E	LUST, CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 3/19/1996. Soil is the potential media of concern. Potential contaminants of concern include other solvent or non-petroleum hydrocarbons. Global ID: T0607700667	Moderate Risk; Closed LUST site adjoining the RSA. Potential for soil contamination.
11 (154, 156)	FIRE DEPT ENGINE CO #3 / EL CONCILIO NO. 2 PROPERTY	1116 1ST ST E	LUST, CORTESE, HIST CORTESE, CERS, US BROWNFIELDS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 5/30/2000. An aquifer used for drinking water supply is the potential media of concern. Gasoline is the potential contaminant of concern. Global ID: T0607700304	High Risk; Closed LUST site and Brownfields site. Groundwater contamination adjoining RSA. Site is upgradient of the Project with contaminated groundwater potentially migrating to the RSA.
12 (165)	AUTO INDUSTRIAL PAINT CO INC	1128 E WEBER ST	HWTS, RCRA-LQG, FINDS, ECHO, HAZNET	Upgradient	Within 1/8 Mile of Project Study Area	According to the ECHO Detailed Facility Report, the site is an active LQG and has no identified releases. FRS ID: 110002665447; RCRA ID: CAD097077804	Low Risk; This site has no reported violations but is an active LQG.
13 (183, 206)	CITY OF STOCKTON / VALLEY MOTORS	800 EAST MAIN STREET	LUST, CORTESE, CERS, CPS-SLIC, HIST CORTESE	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed Case Closed Status as of 7/20/2017. The potential media of concern is soil, and other media is under investigation. Waste oil, motor oil, hydraulic oil, and lubricating oil are the potential contaminants of concern. Global ID: T10000007010	High Risk; Closed LUST Clean-up site is adjoining the Project Study Area and there is potential for residual contamination onsite.
14 (198)	DELTA PLATING, INC	818 S. STANISLAUS ST	HWTS, RCRA-LQG, ENVIROSTOR, SWEEPS UST, HIST UST, CA FID UST, EMI, HAZNET, CERS	Downgradient	Within 1/8 Mile of Project Study Area	Tiered Permit and DTSC-Site Cleanup Program. Active Status as of 6/23/2004. Soil is the potential media of concern. Groundwater contamination is unknown. Potential contaminants of concern include Chromium VI, Copper and Compounds, Cyanide (free), and Nickel. Delta Plating Company conducted planting activities at the facility since 1974. On March 16, 2005, DTSC signed a Corrective Action Consent Agreement Docket Number SRPD 04/05 SCC-4324 requiring the Facility to conduct a Preliminary Endangerment Assessment investigation at the site. A PEA Report was submitted and approved by DTSC, which identified elevated levels of metals exceeding background concentrations and recommended soil excavation under an Interim Measures.	High Risk; Active DTSC Site Cleanup Program and Tiered Permit.
15 (219)	RAYMOND INVESTMENT CORP	145 GRANT ST S	LUST, CORTESE, HIST CORTESE, CERS	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 12/20/1996. Soil is the potential media of concern and diesel is the potential contaminant of concern. Global ID: T0607700277	Moderate Risk due to potential soil contamination adjacent to RSA
16 (221)	ISLAMIC CENTER	1130 S. PILGRIM STREET	LUST, CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 7/21/2009. Soil is the potential media of concern and heating oil/fuel oil is the potential contaminant of concern. Global ID: T0607795710	Moderate Risk; This site is considered a moderate risk due to distance from site and soil contamination
17 (228)	J.C. TRUCKING	1207 AURORA ST S	LUST, SWEEPS UST, CA FID UST, CORTESE, HIST CORTESE, NOTIFY 65, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 6/4/2010. Soil and an aquifer used for drinking water supply are the potential media of concern. Gasoline is the potential contaminant of concern. In May 1992, four underground storage tanks were removed from the site. The tanks were located in two separate tank pit locations. Soil samples for analysis were collected from the tank pits. Laboratory results reported petroleum hydrocarbon impact to the soil and groundwater. No Further Action letter issued June 9, 2010. Global ID: T0607700584	High Risk; This site is a closed LUST cleanup site with a history of groundwater contamination

Map ID (EDR ID) [a]	Site Name	Address	Regulatory Listing [b]	Hydrogeologic Gradient	Distance within RSA	Description of Contamination	Determination/Risk Ranking
18 (235)	SHELL (FORMER SS)	1313 CHARTER WAY E	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 7/23/2009. Potential media of concern is an aquifer used for a drinking water supply. Contaminants of concern include benzene, gasoline, toluene, and xylene. One 8,000-gallon UST, and two 10,000-gallon USTs were removed from the site. Depth to groundwater at the site is between 35.80 and 45.12 feet bgs. The gradient at the site is East, NE, SE. Global ID: T0607700883	High Risk; This site is a LUST Cleanup site near the Project Study Area that resulted in contamination to an aquifer used for drinking water supply
19 (245)	CONCRET, INC	749 STANISLAUS ST	LUST, CORTESE, HIST CORTESE, CERS	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed- Case Closed Status as of 8/9/1994. The potential media of concern is soil. Diesel is the potential contaminant of concern. Global ID: T0607700655	Moderate Risk due to distance from the RSA and soil contamination
20 (254)	ACME SAW & INDUSTRIAL	1204 MAIN ST E	LUST, CORTESE, HIST CORTESE, CERS	Upgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 9/7/1999. Soil is the potential media of concern. Gasoline is the potential contaminant of concern. Global ID: T0607700634	Moderate Risk due to distance from RSA and soil contamination
21 (259)	EL CONCILIO NO. 1 PROPERTY	1501 SOUTH AIRPORT WAY	US BROWNFIELDS, FINDS	Upgradient	Within 1/8 Mile of Project Study Area	Brownfields property. Past use is an undeveloped vacant lot that previously had a dirt racetrack on site.	High Risk; Brownfield property with potential for soil contamination
22 (272)	DE ROLLO MAZDA	835 MINER AVE E	LUST, CORTESE, HIST CORTESE, CERS	Downgradient	Within 1/4 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 3/19/1996. Soil is the potential media of concern. Gasoline is the potential contaminant of concern. Global ID: T0607700468	Low Risk due to distance from RSA and soil contamination
23 (283)	GLEASON PARK APARTMENT	411 S. STANISLAUS STREET	ENVIROSTOR, VCP, DEED	Downgradient	Within 1/4 Mile of Project Study Area	Voluntary Cleanup; DTSC - Site Cleanup Program. Certified O&M - Land Use Restrictions only as of 11/8/2010. Project site was previously occupied by single family homes. A Voluntary Cleanup Agreement was executed in 7/2009. A Preliminary Endangerment Assessment Report dated 3/10 was approved and a Land Use Covenant for the soil contaminant lead was executed on 10/7/10. The site was cleared and developed with multi-family residences with an associated day care. EnviroStor ID: 60001130	Low Risk; This site is low risk due to distance from RSA and soil contamination
24 (284)	GOODWILL INDUSTRIES	129 GRANT ST S	LUST, CORTESE, CERS	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed as of 3/19/1996. Soil is the potential media of concern. Waste oil, motor oil, hydraulic oil, and lubricating oil are the potential contaminants of concern. Global ID: T0607700178	Low Risk; This site is low risk due to distance from RSA and soil contamination
25 (291)	RAYMOND INVESTMENTS, CASE #2	730 CHANNEL - AKA 145 N GRANT STREET CASE #1	LUST, CORTESE, CERS	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 10/10/2013. An aquifer used for groundwater supply is the potential media of concern. Gasoline is the potential contaminant of concern. Depth to groundwater is 23.44 to 37.49 feet bgs. Groundwater gradient is East-Northeast. Global ID: T0607772370	High Risk; This site is high risk due to aquifer contamination in proximity to the Project Study Area

Map ID (EDR ID) [a]	Site Name	Address	Regulatory Listing[b]	Hydrogeologic Gradient	Distance within RSA	Description of Contamination	Determination/Risk Ranking
26 (297)	GASCO	749 CHARTER WAY E	LUST, CORTESE, HIST CORTESE, NOTIFY 65, CERS	Downgradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Open - Verification Monitoring Status as of 7/30/2003. An Aquifer used for drinking water supply is the potential media of concern. Contaminants of concern include TPHg and MBTE. Average historic high and low groundwater elevations are 28 and 45 feet bgs, respectively. Global ID: T0607700347Site history: 11/14/1989, Four USTs removed, contamination noted.11/21/1989, Soil contamination verified, Prop 65 and UAR filed.1/12/1990, waste oil UST removed, contamination noted.1/31/1990, MW-1 through MW-3 installed.4/20/1990, Groundwater contamination verified, Prop 65 filed.7/7/1997 to 7/10/2003, SVE remediation system operated to address impacted soil.DPE proposed to address remaining impacted soil and groundwater.	High Risk; This site is high risk due to aquifer contamination in proximity to the Project Study Area
27 (310)	ASSOC. ADJUSTEMENT	303 PILGRIM ST N	LUST, CORTESE, HIST CORTESE, CERS	Higher	Within 1/4 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 10/24/1990. Soil is the potential media of concern. Contaminants of concern include other solvent or non-petroleum hydrocarbon. Global ID: T0607700238	Low Risk; This site is low risk due to distance from RSA and soil contamination
28 (312)	HENRY WOLTERS & SON INC	888 LINDSAY ST E	LUST, CORTESE, HIST CORTESE, CERS	Cross-gradient	Within 1/8 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 3/19/1996. Soil is the potential media of concern. Lead is the potential contaminant of concern. Global ID: T0607700080	Low Risk; This site is low risk due to distance from RSA and soil contamination
29 (324, 327)	RITE WAY CLEANERS	700 EAST MARKET STREET	SEMS-ARCHIVE, HWTS, RCRA-LQG, CERS HAZ WASTE, FINDS, DRYCLEANERS, HAZNET, CERS	Downgradient	Within 1/8 Mile of Project Study Area	Site was historically a LQG and used as a dry cleaners. Site does not qualify for NPL based on existing information. No violations have been reported. EPA ID: CAN000905714	Moderate Risk; This site is moderate risk due to historic dry cleaning operations that have the potential to release perchloroethylene, a solvent that is typically used in dry cleaning activities. Potential for off-site migration of groundwater contamination.
30 (329)	UNION ICE CORP	425 UNION ST N	ENVIROSTOR, LUST, VCP, CORTESE, HIST CORTESE, CERS	Upgradient	Within 1/4 Mile of Project Study Area	LUST Cleanup Site. Completed - Case Closed Status as of 11/15/1999. An aquifer used of drinking water supply is the potential media of concern. Waste oil, motor oil, hydraulic oil and lubricating oil are the potential contaminants of concern. Global ID: T0607700342	Moderate Risk; This site is moderate risk due to distance from RSA and aquifer contamination
31 (340)	DE ROLLO MAZDA	308 N GRANT ST	HWTS, RCRA-SQG, LUST, HIST UST, FINDS, ECHO, CORTESE, HAZNET, HIST CORTESE	Downgradient	Within 1/4 Mile of Project Study Area	LUST Cleanup Site. Open - Remediation Status as of 3/25/2013. An aquifer used for drinking water supply is the potential media of concern. Gasoline is the potential contaminant of concern. Depth to groundwater is between approximately 20.12 and 38 feet bgs. April 1987 - One UST was removed from the site. October 1988 - one waste oil UST was removed from the site. May 1990 - two USTs located beneath the sidewalk on Miner Avenue were removed. A soil vapor extraction system operated intermittently at the site from May through December 2008.	High Risk; Open LUST Cleanup Site. Potential for groundwater and soil contamination

[a] Map ID indicates the site number illustrated on Figure 3.12-1. EDR Site ID indicates the site number referenced in the EDR Report (Appendix J).
[b] Regulatory databases are defined in the EDR Report (Appendix J).

Figure 3.12-1: Hazardous Waste and Materials Listings within the RSA



3.12.3 ENVIRONMENTAL CONSEQUENCES

This section describes the Project's potential environmental consequences based on its potential to result in a hazardous materials release or disturb contaminated sites within the hazardous waste and materials RSA.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the construction of the Project would not occur. Therefore, no direct or indirect short-term effects from hazardous waste and materials would occur under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no effects would occur on hazardous waste and materials, and no direct or indirect long-term effects from hazardous waste and materials would occur under the No Action Alternative.

Project

Short-term Effects

Construction would involve the handling, storage, transport, and disposal of hazardous materials. During construction, the use of routine hazardous materials and substances would be required, and hazardous wastes would be generated during operation of construction equipment. Using these materials, including their routine transport and disposal, carries the potential for an accidental release into the local environment. If a spill of these materials were to occur, the accidental release could pose a health and safety hazard to construction employees, the public (including students and employees at seven schools within the hazardous waste and materials RSA, as shown on Figure 3.12-1), and the environment, depending on the magnitude of the spill and relative hazard of the material released.

In addition to the use of construction-related hazardous materials, contaminated soil and groundwater are also expected to be encountered during soil excavations and dewatering activities, which would require specialized handling, treatment, and potentially off-site transport and disposal. Ground disturbance and structure demolition at identified hazardous materials sites could result in a hazardous materials release into the environment.

Due to the close proximity of the Project Study Area to existing hazardous materials listings, potential exposure to contaminated soil and/or groundwater or contaminant migration could result. Construction of bridge foundations or other below ground elements could encounter soils contaminated with petroleum and petroleum products, which could release volatile contaminant vapors during excavations.

In addition, based on the age (pre-1970s) of many of the buildings within the area, it is possible that these buildings were constructed when asbestos-containing materials (ACM) and LBPs were readily used in exterior coatings. Human exposure to lead has been determined by EPA and OSHA to be an adverse health risk, particularly to young children. Demolition of structures containing LBP requires specific remediation activities regulated by federal (40 CFR 745), state (17 CCR 35001-36100), and local laws and regulations. As a result, the Project could result in the accidental release of ACMs or lead into the environment.

Routine hazardous materials such as paint, solvents, and fuel would be used, handled, stored, disposed of, and transported during construction of the Project, in accordance with applicable local, State, and federal regulations. In addition, other hazardous wastes and materials that may be encountered during construction activities for the Project, such as contaminated soil and groundwater, ACM, and LBP, will be properly handled, contained, transported, and disposed of in compliance with applicable regulations and requirements.

Further, the Project will incorporate BMP HAZ-1 through BMP HAZ-9, identified in Table 3.12-2, that will aim to protect the health and safety of construction employees, the public, and the environment through the avoidance and minimization of potential adverse effects during construction. With the incorporation of BMP HAZ-1 through BMP HAZ-9, no direct or indirect short-term adverse effects are anticipated under the Project.

Table 3.12-2: Project Best Management Practices

Best Management Practice	Description
BMP HAZ-1	**Prepare a Construction Hazardous Materials Management Plan (HMMP).** Prior to construction, SJRRC will ensure that an HMMP be prepared, which will outline provisions for safe storage, containment, and disposal of chemicals and hazardous materials, contaminated soils, and contaminated groundwater used or exposed during construction, including the proper locations for disposal. The HMMP shall be prepared to address the Project Study Area, and include, but not be limited to, the following: • A description of hazardous materials and hazardous wastes used (29 CFR 1910.1200) • A description of handling, transport, treatment, and disposal procedures, as relevant for each hazardous material or hazardous waste (29 CFR 1910.120) • Preparedness, prevention, contingency, and emergency procedures, including emergency contact information (29 CFR 1910.38) ○ A description of personnel training including, but not limited to: (1) recognition of existing or potential hazards resulting from accidental spills or other releases; (2) implementation of evacuation, notification, and other emergency response procedures; (3) management, awareness, and handling of hazardous materials and hazardous wastes, as required by their level of responsibility (29 CFR 1910) • Instructions on keeping Safety Data Sheets on site for each on-site hazardous chemical (29 CFR 1910.1200) • Identification of the locations of hazardous material storage areas, including temporary storage areas, which shall be equipped with secondary containment sufficient in size to contain the volume of the largest container or tank (29 CFR 1910.120)

Best Management Practice	Description
BMP HAZ-2	**Property Acquisition Phase I and Phase II Environmental Site Assessments.** Prior to or during the right-of-way acquisition phase, SJRRC will ensure that Phase I Environmental Site Assessments (ESA) would be conducted in accordance with standard ASTM methodologies to characterize each parcel. The determination of parcels that require a Phase II ESA (for example, soil, groundwater, soil vapor subsurface investigations) would be informed by a Phase I ESA and may require coordination with state and local agency officials.
BMP HAZ-3	**Prepare a General Construction Soil Management Plan.** Prior to construction, SJRRC will ensure that a General Construction Soil Management Plan be prepared, which will include general provisions for how soils will be managed within the Project Study Area for the duration of construction. General soil management controls to be implemented by the contractor, and the following topics, shall be addressed within the Soil Management Plan: • General worker health and safety procedures • Dust control • Management of soil stockpiles • Traffic control • Stormwater erosion control using BMPs
BMP HAZ-4	**Prepare Parcel-Specific Soil Management Plans and Health and Safety Plans (HASP).** Prior to construction, SJRRC will ensure that parcel-specific Soil Management Plans be prepared for known contaminated sites and LUST-adjudicated sites for submittal and approval by DTSC. The plans shall include specific hazards and provisions for how soils will be managed. The nature and extent of contamination varies widely across the Project Study Area, and the parcel-specific Soil Management Plan shall provide parcel-specific requirements addressing the following: • Soil disposal protocols • Protocols governing the discovery of unknown contaminants • Soil management on properties within the Project Study Area Prior to construction on individual properties with LUSTs or known contaminants, a parcel-specific HASP shall also be prepared for submittal and approval by DTSC. The HASP shall be prepared to meet OSHA requirements, Title 29 of the CFR 1910.120 and CCR Title 8, Section 5192, and all applicable federal, state, and local regulations and agency ordinances related to the proposed management, transport, and disposal of contaminated media during implementation of work and field activities. The HASP shall be signed and sealed by a Certified Industrial Hygienist, who is licensed by the American Board of Industrial Hygiene. In addition to general construction soil management plan provisions, the following parcel-specific HASP provisions shall also be implemented: • Training requirements for site workers who may be handling contaminated material • Type of appropriate personal protective equipment required

Best Management Practice	Description
	• Mitigation and monitoring measures that are protective of site worker and public health and safety Prior to construction, SJRRC shall coordinate proposed soil management measures and reporting activities with stakeholders and regulatory agencies with jurisdiction in order to establish an appropriate monitoring and reporting program that meets all federal, state, and local laws for the Project and each of the contaminated sites.
BMP HAZ-5	**Prepare Project Construction Health and Safety Plan.** Prior to construction, SJRRC will ensure the development of a HASP for the overall Project to guide all construction activities. A Certified Industrial Hygienist will review this plan, based on evaluations of construction activities, the potential hazards identified, and any future assessment prepared for the Project. This HASP will contain specific procedures for encountering expected and unexpected contaminants. It will prescribe safe work practices, contaminant monitoring, personal protective equipment, emergency response procedures, and safety training requirements to protect construction workers and third parties. The plan will meet the requirements of 29 CFR 1910 and 1926, and all other applicable federal, state, and local regulations and requirements. The HASP will be prepared before the start of construction.
BMP HAZ-6	**LUST Sites and Coordination with DTSC.** Prior to construction on properties with a LUST, SJRRC will ensure that coordination be required with DTSC regarding any plans specified, construction activities, and/or public outreach activities needed to verify that construction activities on properties with LUSTs would be managed in a manner protective of public health and the environment.
BMP HAZ-7	**Halt Construction Work if Potentially Hazardous Materials/Abandoned Oil Wells are Encountered.** During construction, SJRRC will ensure that contractors will follow all applicable local, state, and federal regulations regarding discovery, notification, response, disposal, and remediation for hazardous materials and/or abandoned oil wells encountered during the construction process. Construction work shall halt in the event of the discovery of unidentified underground storage tanks (UST), unexpected contamination, or hazardous waste or materials to allow UST decommissioning; field screening; material testing, mitigation, and contaminant management. If an unexpected release of hazardous substances is found in reportable quantities, the National Response Center must be notified by calling 1-800-424-8802, and cleanup must be coordinated with environmental agencies.

Best Management Practice	Description
BMP HAZ-8	**Pre-Demolition Investigation.** Prior to the demolition of any structures, SJRRC will ensure that a survey be conducted for the presence of hazardous building materials, such as ACMs, LBPs, and other materials falling under the Universal Waste requirements. The results of this survey shall be submitted to SJRRC and applicable stakeholders as deemed appropriate by SJRRC. If any hazardous building materials are discovered, prior to demolition of any structures, a plan for proper removal shall be prepared in accordance with applicable OSHA and San Joaquin County Environmental Health Department requirements. The contractor performing the work shall be required to implement the removal plan. If asbestos-related work is required, the contractor or their subcontractor shall be required to possess a California Contractor License (Asbestos Certification). Prior to any demolition activities, the contractor shall be required to secure the site and ensure utilities are disconnected.
BMP HAZ-9	**Limit Use of Extremely Hazardous Materials Near Schools During Construction.** During construction, SJRRC will ensure that the contractor shall not handle an extremely hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code within 0.25 mile of a school. The contractor would be required to monitor all use of extremely hazardous substances.

Long-term Effects

Future operations at the Stockton Diamond Project site would involve the use of hazardous materials and wastes that could be subject to accidental releases. The handling of such materials would be subject to federal and state regulations and local health and safety requirements (those specified by SJRRC, railroad operators, or property owners on a case-by-case basis). Therefore, no direct or indirect long-term adverse effects are anticipated under the Project.

3.12.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for hazardous waste and materials; therefore, no specific hazardous waste and materials mitigation measures are required.

3.13 Air Quality

This section describes the regulatory setting and affected environment for air quality. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on air quality during construction and operation of the Project. If short-term or long-term effects on air quality are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to air quality are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects air quality within the air quality RSA.

3.13.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of air quality is provided below.

Federal Plans, Policies, and Regulations

Clean Air Act and National Ambient Air Quality Standards

General Conformity Rule

State Plans, Policies, and Regulations

California Clean Air Act and California Ambient Air Quality Standards

California State Implementation Plan

Assembly Bill 617

Local Plans, Policies, and Regulations

San Joaquin Valley Air Pollution Control District

City of Stockton General Plan

Goal SAF-4: Improve local air quality.

Policy SAF-4.1: Reduce air impacts from mobile and stationary sources of air pollution.

Action SAF-4.1A: Require the construction and operation of new development to implement best practices that reduce air pollutant emissions, including:

- Use of low-emission and well-maintained construction equipment, with idling time limits
- Development and implementation of a dust control plan during construction
- Installation of electrical service connections at loading docks, where appropriate
- Installation of Energy Star-certified appliances
- Entering into Voluntary Emissions Reduction Agreements with the San Joaquin Valley Air Pollution Control District (SJVAPCD)

Action SAF-4.1C: Require the use of electric-powered construction and landscaping equipment as conditions of project approval when appropriate

Action SAF-4.1D: Limit heavy-duty off-road equipment idling time to meet CARB's idling regulations for on-road trucks

Policy SAF-4: Coordinate with SJVAPCD to promote public awareness on air quality issues and consistency in air quality impacts analyses

Action SAF-4.3B: Coordinate review of development project applications with SJVAPCD to ensure that air quality impacts are identified and mitigated consistently during CEQA review

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.13.2 AFFECTED ENVIRONMENT

This section describes the approach to analyze potential Project effects on air quality. The environmental consequences of the Project alternatives were analyzed based on a review of the existing air quality setting presented in Section 3.13.2.

Definition of Resource Study Area

The RSAs for air quality are distinct because of the nature of criteria air pollutants mixing into the atmosphere. The air quality RSA for the Project is defined as the entire SJVAB.

Methods for Data Collection and Analysis

The effect analysis focuses on criteria air pollutants. Table K-1 in Appendix K, *Air Quality Conformity Supporting Documents*, subsection K.1 of this Final EA identifies the applicable federal and state criteria air pollutant standards. The effects of these pollutants generated by construction and operations of the Project were assessed using standard and accepted software tools, techniques, and emission factors. This section summarizes the methods used to analyze effects as a result of the Project.

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2020.4.0. Three design options for the grade separation—that is, soil embankment, precast concrete panel system with LCCF, and viaduct bridge structure—were quantitatively analyzed and included in the emissions modeling.

The Project in and of itself would not increase the projected number of freight and passenger trains. Therefore, the Project's effect on long-term air quality is evaluated qualitatively.

De Minimis Thresholds – Federal Clean Air Act

The Project is federally funded; thus, it is subject to the General Conformity rule established under the Clean Air Act (section 176(c)(4)). The purpose of the General Conformity rule is to ensure that federal activities do not cause or contribute to new violations of National Ambient Air Quality Standards (NAAQS), actions do not worsen existing NAAQS violations, and NAAQS attainment is not delayed.

The method for determining conformity depends upon the pollutant and the circumstances surrounding the federal action. Most conformity demonstrations either mitigate emission increases or demonstrate that emissions have been or will be included in the State Implementation Plan (SIP). If the evaluation indicates that emissions do not exceed *de minimis* thresholds, the action is exempt from conformity determination and FRA must prepare a RONA.

The General Conformity rule *de minimis* thresholds, as shown in Table 3.13-1, were used to inform the severity of an effect, where emissions in excess of these thresholds indicate that the Project would not conform to the SJVAB's SIPs.

Table 3.13-1: General Conformity *de minimis* Thresholds for SJVAB

Air Basin	Annual Air Pollutant Emissions in Tons/Year					
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
SJVAB	10	10	N/A	100	100	N/A

Source: EPA, 2020, https://www.epa.gov/general-conformity/de-minimis-tables

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particles of 10 micrometers and smaller; $PM_{2.5}$ = particles of 10 micrometer and smaller; SO_2 = sulfur dioxide; SJVAB = San Joaquin Valley Air Basin; N/A = Not applicable, as the SJVAB is designated attainment for the federal standards for CO and SO_2.

Based on the air quality analysis, which is detailed in the environmental consequences section, maximum estimated emissions would be below conformity *de minimis* levels.

Although CHSRA is the lead NEPA agency for this Final EA, consistent with 23 U.S.C. 327 and the July 23, 2019, NEPA Assignment Memorandum of Understanding executed between FRA and the State of California, FRA retains its obligations to make general conformity determinations under the Clean Air Act.

CHSRA and FRA have agreed to collaborate on the approach for achieving general conformity and development of general conformity determinations, as needed. Based on CHSRA and SJRRC's quantitative analysis of construction emissions and construction emissions modeling, which is included in Appendix K, *Air Quality Conformity Supporting Documents,* subsection K.2, of this Final EA, the annual construction emissions generated by the three design options for the Project are well below the SJVAB general conformity de minimis levels over the 4-year period of construction anticipated between the years 2023 through 2026. Furthermore, with regard to operations, the Project would result in a long-term decrease in criteria pollutant emissions when compared to the No Action Alternative As a result, FRA has concluded that implementing the Project would not exceed de minimis thresholds for applicable criteria pollutants and a General Conformity Determination will not be required.

FRA considered comments relevant to air quality received by the Authority and SJRRC during the public comment period on the Draft EA. No air quality specific comments were received during the public comment period for the Draft EA and the RONA was approved by FRA on July 26, 2022.

Existing Setting

This section describes the affected environment related to air quality.

San Joaquin Valley Air Basin

The Project is located in the San Joaquin Valley Air Basin's (SJVAB) central portion. SJVAB consists of eight counties: Fresno, Kern (western and central), Kings, Tulare, Madera, Merced, San Joaquin, and Stanislaus. SJVAB is bordered by the Sierra Nevada in the east, the Coast Ranges in the west, and the Tehachapi mountains in the south.

CLIMATE

The SJVAB is in a Mediterranean climate zone and is influenced by a subtropical high-pressure cell most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit in the San Joaquin valley.

The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the valley. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass at the surface. Any emissions of pollutants can be trapped below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet). Winter-time high pressure events can often last many weeks, with surface temperatures often lowering to 30 Fahrenheit. During these events, fog can be present, and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

WIND PATTERNS

Wind speed and direction play an important role in dispersion and transport of air pollutants. Wind at the surface and aloft can disperse pollution by mixing and transporting it to other locations. Especially in summer, winds in the valley most frequently blow from the northwest. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the valley. The Coastal Range is a barrier to air movement to the west and the high Sierra Nevada range is a substantial barrier to the east. Marine air can flow into the basin from the San Joaquin River Delta and over the Altamont Pass and Pacheco Pass, where it can flow along the axis of the valley, over the Tehachapi Pass, into the Southeast Desert Air Basin. This wind pattern contributes to transporting pollutants from the Sacramento Valley and the Bay Area into the SJVAB. Many days in the winter are marked by stagnation events where winds are very weak. Transport of pollutants during winter can be very limited.

TEMPERATURE

The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily ozone) is produced by the atmospheric reaction of organic substances (such as volatile organic compounds) and nitrogen dioxide under the influence of sunlight. Ozone concentrations are very dependent on the amount of solar radiation, especially during late spring, summer, and early fall. Generally, the higher the temperature, the more ozone formed, since reaction rates increase with temperature. However, extremely hot temperatures can "lift" or "break" the inversion layer. Typically, if the inversion layer does not lift to allow the buildup of contaminants to be dispersed, the ozone levels will peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, the ozone will peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB. Ozone levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.

PRECIPITATION AND FOG

Precipitation and fog may reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog can block the required solar radiation. In fogs with less water content, the moisture acts to form secondary ammonium nitrate particulate matter. This ammonium nitrate is part of the San Joaquin valley's $PM_{2.5}$ and PM_{10} problem. The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations and excellent visibility. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of $PM_{2.5}$ and PM_{10}.

Air Pollutants of Concern

CRITERIA AIR POLLUTANTS

The pollutants emitted into the ambient air by stationary and mobile sources are categorized as primary and/or secondary pollutants. Primary air pollutants are emitted directly from sources. CO, volatile organic compounds (VOC), NO_X, SO_2, PM_{10}, $PM_{2.5}$, and Pb are primary air pollutants. VOC and NO_X are criteria air pollutant precursors that form secondary criteria air pollutants such as O_3 through chemical and photochemical reactions in the atmosphere. Each of the primary and secondary criteria air pollutants and its known health effects is described below.

Ozone (O_3)

O_3 is commonly referred to as "smog" and is a gas that is formed when VOCs and NO_X, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O_3 is a secondary criteria air pollutant. O_3 poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O_3 can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O_3 also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O_3 also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. The SJVAB is designated severe nonattainment for O_3 under the CAAQS (1-hour and 8-hour) and extreme nonattainment under the NAAQS (8-hour).

Volatile Organic Compounds

VOCs are reactive chemical gases, composed of hydrocarbon compounds that may contribute to the formation of smog by their involvement in atmospheric chemical reactions. VOCs are emitted from a variety of sources, including liquid and solid fuel combustion, evaporation of organic solvents, and waste disposal. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of O_3, SJVAPCD has established a significance threshold for this pollutant.

Nitrogen Oxides (NO_x)

NO_X are a by-product of fuel combustion and contribute to the formation of ground-level O_3, PM_{10}, and $PM_{2.5}$. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen quickly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is a reddish-brown gas that acts as an acute irritant and is more injurious than NO in equal concentrations. NO_2 exposure concentrations near roadways are of concern for susceptible individuals, including people with asthma, children, and the elderly. Short-term NO_2 exposures, ranging from 30 minutes to 24 hours, are known to result in adverse respiratory effects, including airway inflammation in healthy people and increased respiratory symptoms in people with asthma.

Carbon Monoxide

CO is a colorless, odorless gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation. The SJVAB is designated under the NAAQS and CAAQS as being in attainment of CO criteria levels.

Sulphur Dioxide (SO_2)

SO_2 is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical processes at chemical plants and refineries. When SO_2 forms sulfates in the atmosphere, together these pollutants are referred to as sulfur oxides (SO_X). Thus, SO_2 is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. Short-term exposures to SO_2, ranging from 5 minutes to 24 hours, are known to result in adverse respiratory effects including bronchoconstriction and increased asthma symptoms. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. The SJVAB is designated as attainment for SO_2 under the NAAQS and CAAQS.

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)

Suspended Particulate Matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Inhalable coarse particles, or PM_{10}, include particulate matter with a diameter of 10 micrometers or less. Fine particles, or $PM_{2.5}$, have a diameter of 2.5 micrometers or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Health effects of particulate matter include premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (for example, irritation of the airways, coughing, or difficulty breathing). Particulate matter can also cause environmental effects such as visibility impairment, environmental damage, and aesthetic damage. SJVAB is a nonattainment area for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. SJVAB is a maintenance area for PM_{10} under the NAAQS.

Lead (Pb)

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA's regulatory efforts to remove lead from on-road motor vehicle gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The lead effects most commonly encountered in current populations are neurological effects in children and cardiovascular effects (for example, high blood pressure and heart disease) in adults. SJVAB is designated in attainment of the CAAQS and NAAQS for lead.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics, particulate matter, and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The majority of the sensitive receptors within or adjacent to the air quality RSA are residential uses.

3.13.3 ENVIRONMENTAL CONSEQUENCES

This section describes potential environmental consequences on air quality that could result from implementing the Project.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the Project would not be implemented. Therefore, no direct or indirect short-term effects would result from the No Action Alternative.

Long-term Effects

Development to accommodate the population increase in the air quality RSA would result in associated direct and indirect effects on air quality. Continued land development and population growth and freight train volumes would be expected to increase over the next 20 years, independent of Project implementation. However, increasingly stringent federal and state emission-control requirements and replacement of older, higher polluting vehicles with newer, less-polluting ones would reduce emissions within SJVAB. Additionally, SJVAPCD rules and plans have been established to bring SJVAB into compliance with NAAQS and CAAQS, which would reduce emissions under the No Action Alternative. Therefore, the overall air quality in SJVAB is expected to improve under the No Action Alternative, when compared to the existing conditions, and no adverse direct or indirect long-term effects would result from the No Action Alternative.

Project

Table 3.13-2 identifies BMPs that will be incorporated as part of the Project.

Table 3.13-2: Project Best Management Practices

Best Management Practice	Description
BMP AQ-1	**Compliance with EPA's Tier 4 Exhaust Emission Standards.** During construction, SJRRC, in coordination with CHSRA, will ensure that all off-road diesel-powered construction equipment greater than 50 horsepower shall comply with EPA's Tier 4 Final exhaust emission standards (40 CFR Part 1039). In addition, if not already supplied with a factory equipped diesel particulate filter, all construction equipment shall be outfitted with Best Available Control Technology devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.
BMP AQ-2	**Fugitive Dust.** Prior to issuance of a grading or building permit, SJRRC, in coordination with CHSRA, shall submit the dust control plan to SJVAPCD for review and approval and shall provide the plan to the County to demonstrate compliance with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition). The plan shall address construction-related dust as required by SJVAPCD.

BMP AQ-3	**Compliance with Stockton Community Emissions Reduction Program.** During final design, SJRRC in coordination with CHSRA, will review the Stockton Community Emissions Reduction Program (CERP) and incorporate emission reduction strategies into the Project, as feasible. The emissions reduction strategies in the Stockton CERP will include, but will not be limited to, enhancing community participation in land use processes, the deployment of zero and near-zero emission Heavy-Heavy Duty (HHD) trucks, HHD truck rerouting analyses, reducing HHD truck idling, and incorporating vegetative barriers and urban greening.
BMP AQ-4	**Vegetative Barriers and Urban Greening.** During final design, SJRRC, in coordination with CHSRA, will evaluate the feasibility of incorporating vegetative barriers and urban greening as a measure to potentially reduce air pollution exposure on sensitive receptors in the Project Study Area. Examples of vegetative barriers will include, but are not limited to, trees, bushes, shrubs, or a mix of these types of vegetation.

Short-term Effects

Project construction activities have the potential to generate dust and emissions from equipment used during construction. Likely air pollutants from construction include particulate matter (PM) dust and criteria air pollutants from fuel combustion. As stated previously, the *de minimis* thresholds are applicable only in areas designated as nonattainment or maintenance for NAAQS. Since VOCs, $PM_{2.5}$, and PM_{10} will be subject to *de minimis* thresholds, the Project will incorporate BMP AQ-1 (Compliance with EPA's Tier 4 Exhaust Emission Standards), identified in Table 3.13-2, which requires SJRRC, in coordination with CHSRA, to ensure that all off-road, diesel-powered construction equipment greater than 50 horsepower shall comply with EPA's Tier 4 final exhaust emission standards (40 CFR Part 1039). Additionally, if not already supplied with a factory equipped diesel particulate filter, all construction equipment will be outfitted with Best Available Control Technology devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine, as defined by CARB regulations.

The Project will incorporate BMP AQ-2 (Fugitive Dust), identified in Table 3.13-2, which requires SJRRC, to prepare a dust control plan that complies with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition) prior to issuance of a grading or building permit.

As shown in Tables 3.13-3, 3.13-4, and 3.13-5, with the incorporation of BMP AQ-1 and BMP AQ-2, the annual construction emissions associated with the Project under the three flyover design options will not exceed SJVAB *de minimis* thresholds for VOC, $PM_{2.5}$, PM_{10}, and NO_X. As a result, no direct or indirect short-term adverse effects related to air quality are anticipated during construction of the Project.

Table 3.13-3: Annual Construction Emissions – Soil Embankment Option

Soil Embankment Option	Annual Emissions in Tons/Year					
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Peak Emissions	0.86	4.85	30.13	0.58	0.22	0.07
de minimis threshold	10	10	N/A	100	100	N/A
Exceeds *de minimis* threshold?	No	No	-	No	No	-

Source: Appendix K

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particles of 10 micrometers and smaller; $PM_{2.5}$ = particles of 10 micrometer and smaller; SO_2 = sulfur dioxide; N/A = Not applicable, as the SJVAB is designated attainment for the federal standards for CO and SO_2.

Table 3.13-4: Annual Construction Emissions – Precast Panel Walls with LCCF Option

Precast Panel Walls with LCCF	Annual Emissions in Tons/Year					
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Peak Emissions	0.68	3.49	23.58	0.35	0.15	0.05
de minimis threshold	10	10	N/A	100	100	N/A
Exceeds *de minimis* threshold?	No	No	-	No	No	-

Source: Appendix K

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particles of 10 micrometers and smaller; $PM_{2.5}$ = particles of 10 micrometer and smaller; SO_2 = sulfur dioxide; N/A = Not applicable, as the SJVAB is designated attainment for the federal standards for CO and SO_2.

Table 3.13-5: Annual Construction Emissions – Viaduct Bridge Structure Option

Viaduct Bridge Structure	Annual Emissions in Tons/Year					
	VOC	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2
Peak Emissions	0.47	2.51	15.03	0.34	0.13	0.03
de minimis threshold	10	10	N/A	100	100	N/A
Exceeds *de minimis* threshold?	No	No	-	No	No	-

Source: Appendix K

VOC = volatile organic compounds; NO_X = nitrogen oxides; CO = carbon monoxide; PM_{10} = particles of 10 micrometers and smaller; $PM_{2.5}$ = particles of 10 micrometer and smaller; SO_2 = sulfur dioxide; N/A = Not applicable, as the SJVAB is designated attainment for the federal standards for CO and SO_2.

Long-term Effects

Table 3.13-6 summarizes the total long-term emissions reduction and the average annual emissions reduction for the Project.

Table 3.13-6: Operational Emissions (tons)

Emissions Source	NOx	VOC	PM	SO_2	CO_2
Train Idling	-40.53	-1.55	-0.66	-2.15	-11,677.7
Vehicle Idling (BNSF Crossings)	-7.75	-1.44	-0.69	-0.38	-53,678.8
Vehicle Idling (UP Crossings)	-6.18	-1.06	-0.46	-0.22	-31,233.40
Total (30 Years)	-54.46	-4.06	-1.82	-2.75	-96.589.5
Average Year	-1.82	-0.14	-0.06	-0.09	-3,219.7

Source: Stockton Diamond Benefit-Cost Analysis (HDR 2019)
VOC = volatile organic compounds; NO_X = nitrogen oxides; CO_2 = carbon dioxide; PM = particulate matter; SO_2 = sulfur dioxide

As shown in Table 3.13-6, the Project would result in a long-term decrease in criteria pollutant emissions when compared to the No Action Alternative. The Project is intended to improve regional passenger and freight rail efficiency and travel reliability by reducing conflicting train movements and improve air quality through the reduction of criteria pollutant emissions caused by trains and vehicles that sit idling due to congestion and delays. The improved freight mobility would reduce the total daily occupancy of the roadway crossings by approximately 30 percent in 2045. The reduction in crossing occupancy would improve on-road traffic flow and reduce vehicle idling in the Project Study Area. A Benefit-Cost Analysis (BCA) was conducted in 2019 for a grade separation of the Stockton Diamond (HDR 2019). This BCA calculated the 30-year reduction in train idling and on-road vehicle idling emissions associated with the elimination of the existing at-grade crossing. Although the project design considered in the BCA is different from what is currently proposed, the emission reductions associated with the elimination of the existing at-grade crossing are still applicable. As a result, the Project would reduce overall emissions within the SJVAB during the operation period.

3.13.4 MITIGATION MEASURES

No adverse effects requiring mitigation have been identified for air quality; therefore, no specific air quality mitigation measures are required.

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3.14 Noise and Ground-borne Vibration

This section describes the regulatory setting and affected environment for noise and ground-borne vibration. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term impacts from noise and ground-borne vibration during construction and operation of the Project. Although other resource sections in this Final EA have identified direct and indirect short-term or long-term effects, for the purposes of the Noise and Ground-borne Vibration resource topic, effects will be evaluated using the term “impacts,” consistent with the terminology in the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual dated September 2018. If short-term or long-term impacts from noise or ground-borne vibration are identified, recommended BMPs will be incorporated as a part of the Project to potentially avoid and/or minimize these potential impacts. If short-term or long-term adverse impacts from noise and ground-borne vibration are anticipated, mitigation measures (if necessary) will be identified to mitigate these impacts from noise or ground-borne vibration within the noise and ground-borne vibration RSA.

3.14.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of noise and ground-borne vibration is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Occupational Noise Exposure Standard (29 CFR § 1910.95)

US Environmental Policy Act Railroad Noise Emission Standards (42 U.S.C. 4916)

Federal Railroad Administration Guidelines and Noise Emission Compliance (49 CFR 210)

Federal Transit Administration Guidelines

State Plans, Policies, and Regulations

California Noise Control Act (Cal H.S.C. 46010 et seq.)

Local Plans, Policies, and Regulations

City of Stockton General Plan

Policy SAF-2.5: Protect the community from health hazards and annoyance associated with excessive noise levels.

City of Stockton General Plan Environmental Impact Report

NOISE-1: The proposed project would not expose people to or generate noise levels in excess of standards established in the General Plan, the Municipal Code, or the applicable standards of other agencies.

NOISE-2: The proposed project would not expose people to or generate excessive groundborne vibration or groundborne noise levels.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.14.2 AFFECTED ENVIRONMENT

This section defines the noise and ground-borne vibration RSA, describes methods used to analyze the potential for the Project to generate excessive noise and ground-borne vibration in the RSA during construction and operations and describes the existing noise and ground-borne vibration setting.

Definition of Resource Study Area

The RSAs for impacts from noise and ground-borne vibration encompasses the sensitive receptors directly or indirectly impacted by both Project construction and operation. For the purposes of this analysis, the basis for the noise and ground-borne vibration RSA is the FTA Transit Noise and Vibration Impact Assessment Manual dated September 2018. Intervening structures, topography, and the location and number of sensitive noise receptors in the Project vicinity are also considered. Therefore, refined RSAs for construction and operational noise and construction and operational ground-borne vibration are defined as follows:

- The RSA for construction and operational noise is the area within approximately 1,000 feet of the track centerline
- The RSA for operational ground-borne vibration is the area within approximately 200 feet of the track centerline and the study area for construction ground-borne vibration is the area within approximately 300 feet of the track centerline

Fundamentals of Environmental Noise and Ground-borne Vibration

Overview of Noise and Sound

Noise from transit and rail systems is expressed in terms of a source-path-receiver framework. The source generates noise levels that depend on the type of source (for example, a commuter train) and its operating characteristics (for example, speed). The receiver is the noise-sensitive land use (for example, residence, hospital, or school) exposed to noise from the source. Between the source and the receiver is the path, where the noise is reduced by distance, intervening structures, and topography. The impacts analysis for environmental noise are assessed at the receiver. Noise criteria have been established (as described in Section 3.14.3) for the various types of receivers because not all receivers have the same noise sensitivity.

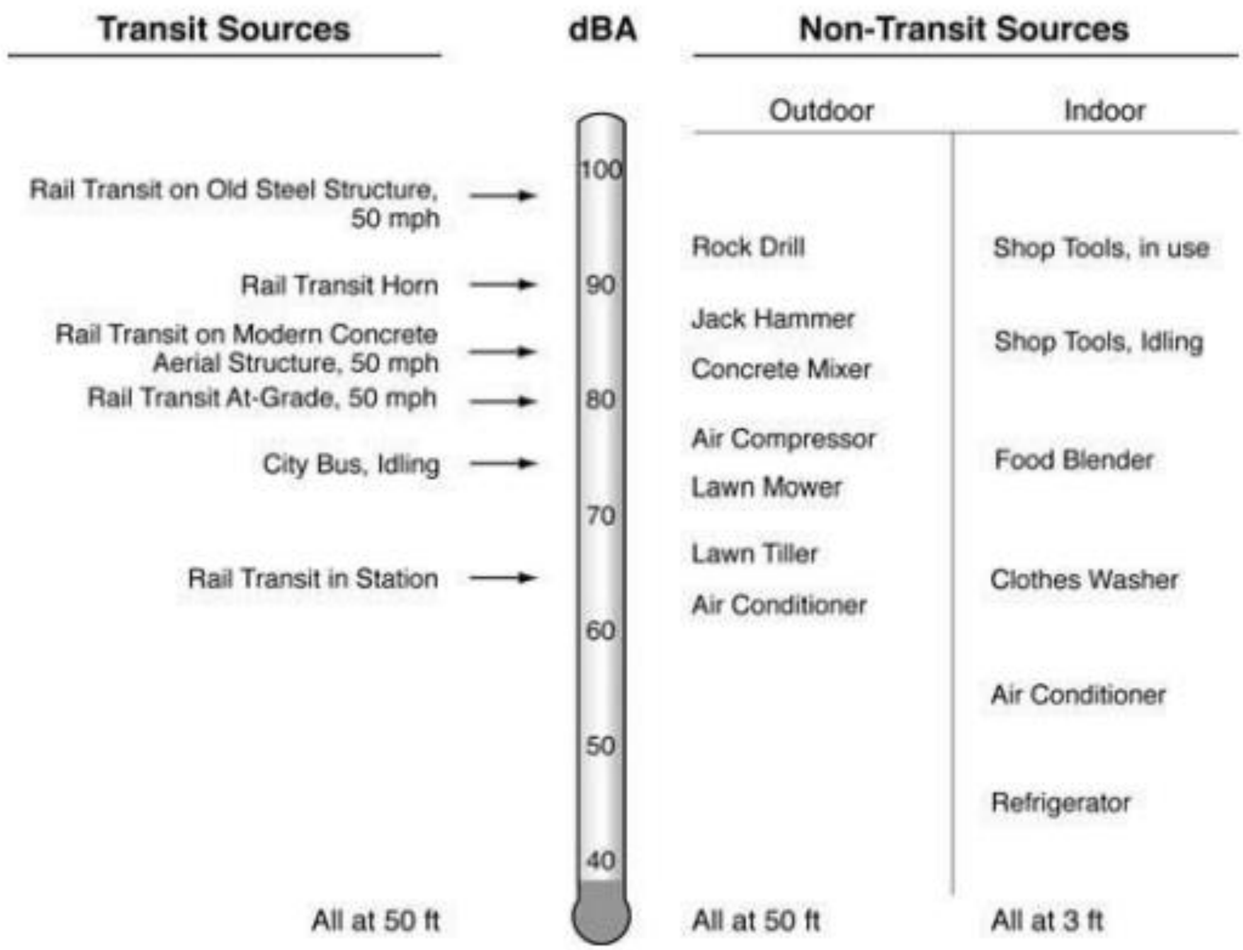
Noise is unwanted sound. Sound is measured in terms of sound pressure level and is usually expressed in decibels (dB). The human ear is less sensitive to higher and lower frequencies than it is to mid-range frequencies. All noise ordinances, and this noise analysis, use the A-weighted decibel (dBA) system, which measures what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds. Figure 3.14-1 shows typical A--weighted sound levels for transit, rail and non-transit sources.

Analysts use four primary noise measurement descriptors to assess noise impacts from traffic and transit projects. They are the equivalent sound level (L_{eq}), the day-night sound level (L_{dn}), the sound exposure level (SEL), and maximum sound level (L_{max}).[1]

- **L_{eq}:** The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour L_{eq} is used for all traffic and commuter rail noise analyses at locations with daytime use, such as schools and libraries.
- **SEL:** The SEL is the primary descriptor of a single noise event (for example, noise from a train passing a specific location along the track). The SEL represents a receiver's cumulative noise exposure from an event and the total A-weighted sound during the event normalized to a 1second interval.
- **L_{max}:** The loudest 1 second of noise over a measurement period, or L_{max}, is used in many local and state ordinances for noise emitted from private land uses and for construction noise impacts evaluations.
- **L_{dn}:** The L_{eq} over a 24-hour period, with 10 dB added to nighttime sound levels (between 10 p.m. and 7 a.m.) to account for the greater sensitivity and lower background sound levels during this time. The L_{dn} is the primary noise-level descriptor for rail noise at residential land uses.

[1] Consistent with FTA noise impact criteria, operational noise impacts and estimated existing noise levels presented in Chapter 3.14 use the Leq and Ldn noise descriptors.

Figure 3.14-1: Typical A-weighted Sound Levels



Source: FTA, 2018

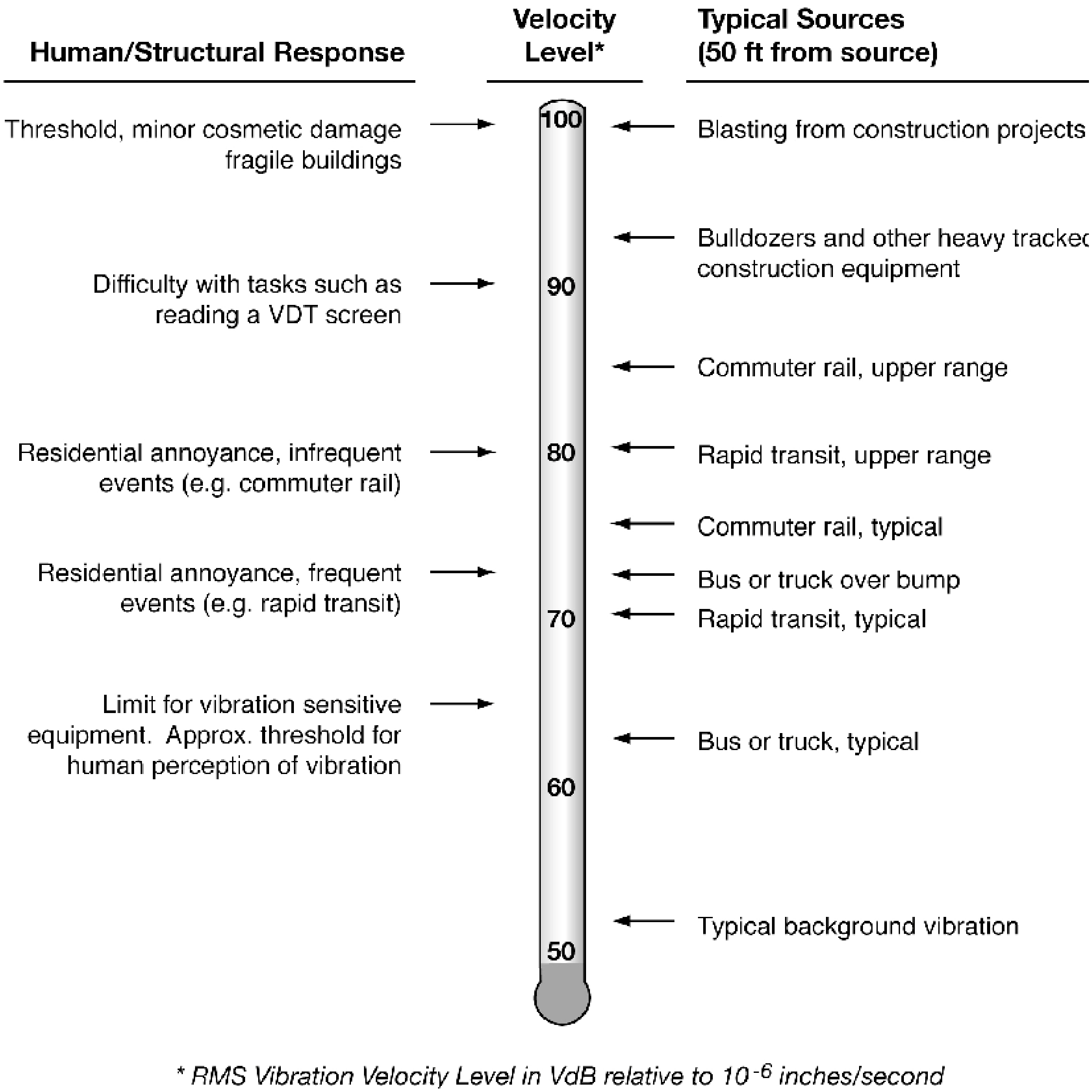
Overview of Ground-borne Vibration

Ground-borne vibration from a transit system is also expressed in terms of a *source-path-receiver* framework. The *source* is the train rolling on the tracks, which generates ground-borne vibration energy transmitted through the supporting structure under the tracks and into the ground. Once the ground-borne vibration gets into the ground, it propagates through the various soil and rock strata—the *path*—to the foundations of nearby buildings—the *receivers*. Ground-borne vibrations are generally reduced with distance depending on the local geological conditions. A receiver is a ground-borne vibration-sensitive building (for example, residence, hospital, or school) where the ground-borne vibrations may cause perceptible shaking of the floors, walls, and ceilings and a rumbling sound inside rooms. Not all receivers have the same ground-borne vibration sensitivity. Consequently, ground-borne vibration criteria are established for the various types of receivers. Ground-borne noise occurs as a perceptible rumble and is caused by the noise radiated from the ground-borne vibration of room surfaces.

Ground-borne vibration above certain levels can damage buildings, disrupt sensitive operations, and cause annoyance to humans within buildings. The response of humans, buildings, and equipment to ground-borne vibration is most accurately described using velocity or acceleration. In this analysis, ground-borne vibration velocity (VdB) is the primary measure to evaluate the impacts of ground-borne vibration.

Figure 3.14-2 illustrates typical ground-borne vibration velocity levels for common sources and thresholds for human and structural response to ground-borne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of ground-borne vibration velocity level (that is, from imperceptible background ground-borne vibration to the threshold of damage). Although the threshold of human perception to ground-borne vibration is approximately 65 VdB, annoyance does not usually occur unless the ground-borne vibration exceeds 70 VdB.

Figure 3.14-2: Typical Ground-Borne Vibration Levels



Source: FTA, 2018

Methods for Data Collection and Analysis

Information presented in this section regarding noise and ground-borne vibration was obtained from the following sources:

- Available reports and data (federal and state statutes, regional agency policies, and ordinances)
- SJRRC data on existing locomotive fleet and operations
- Available data on UP and BNSF freight train volumes

A quantitative assessment of potential noise and ground-borne vibration impacts associated with construction and operation of the Project was conducted. The approach can be summarized as follows.

- Analyze direct noise and ground-borne vibration impacts through quantitative analysis.
- To assess railroad noise and ground-borne vibration: consider train type; train schedules (number of through trains during daytime and nighttime hours); number of cars in each train; speed profiles; landform topography; and noise level changes associated with alterations to train infrastructure and service volumes.
- To assess construction noise levels: consider equipment expected to be used by contractors during construction, usage scenarios for how equipment would be operated, estimated site layouts of equipment along the right-of-way, and the location of construction operations with respect to nearby noise-sensitive receptors.
- To assess construction ground-borne vibration: account for ground-borne vibration from construction equipment, estimated site layout of equipment along the right-of-way, and the location of construction operations with respect to nearby ground-borne vibration-sensitive receptors.
- Include the following scenarios: no action, existing conditions plus construction; and future operations. FTA and FRA criteria do not specify a comparison of the future Project noise to the future No Action noise
- Refer to FTA's guidance manual, *Transit Noise and Vibration Impact Assessment* (FTA 2018).

Construction Noise and Vibration Impacts Assessment Methodology

The construction noise impacts assessment used the methodology described in the FTA guidance manual (FTA 2018). For this analysis, construction scenarios for typical railroad construction projects are used to predict noise impacts. The construction noise methodology includes the following information:

- Noise emissions from typical equipment used by contractors
- Construction methods
- Scenarios for equipment usage
- Estimated site layouts of equipment along the right-of-way
- Proximity of construction activities to nearby noise-sensitive receptors
- FTA construction noise assessment criteria

The FTA guidance manual (FTA 2018) also provides the methodology for the assessment of construction ground-borne vibration impacts. Estimated construction scenarios have been developed for typical railroad construction projects allowing a quantitative construction ground-borne vibration assessment to be conducted. Construction ground-borne vibration is assessed quantitatively where the potential for blasting, pile driving, vibratory compaction, demolition, or excavation close to ground-borne vibration-sensitive structures exists. The methodology includes the following information:

- Ground-borne vibration source levels from equipment used by contractors
- Relationship of construction activities to nearby ground-borne vibration-sensitive receptors
- FTA ground-borne vibration impacts criteria for annoyance and building damage

Train Operation Noise and Vibration Impacts Assessment Methodology

Train operational noise and ground-borne vibration levels were projected using freight and passenger rail operational information and the prediction models provided in the FTA guidance manual (FTA 2018). Potential impacts were evaluated in accordance with the Detailed Noise Analysis and General Vibration Assessment procedures outlined in the FTA guidance manual. The assumptions for train operation are as follows.

- There will be no changes in freight or passenger operations due to the Project.
- The future Project and future No Action Alternative train volumes will be the same with the Project, as the Project will not generate new passenger or freight train demand.
- The only Project change that would impact the noise assessment is the elevation of the north-south Union Pacific tracks that are shifted closer to the receptors (and elevated) as shown in Figure 3.14-5.
- Currently, there are on average 27.5 daytime (7 a.m. to 10 p.m.) freight trains and 16.5 nighttime (10 p.m. to 7 a.m.) freight trains north of the Stockton Diamond and 25 daytime freight trains and 15 nighttime freight trains south of the Stockton Diamond.
- The Project does not change the alignment of the east west tracks (BNSF Stockton Subdivision); therefore, the number of trains on those tracks, and their location, was only included in establishing the existing noise conditions.
- based on the times they would travel through the noise and ground-borne vibration RSA. There are 12 passenger trains (ACE and Amtrak San Joaquins – Pre COVID-19) that travel through the Stockton Diamond daily – eight daytime trains and four nighttime trains

Projected and existing ambient noise exposures were tabulated at the identified noise-sensitive receptors or clusters of receptors and the levels of noise impact (no impact, moderate impact, or severe impact) were identified by comparing the existing and train noise exposure based on the applicable FTA noise impacts criteria.

FTA Noise Criteria

Construction Noise and Ground-borne Vibration Impacts Assessment Criteria

Construction activities for a large transportation project often generate noise and ground-borne vibration complaints even though they take place only for a limited time. For the Project, construction noise and ground-borne vibration impacts are assessed where the exposure of noise- and vibration-sensitive receptors in relation to construction-related noise or ground-borne vibration, is expected to occur at levels exceeding standards established by FTA and established thresholds for architectural and structural building damage (FTA 2018).

SHORT-TERM NOISE IMPACT CRITERIA

Table 3.14-1 presents the FTA noise assessment criteria for construction activity. The last column identifies maximum noise exposure for construction activities that extend over 30 days near any given receptor. L_{dn} is used to assess impacts in residential areas and 24-hour L_{eq} is used in commercial and industrial areas. The 8-hour L_{eq} and the 30-day average L_{dn} noise exposure maximum thresholds from construction noise are calculated using the noise emission levels of the construction equipment, its location, and operating hours. The construction noise limits are normally assessed at the noise-sensitive receptor property line.

Table 3.14-1: Federal Transit Administration Construction Noise Assessment Criteria

	8-Hour L_{eq}, dBA		Noise Exposure, L_{dn}, dBA
Land Use	Day	Night	30-day Average
Residential	80	70	75[a]
Commercial	85	85	80[b]
Industrial	90	90	85[b]

Source: Federal Transit Administration 2018

[a] In urban areas with very high ambient noise levels (L_{dn} greater than 65 dB), L_{dn} from construction operations should not exceed existing ambient noise levels + 10 dB.

[b] 24-hour L_{eq}, not L_{dn}.

L_{eq} = equivalent sound level; dBA = A-weighted decibel; L_{dn} = day-night sound level; dB = decibels

SHORT-TERM GROUND-BORNE VIBRATION IMPACT CRITERIA

Guidelines in the FTA guidance manual (FTA 2018) provide the basis for the construction ground-borne vibration assessment. FTA provides construction ground-borne vibration criteria designed primarily to prevent building damage, and to assess whether ground-borne vibration might interfere with ground-borne vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The FTA criteria include two ways to express ground-borne vibration levels.

- Root-mean-square (RMS) ground-borne vibration velocity level (Lv, in VdB) for annoyance and activity interference.
- Peak particle velocity (PPV), which is the maximum instantaneous peak of a ground-borne vibration signal used for assessments of damage potential.

Long-term Noise and Ground-borne Vibration Impact Assessment Criteria

LONG-TERM TRAIN NOISE IMPACT CRITERIA

The descriptors and criteria for assessing noise impacts vary according to land use categories adjacent to the track. For land uses where people live and sleep (for example, residential neighborhoods, hospitals, and hotels), L_{dn} is the assessment parameter. For other land use types where there are noise-sensitive uses (for example, outdoor concert areas, schools, and libraries), L_{eq}(h) for an hour of noise sensitivity that coincides with train activity is the assessment parameter. Table 3.14-2 summarizes the three land use categories and noise metrics applied to each category.

Table 3.14-2: Federal Transit Administration Noise-Sensitive Land Use Categories

Land Use Category	Noise Metric (dBA)	Land Use Category
1	Outdoor L_{eq}(h)[a]	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions, and National Historic Landmarks with significant outdoor use.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes and hospitals, where nighttime sensitivity to noise is of utmost importance.
3	Outdoor L_{eq}(h)[a]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration. Buildings with interior spaces where quiet is important, such as medical offices, conference rooms, recording studios, and concert halls fall into this category, as well as places for meditation or study associated with cemeteries, monuments, and museums. Certain historical sites, parks, and recreational facilities are also included.

Source: Federal Transit Administration 2018

[a]L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

dBA = A-weighted decibel; L_{eq} = equivalent sound level; L_{dn} = day-night sound level

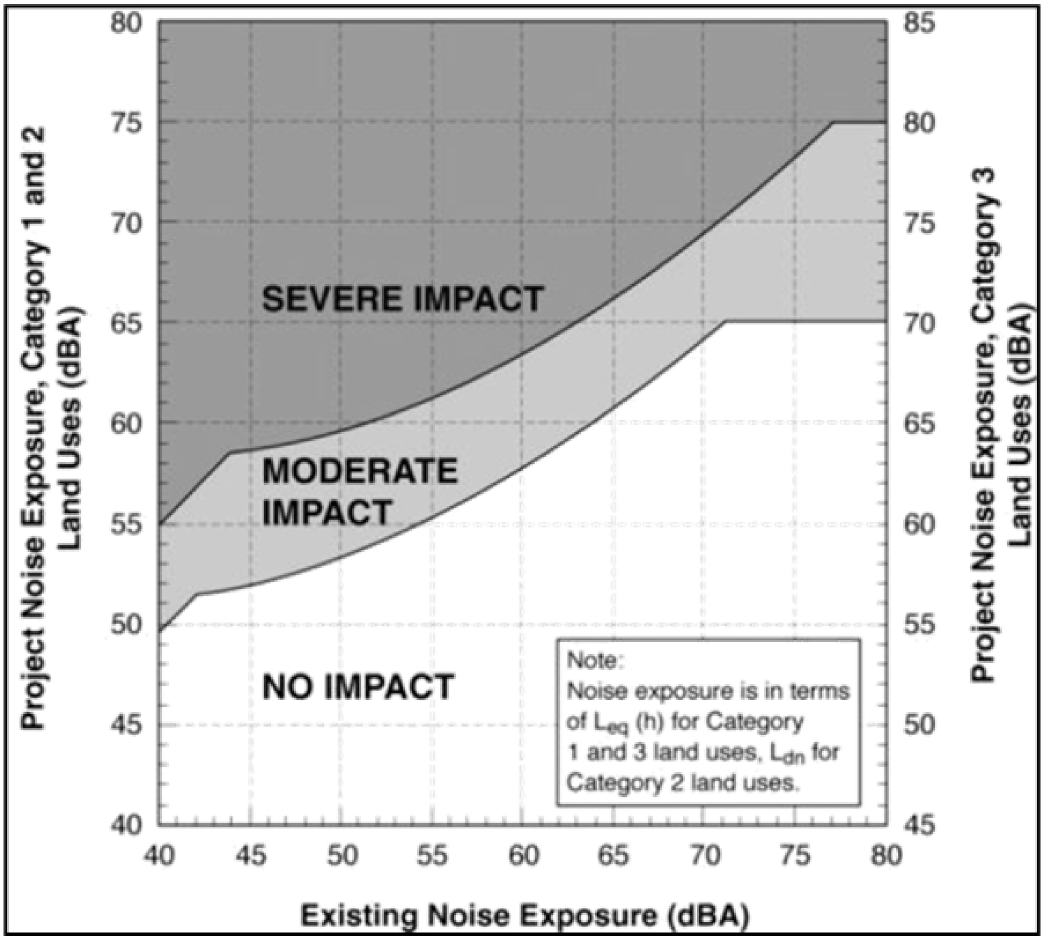
The noise impacts criteria used by FTA and FRA are ambient based; the increase in future noise (future noise levels with the Project compared to existing noise levels) is assessed rather than the noise caused by each passing train. It is important to note that the noise impacts criteria do not specify a comparison of the future Project noise to the future No Action noise. This is because comparison of a future noise projection with an existing noise condition is more accurate than comparison of a projection with another noise projection. Because background noise is expected to increase by the time the Project improvements generate noise, this approach of using existing noise conditions is conservative.

Figure 3.14-3 depicts the FTA noise impacts criteria for human annoyance. Depending on the magnitude of the cumulative noise increases, FTA and FRA categorize impacts as follows.

- **No Impact** – Project-generated noise is not likely to cause community annoyance.
- **Moderate Impact** – Project-generated noise in this range is considered to cause impacts at the threshold of measurable annoyance. Mitigation should be considered at this level of impacts based on project specifics and details concerning the impacted properties.
- **Severe Impact** – Project-generated noise in this range is likely to cause a high level of community annoyance. Mitigation measures must be considered.

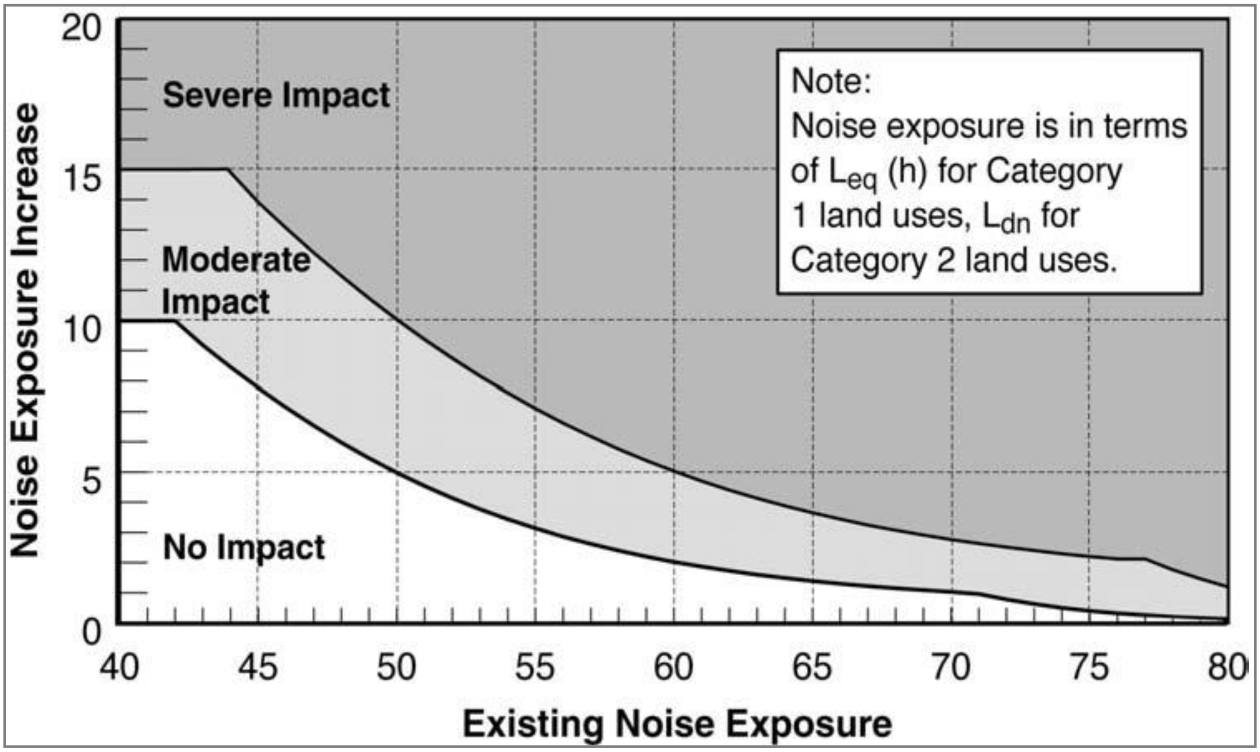
Although the curves in Figure 3.14-3 are defined in terms of the Project noise exposure and the existing noise exposure, the increase in the cumulative noise—when Project-generated noise is added to existing noise levels—is the basis for the criteria. To illustrate this point, Figure 3.14-3 shows the noise impacts (or impact) criteria for Category 1 and Category 2 land uses in terms of the allowable increase in the cumulative noise exposure. Because L_{dn} and L_{eq} are measures of total acoustic energy, any new noise source in a community will cause an increase, even if the new source level is lower than the existing level. The criterion for a moderate impact, shown in Figure 3.14-4, equates to a moderate impact in the Draft EA impacts analysis and allows a noise exposure increase of 10 dB if the existing noise exposure is 42 dBA or less, but only a 1 dB increase when the existing noise exposure is 70 dBA.

Figure 3.14-3: FTA Noise Impact Criteria



Source: FTA, 2018

Figure 3.14-4: FTA Cumulative Noise Impact Criteria



Source: FTA, 2018

As the existing level of ambient noise increases, the allowable level of transit noise increases, but the total amount that community noise exposure is allowed to increase is reduced. This approach accounts for the potential for a Project noise exposure that is lower than the existing noise exposure to still cause an impact.

Table 3.14-3 summarizes FTA criteria for acceptable ground-borne vibrations and presents ground-borne vibration sensitivity in terms of the land use categories. These levels represent the maximum vibration level of an individual train pass-by. A ground-borne vibration event occurs each time a train passes the building or property and causes discernible vibration. Frequent events are more than 70 ground-borne vibration events per day, occasional events are 30 to 70 vibration events per day, and infrequent events are fewer than 30 vibration events per day. Ground-borne vibration impacts from train operations inside vibration-sensitive buildings are defined by the vibration velocity level, expressed in terms of VdB, and the number of vibration events per day from the same kind of source.

Table 3.14-3: Federal Transit Administration Ground-borne Vibration and Ground-borne Noise Impact Criteria

Land Use Category	Ground-borne Vibration Impact Levels (VdB re 1 micro-inch/sec)			Ground-borne Noise Impact Levels (dBA re 20 micro-Pascals)		
	Frequent Events	Occasional Events	Infrequent Events	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[a]	65 VdB[a]	65 VdB[a]	N/A[b]	N/A[b]	N/A[b]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: Federal Transit Administration 2018

[a] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. For equipment that is more sensitive, a detailed vibration analysis must be performed.

[b] Vibration-sensitive equipment is generally not sensitive to ground-borne noise.

VdB = vibration decibel; dBA = A-weighted decibel; N/A = not applicable

Table 3.14-3 includes separate FTA criteria for ground-borne noise. Although the criteria are expressed in dBA, which emphasizes the more audible middle and high frequencies, the criteria are significantly lower than airborne noise criteria to account for the annoying low-frequency character of ground-borne noise. Ground-borne noise is a low-frequency rumbling sound inside buildings, caused by vibrations of floors, walls, and ceilings. Ground-borne noise is generally not a problem for buildings near railroad tracks at or above grade, because the airborne noise from trains typically overshadows impacts of ground-borne noise. Ground-borne noise becomes an issue in cases where airborne noise cannot be heard, such as for buildings near tunnels.

Existing Setting

The Project is located in the southern part of Stockton between Charter Way and SR 4, in San Joaquin County. Noise sensitive land uses in the noise and ground-borne vibration RSA include Faith Tabernacle Assembly, the Islamic Center of Stockton, Temple La Hermosa, Galatians Community Church, the Pentecostal Church of Jesus, Union Park, and single-family and multi-family housing.

Existing noise sources in the RSA include commuter rail operations, freight rail operations, roadway traffic, and general community activity. Existing sources of vibration in the RSA are commuter and freight rail operations.

Because the thresholds for noise impacts in FTA noise criteria are based on the existing noise levels, setting these existing levels is an important step for the assessment. These levels can either be set by measurement or modeling. Due to the current circumstances associated with the novel coronavirus (COVID-19), existing noise levels are lower than conditions prior to the COVID-19 pandemic. For example, freight volumes and traffic volumes are much lower than those prior to the pandemic. As such, if existing noise measurements were to be taken, the noise that would be measured would be lower than the conditions that would be more representative of typical operations and traffic volumes as a part of the existing environment. Because of this, the impacts associated with the Project would not be representative of normal conditions. Therefore, modeling was used to establish the existing noise levels in the noise and ground-borne vibration RSA. Using information from those measurements, as well as freight information from the FRA, local traffic data, and population data, the existing noise was modeled at all sensitive receptors in the noise and ground-borne vibration RSA.

The existing noise levels were modeled to be between 54 dBA and 74 dBA L_{dn}, depending on proximity to the rail tracks, grade crossings, and crossover locations. The highest existing noise levels are at receivers located on both sides of the alignment close to the tracks, north of East Jefferson Street, which is where northbound trains start to sound their horns as they approach the at-grade crossings north of the BNSF corridor in Stockton. The highest existing noise levels occur between East Lafayette Street and East Weber Avenue, east of the railroad corridor (74 dBA) and between East Hazelton Avenue and East Lafayette Street east of the railroad corridor (71 dBA) and west of the corridor (72 dBA).

Lower existing noise levels would be found at receivers south of East Jefferson Street, where train horns are not regularly sounded. Moreover, the lowest noise levels would be located at distances greater than 500 to 600 feet from the tracks, such as between East Anderson Street and East Charter Way west of the railroad corridor (58 dBA). At locations farther from the tracks, to both the east and west, the noise levels would decrease with increasing distance from the tracks and with shielding from intervening rows of buildings.

The sensitive land use for vibration is essentially the same as for noise, except that parkland is not considered a vibration-sensitive receptor. Because a general vibration assessment (rather than a detailed vibration analysis) was performed, existing vibration levels were not measured for this analysis.

3.14.3 ENVIRONMENTAL CONSEQUENCES

This section describes the environmental impacts from noise and ground-borne vibration based on the Project's potential to generate excessive noise levels or ground-borne vibration during construction and operation. This section also includes proposed mitigation measures for noise and ground-borne vibration, as applicable.

No Action Alternative

Short-term Impacts

Under the No Action Alternative, the Project would not be constructed. As a result, no direct or indirect short-term impacts from noise and ground-borne vibration would occur, as no noise or ground-borne vibration impacts are anticipated under the No Action Alternative.

Long-term Impacts

Under the No Action Alternative, the Project would not be implemented and would not contribute to existing operational noise within the noise and ground-borne vibration RSA. Therefore, no direct or indirect long-term impacts would occur, as no noise or ground-borne vibration impacts are anticipated under the No Action Alternative.

Project

Table 3.14-4 identifies the BMPs that will be incorporated as part of the Project.

Table 3.14-4: Project Best Management Practices

Best Management Practice	Description
BMP NV-1	**Noise Control Plan.** Prior to construction, SJRRC will ensure that a Noise Control Plan be prepared that will incorporate, at a minimum, the following best practices into the construction scope of work and specifications to reduce the impacts of temporary construction-related noise on nearby noise-sensitive receptors. The Noise Control Plan will be developed in coordination with the City of Stockton in compliance with City standards. Components of the Noise Control Plan will include, but not be limited to, the following: • Install temporary construction site sound barriers near noise sources. • Use moveable sound barriers at the source of the construction activity. • Avoid the use of impact pile drivers at night and, where possible, near noise-sensitive areas or use quieter alternatives (for example, drilled piles) where geological conditions permit. • Locate stationary construction equipment as far as possible from noise-sensitive sites. • Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents. • Use low-noise emission equipment. • Implement noise-deadening measures for truck loading and operations. • Line or cover storage bins, conveyors, and chutes with sound-deadening material. • Use acoustic enclosures, shields, or shrouds for equipment and facilities.

Best Management Practice	Description
	• Use high-grade engine exhaust silencers and engine-casing sound insulation. • Minimize the use of generators to power equipment. • Limit use of public address systems. • Grade surface irregularities on construction sites. • Monitor and maintain equipment to meet noise limits. • Implement noise monitoring during construction to ensure noise limits are met. • Maintain active coordination with the City to identify potential options to retrofit residences closest to the construction with noise reduction window technology. • Establish an active community liaison program to keep residents informed about construction and to provide a procedure for addressing complaints.
BMP NV-2	**Vibration Control Plan.** Prior to construction, SJRRC will ensure that a Vibration Control Plan is prepared and will incorporate, at a minimum, the following best practices into the construction scope of work and specifications to reduce the impacts of temporary construction-related vibration on nearby vibration-sensitive land uses will be prepared and implemented. • Avoid the use of impact pile drivers where possible near vibration-sensitive areas or use alternative construction methods (for example, drilled piles) where geological conditions permit. • Avoid vibratory compacting/rolling in close proximity to structures. • Require vibration monitoring during vibration-intensive activities. In the event building damage occurs due to construction, repairs would be made, or compensation would be provided by SJRRC.

Short-term Impacts

During construction, the majority of the necessary construction along the railroad and structures will be completed during daytime hours. To minimize potential noise impacts to passenger and freight rail operations, some construction work would be required during the nighttime hours; however, these activities would be limited to track work and other construction necessary to connect the existing and relocated tracks. Noise-intensive pile driving would not be conducted during nighttime hours.

Table L-1 in Appendix L of this Final EA summarizes typical estimated construction noise levels and residential noise impacts screening distances for each of the planned construction activities using FTA and FRA criteria.

With the exception of the viaduct design option, which may require pile driving along the entire length of the flyover, extensive pile driving would not occur adjacent to sensitive receptors. For the embankment and retaining wall design options, sections of bridge construction requiring pile driving would be at the center of the flyover and at East Charter Way. As such, the Project will incorporate BMP NV-1 (Noise Control Plan), identified in Table 3.14-4, which requires that a Noise Control Plan be prepared and incorporate best practices into the construction scope of work and specifications to reduce the impacts of temporary construction-related noise on nearby noise-sensitive receptors. The Noise Control Plan will be developed in coordination with the City of Stockton in compliance with City standards. Therefore, with the incorporation of BMP NV-1, no direct or indirect short-term adverse impacts related from noise would occur under the Project, as these noise impacts will be fully minimized with the incorporation of that BMP.

Table 3.14-5 provides the approximate distances within which receptors (there are no Category 1 receptors within the ground-borne vibration RSA) could experience construction-related vibration annoyance impacts based on FTA methodology. However, the Project will incorporate BMP NV-2 (Vibration Control Plan), identified in Table 3.14-4, which requires that a Vibration Control Plan that incorporates best practices into the construction scope of work and specifications be prepared to reduce the impacts of temporary, construction-related vibration on nearby vibration-sensitive land uses. Therefore, with the incorporation of BMP NV-2, no direct or indirect short-term adverse impacts related to ground-borne vibration would occur under the Project, as these ground-borne impacts would be fully minimized through the incorporation of that BMP.

Table 3.14-5: Approximate Screening Distances for Ground-borne Vibration Annoyance Impacts from Pile Driving

Land Use Category	Vibration Criterion Level (VdB)	Approximate Vibration Impact Distance (feet)
Category 1 (Sensitive Buildings)	65	630
Category 2 (Residential Buildings)	72	290
Category 3 (Institutional Buildings)	75	230

[a] See Table 3.14-2 for a description of land use categories.
VdB = Vibration velocity

Long-term Impacts

Table 3.14-6 and Table 3.14-7 provide detailed information regarding operational noise impacts in the operational noise and ground-borne vibration RSAs, including locations, existing noise levels, change in noise levels, FTA increase in noise level impacts thresholds, and numbers of receivers (not structures) with severe and moderate impacts for residential noise impacts (Category 2) and institutional noise impacts (Category 3). As shown in Table 3.14-6 and Table 3.14-7, long-term noise levels are projected to decrease at many locations as a result of the Project.

Table 3.14-6: Category 2 (Residential) Noise Impacts

Location	Side of Track	Closest Receiver Distance to Near Track (ft.)	Existing Noise Level (dBA) a	Change in Noise Levels (dB) a, b	FTA Increase Criteria (dB)		Type and # of Impacts	
					Mod.	Sev.	Mod.	Sev.
East Weber Avenue to East Lafayette Street	NB	263	74	-2.1	0.5	2.3	0	0
East Weber Avenue to East Lafayette Street	SB	422	64	-3.2	1.5	3.8	0	0
East Lafayette Street to East Hazelton Avenue	NB	241	71	1.6	1.0	2.6	**4**	0
East Lafayette Street to East Hazelton Avenue	SB	723	72	-12.6	0.8	2.5	0	0
East Hazelton Avenue to BNSF Tracks	NB	621	69	-0.2	1.1	3.0	0	0
East Hazelton Avenue to BNSF Tracks	SB	No noise sensitive receivers						
BNSF Tracks to East Anderson Street	NB	613	71	-2.2	1.0	2.7	0	0
BNSF Tracks to East Anderson Street	SB	639	68	-8.6	1.2	3.1	0	0
East Anderson Street to East Charter Way	NB	267	62	7.0	1.7	4.3	**5**	**12**
East Anderson Street to East Charter Way	SB	736	58	1.4	2.3	5.6	0	0
East Charter Way to East 2nd St	NB	No noise sensitive receivers						
East Charter Way to East 2nd St	SB	83	70	-0.7	1.0	2.8	0	0

[a] A-weighted decibels (dBA) are used for absolute noise levels, but decibels (dB) are used for changes in noise levels, because a difference in level has no weighting.

[b] if the increase in noise level is greater than the FTA increase criteria, there would be a noise impact. At some locations, the noise levels decrease due to the project. At these locations, there would be no noise impact.

Table 3.14-7: Category 3 Institutional and Passive-Use Park Noise Impacts

Name	Location	Side of Track	Closest Receiver Distance to Near Track (ft)	Existing Noise Level (dBA) [a]	Change in Noise Levels (dB) [a,b]	FTA Increase Criteria (dB)		
						Mod.	Sev.	Impacts
Temple La Hermosa	East Weber Avenue to Lafayette Street	NB	926	64	-2.4	3.7	7.5	--
Galatians Community Church	East Weber Avenue to East Lafayette Street	SB	422	64	-3.2	3.6	7.4	--
Pentecostal Church of Jesus	East Weber Avenue to East Lafayette Street	SB	657	64	-3.5	3.7	7.5	--
Faith Tabernacle Assembly	East Anderson Street to Charter Way	NB	773	59	7.9	5.1	9.7	Moderate
Islamic Center of Stockton	East Anderson Street to Charter Way	NB	628	56	8.0	5.8	10.7	Moderate
Union Park	East Hazelton Avenue to BNSF Tracks	NB	230	66	2.3	3.3	6.9	--

[a] A-weighted decibels (dBA) are used for absolute noise levels, but decibels (dB) are used for changes in noise levels, because a difference in level has no weighting.

[b] if the increase in noise level is greater than the FTA increase criteria, there would be a noise impact. At some locations, the noise levels decrease due to the project. At these locations, there would be no noise impact.

As shown in Figure 3.14-5, there are four residences with moderate noise impacts (one single-family and one multi-family residence comprised of three residences) located along the northbound side of the proposed tracks between East Lafayette Street and East Hazelton Avenue. These impacts are due to the main line tracks moving closer to the residences and the elevated height of the main line flyover. In addition, there are five residences with moderate noise impacts (three single-family homes and one multi-family residence comprised of two residences) located south of the Stockton Diamond, between East Anderson Street and East Charter Way. These moderate noise impacts would occur as a result of the operation of new, elevated connecting tracks (approximately 2 to 4 feet above grade) shifted closer to sensitive receptors at the eastern side of the railroad corridor and the new, elevated main track flyover as it approaches its highest elevation point at the Diamond.

As shown in Table 3.14-7, there are two moderate noise impacts at institutional receivers—Faith Tabernacle Assembly, located on East Anderson Street, and the Islamic Center of Stockton, located on South Pilgrim Street. Per FTA guidelines, since the change in noise levels at the moderate impact locations fall under approximately 2db from the severe impact range, mitigation would not be required at these locations. Only receptors that would experience severe impacts would require mitigation measures. Figure 3.14-5 shows the moderate and severe noise impacts locations.

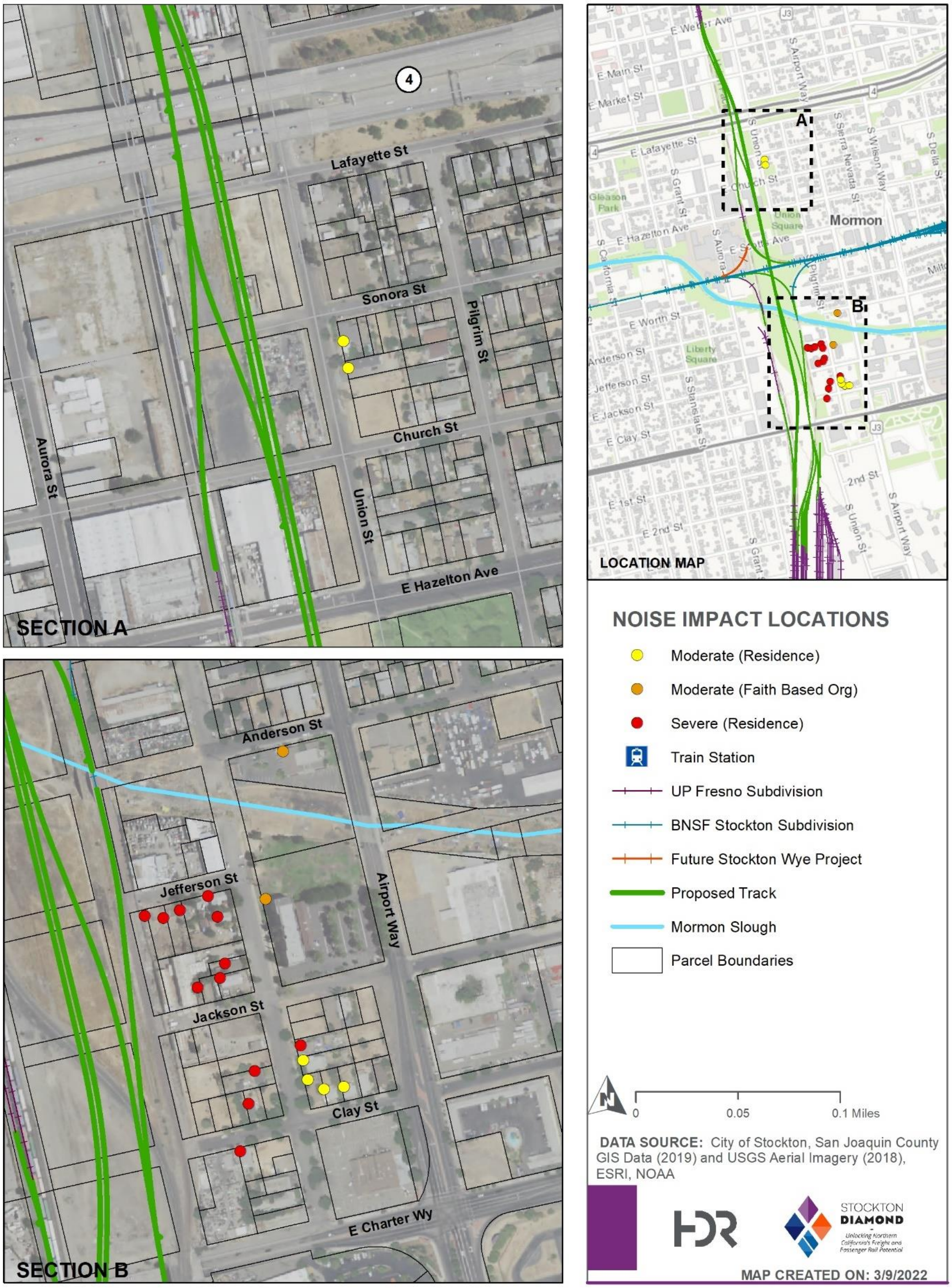
Twelve single-family homes located between East Jefferson Street and East Clay Street, and between the railroad corridor and South Pilgrim Street would experience severe noise impacts and require noise mitigation. Because of engineering and operational limitations of the Project, including the multiple levels of the proposed tracks, track turnouts and clearance issues, noise barriers would not be a feasible option for noise mitigation. Therefore, sound insulation is recommended for the twelve residences with severe noise impacts. Sound insulation programs are developed to reduce the interior noise levels in sleeping and living quarters in residential land uses or in noise-sensitive areas such as schools and other institutional uses to within the guidelines set by the US Department of Housing and Urban Development. Under these guidelines, interior noise levels for residential land uses should not exceed a L_{dn} of 45 dBA, and a form of fresh air exchange must be maintained.

The air exchange can be achieved by installing an air conditioning unit for the residence. Sound insulation is normally only used on older dwellings with single-paned windows or in buildings with double-paned windows that are no longer effective because of leakage. Sound insulation testing would be conducted to determine the appropriate measures to improve the outdoor to indoor sound level reduction, such as improved windows, doors or vents. Sound insulation would not reduce exterior noise levels.

With the implementation of Measure MM NV-1, requiring that sound insulation improvements be installed at the 12 residential homes that would be exposed to severe noise impacts, the interior noise levels at these residences would be mitigated, Therefore, with the implementation of Measure MM NV-1, no direct or indirect adverse long-term impacts on sensitive noise receptors from operational noise would occur, as these severe noise impacts would be fully mitigated under the Project.

There are no vibration sensitive receivers (Category 1 [Sensitive Buildings], Category 2 [Residential Buildings], or Category 3 [Institutional Buildings]), within the screening distances identified in Table 3.14-5 of the Project during operational activities. Therefore, no direct or indirect long-term impacts on sensitive ground-borne vibration receptors would occur, as no ground-borne vibration impacts are anticipated from operational vibration under the Project.

Figure 3.14-5: Noise Impact Locations



3.14.4 MITIGATION MEASURES

The following mitigation measure associated with noise will be applied to the Project.

MM NV-1: **Reductions for Severe Noise Impacts.** Prior to construction, SJRRC will ensure that sound insulation improvements will be installed in the residential properties that would be exposed to severe noise impacts. The goal of these improvements is to reduce the interior noise levels to below the 45 dBA L_{dn} noise threshold set by the US Department of Housing and Urban Development. In addition to the façade improvements a form of fresh air exchange must be maintained. The air exchange can be achieved by installing an air conditioning unit for the residence. Sound insulation is normally only used on older dwellings with single-paned windows or in buildings with double-paned windows that are no longer effective because of leakage. Sound insulation testing would be conducted to determine the appropriate measures to improve the outdoor to indoor sound level reduction, such as improved windows, doors or vents.

3.15 Biological Resources

This section describes the regulatory setting and affected environment for biological resources. This section also describes the environmental consequences by identifying potential direct and indirect short-term and long-term effects on biological resources during construction and operation of the Project. If short-term or long-term effects on biological resources are identified, recommended BMPs will be incorporated as part of the Project to potentially avoid and/or minimize these potential effects. If short-term or long-term adverse effects to biological resources are anticipated, mitigation measures (if necessary) will be identified to mitigate these effects within the biological resources RSA.

3.15.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of biological resources is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321–4347)

Council on Environmental Quality 1978 Regulations (40 CFR parts 1500–1508)

FHWA, FRA, and FTA - Environmental Impact and Related Procedures (23 CFR Part 771)

Endangered Species Act 16 USC Section 1531, et seq., 50 CFR Part 402)

Magnuson-Stevens Fishery Conservation and Management Act of 1976 (16 U.S.C. 1801 et seq)

Clean Water Act Section 404 (33 U.S.C. 1344)

Clean Water Act Section 401 (33 U.S.C. 1341)

Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c)

Migratory Bird Treaty Act (16 U.S.C. 703-712)

Fish and Wildlife Coordination Act (16 U.S.C. 661-666c)

Executive Order 13112 – Invasive Species

National Invasive Species Act

Executive Order 11990 – Protection of Wetlands

State Plans, Policies, and Regulations

There are no applicable state plans, policies, or regulations related to this resource topic.

Local Plans, Policies, and Regulations

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

City of Stockton General Plan

Goal LU-5: Protected Resources – Protect, maintain, and restore natural and cultural resources

Action LU-5.1B: Protect, preserve, and improve riparian corridors and incorporate them in the City's parks, trails, and open space system

Policy LU-5.2: Protect natural resource areas, fish and wildlife habitat, scenic areas, and open space areas, agricultural lands, parks, and other cultural/historic resources from encroachment or destruction by incompatible development

Action LU-5.2A: Coordinate with SJCOG and comply with the terms of the SJMSCP

Action LU-5.2B: For projects on or within 100 feet of sites that have the potential to contain special-status species or critical or sensitive habitats, including wetlands, require preparation of a baseline assessment by a qualified biologist following appropriate protocols, such as wetland delineation protocol defined by USACE. Impacts shall be minimized through project design or compensation identified in consultation with a qualified biologist.

Action LU-5.2C: Require new development to implement best practices to protect biological resources, including incidental take minimization measures and other federal and State requirements and recommendations that are consistent with the SJMSCP

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this Final EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional, and local plans, policies, and regulations identified.

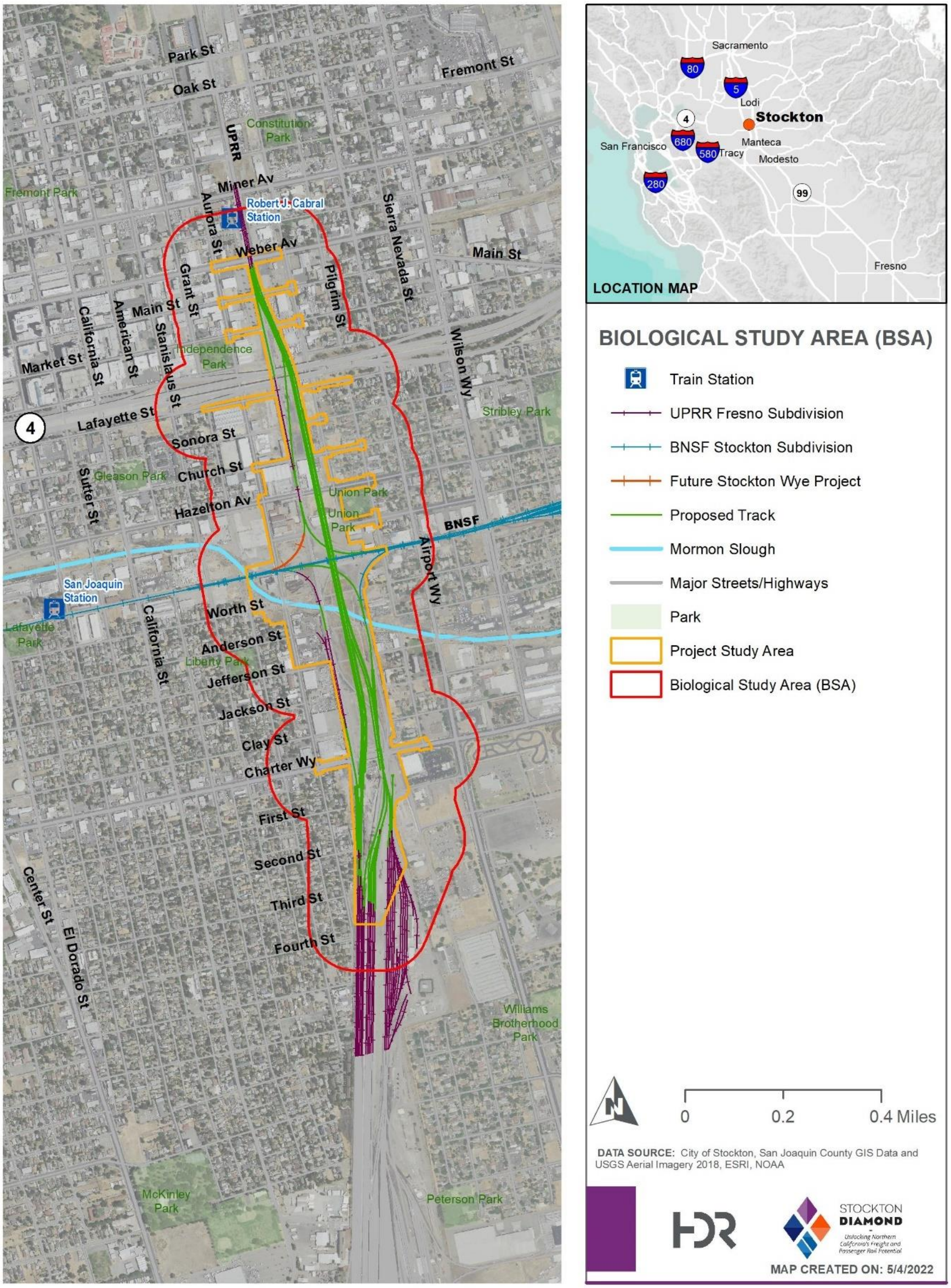
3.15.2 AFFECTED ENVIRONMENT

This section defines the RSA and describes the methods used to analyze the effects on biological resources within the RSA.

Definition of Resource Study Area

The biological resources RSA, or Biological Study Area (BSA) includes all areas within the Project Study Area and includes all Project components, as well as a buffer of 500 feet. The inclusion of the buffer area in the BSA allows for the assessment of potential indirect effects of Project construction and operations to vegetation communities, jurisdictional features, and special-status botanical and wildlife species that occur outside of and adjacent to the Project Study Area (see Figure 3.15-1).

Figure 3.15-1: Project Study Area and Biological Study Area



Methods for Data Collection and Analysis

The following database queries were performed during the desktop review to gather preliminary information on special-status species, their habitats, and potential sensitive communities and aquatic resources (Appendix M, *Supporting Biological Resources Information*):

- USFWS Information for Planning and Consultation System (USFWS 2020a) – Biologists obtained official lists of federal candidate, proposed, threatened, and endangered plant and wildlife species potentially affected by activities in the BSA.
- USFWS Critical Habitat Mapper (USFWS 2020b) – Biologists researched federally designated critical habitat in the BSA by accessing this online tool. The mapper contains spatial data for active proposed and final critical habitat for USFWS-regulated species.
- USFWS National Wetlands Inventory (USFWS 2020c) – Biologists reviewed the National Wetlands Inventory to obtain information on aquatic resources that may occur in the BSA.
- NMFS West Coast Region, California Species List Tools (NMFS 2020) – Biologists obtained an official list of federal candidate, proposed, threatened, and endangered fish species potentially affected by activities in the BSA from NMFS. The tool also provided information on critical habitat and Essential Fish Habitat (EFH) in the BSA.
- CDFW California Natural Diversity Database (CNDDB) QuickView Tool in BIOS 5 (CDFW 2020b) – Biologists queried the CNDDB GIS dataset for occurrences of special-status plant and wildlife species within the Stockton West, California, USGS 7.5-minute quadrangle.
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2020) – To research additional special-status plants not captured by the official USFWS species list or CNDDB, botanists queried the Stockton West, California, USGS 7.5-minute quadrangle. From this list, botanists checked for species with very localized distributions (that is, limited to only a few known localities) outside the special-status plant study area and eliminated them from further consideration. The CNPS online inventory is a credible and widely recognized resource used by conservationists, consultants, planners, and Google Earth aerial imagery (Google Earth Pro 2020).

Site Reconnaissance Survey

A reconnaissance-level survey was conducted on October 1, 2020, to supplement the findings of the desktop review. Biologists drove on publicly accessible roads and walked throughout the BSA to record localized information on existing site conditions, vegetation communities, aquatic resources, and species observed. Special attention was paid to those special-status species and resources that were queried in the desktop review or were determined to have the potential to occur based on site features or habitat, including, but not limited to, Swainson's hawk (*Buteo swainsoni*), white-tailed kite (*Elanus leucurus*), special-status bats, elderberry (*Sambucus spp.*), potential burrowing owl (*Athene cunicularia*) habitat, and any aquatic resources. Photo documentation from this reconnaissance survey is provided in Appendix M, *Supporting Biological Resources Information*. A list of wildlife and botanical species observed during the reconnaissance survey was also recorded and is provided in Appendix M, *Supporting Biological Resources Information*. A second site visit was conducted on November 24, 2020, to perform a full visual survey for elderberry shrubs (*Sambucus* spp.) within the BSA. A focused elderberry survey was conducted to confirm or deny the presence of the species in the BSA. No elderberry shrubs were observed.

Effects Analysis

The effects analysis is based on the Project description, the environmental setting, and federal regulatory requirements regarding Project effects on biological resources. In addition, the effects analysis used data collected from the literature and data review, as well as site reconnaissance survey and a focused elderberry survey. When information about the presence of a special-status species was unknown but suitable habitat was present, the effects analysis took a conservative approach by inferring the presence of special-status species within the BSA until pre-construction or protocol-level surveys determine otherwise. Effects on specific biological resources are identified, and appropriate avoidance, minimization, and/or mitigation measures are discussed further in the effects analysis and mitigation measures sections.

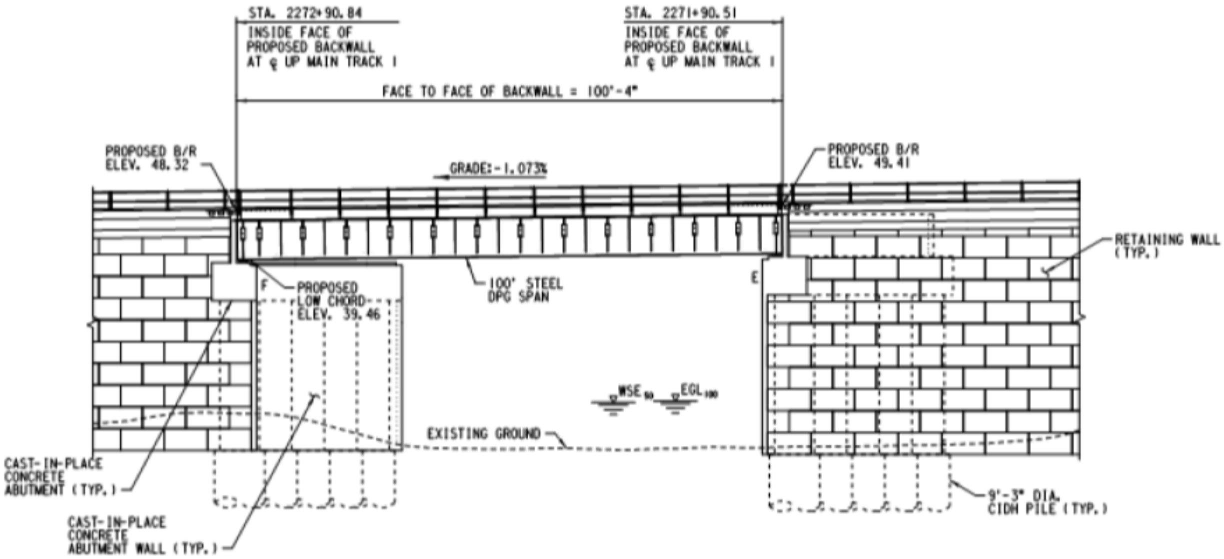
As discussed in Chapter 2, construction of the Project would entail a crossing over the Mormon Slough. Three design options have been identified for this crossing that would span the Mormon Slough and associated floodplain: a single-span bridge; an open-bottom, multi-cell box culvert on pile foundations; or an open-bottom precast arch culvert on pile footings (see Figure 3.15-2).

Direct effects on vegetation communities (including sensitive natural communities), special-status botanical and wildlife species, and jurisdictional features can include vegetation clearing, site grading, excavating, paving, placing fill, and stockpiling. Short-term direct effects are those that last less than 1 year in duration in areas that are subject to disturbance during Project construction. Areas subject to short-term direct effects would be re-contoured and revegetated following the completion of construction. Direct effects that cover a period longer than 1 year are typically considered long-term direct effects and could involve additional mitigation measures to account for the loss of habitat function during the construction period. Long-term direct effects on vegetation communities include those that involve placing materials, such as concrete or rock, that would result in converting one vegetation community to another.

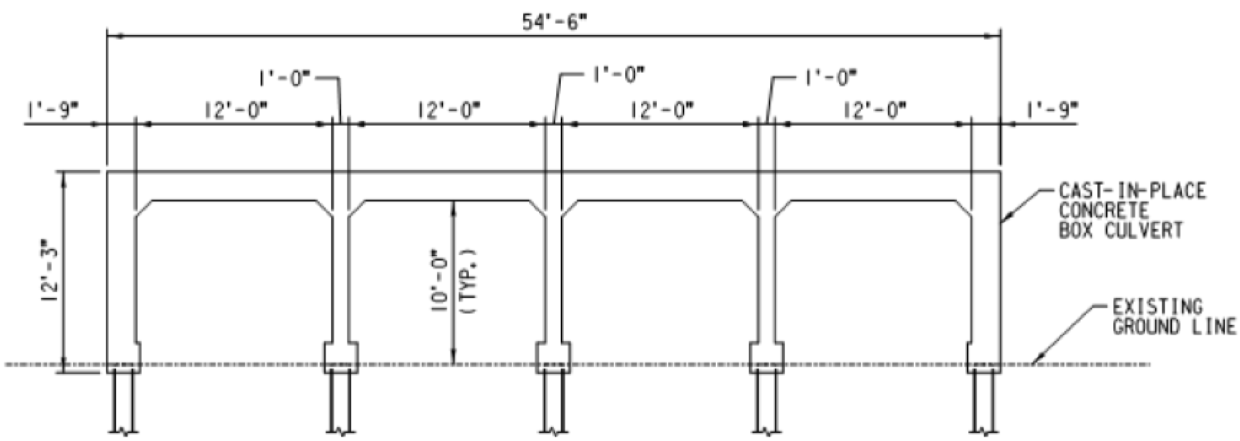
Indirect effects on vegetation communities (including sensitive natural communities), special-status plant and wildlife species, and jurisdictional areas can include soil compaction, dust, runoff, the introduction and spread of invasive plant species, construction noise and lighting, habitat conversion, and changes in hydrology. Short-term indirect effects generally occur as a result of construction activities. Long-term indirect effects typically occur as a result of operations following project completion.

Figure 3.15-2: Mormon Slough Bridge Design Options

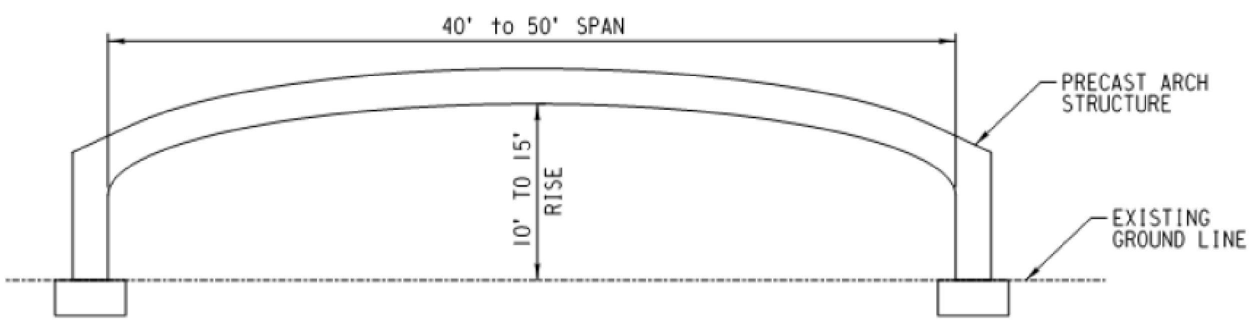
Single-Span Bridge



Multi-Cell Box Culvert



Precast Arch Culvert



Existing Setting

Regional Setting

The Project is in the Great Valley ecological section of the California Dry Steppe ecological province (McNab et al. 2007). The landscape of the Great Valley ecological section is characterized by low-elevation fluvial plain formed on non-marine sedimentary rocks. Cover type in this section is characterized primarily as agricultural with smaller stands of natural cover types that include annual grasslands, western hardwoods, and wet grasslands. Surface water is characterized by gently flowing streams and rivers flowing west toward the Suisun Bay and the California coast. Local reservoirs store seasonal rainfall for municipal water supply and flood control, and streams are often channelized, especially in urban areas. In addition, the province is described as having a Mediterranean-like climate with mild, wet winters and dry, hot summers (McNab et al. 2007).

Local Setting

The Project is in the heart of the City of Stockton just east of the Sacramento-San Joaquin Delta. The Project lies in the Central Valley between the Diablo Range and the Sierra Nevada Range. Topography across the BSA is mostly flat. Elevation in the BSA ranges from sea level to approximately 20 feet above mean sea level.

The Mormon Slough hydrologic unit (1804000303) encompasses the northern portion of the BSA and the Five-Mile Creek-San Joaquin River hydrologic unit (1804000305) encompasses the southern portion of the BSA (CDFW 2020a). The Calaveras River, the Port of Stockton, and the Delta are the major water bodies near the Project. The Calaveras River flows west toward Suisun Bay, just north of the Project. Historically, Mormon Slough conveyed water frequently and acted as a flood channel, but with the implementation of the Stockton Diverting Canal that re-routed flows, Mormon Slough is now fed mainly through intermittent surface water runoff and does not convey water year-round. The Stockton Diverting Canal's southern end is roughly 2.5 miles east of the BSA and connects Mormon Slough to the Calaveras River. Portions of Mormon Slough, along with the Stockton Diverting Canal, become wetted and passable for aquatic species after October 15th, when flashboard dams are pulled, up until flashboard dams are installed again around April 15th of the following year; however, this does not include the section of Mormon Slough within the BSA. Additionally, several smaller urbanized and channelized drainages occur near the BSA.

Land Use

Land use within the BSA is comprised mainly of industrial, transportation (existing rail ROW), and residential. The majority of the BSA is disturbed ruderal and developed landscapes; however, small, scattered areas of eucalyptus, urban parks, annual grassland, and vegetated areas occur along Mormon Slough in the BSA. The BSA is bisected by the slough, which runs east to west. Results of a site reconnaissance survey and focused elderberry survey determined that the section of Mormon Slough that the BSA crosses is highly disturbed, littered with trash, and home to a large established transient population.

Biological Setting

The vegetation communities and sensitive biological resources, such as special-status species, critical habitat, EFH, aquatic resources, and wildlife corridors, in the BSA are described in the following sections.

VEGETATION COMMUNITIES

The desktop review and reconnaissance survey identified five vegetation communities present in the BSA: urban, urban parks, ruderal/disturbed, annual grassland, and Mormon Slough, as described in Table 3.15-1 and shown in Figure 3.15-3. Acreages of each vegetation community mapped within the BSA are provided in Table 3.15-1.

Table 3.15-1: Vegetation Communities within the Biological Study Area

Vegetation Community	Acres within BSA
Urban	299.63
Urban Parks	4.35
Ruderal/Disturbed	69.38
Annual Grassland	4.34
Mormon Slough	1.39
Total	379.09

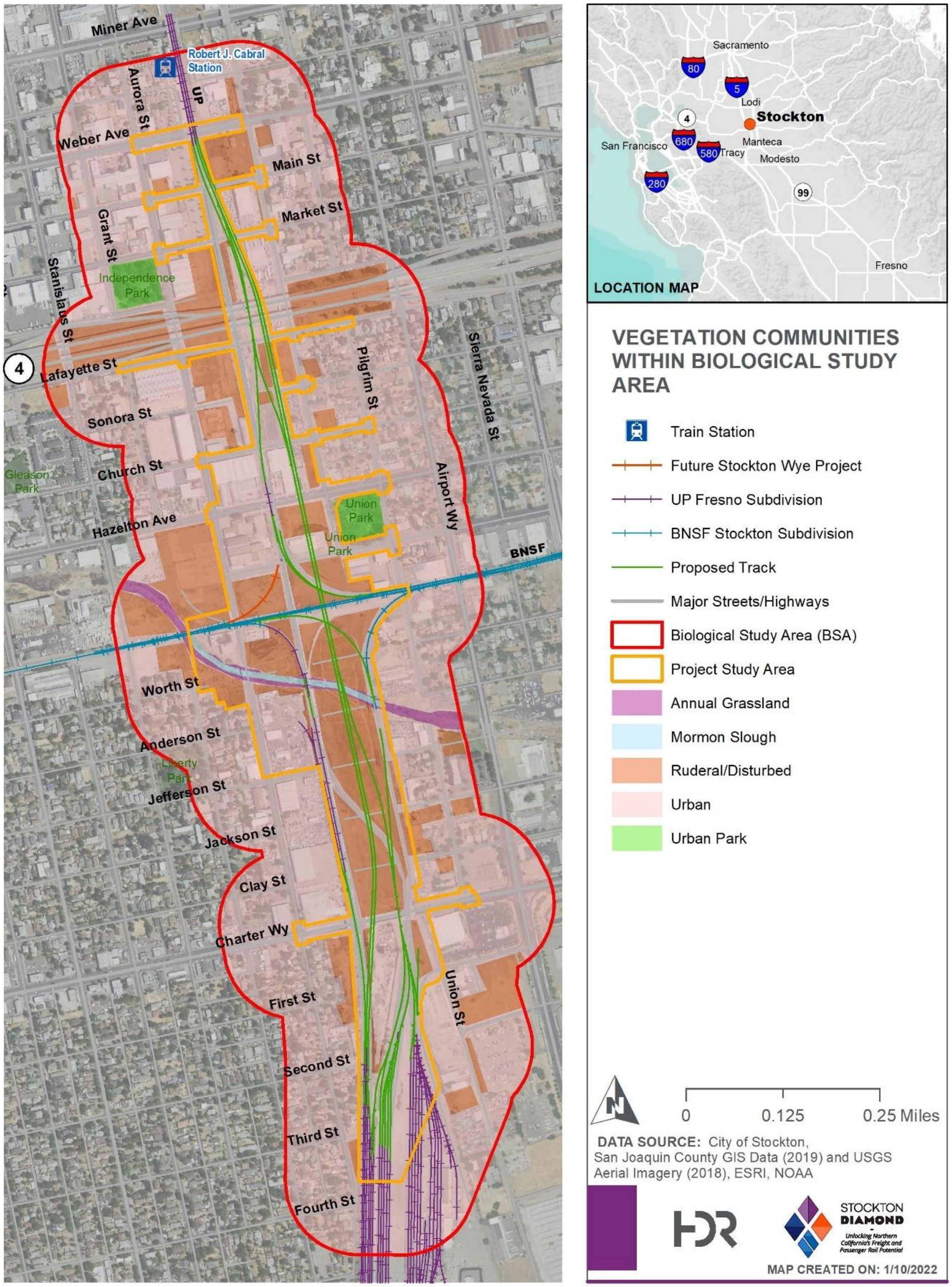
URBAN

A total of 299.63 acres of urban areas were mapped within the BSA. Urban portions of the BSA include the existing rail right-of-way, industrial and residential properties, existing roads and road shoulders, recreational areas, and various other areas with a history of disturbance supporting ruderal, ornamental, or introduced vegetation. A few trees and shrubs, such as tree of heaven (*Ailanthus altissima*) and eucalyptus (*Eucalyptus* sp.) are sparsely scattered within various portions of the BSA. Urban areas generally provide only marginal habitat value for native plants and wildlife.

URBAN PARKS

A total of 4.35 acres of urban parks areas were mapped within the BSA, associated with a few city parks that include a mix of ornamental and introduced tree species and mowed lawn. These city parks are in highly trafficked areas and can be considered highly disturbed. Because of the high degree of disturbance, these areas generally have a low habitat value for wildlife, although a few species adapted for urban conditions can use these areas, including special-status species such as Swainson’s hawk and white-tailed kite.

Figure 3.15-3: Vegetation Communities within Biological Study Area



RUDERAL/DISTURBED

A total of 69.38 acres of ruderal/disturbed areas were mapped within the BSA. These include areas within the BSA that are not currently developed, but have been altered or disturbed by development, but are still able to support some vegetation. Ruderal/Disturbed portions of the BSA include the track ballast and surrounding right-of-way, undeveloped portions of residential and industrial properties unpaved road shoulders, and various other areas with a history of disturbance which currently support ruderal vegetation.

These areas are a mix of human-made structures, hardscape, rocky substrates, and semi-barren areas with sparse vegetation consisting primarily of nonnative annual grasses and invasive weeds. Associated species include crabgrass (*Cynodon dactylon*), telegraphweed (*Heterotheca grandiflora*), Canadian horseweed (*Conyza canadensis*), wild radish (*Raphanus* spp.), jimsonweed (*Datura stramonium*), Russian thistle (*Salsola tragus*), yellow star-thistle (*Centaurea solstitialis*), and brome (*Bromus* spp.).

ANNUAL GRASSLAND

A total of 4.34 acres of annual grassland areas were mapped in scattered locations throughout the BSA. The dominant species are non-native annual grasses, including wild oats (*Avena* sp.) and a variety of bromes. Additional potential species include Russian thistle, ripgut brome (*Bromus diandrus*), Bermuda grass (*Cynodon dactylon*), English plantain (*Plantago lanceolata*), longbeak stork's bill (*Erodium botrys),* and prickly lettuce (*Lactucaserriola*). Invasive species, such as yellow star thistle and mullien (*Verbascum* sp.), were also observed.

MORMON SLOUGH

A total of 1.39 acres were mapped within the Mormon Slough. The section of Mormon Slough within the BSA is extremely disturbed, mostly devoid of vegetation, and does not convey enough water to support riparian vegetation or aquatic wildlife species. Within the BSA, vegetation within the Mormon Slough is characterized as ruderal/disturbed with some annual grassland and a few small, scattered patches of giant reed (*Arundo donax*). The slough may have once supported more aquatic wildlife and botanical species, but with the implementation of the Stockton Diverting Canal, the area is dry most of the year and receives water mainly through surface runoff during large storm events. Further, the section of the Mormon Slough that runs through the BSA is inhabited by a large transient population with structures, litter and debris prevalent throughout the BSA.

SPECIAL-STATUS NATURAL COMMUNITIES

Sensitive habitats considered are those that are of special concern to resource agencies or those that are protected under FGC Sections 1600–1603, CWA Sections 401 and 404, and/or Porter-Cologne.

Critical Habitat and Essential Fish Habitat

Critical habitat refers to formally designated geographic areas or features that the USFWS have identified as important for the conservation of federally listed species. Critical habitat contains physical or biological features essential for the conservation of a threatened or endangered species and that may require special management and protection. EFH refers to areas formally designated by NMFS as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

NMFS designated Mormon Slough as critical habitat for Central Valley steelhead in 2000 (65 FR 7764 7787, February 16, 2000), including the portion of the Mormon Slough within the BSA. EFH for Chinook salmon also occurs in the portion of the Mormon Slough within the BSA. In addition, there is critical habitat for green sturgeon, designated in 2009 (74 FR 52299, October 9, 2009) and EFH for groundfish downstream of the BSA. While none of these species are present within the BSA at this time, preservation of fish passage and important habitat characteristics would be important to future restoration efforts of Mormon Slough as fish habitat.

NMFS issued a "not likely to adversely affect" determination for the Project on May 17, 2021, with regard to Central Valley steelhead and its critical habitat and the southern distinct population segment of North American green sturgeon and its critical habitat. It also determined that the Project would have "no adverse effect" on EFH for chinook salmon or groundfish. The NMFS Concurrence Letter is provided in Appendix N.

Aquatic Resources

Due to the lack of site access, it was not possible to conduct a field-based delineation of aquatic resources in support of the Project. The discussion of aquatic resources within the BSA is based on a review of current and historic aerial imagery and street-view photographs. Determinations provided here are preliminary and subject to change following a formal delineation of aquatic resources and/or submittal to agencies for jurisdictional determination.

Historically, the Mormon Slough acted as a flood channel that supported intermittent or perennial flows. With the completion of the Stockton Diverting Canal that re-routed flows, the portion of Mormon Slough running through the BSA is now fed exclusively through surface water runoff and does not convey water most of the year. As described above, the section of the Mormon Slough within the BSA is dry most of the year, extremely disturbed, and mostly devoid of vegetation.

A total of 1.41 acres of potential non-wetland waters of the US subject to protection pursuant to Section 404 of the CWA have been mapped within the portion of Mormon Slough in the BSA.[1] No federally protected wetlands were identified within the BSA. Potential jurisdictional areas within the BSA are shown in Figure 3.15-4.

Special-Status Species, including Migratory Birds

Federally listed or candidate plant species include those listed by USFWS as threatened or endangered, or species considered candidates for listing by USFWS. The results of the USFWS, NMFS, CNDDB, and CNPS database queries identified one federally listed special-status plant species and thirteen (13) federally listed or candidate wildlife species with the potential to occur in the BSA. These species and their federal status are listed below:

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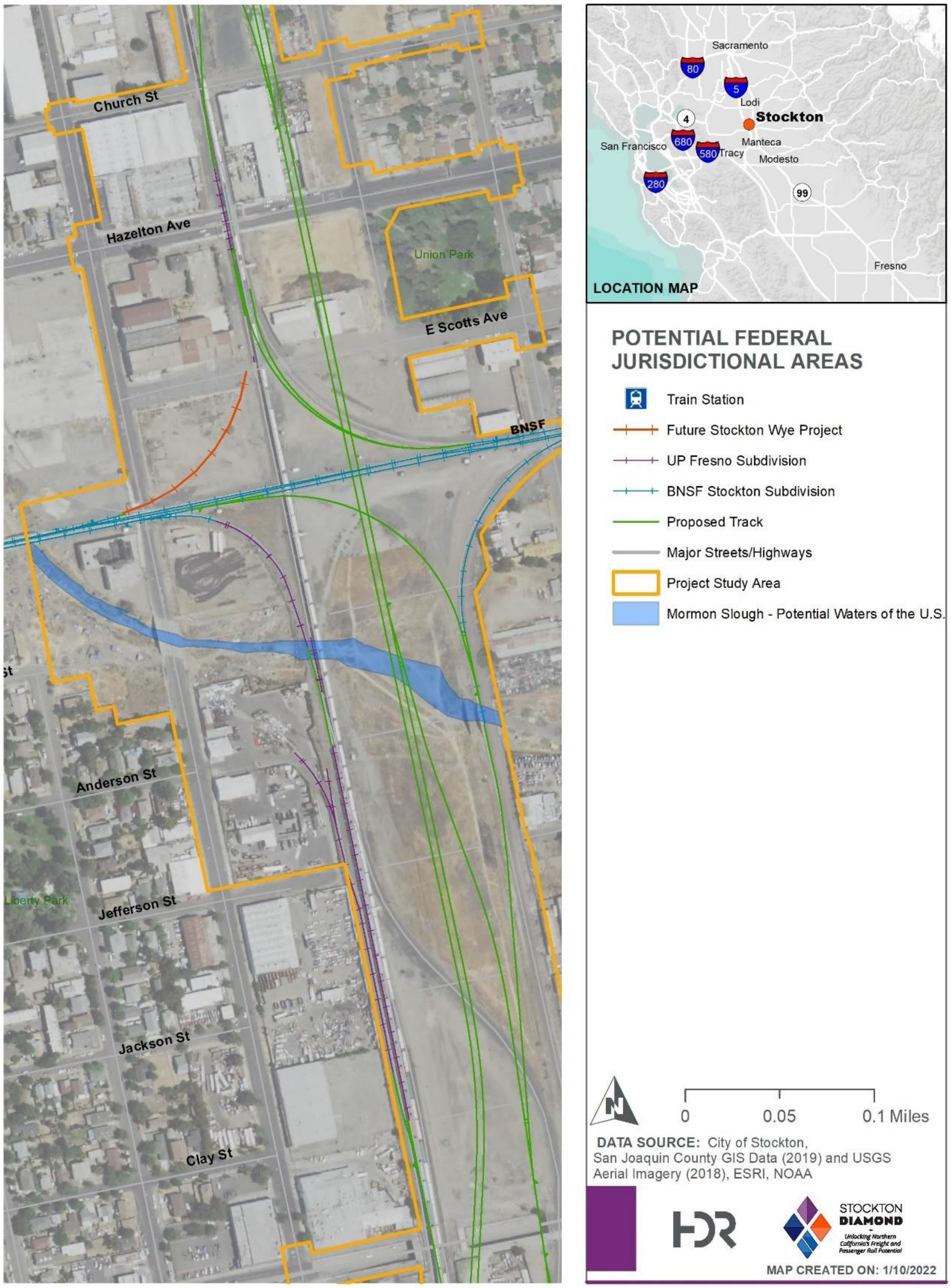
[1] This acreage is provided as the maximum area of potential jurisdictional resources within the BSA and is anticipated to be reduced following completion of a formal field-based delineation during final design.

- Plants
  - Palmate-bracted bird's beak (*Chloropyron palmatum*) – Endangered
- Wildlife
  - California red-legged frog (*Rana draytonii*) – Threatened
  - California tiger salamander (*Ambystoma californiense*) – Threatened
  - Chinook salmon – Central Valley spring-run Environmentally Significant Unit (*Oncorhynchus tshawytscha* pop. 6) – Threatened
  - Delta smelt (*Hypomesus transpacificus*) – Threatened
  - Giant gartersnake (*Thamnophis gigas*) – Threatened
  - Least Bell's vireo (*Vireo bellii pusillus*) – Endangered
  - Longfin smelt (*Spirinchus thaleichthys*) – Candidate
  - Riparian brush rabbit (*Sylvilagus bachmani riparius*) – Endangered
  - Steelhead – Central Valley Distinct Population Segment (*Oncorhynchus mykiss irideus* pop. 11) – Threatened
  - Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) – Threatened
  - Vernal pool fairy shrimp (*Branchinecta lynchi*) – Threatened
  - Vernal pool tadpole shrimp (*Lepidurus packardi*) – Endangered

Raw data from the queries are provided in Appendix M, *Supporting Biological Resources Information*, as well as tables summarizing all special-status plant and wildlife species identified in the database results and describes the habitat requirements for each species, providing conclusions regarding the potential for each species to be affected by Project components. In cases where a determination was made that no suitable habitat for a given species is present in the BSA (see Appendix M, *Supporting Biological Resources Information*), that species is not analyzed further in this document.

Figure 3.15-4: Potential Waters of the US within Biological Study Area



None of the fourteen federally listed or candidate plant and wildlife species are expected to occur in the Project BSA because of the limited types of habitat in the BSA. As discussed previously, although the BSA is not currently suitable habitat for these species, it is within federally designated critical habitat for Central Valley steelhead and green sturgeon. Based on project design commitments, NMFS has determined that the Project is “not likely to adversely affect” either of these species.

The BSA and immediate surroundings provide potential habitat for nesting, wintering, and/or foraging habitat for migratory birds and raptors now identified in Appendix M. All native breeding birds (except game birds during the hunting season), regardless of their listing status, are protected under the MBTA. The SJMSCP identifies Incidental Take Avoidance Measures for various classifications of nesting birds of which the BSA has potential to support the following classes: *Ground Nesting or Streamside/Lakeside Nesting Birds* and *Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Areas*.

Wildlife Movement Corridors

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to (1) sustain species with specific foraging requirements, (2) preserve a species’ distribution potential, and (3) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

Available data on movement corridors and linkages was accessed via the CNDDB BIOS 5 Viewer (CDFW 2020a). Data reviewed included the Essential Connectivity Areas [ds620] layer, the Natural Landscape Blocks [ds621] layer, the Wildlife Movement Barrier Priorities [ds2867] layer, and the Missing Linkages in California [ds420] layer. No essential habitat connectivity areas, natural landscape blocks, wildlife movement barrier priorities, or missing linkages occur within or adjacent to the BSA. However, the Mormon Slough and its associated upland banks may provide a corridor for common terrestrial wildlife movement through the BSA. As mentioned above, the Mormon Slough does not hold water year-round and does not provide adequate habitat for aquatic species; therefore, the Mormon Slough does not act as a movement corridor for fish or other aquatic species.

3.15.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences on biological resources as a result of implementation of the Project. Specifically, this section evaluates the direct and indirect effects on vegetation, aquatic resources, and wildlife resources from implementing the Project.

No Action Alternative

Short-term Effects

Under the No Action Alternative, the construction of the Project would not occur. As such, no direct or indirect short-term effects on biological resources would result under the No Action Alternative.

Long-term Effects

Under the No Action Alternative, the Project would not be implemented. The existing conditions would remain as they currently are, and infrastructure in the area would not change. As such, no direct or indirect long-term effects on biological resources would result under the No Action Alternative.

Project

Table 3.15-2 identifies the BMPs that will be incorporated as part of the Project.

Table 3.15-2: Project Best Management Practices

Best Management Practice	Description
BMP BIO-1	**Biological Monitor and Environmental Awareness Training.** If deemed necessary, SJRRC will ensure that a qualified biologist(s) will monitor activities that could affect special-status species and/or sensitive biological resources within the BSA. The amount and duration of monitoring will depend on the activity and will be determined by the qualified biologist. The duties of the qualified biologist shall comply with all agency conditions outlined in Project-related permits, but could include activities such as clearance surveys, flagging or fencing off environmentally sensitive areas for avoidance, and construction monitoring. The biological monitor will conduct preconstruction clearance surveys for special status species prior to the start of Project activities and implement all biological resources avoidance and minimization measures and applicable SJMSCP Incidental ITMMs. In addition, a qualified biologist shall be retained to conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the identified location of sensitive biological resources, including how to identify species (visual and auditory) most likely to be present, the need to avoid adverse effects on biological resources (for example, plants, wildlife, and jurisdictional waters), and to brief them on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the Project, SJRRC will ensure that the mandatory training be conducted by the contractor prior to starting work on the Project.
BMP BIO-2	**Migratory Bird and Raptor Surveys and Nest Avoidance.** Prior to and during construction, SJRRC will ensure that if vegetation clearing and/or construction activities are scheduled to occur during the migratory bird nesting season (February 1 to September 15), then pre-construction surveys to identify active migratory bird and/or raptor nests will be conducted by a qualified biologist no more than 7 days prior to construction initiation. If active nest sites are identified in the survey area, a no-disturbance buffer will be established for all active nest or burrow sites prior to commencement of any Project-related activities. The size of the no-disturbance buffer will vary and will be determined by a qualified biologist based on the species, activities near the nest, and topographic and other visual barriers, or as otherwise required through the SJMSCP (as described in SJMSCP ITMM 5.2.4.17, 5.2.4.18, and 5.2.4.19). A qualified biologist will monitor any active nest until the nest is deemed inactive and the no disturbance buffer can be removed. The amount and duration of the monitoring will be determined by a qualified biologist and will depend on the same factors described above when determining the size of the no-disturbance buffer.

Best Management Practice	Description
BMP BIO-3	**Construction BMPs at Mormon Slough.** During final design, SJRRC will ensure that construction best management practices will be employed on-site to prevent erosion or runoff of loose soil and dust. Methods will include the use of appropriate measures to intercept and capture sediment prior to entering aquatic resources, as well as erosion control measures along the perimeter of disturbance areas to prevent the displacement of fill material. All best management practices shall be in place prior to initiation of Project-related activities and shall remain until activities are completed. All erosion control methods will be maintained until all onsite soils are stabilized.
BMP BIO-4	**Environmentally Sensitive Area Fencing at Mormon Slough.** Prior to and during construction, SJRRC will ensure that work areas will be reduced to the smallest practicable footprint throughout the duration of construction activities. Prior to any ground-disturbing activity, SJRRC will ensure that staging areas for construction equipment be stored in areas that minimize adverse effects on sensitive biological resources, including aquatic resources. Staging areas (including any temporary material storage areas) will be located in areas that will be occupied by permanent facilities, where practicable. Equipment staging areas will be identified on final project construction plans. will ensure to flag and mark access routes to restrict vehicle traffic within the Project footprint to established roads, construction areas and other designated areas.
BMP BIO-5	**Restoration of Temporarily Affected Areas.** During construction, SJRRC will ensure that all exposed and/or disturbed areas resulting from Project-related activities will be returned to its original contour and grade, and restored using locally native grass and forb seeds, plugs, or a mix of the two. Areas shall be seeded with species appropriate to their topographical and hydrological character. Seeded areas shall be covered with broadcast straw and/or jute netted, where appropriate.
BMP BIO-6	**Vehicle Access and Speed Limits.** During construction, SJRRC will ensure that all vehicle traffic associated with Project-related activities will be confined to established roads, staging areas, and parking areas. Vehicle speeds will not exceed 15 miles per hour on access roads with no posted speed limit to avoid collisions with special-status species or habitats. Additionally, maintenance or refueling of vehicles or equipment must occur in designated areas and/or a secondary containment, located away from aquatic resources.
BMP BIO-7	**Storage and Disposal of Excavated Materials.** During ground-disturbing activities, SJRRC may temporarily store excavated materials produced by construction activities in areas at or near construction sites within the Project footprint. Where practicable, SJRRC will return excavated soil to its original location to be used as backfill. Any excavated waste materials unsuitable for treatment and reuse will be disposed at an off-site location, in conformance with applicable state and federal laws. Stockpiled, disassembled, and hazardous construction material should be stored at least 100 feet from aquatic resources, where possible.

Best Management Practice	Description
BMP BIO-8	**Prevention of Invasive Species During Construction.** Prior to and during construction, SJRRC will ensure that all construction equipment is clean when entering work areas within or adjacent to Environmentally Sensitive Areas, and the Project Study Area will be inspected prior to and during construction to detect the introduction or spread of invasive weeds. The use of eradication strategies and the incorporation of recommended measures (as needed) to avoid the inadvertent spread of invasive weeds in association with the Project will also be incorporated during construction activities.

Short-term Effects

Construction and demolition of existing and new tracks would require ground disturbance, grading, construction traffic (both vehicular and foot), possible removal of vegetation, relocation of existing utilities, and staging of equipment and materials. Additionally, indirect short-term effects in the form of noise and dust may occur as a result of construction activities within the BSA.

SPECIAL-STATUS SPECIES, INCLUDING MIGRATORY BIRDS

None of the fourteen federally listed or candidate plant and wildlife species are expected to occur in the Project BSA because of the limited types of habitat in the BSA. The BSA and immediate surroundings provide potential habitat for nesting, wintering, and/or foraging habitat for migratory birds and raptors. The SJMSCP identifies Incidental Take Avoidance Measures for various classifications of nesting birds that the BSA has potential to support. With the incorporation of BMP BIO-1 and BMP BIO-2 and the implementation of Measure MM BIO-1, which requires SJRRC to ensure compliance with applicable Incidental Take Minimization Measures (ITMM) identified in the SJMSCP, no direct, short-term, moderate adverse effects on special-status species, such as migratory birds and raptors, would occur under the Project.

CRITICAL HABITAT AND ESSENTIAL FISH HABITAT

With the incorporation of BMP BIO-3 through BMP BIO-8, the Project would not result in direct or indirect adverse effects on the water quality of habitat areas downstream.

The Project would result in potential direct, short-term, moderate adverse effects on up to 0.39 acre of Central Valley steelhead critical habitat and Chinook salmon EFH as a result of construction access during construction of the Mormon Slough flyover structure (Figure 3.15-2). However, with implementation of Measure MM BIO-2, which requires implementation of all commitments and avoidance and minimization measures identified during Section 7 consultation, these direct, short-term, moderate effects would be mitigated. NMFS issued a “not likely to adversely affect” determination for the Project on May 17, 2021, with regard to Central Valley steelhead and its critical habitat and the southern distinct population segment of North American green sturgeon and its critical habitat. It also determined that the Project would have “no adverse effect” on EFH for chinook salmon or groundfish.

Based on the discussion above, no direct or indirect, short-term, moderate adverse effects on critical habitat and EFH will result under the Project with the incorporation of BMP BIO-3 through BMP BIO-8 and the implementation of Measure MM BIO-2.

JURISDICTIONAL WATERS

Due to lack of site access, the analysis of potential jurisdictional resources was based on a preliminary review of aerial and street view photographs. While a formal field-delineation of wetland areas has not been conducted to date for the Project due to property access restrictions, a review of aerial and street view imagery indicates that there are approximately 1.41 acres of non-wetland waters of the US subject to Clean Water Act Section 404 and 401 jurisdiction. No federally protected wetlands as defined by CWA Section 404 are located within the BSA.

Since the Project is anticipated to require CWA Section 404 and 401 permits and authorizations for potential effects to waters of the US. SJRRC will have to submit a "Request for Project Coverage Form" to the SJMSCP Habitat Technical Advisory Committee (HTAC) for approval to participate. SJRRC will initiate the approval process prior to Final EA approval. As part of participation in the SJMSCP, SJRRC will comply with all applicable standards and regulations set forth in the SJMSCP.

During construction, the Project would result in direct, short-term, moderate adverse effects on up to 0.33 acre of potential non-wetland waters of the US, as a result of disturbance during culvert or bridge construction, depending on the flyover design option selected (see Table 3.15-3).

Table 3.15-3: Project Short-term Effects on Potential United States Army Corps of Engineers and Regional Water Quality Control Board Jurisdictional Areas

Flyover Design Option	USACE[1] and RWQCB[2] Jurisdiction Non-wetland Waters of the US
Single-Span Bridge	0.17 acre
Multi-Cell Box Culvert	0.32 acre
Precast Arch Culvert	0.33 acre

[1] USACE = United States Army Corps of Engineers
[2] RWQCB = Regional Water Quality Control Board

With the incorporation of BMP BIO-3 through BMP BIO-8, no indirect, short-term, adverse effects on waters of the US would occur outside of the Project Study Area. As previously stated, the Project would directly affect up to 0.33 acre of potential non-wetland waters of the US, depending on the flyover design type chosen during PS&E. However, with the implementation of Measure MM BIO-3, which requires mitigation for Project effects on aquatic resources, no direct, short-term, moderate effects on waters of the US would result under the Project.

Therefore, with the incorporation of BMP BIO-3 through BMP BIO-8 and the implementation of Measure MM BIO-3, no direct or indirect, short-term, moderate adverse effects on jurisdictional areas would result under the Project.

Long-term Effects

Long-term effects to special-status species and/or SJMSCP-identified habitat for special status species would result from the Project. A summary of resources where long-term effects would occur, is provided below.

SPECIAL-STATUS SPECIES, INCLUDING MIGRATORY BIRDS

Migratory birds and raptors have the potential to nest throughout the BSA. However, long-term operation and maintenance of the Project is not expected to differ substantially from existing operations. In the event that active migratory bird or raptor nests are present within the BSA during operation of the Project, BMP BIO-2 will be incorporated to minimize potential direct long-term effects. Additionally, the Project would result in habitat loss for migratory nesting birds and raptors. However, these direct and indirect, long-term, moderate adverse effects would be mitigated with the implementation of Measure MM BIO-1.

Based on the discussion above, with the incorporation of BMP BIO-2 and the implementation of Measure MM BIO-1, no direct or indirect, long-term, moderate adverse effects on special-status species, including migratory birds, would result under the Project.

Critical Habitat and Essential Fish Habitat

As discussed previously, three flyover design options have been developed for the structure spanning Mormon Slough. With the incorporation of BMP BIO-3, BMP BIO-4, and BMP BIO-7, identified in Table 3.15-2, the Project would not result in direct or indirect adverse effects on downstream water quality within the Mormon Slough or critical habitat and EFH habitat areas. However, in order to mitigate direct and indirect, long-term, moderate adverse effects related to loss of habitat in the Mormon Slough for fish passage, the Project will implement Measure MM BIO-2, requiring the structure spanning the Mormon Slough to retain a natural substrate stream channel bottom. Additionally, SJRRC will avoid any rip-rap armor within Central Valley steelhead critical habitat or Chinook salmon EFH and will select a structure design that would maintain the potential for future restoration of fish passage within the Mormon Slough.

NMFS issued a “not likely to adversely affect” determination for the Project on May 17, 2021, with regard to Central Valley steelhead and its critical habitat and the southern distinct population segment of North American green sturgeon and its critical habitat. It also determined that the Project would have “no adverse effect” on EFH for chinook salmon or groundfish. The NMFS Concurrence Letter is provided in Appendix N.

Based on the discussion above, with the incorporation of BMP BIO-3, BMP BIO-4, and BMP BIO-7 and the implementation of Measure MM BIO-2, no direct or indirect, long-term, moderate adverse effects on critical habitat and EFH would result under the Project.

Jurisdictional Waters

The construction of pipe and box culverts for the Project would cause direct and indirect, long-term, moderate effects on potential jurisdictional resources in the BSA. As shown in Figure 3.15-4, the Mormon Slough supports an estimated 1.41 acres of potential non-wetland waters of the US.

Table 3.15-4: Project Long-term Effects on Potential United States Army Corps of Engineers and Regional Water Quality Control Board Jurisdictional Areas

Flyover Design Option	USACE[1] and RWQCB[2] Jurisdiction Non-wetland Waters of the US
Single-Span Bridge	<0.01 acre
Multi-Cell Box Culvert	0.04 acre
Precast Arch Culvert	0.02 acre

[1] USACE = United States Army Corps of Engineers
[2] RWQCB = Regional Water Quality Control Board

As shown in Table 3.15-4, the Project would result in direct, long-term, moderate adverse effects on up to approximately 0.04 acre of potential jurisdictional non-wetland waters of the U.S, However, with the implementation of Measures MM BIO-3, MM BIO-4 (which requires SJRRC to obtain all required permits and authorization for Project effects on waters of the US), and MM-BIO-5 (which requires that a formal field-delineation is conducted during final design) will mitigate these direct or indirect, moderate adverse effects. Therefore, with the implementation of Measures MM BIO-3 through MM BIO-5, no direct or indirect, long-term, moderate adverse effects on federal jurisdictional waters would result under the Project.

3.15.4 MITIGATION MEASURES

The following mitigation measures associated with biological resources will be applied to the Project.

MM BIO-1: **Compliance with SJMSCP.** Prior to and during construction, SJRRC will ensure compliance of the Project with all applicable standards and regulations set forth in the SJMSCP, as well as all applicable Incidental Take Avoidance Measures identified within the SJMSCP.

MM BIO-2: **National Oceanic and Atmospheric Administration Consultation.** Prior to the finalizing the EA, SJRRC will implement all commitments and avoidance and minimization measures identified in the National Marine Fisheries Service Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response issued for the Project on May 17, 2021 (Appendix N). SJRRC will ensure that consultation with the NOAA Fisheries Service for Project effects on designated Critical Habitat for Central Valley steelhead and EFH for Chinook Salmon are finalized and any findings and/or determinations incorporated. SJRRC will implement a crossing type for the structure spanning the Mormon Slough that will retain a natural substrate stream channel bottom as part of this consultation. In addition, SJRRC will avoid the use of rip-rap to armor the channel at this location.

MM BIO-3: **Mitigation for Aquatic Resources.** During final design, SJRRC will ensure that temporary Project effects on aquatic resources associated with the Mormon Slough will be restored in-place and permanent Project effects on aquatic resources to the Mormon Slough will be mitigated at a minimum 1:1 ratio. Mitigation can include on-site restoration, in-lieu fee payment, or purchase of mitigation credits at an agency-approved mitigation bank.

MM BIO-4: **Compliance with Permitted Mitigation Measures.** Prior to construction, SJRRC will obtain all required permits and authorizations for Project effects on the Mormon Slough, which may include the preparation and submittal of the following applications:

- Pre-Construction Notification to USACE to use a Nationwide Permit for any Project effects on Waters of the US subject to Section 404 of the federal Clean Water Act.
- Water Quality Certification Application to Central Valley RWQCB for any Project effects on Waters of the US subject to Section 401 of the federal Clean Water Act.
- Streambed Alteration Agreement Notification to CDFW

MM BIO-5 **Preparation of Formal Jurisdictional Delineation.** During final design, SJRRC will ensure that a formal field-delineation of aquatic resources the Project, to be verified by the regulatory agencies, will be conducted in order to confirm the exact extent of jurisdictional resources affected by the Project.

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3.16 Cumulative Effects

This EA provides an analysis of the Project's cumulative effects, meaning the impact on the environment that results from the incremental impact of the Project when added to other past, present, and reasonably foreseeable future actions (40 CFR 1508.7). The purpose of this analysis is to identify cumulative effects of the Project Alternatives, analyze these effects, and determine whether the overall effects of the Project would be adverse when aggregated with the effects of other past, present, and reasonably foreseeable future actions in the cumulative RSA.

This section discusses cumulative effects for the following resources assessed for direct and indirect effects in this EA that have the potential for an adverse level of effects without the implementation of mitigation, and thus could make a meaningful contribution to a cumulative effect on the resource:

- Section 3.1, Land Use and Planning
- Section 3.3, Relocations and Real Property Acquisitions
- Section 3.14, Noise and Ground-borne Vibration
- Section 3.15, Biological Resources

Specific effects within each of these sections of the EA were analyzed for cumulative effects. For example, for the *Land Use and Planning* resource, the only potentially adverse effects that require mitigation are related to the Project's consistency with the City's General Plan Land Use Element. Thus, only land use conversions were analyzed for cumulative effects. For a description of the Project's effects on these resources, refer to the *Environmental Consequences* subheading in each section referenced, above.

The following resources analyzed in the Final EA may result in an effect to the environmental resource; however, the effect would not be adverse due to the incorporation of specific BMPs, and thus no mitigation is proposed. Since these environmental resource levels would not rise to the level of adverse effects with the incorporation of BMPs, the associated contribution of the Project to the overall cumulative effects would be considered negligible and thus these resources are not discussed further in this cumulative effects section.

- Section 3.2, Community Effects and Growth
- Section 3.4, Parks and Recreation and Section 4(f) Resources
- Section 3.5, Environmental Justice
- Section 3.6, Utilities and Emergency Services
- Section 3.7, Traffic, Transportation, Pedestrian, and Bicycle Facilities
- Section 3.8, Visual Quality and Aesthetics
- Section 3.9, Cultural Resources
- Section 3.10, Hydrology, Floodplains, and Water Quality
- Section 3.11, Geology, Soils, Seismicity, and Paleontology
- Section 3.12, Hazardous Waste and Materials
- Section 3.13, Air Quality

3.16.1 REGULATORY SETTING

A list of applicable federal, state, and local laws, regulations, and orders that are relevant to the analysis of cumulative effects is provided below.

Federal Plans, Policies, and Regulations

National Environmental Policy Act (42 U.S.C. §§ 4321 et seq.)

CEQ NEPA Regulations (40 CFR 1508.7)

State Plans, Policies, and Regulations

There are no applicable state plans, policies, or regulations related to this resource topic.

Local Plans, Policies, and Regulations

There are no applicable local plans, policies, or regulations related to this resource topic.

A detailed discussion of the content under these applicable federal, state, and local laws, regulations, and orders is provided in Appendix B of this EA. Additionally, a discussion of the Project's consistency with these applicable federal, state, and local laws, regulations, and orders is provided in Table B-1 in Appendix B.

Based on the consistency analysis in Table B-1, the Project is consistent with all applicable federal, state, regional and local plans, policies, and regulations identified.

3.16.2 AFFECTED ENVIRONMENT

Resource Study Areas

A geographic cumulative RSA was established for each resource analyzed for cumulative effects, as identified in the resource-specific discussions below. This approach was used because different resources can experience cumulative effects in very different geographic boundaries. For example, cumulative air quality effects would occur within the air basin, while cumulative effects to historic properties could be experienced in the much smaller area of downtown Stockton. The overall cumulative effects geographic analysis area is the sum of, or largest of, the individual resource cumulative RSAs. The cumulative geographic RSA is shown in Figure 3.16-1.

Condition of the Cumulative Effects Study Area

Two major features of the Project Study Area have shaped its history and development strongly: the Mormon Slough and the railroad. Development in the Project Study Area and corresponding changes to its physical environment dates back to the 1850s.

The Project Study Area and immediate surroundings are just outside the area initially incorporated as the City of Stockton in 1850. By 1870, most of the Project Study Area had been incorporated into the city limits and industrial and commercial growth expanded along the Mormon Slough. Growth in this area was difficult to manage as the Mormon Slough experienced periodic flooding that damaged farms, homes, and businesses along its banks. Attempts to control flooding in the late nineteenth and early twentieth centuries left the slough dry most of the year, except during periods when it carried stormwater. Several plans to fill in the slough for use as industrial yards or the crosstown highway were considered in the 1950s. After a large storm flooded extensive areas of South Stockton in 1955, the Mormon Slough's importance as a drainage feature became better understood (Historic Resource Inventory and Evaluation Report 2021). The Mormon Slough area has been subject to residential, industrial, and commercial development and disturbance since before 1870, and has been flooded repeatedly over the years.

The Central Pacific Railroad laid its first tracks in the Stockton area along Sacramento Street, just outside the city limits, spurring an expansion of the city limits in 1870 to bring the railroad into the city. The first train arrived in Stockton in August of 1869, marking the beginning of the major rail presence in Stockton today. In addition to many local rail lines, by the early twentieth century, Stockton was the only city on the west coast with three transcontinental rail depots (Historic Resource Inventory and Evaluation Report 2021). Industrial and commercial development along the railroad corridors that make up much of the Project Study Area has been ongoing since the late 1860s.

As described in resource-specific affected environment sections earlier in Chapter 3, much of the immediate Project Study Area is highly disturbed and has a long history of rail-related development. It is against this backdrop that the cumulative effects of the Project are considered.

Related Projects/Actions

The list of projects presented in Table 3.16-1 represents current and reasonably foreseeable planned or programmed future projects used for this cumulative analysis. No past projects were found necessary for consideration. The projects considered affect the same general geographic area—the rail transportation corridor in the downtown Stockton area—as shown in Figure 3.16-1, and consist of major transportation and infrastructure projects. Effects from these projects are considered reasonably foreseeable and have a reasonably close causal relationship with the Project. No formally planned or approved private development projects exist within this area.

For the purposes of this discussion, the projects that may have a cumulative effect on the resources in the RSA will often be referred to as the "cumulative projects." The projects in Table 3.16-1 are not intended to be an all-inclusive list of current and reasonably foreseeable projects in the broader region. Instead, they consist of larger projects approved or planned in the downtown Stockton rail corridor area that may affect the same resources or geographic area as the Project and have a reasonably close causal relationship to the Project, and thus may contribute to cumulative effects. The locations of these projects are depicted in Figure 3.16-1.

Environmental documentation for the Cabral Station Expansion Project, (GPA 2020) and the Cabral Station Track Extension Project, (AECOM 2019) was reviewed and used in the cumulative analysis below. An effort was made to locate environmental documentation for the Stockton Wye Project, by reviewing CEQAnet and other web-based information sources, as well as checking with individuals associated with the project; however, no environmental documentation could be found. Because this is a freight railroad project, it is assumed that an exemption applied. Additionally, environmental documentation has not yet been prepared for the Stockton Main Street Complete Streets Project, Therefore, this analysis makes logical presumptions about the likely impacts of these projects based on the available information known to date, the types of fairly standard projects that are contemplates, and aerial and ground-based photography, which was used to evaluate the environmental conditions at the locations of these two projects.

Figure 3.16-1: Cumulative Effects Resource Study Area and Projects Considered for Cumulative Effects

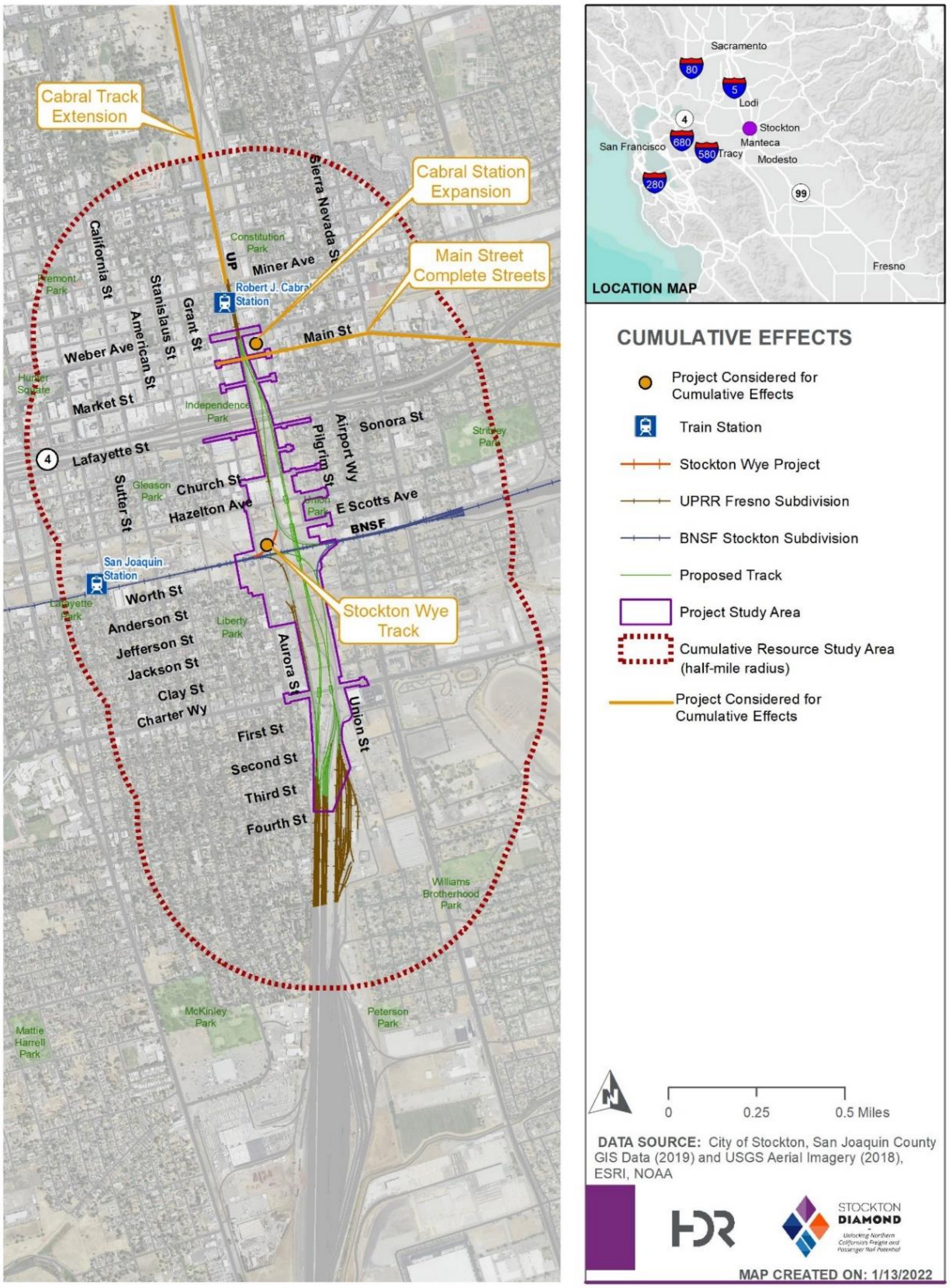

Table 3.16-1: Projects Considered for Cumulative Effects Analysis

Project Title	Project Description	Location	Schedule
Stockton Wye Track	New wye connection between BNSF Stockton Sub and UP Fresno Sub in northwest quadrant of existing Stockton Diamond (MP 1120.7) and new crossovers between MP 1120.8 and MP 1121.0	MP 1120.7 – northwest quadrant of existing Stockton Diamond. Project is entirely subsumed within the Stockton Diamond Project Study Area.	Currently in final design with construction scheduled to begin in late 2022.
Cabral Track Extension	Construction of an additional rail line between the ACE Rail Maintenance Facility and the Robert J. Cabral Station. The project also includes modifications to two at grade crossings at Oak and Park Streets in Stockton.	Between ACE Rail Maintenance Facility located on Alpine Avenue and Robert J. Cabral Station, which is on Channel Street.	Construction is scheduled to begin in Spring 2022.
Main Street Complete Streets	Rehabilitating Main Street using Measure K funding. Improvements include implementation of lane reductions, installation of bicycle facilities, and upgrading/repairing existing curb ramps and failing sidewalks, and signal modifications at signalized intersections.	Main Street from Aurora Street to the City limits near State Route 99.	Currently in early planning stages. Construction will likely occur in Summer 2026.
Cabral Station Expansion	Expansion of the Robert J. Cabral Station includes construction of a new Western Pacific Depot building, a reconfigured new parking lot and typical site fencing, lighting, and landscaping improvements. The Project intends to add approximately 200 new parking spaces. Two existing site ingress/egress access locations on Weber Avenue and Main Street would be reconstructed.	Project site is bounded on the north by East Weber Avenue, on the east by North Union Street, on the south by East Main Street, and on the west by the UP railroad tracks.	Construction of Phase I would begin in Summer 2023. Phase 2 construction would be completed in early 2024.

3.16.3 CUMULATIVE EFFECTS ANALYSIS

No Action Alternative

Under the No Action Alternative, the Project would not be implemented. However, continued planned growth and development in the area would still occur within the cumulative RSA. As a result, cumulatively considerable long-term adverse effects on traffic and transportation related to mobility, access, and safety would occur. Additionally, due to the degradation of LOS along existing intersections within the cumulative RSA, automobile and emergency services delays along local streets would also occur. These deficiencies, over time, would cause a decrease in vehicular efficiency and dependability, degrade future ACE and San Joaquins rail operation services, and would not result in needed improvements to existing pedestrian and bicycle access within the cumulative RSA. Further, the four other cumulative projects considered in this analysis would be implemented; and thus, would contribute to adverse effects as described in the resource sections below. Therefore, as a whole, these resources would continue to deteriorate under the No Action Alternative.

Project

Land Use and Planning

The cumulative RSA for land use designation is defined by the Project Study Area and a half-mile buffer. The half-mile buffer is incorporated because land use and zoning designations located within this RSA would be reasonably expected to experience potential similar effects during construction and operation of each of the projects.

Within the *Land Use and Planning* resource category, the Project's potential moderate, adverse, long-term effects on land use are limited to land use conversion. A total of 10.87 acres of land zoned General Industrial would be converted to transportation use under the Project, reducing available industrial land use in the area. However, with the implementation of Measure MM LU-1, described in Section 3.1, *Land Use and Planning,* these potential moderate adverse effects would be mitigated, and the Project would not result in direct or indirect, long-term, adverse effects to land use and planning.

The Cabral Station Expansion Project would not result in changes to land use and no zoning effects would occur. Except for two small, temporary construction easements, the Cabral Station Track Extension Project would take place entirely within railroad ROW and would have no land use conversion or zoning effects. The Stockton Wye Project area is owned by UP and no land use conversion would be required. The Main Street Complete Streets Project would be designed to improve the walking and biking experience along Main Street and would not be likely to require land use conversions or zoning changes. None of the cumulative projects listed in Table 3.16-1 would appear to require land use conversion or result in zoning effects, and there would not be an overlap of these type of land use and zoning effects within the Project Study Area. Therefore, the Project, in combination with the other current and planned projects, would not result in cumulative effects under NEPA as it relates to land use conversion under the *Land Use and Planning* resource category.

Relocations and Real Property Acquisitions

The cumulative RSA for *Relocations and real Property Acquisition* is defined by the Project Study Area and a half-mile buffer surrounding the Project. The half-mile buffer is incorporated because communities and housing located within the buffer could experience potential property acquisition and relocation effects from the related cumulative projects during construction and operation of any of the projects.

The Project would displace seven active businesses, which would require relocation. However, with implementation of Measure MM RLC-1, described in Section 3.3, *Relocations and Real Property Acquisitions*, these potential direct, long-term, moderate adverse effects on the community will be mitigated. Additionally, as discussed in Section 3.3, remnant portions of existing parcels may result from the permanent acquisitions of the Project. However, with the implementation of Measure MM RLC-2, these potential indirect, long-term, moderate adverse effects will be mitigated. Therefore, with the implementation of Measure MM RLC-1 and MM RLC-2, no direct or indirect, long-term moderate adverse effects would occur under the Project.

Neither the Cabral Station Expansion Project nor the Cabral Station Track Extension Project would require any real property acquisition or relocation. The track extension would require two small, permanent easements, but these would not result in business replacements or relocation. The Stockton Wye Project area is vacant of structures and does not support any active business or industrial use. No relocation or property acquisition would be necessary to construct the Stockton Wye. The Main Street Complete Streets Project goal of improved walking and biking along Main Street would not likely be of the scale to require business relocations. None of the current or planned projects identified under the cumulative condition would result in business displacement or relocation; thus, no additional relocations within the cumulative RSA would occur. Therefore, the Project, in combination with future and planned projects identified in Table 3.16-1, would not result in cumulative effects under NEPA as it relates to *Relocations and Real Property Acquisitions*.

Noise and Ground-borne Vibration

The cumulative RSA for noise and vibration is the same area which was considered in the analysis presented in Section 3.14, *Noise and Ground-borne Vibration*. It is sufficiently broad to cover the area in which the potential noise and ground-borne vibration effects of the Project, in combination with other projects identified in Table 3.16-1, could result in cumulative effects. The noise and ground-borne vibration RSA for construction and operations includes the Project Study Area and all sensitive receptors that could be exposed to noise and ground-borne vibration effects from the Project, as well as those noise and ground-borne vibration effects from the Project in combination with any of the cumulative projects. In particular, the noise analysis models noise from all sources at each of the receptor locations identified in Section 3.14 and, as a result, is an inherently cumulative analysis.

As discussed in Section 3.14, *Noise and Ground-borne Vibration*, the Project would result in a severe long-term adverse noise effect. No adverse effects due to ground-borne vibration are anticipated to occur.

The Cabral Station and Cabral Station Track Extension Projects are located outside the cumulative RSA for noise impacts, and thus do not have a geographic overlap with the noise impacts caused by the Project and will not contribute to the combined cumulative noise impacts. However, in the interest of disclosure and discussion, even if the projects were considered there would not be a cumulatively adverse noise and vibration impact for the reasons discussed below.

Based on the Cabral Station Project environmental documentation, the Cabral Station Expansion Project would not introduce substantial stationary noise sources (e.g., mechanical equipment), nor would it increase the capacity of the roadways or substantially change traffic circulation in the Project Study Area. Given this, Cabral Station Expansion Project operation would not substantially increase noise levels beyond existing conditions. Construction activities would comply with applicable noise standards, including criteria for trains established by the FTA (FTA 2018) and local noise regulations.

Operation of the Cabral Station Track Extension Project would not result in adverse noise effects. Based on modeling results, the proposed track extension would not cause any effects at existing noise-sensitive uses in the project area due to ambient noise levels. The measured ambient noise level and the project-related calculated noise levels are the same. While the Project would result in the relocation of track 20 feet closer to noise-sensitive uses, the noise levels from operation of morning and afternoon ACE trains would not cause any increase over existing train noise in the Project Study Area. This is because the dominant noise source would still be the main railway track with higher volume freight train operations during the 24-hour period. Construction activities for the Cabral Station Track Extension Project would be limited to daytime hours in compliance with local noise regulations and minimization measures are in place to ensure that any potential effects would be reduced and there would be no short-term adverse noise effects.

Construction of the Stockton Wye Project would include some noise generating activities but, like the other projects, would require compliance with local noise regulations that limit construction to daytime hours. In addition, construction is limited to a small area and any construction noise effects would not be widespread. The Stockton Wye construction activities will be located geographically to the west of the Project-related construction activities and will be entirely within railroad ROW. No residential areas or other noise sensitive uses are in close proximity to the Stockton Wye Project. The Stockton Wye noise generating activities would therefore be further removed from the sensitive noise receptors analyzed in relation to the Project. For these reasons, the Stockton Wye project is not likely to contribute more than minimally to the short- or long-term adverse noise effects in combinations with the Project.

Current information indicated that the Main Street Complete Streets Project is not slated to begin construction until the summer of 2026. As such, construction activities would have no short-term noise or vibration overlap with the Project. Even if there were some overlap in timing, the Main Street Complete Streets Project would likewise be required to comply with local noise regulations that limit construction to daytime hours and would include similar minimization measures to reduce any potential construction noise effects to avoid any short-term adverse effects. Based on the information that could be learned about this future project, no new traffic lanes are anticipated to be constructed as part of the Main Street Complete Streets Project (traffic volumes and noise would likely remain the same), so long-term noise from operation of the project would remain unchanged from the current conditions.

With the implementation of Measure MM NV-3, the severe long-term noise effects under the Project will be mitigated, and no direct or indirect, long-term, moderate adverse effects would occur under the Project. Additionally, for the reasons discussed above, the other cumulative projects will not (or are not anticipated to) have a cumulatively adverse noise impact. Although, the implementation of similar types of required minimization and mitigation measures for CEQA and NEPA compliance may still yield minimal cumulative contributions of noise effects in the cumulative RSA, when considering the contributions of the four cumulative projects identified in Table 3.16-1, these minimal cumulative effects from these other projects would not result in adverse cumulative noise effects in combination with the Project. Therefore, no adverse cumulative noise effects are anticipated at sensitive receptors during operations of these projects.

Biological Resources

The four projects included in Table 3.16-1 are all planned relatively close to the Project; therefore, the cumulative RSA for habitat, special-status species, aquatic resources, and wildlife movement corridors is similar to the RSA used for the Project. However, rather than a 0.25-mile buffer, the cumulative RSA includes the Project Study Area plus a 0.5-mile buffer. The cumulative RSA was selected to allow a broad consideration of cumulative effects and to capture potential effects on biological resources associated with construction and operations of the cumulative projects identified in Table 3.16-1.

As discussed in Section 3.15, short-term and long-term adverse effects to special-status species, such as burrowing owl, Swainson's hawk, white-tailed kite, migratory birds and raptors, and bats covered under the SJMSCP will be mitigated with the implementation of Measure MM BIO-1, which requires the Project to implement mitigation in the form of compliance with applicable ITMM identified in the SJMSCP. With the implementation of Measure MM BIO-1, no direct or indirect, short-term or long-term, moderate adverse effects on special-status species are anticipated from the Project.

In addition, although the Project would not affect the water quality of habitat areas downstream, the Project would result in potential short-term and long-term adverse effects on Central Valley steelhead critical habitat and Chinook salmon EFH due to the construction and permanent installation of the Mormon Slough crossing structure. These potential short-term and long-term adverse effects will be mitigated with the implementation of Measure MM BIO-2, which requires implementation of all commitments and avoidance and minimization measures identified during Section 7 consultation. With the implementation of Measure MM BIO-2, no direct or indirect, short-term or long-term, moderate adverse effects would occur from the Project.

During construction, the Project would result in short-term effects of up to 0.33 acre of potential non-wetland waters of the US. However, with the implementation of Measure MM BIO-3 these potential short-term adverse effects on jurisdictional waters and EFH will be mitigated. Further, the Project would also cause long-term effects on up to approximately 0.04 acre of potential jurisdictional waters of the US. However, with the implementation of Measures MM BIO-3 through MM-BIO-5, these potential long-term adverse effects will be mitigated. Therefore, with the implementation of Measures MM BIO-3 through MM BIO-5, no direct or indirect long-term moderate adverse effects on jurisdictional waters and EFH would result under the Project.

The Cabral Station Expansion Project area is entirely developed and immediately surrounded by residential, commercial, and industrial properties, and there are no natural areas or suitable habitat for special-status species within the project area. The project would require the removal of six trees and a tree removal permit would be required from the City. Tree removal for the Cabral Station Expansion Project would be completed outside of the nesting season (identified in the project document as February 1 to September 1), to the extent feasible, to avoid effects on migratory birds or their nests or eggs. Measures to minimize effects to migratory birds are in place should tree removal need to be conducted within the nesting season

The Cabral Station Track Extension Project is also situated in an urban, developed area. There are no wetlands on site and species richness is anticipated to be low and consist of generalist species such as rock doves, house sparrows, starlings, opossums, raccoons, and striped skunk. No trees would be removed for the track extension, and no effects to migratory birds, nests, or eggs are anticipated.

The Stockton Wye Project area has been graded and is completely devoid of vegetation. It is used primarily by transient populations, at least on an occasional basis. It does not appear to support wetlands and provides no suitable habitat for special-status species or migratory birds. The Mormon Slough would not be affected. Given the condition of the site, sensitive biological resources would not be affected by the Stockton Wye Project.

The Main Street Complete Streets Project is in a fully urbanized location characterized by streetscape and sidewalks. It is not anticipated that wetlands or special-status species would be present, and thus no impacts to sensitive biological resources would occur.

Although the implementation of similar types of required minimization and mitigation measures for CEQA and NEPA compliance may still yield minimal cumulative contributions of biological resource effects in the cumulative RSA when considering the contribution of impacts from the Cabral Station Expansion and Track Extension Project, this minimal contribution would not result in adverse cumulative effects on biological resources in combination with the Project.

3.16.4 CONCLUSION

Project environmental resources issues with the potential for adverse effects were evaluated in the cumulative effects analysis. These Project effects were reviewed for cumulative effects in combination with the environmental effects on the same resource issues of other large, planned or programmed projects in the Project cumulative RSA. Resource-specific results from this analysis are described above.

Based on the review of available documentation for the Cabral Station Extension Project and the Cabral Track Extension Project, in addition to reasonable assumptions about the as-yet undocumented Stockton Wye Project, and Main Street Complete Streets Project, the Project would not further contribute to the cumulative adverse effects identified under the same resource issues for these projects in the cumulative RSA, either because the cumulative projects when combined with the Project have such a minimal total level of effect, and/or that one or more of the cumulative projects do not overlap, either geographically or in construction timing with the Project Study Area.

No adverse cumulative effects were identified for land use conversion under the resource category of *Land Use and Planning*, for relocations and property acquisitions under the resource category *Relocation and Real Property Acquisition*, for long-term severe noise effects under the resource category of *Noise and Ground-borne Vibration*, or for short-term and long-term effects on sensitive biological habitat, species, and jurisdictional resources, under the resource category of *Biological Resources*.

As stated previously in this section, although the implementation of similar types of required minimization and mitigation measures for CEQA and NEPA compliance would still yield minimal cumulative contributions of land use, relocations and real property acquisitions, noise, and biological resources effects in the cumulative RSA when considering the contributions of the four cumulative projects identified in Table 3.16-1, overall these minimal cumulative effects from these other projects would not result in adverse cumulative effects for these resources in combination with the Project. Thus, the Project would result in no adverse cumulative effects.

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4 Public Input and Agency Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and level of analysis required, as well as identify potential adverse effects and identify BMPs or mitigation measures to best ameliorate these adverse effects. Agency and tribal consultation and public participation for the Project have been accomplished through a variety of formal and informal methods, as described below.

4.1 Consultation and Coordination with Public Agencies and Tribal Governments

4.1.1 NATIVE AMERICAN CONSULTATION TO DATE

Table 4.1-1 documents the current status of the coordination and consultation that has occurred as part of the Project with Native American tribes, groups, and individuals.

Table 4.1-1: Native American Consultation and Coordination

Consulting Party	Timing	Activity
Native American Heritage Commission	May 8, 2020	**Sacred Lands File records search.** A Sacred Lands File search was requested from the NAHC on May 8, 2020, to identify sensitive or sacred Native American resources that could be affected by the Project. The NAHC responded on May 12, 2020, and reported that the search of the Sacred Lands File revealed positive results for the relevant area. No additional information on the location or nature of the positive finding was provided; however, the NAHC recommended that the North Valley Yokuts Tribe be contacted for more information. Because the search does not include an exhaustive list of Native American tribal cultural resources, the NAHC provided a list of two Native American tribal organizations who may have direct knowledge of tribal cultural resources in or near the APE: • North Valley Yokuts Tribe – Katherine Perez • The Confederated Villages of Lisjan – Corrina Gould
North Valley Yokuts Tribe	December 2020	**Section 106 Consultation.** Representatives of CHRSA met with a representative of the North Valley Yokuts Tribe in January and February 2021, respectively. BMP Measures to ensure proper treatment of any inadvertent discoveries of interest to tribal representatives during Project construction activities were discussed and have since been agreed to. These BMP measures are presented in Table 3.9-3 in Section 3.9, *Cultural Resources*. For detailed information regarding the Project's Section 106 efforts, please refer to Appendix H of this Final EA.

Consulting Party	Timing	Activity
Confederated Villages of Lisjan Tribes	December 2020	**Section 106 Consultation.** Representatives of CHRSA met with a representative of the Confederated Villages of Lisjan in January and February 2021, respectively. BMP Measures to ensure proper treatment of any inadvertent discoveries of interest to tribal representatives during Project construction activities were discussed and have since been agreed to. These BMP measures are presented in Table 3.9-3, in Section 3.9, *Cultural Resources*. For detailed information regarding the Project's Section 106 efforts, please refer to Appendix H of this Final EA.

4.1.2 RESOURCE AGENCY CONSULTATION TO DATE

Project development includes coordination with various regulatory agencies regarding specific resources under the jurisdiction of these agencies. A summary of these consultation activities is provided below.

- **National Marine Fisheries Service:** As discussed in Section 3.15, *Biological Resources*, at one time NMFS had designated the Calaveras River and the Mormon Slough as critical habitat for Central Valley steelhead. Additionally, NMFS information indicated that EFH for Chinook salmon occurs within the Project area. Informal Section 7 consultation was initiated with NOAA on February 25, 2021. NMFS issued a "not likely to adversely affect" determination for the Project on May 17, 2021, with regard to Central Coastal valley steelhead and its critical habitat and the southern distinct population segment of North American green sturgeon and its critical habitat. It also determined that the Project would have "no adverse effect" on EFH for chinook salmon or groundfish. The NMFS Concurrence Letter is provided in Appendix N.
- **San Joaquin Council of Governments:** The Project team coordinated with SJCOG, the agency responsible for the management of the SJMSCP, on the Project's potential participation in the Plan. SJMSCP provides compensation for open space conversion and streamlined coverage for regional special-status species under state and federal law. Participation in SJMSCP is limited to special-status species coverage and does not rule out the need for other permits. On October 28, 2020, the Project team contacted SJCOG to determine Project eligibility in SJMSCP and determined that the Project is eligible to participate. In December 2020, SJRRC began to coordinate with the SJCOG for the Project to participate in the SJMSCP. SJJRC, in coordination with CHSRA, will submit the application after approval of this Final EA.
- **The City of Stockton:** A TCE of Union Park is required for construction access associated with Project implementation. For the purposes of Section 4(f), this TCE would be considered a temporary occupancy exception of use for the park property, consistent with 23 CFR 774.13(d). On April 9, 2021, SJRRC and CHSRA sent the City of Stockton, the OWJ over the property, a letter requesting concurrence with the preliminary determination that the TCE at Union Park would be considered a temporary occupancy exception of use for the park property and not result in a Section 4(f) use of Union Park. The concurrence letter from the City of Stockton was received on September 9, 2021. The City of Stockton's written concurrence has been used by CHSRA in its preliminary determination of the temporary occupancy exception of Section 4(f)

use for Union Park. For a detailed discussion of all potential Section 4(f) and 6(f) resources, please refer to the Section 4(f) and Section 6(f) Evaluation in Appendix D of this Final EA.

- **Office of Historic Preservation:** CSHRA, as NEPA Lead Agency, has determined that the Project would have no adverse effect on historic properties within the APE. The project FOE Report was submitted to SHPO on August 4, 2021; an Addendum to the FOE Report was submitted in November 2021. SHPO agreed with the project finding of no adverse effect on December 9, 2021, given the Project BMPs identified in Table 3.9-3, in Section 3.9, *Cultural Resources*, would be incorporated as part of the Project. The FOE and SHPO concurrence information has been provided in Appendix H of this Final EA. For the purposes of Section 4(f), CHSRA has used SHPO's written concurrence in the FOE to preliminarily determine that the temporary construction areas in the eastern edge of the Stockton Downtown Commercial Historic District, which are necessary for utility relocation, protection in place, and/or removal, as described in Appendix D, would have *de minimis* impacts. On April 11, 2022, CHSRA informed SHPO per CFR 774.5(b)(1) of its intent to make a preliminary *de minimis* impact determination based on SHPO's December 9, 2021, concurrence on the Section 106 finding of "no adverse effect." For a detailed discussion of all potential Section 4(f) properties, refer to the Section 4(f) and 6(f) Evaluation in Appendix D of this Final EA.

Table 1.6-1, in Chapter 1, *Project Description*, includes permits, reviews, and approvals that will be required prior to the construction of the Project.

4.1.3 COMMUNITY OUTREACH TO DATE AND PLANNED PUBLIC INVOLVEMENT

Project Development Team Meetings

Since April 2020, concurrent with the concept development and screening process, the Project team has implemented monthly meetings with the PDT as well as several focus meetings as needed to address specific topics or issues. The PDT consists of the representatives from SJRRC, SJCOG, and the City of Stockton. PDT meetings will continue on a monthly basis throughout the Final EA process.

Public Participation

As discussed above, PDT meetings between representatives from SJRRC, SJCOG, and the City of Stockton have been held to discuss the status of the Project through the process of the Project EIR. Although there were extensive public outreach efforts and stakeholder and public participation during the public scoping period and public circulation period for the Draft EIR, the Project team also held additional public meetings and workshops for the Draft EA, in addition to conducting an equally extensive public outreach effort throughout the EA process. A summary of the public outreach activities conducted for the purposes of the Draft EA is provided, below.

Project promotion activities as part of the Draft EA included distribution of a bilingual mailer to the Project contact database consisting of 5,725 regional stakeholders and property owners located within a 1-mile radius of the Project Study Area; bilingual newspaper advertisements in the Stockton Record, published on March 28, 2022, and in the Latino Times April 2022 edition along with the NOA; seven electronic notifications to the stakeholder database and to ACE ridership; bilingual posts on ACE's social media platforms; one press release distributed to media outlets; bilingual poster and flyer distributions to various stakeholder locations; the availability of a dedicated Project website (stocktondiamond.com) and information hotline (209) 235-0133; and 12 physical repository locations where the Draft EA was available for review during the 30-day public circulation period, provided under Section 4.2.

Several stakeholder and public meetings were conducted prior to and during the 30-day public review and comment period for the Draft EA from March 28 to April 27, 2022. These meetings are summarized, below.

- **Stakeholder Working Group Meeting:** A stakeholder working group meeting was held on Wednesday, March 2, 2022, from 11:30 am to 1:30 pm at the Rail Maintenance Facility, located at 1020 East Alpine Way, Stockton, CA 95204. A total of 13 stakeholders attended the meeting (10 in-person and three virtually) along with the Project team. General themes included interest in an underpass extension to Union Street, incorporation of vegetative/natural barriers, Project noise impacts (including the application of potential window insulation), aesthetics (more lighting), types of construction materials used for the Project, greenhouse gas emissions as a result of the Project, and further public outreach/public meeting details. Following the meeting, attendees were given a tour of the rail facility.
- **Neighborhood Meet-and-Greet:** A neighborhood meet-and-greet was held on Tuesday, April 5, 2022, from 4:30 pm to 6:00 pm at El Concilio, located at 224 South Sutter Street, Stockton, CA 95202. A total of 13 property owners and stakeholders attended the meeting. General themes included interest in the incorporation of public art (murals, sculpture pads, paying artists) and concerns about existing unhoused population issues within the area.
- **Bilingual Public Open House:** A bilingual Public Open House was held on Wednesday, April 6, 2022, from 4:30 pm to 6:00 pm at the Stribley Community Center, located at 1760 East Sonora Street, Stockton, CA 95205. A total of 20 property owners and stakeholders attended the meeting. General themes included feedback on the benefits the Project would provide, the consideration of public art (murals and sculptures) as part of the Project, consideration of disenfranchised regions/environmental justice communities and unhoused population within and adjacent to the Project Study Area, aesthetics (specifically the consideration of incorporating solar lights), incorporation of greenery/vegetative barriers as part of the Project, noise and air quality concerns related to the Project, the potential to incorporate community improvements (in places like parks), and additional information regarding public outreach during all phases and into construction. Overall, the bilingual Open House received support on the Project.
- **Stockton Rotary Club Presentation:** A presentation at the Stockton Rotary Club was held at 12:00 pm on April 20, 2022, at the Stockton Golf & Country Club, located at 3800 Country Club Boulevard, Stockton, CA 95204. Approximately 30 members attended the meeting. General themes included questions about funding, property impacts, local road impacts, construction schedule, and the flyover structure type selection.

4.2 Public Review of the Draft Environmental Assessment

The Draft EA and an NOA were distributed to local agencies, regional agencies, and utility providers affected by the Project on March 28, 2022, as identified in Appendix O, *Distribution List*, of this Final EA. The NOA was also posted with San Joaquin County Clerk on March 28, 2022. A copy of the stamped and posted NOA with the San Joaquin County Clerk is provided in Appendix P of this Final EA.

In addition, property owners directly affected by the Project have been provided with the same notifications of the availability of the Draft EA document and public meeting information. As stated above, there was a 30-calendar day public review period for the Draft EA.

In addition to posting the electronic version of the Draft EA on the SJRRC website, printed copies of the Draft EA and electronic copies of the associated technical report included in the appendices were available for review at the following locations during hours the facilities are open (open days/hours may be reduced for compliance with coronavirus public health and safety directives):

- 345 N. El Dorado Street, Stockton, CA 95202 (City of Stockton Community Development Office)
- 555 E Weber Avenue, Stockton, CA 95202-2804 (San Joaquin Council of Governments)
- 605 N. El Dorado Street, Stockton, CA 95202-1907 (Cesar Chavez Central Library)
- 502 W. Benjamin Holt Drive, Stockton, CA 95207 (Margaret K. Troke Branch Library)
- 2324 Pock Lane, Stockton, CA 95205-7821 (Maya Angelou Branch Library)
- 1760 E Sonora Street, Stockton, CA 95205 (Stribley Micro Library)
- 2370 E Main Street, Stockton, CA 95205 (Fair Oaks Branch Library)
- 1453 W. French Camp Road, Stockton, CA 95206 (Weston Ranch Branch Library)
- 5758 Lorraine Avenue, Stockton, CA 95210 (Arnold Rue Micro Library)
- 734 Houston Avenue, Stockton, CA 95206 (Van Buskirk Micro Library)

Printed copies of the Draft EA and electronic copies of the associated appendices were also available for review during business hours at CHSRA's Headquarters at 770 L Street, Suite 620 MS-1, Sacramento, CA 95814, and SJRRC's office at 949 E. Channel Street, Stockton, CA 95202. The public was also able to request a copy of the Draft EA and associated appendices by calling (209) 235-0133 or emailing info@StocktonDiamond.com. All comments received on the Draft EA during the 30-day public review period and/or at the open house have been documented, and formal responses to these comments have been provided in Appendix Q of this the Final EA.

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5 List of Preparers

This Final EA was prepared by CHSRA and SJRRC with assistance from the consultant team, HDR. The following individuals were involved in the preparation of this Final EA.

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