



SAN JOAQUIN
REGIONAL
RAIL COMMISSION



San Joaquin
Joint Powers Authority

SCH #2019090306

**Valley Rail
Sacramento Extension Project**

Final Environmental Impact Report

Volume II

September 2020



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San Joaquin Regional Rail Commission

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STATE CLEARINGHOUSE #2019090306

Volume II

September 2020

Prepared for:



SAN JOAQUIN
REGIONAL
RAIL COMMISSION



San Joaquin
Joint Powers Authority

San Joaquin Regional Rail Commission

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List of Acronyms

| | |
|--------------------|---|
| °C | degrees Celsius |
| µg/m ³ | micrograms per cubic meter |
| AB | Assembly Bill |
| ACE | Altamont Corridor Express |
| ACHP | Advisory Council on Historic Preservation |
| ACM | asbestos-containing materials |
| Act | California Wild and Scenic Rivers Act |
| AD | <i>anno domini</i> |
| ADA | Americans with Disabilities Act |
| AGL | above ground level |
| Alquist-Priolo Act | Alquist-Priolo Earthquake Fault Zoning Act |
| ALS | advanced life support |
| amsl | above mean sea level |
| Assembly Bill 32 | California Global Warming Solutions Act of 2006 |
| B.P. | Before Present |
| bgs | below ground surface |
| BLS | basic life support |
| BMP | best management practice |
| BNSF | Burlington Northern Sant Fe |
| C&D | construction and demolition |
| CAA | Clean Air Act |
| CAA | Clean Air Act Amendment |
| CAAQS | California Ambient Air Quality Standards |
| CAFE | Corporate Average Fuel Economy |
| cal | calibrated |
| Cal/EPA | California Environmental Protection Agency |
| CalEEMod | California Emissions Estimator Model |
| Caltrans | California Department of Transportation |
| CAPCOA | California Air Pollution Control Officers Association |
| CARB | California Air Resources Board |
| CBC | California Building Standards Code |
| CCIC | Central California Information Center |
| CCR | California Code of Regulations |
| CDFW | California Department of Fish and Wildlife |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFC | California Fire Code |
| CFR | Code of Federal Regulations |

| | |
|-----------------|---|
| CH ₄ | Methane |
| CHRIS | California Historical Resources Information System |
| CLUP | Comprehensive Land Use Plan |
| CNDDB | California Natural Diversity Database |
| CNEL | community noise equivalent level |
| CNPS | California Native Plant Society |
| CO ₂ | carbon dioxide |
| CPRR | Central Pacific Railroad |
| CPUC | California Public Utilities Commission |
| CRHR | California Register of Historical Resources |
| CRMP | Construction Risk Management Plan |
| CRPR | California Rare Plant Rank |
| CUPA | Certified Unified Program Agencies |
| CVFPB | Central Valley Flood Protection Board |
| CVFPP | Central Valley Flood Protection Plan |
| CWA | Clean Water Act |
| | |
| dB | decibels |
| dBA | A-weighted decibels |
| DDT | dichlorodiphenyltrichloroethane |
| DOC | Department of Conservation |
| DOF | Department of Finance |
| DPM | diesel particulate matter |
| DPR | California Department of Parks and Recreation |
| DPS | Distinct Population Segment |
| DTSC | Department of Toxic Substances Control |
| DWR | California Department of Water Resources |
| | |
| EC | Engineering Circular |
| EFH | Essential Fish Habitat |
| EIR | Environmental Impact Report |
| EMFAC | CARB Emission FACtor |
| EMS | Emergency Medical Services |
| ENEC | East Natomas Education Complex |
| EO | Executive Order |
| EOP | Emergency Operations Plan |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESU | Evolutionary Significant Unit |
| | |
| FAA | Federal Aviation Administration |
| FAR | Federal Aviation Regulation |
| FEMA | Federal Emergency Management Agency |
| FIFRA | Federal Insecticide, Fungicide, and Rodenticide Act |

| | |
|-------------------|--|
| FIRM | Flood Insurance Rate Map |
| FMMP | Farmland Mapping and Monitoring Program |
| FRA | Federal Railroad Administration |
| FSZ | Farmland Security Zone |
| FTA | Federal Transit Administration |
| | |
| g/bhp-hr | grams per brake horsepower-hour |
| GAMAQI | Guide for Assessing and Mitigating Air Quality Impacts |
| General Plan | San Joaquin County 2035 General Plan |
| GHG | Greenhouse Gas |
| GIS | Geographic Information System |
| GWP | global warming potential |
| | |
| H&S | Health and Safety |
| HABS | Historic American Buildings Survey |
| HAPC | Habitat Areas of Particular Concern |
| HI | hazard index |
| HSR | high-speed rail |
| | |
| I-5 | Interstate 5 |
| I-80 | Interstate 80 |
| ICCTA | Interstate Commerce Commission Termination Act |
| IPCC | Intergovernmental Panel on Climate Change |
| | |
| JRP | JRP Historical Consulting Services |
| | |
| K-9 | canine |
| KOP | key observations point |
| | |
| LBP | lead-based paint |
| L _{dn} | day-night sound level |
| L _{eq} | equivalent sound level |
| LESA | Lake and Streambed Alteration Agreement |
| LID | low-impact design |
| L _{max} | maximum sound level |
| LOS | level of service |
| LRT | light rail transit |
| LT | long-term |
| L _v | vibration velocity level |
| | |
| MBTA | Migratory Bird Treaty Act |
| MEI | maximum exposed individual |
| mg/m ³ | milligrams per cubic meter |
| MGD | million gallons per day |

| | |
|--------------------|---|
| MLRA | Major Land Resource Area |
| MMA | Management Agency Agreement |
| MOU | memorandum of understanding |
| mph | miles per hour |
| MPO | Metropolitan Planning Organization |
| MRP | Monitoring and Reporting Program |
| MRZ | Mineral Resources Zone |
| MS4 | Municipal Separate Storm Sewer Systems |
| MTCO _{2e} | metric tons of CO ₂ equivalents |
| MTP/SCS | Metropolitan Transportation Plan/Sustainable Communities Strategy |
| MUTCD | Manual on Uniform Traffic Control Devices |
| | |
| N ₂ O | nitrous oxide |
| NAAQS | national ambient air quality standards |
| NAGPRA | Native American Graves Protection and Repatriation Act |
| NAHC | Native American Heritage Commission |
| NALP | North Area Local Project |
| NCIC | North Central Information Center |
| NCRC&SL | North County Recycling Center and Sanitary Landfill |
| NEHRP | National Earthquake Hazards Reduction Program |
| NEHRPA | National Earthquake Hazards Reduction Program Act |
| NEMDC | Natomas East Main Drainage Canal |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NFIP | National Flood Insurance Program |
| NHL | National Historic Landmark |
| NHPA | National Historic Preservation Act |
| NHTSA | National Highway Traffic Safety Administration |
| NMFS | National Marine Fisheries Service |
| NOA | naturally occurring asbestos |
| NOAA | National Oceanic and Atmospheric Administration |
| NOP | Notice of Preparation |
| NOx | nitrogen oxide |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NRHP | National Register of Historic Places |
| NWI | National Wetlands Inventory |
| | |
| OEHHA | California Office of Environmental Health Hazard Assessment |
| OES | Office of Emergency Services |
| OHP | Office of Historic Preservation |
| OSHA | Occupational Safety and Health Administration |
| | |
| PAH | polycyclic aromatic hydrocarbons |

| | |
|------------------|---|
| PCBs | polychlorinated biphenyls |
| PCJPB | Peninsula Corridor Joint Powers Board |
| PG&E | Pacific Gas and Electric Company |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |
| PM | particulate matter |
| ppb | parts per billion |
| PPDG | Project Planning and Design Guide |
| Ppm | parts per million |
| PPV | Peak particle velocity |
| PQS | Professional Qualification Standards |
| PRC | Public Resources Code |
| Proposed project | Valley Rail Sacramento Extension Project |
| | |
| RCRA | Resource Conservation and Recovery Act |
| RD | Reclamation District |
| RLECWD | Rio Linda/Elverta Community Water District |
| RMP | risk management plan |
| RMS | Root-mean-square |
| ROG | reactive organic gasses |
| ROW | right-of-way |
| RPS | renewable portfolio standard |
| RTA | Rail Transit Agencies |
| RWQCB | Regional Water Quality Control District |
| | |
| SACOG | Sacramento Area Council of Governments |
| SacRT | Sacramento Regional Transit |
| SAFCA | Sacramento Area Flood Control Agency |
| SAFE | Safer Affordable Fuel-Efficient |
| SASD | Sacramento Area Sewer District |
| SB | Senate Bill |
| SC | species of concern |
| SCS | Sustainable Communities Strategy |
| SED | Safety and Enforcement Division |
| SEL | sound exposure level |
| Senate Bill 375 | California Sustainable Communities and Climate Protection Act |
| SFHA | special flood hazard areas |
| SFNA | Sacramento Federal Nonattainment Area |
| SHPO | State Historic Preservation Officer |
| SIP | state implementation plan |
| SJCEMSA | San Joaquin County Emergency Medical Services Agency |
| SJCOG | San Joaquin Council of Governments |
| SJJPA | San Joaquin Joint Powers Authority |
| SJMSCP | San Joaquin County Multi-Species Habitat Conservation Plan |

| | |
|-----------------|---|
| SJRRC | San Joaquin Regional Rail Commission |
| SJVAB | San Joaquin Valley Air Basin |
| SJVAPCD | San Joaquin Valley Air Pollution Control District |
| SLF | Sacred Lands File |
| SMAQMD | Sacramento Metropolitan Air Quality Management District |
| SMUD | Sacramento Municipal Utility District |
| SO ₂ | sulfur dioxide |
| SOI | Secretary of the Interior |
| SPRR | Southern Pacific Railroad |
| SR | State Route |
| SRCSD | Sacramento Regional County Sanitation District |
| SRFCP | Sacramento River Flood Control Project |
| SSC | species of special concern |
| SSHCP | South Sacramento Habitat Conservation Plan |
| SSOA | State Safety Oversight Agency |
| SSPP | System Safety Program Plan |
| ST | short-term |
| SVAB | Sacramento Valley Air Basin |
| SVE | Soil Vapor Extraction |
| SVP | Society of Vertebrate Paleontology |
| SWAT | Special Weapons and Tactics |
| SWPPP | Storm Water Pollution Prevention Plan |
| SWRCB | State Water Resources Control Board (State Water Board) |
| | |
| TAC | toxic air contaminant |
| TCP | Traditional Cultural Properties |
| TMDL | total maximum daily load |
| TOD | transit-oriented development |
| TSCA | Toxic Substances Control Act |
| | |
| U.S.C. | United States Code |
| UAIC | United Auburn Indian Community |
| UCMP | University of California, Berkeley Museum of Paleontology |
| UDA | Urban Development Area |
| ULDC | Urban Levee Design Criteria |
| UPRR | Union Pacific Railroad |
| USACE | U.S. Army Corps of Engineers |
| USCG | U.S. Coast Guard |
| USDOT | U.S. Department of Transportation |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| | |
| VdB | vibration velocity level in decibels |
| VELB | valley elderberry longhorn beetle |

| | |
|------|-----------------------------|
| VMT | vehicle miles traveled |
| VOC | volatile organic compound |
| WDR | waste discharge requirement |
| WPRR | Western Pacific Railroad |

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3.8 Greenhouse Gas Emissions

3.8.1 Introduction

This section describes the regulatory and environmental setting for greenhouse gas (GHG) emissions relevant to the Valley Rail Sacramento Extension Project (proposed project). It also describes the GHG emissions (and therefore contributions to climate change) that could result from implementation of the proposed project, and mitigation measures to address any identified significant impacts, where feasible and appropriate. Appendix B, *Quantification of Criteria Air Pollutant and Greenhouse Gas Emissions, and Energy Use*, contains additional technical information and calculations in support of this section's analysis.

Air quality impacts are discussed separately in Section 3.3, *Air Quality*. The proposed project would not, by itself, contribute significantly to climate change; however, cumulative emissions from many projects and plans all contribute to global GHG concentrations and the climate system. Accordingly, this section considers the proposed project's cumulative contribution to the significant cumulative impact of climate change.

During the public scoping comment period, the following comments relevant to GHG emissions-related impacts were received:

- The Sacramento Metropolitan Air Quality Management District (SMAQMD) requested that the environmental document discuss, quantify, and disclose potential construction and operational GHG emissions, and provide mitigation as appropriate, using the methods identified in Chapter 6 of SMAQMD's Guidance.

The analysis in this section is consistent with the SMAQMD guidance, as well as guidance by San Joaquin Valley Air Pollution Control District (SJVAPCD), the other air district in which the proposed project would be constructed and operated. As further detailed in this section, construction-related and operational emissions associated with the proposed project were estimated using industry-accepted models and methodology. Neither SMAQMD nor SJVAPCD have updated recommended thresholds of significance that reflect the most recent statewide GHG emissions target and goals; potential impacts were analyzed with respect to larger statewide GHG emission reduction goals, where a significant impact would occur if project emissions would obstruct attainment of the targets outlined below.

The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.8.2 Regulatory Setting

Relevant regulatory agencies for air quality include the U.S. Environmental Protection Agency (EPA), California Air Resources Board (CARB), SJVAPCD, and SMAQMD¹. This section

¹ Construction and operations associated with the proposed project would be in San Joaquin and Sacramento counties, which are within the jurisdictional boundaries of the San Joaquin Valley Air Pollution Control District and Sacramento Metropolitan Air Quality Management District, respectively.

summarizes federal, state, regional, and local regulations related to GHG emissions and climate change, and applicable to the project.

3.8.2.1 Federal

There is no federal overarching law specifically related to climate change or the reduction of GHG emissions. EPA is the federal agency responsible for implementing the federal Clean Air Act (CAA). On April 2, 2007, the U.S. Supreme Court held that EPA must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency et al.*, 12 states and cities (including California) along with several environmental organizations sued to require EPA to regulate GHGs as pollutants under the CAA (127 Supreme Court 1438 [2007]); the Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant, and that EPA had the authority to regulate GHGs.

In September 2009, EPA published a Final Rule that requires reporting of GHG emissions from large sources in the U.S. Facilities that emit 25,000 metric tons or more per year of GHG emissions must submit annual reports to EPA. Although this is not a transportation-related regulation, the methodology developed as part of this regulation is helpful in identifying potential GHG emissions.

In December 2009, EPA issued the Final Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. The endangerment finding states that current and projected concentrations of GHGs threaten the public health and welfare of current and future generations. It states that the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare. The Endangerment Finding is the basis for EPA regulation of GHG emissions from motor vehicles.

EPA and the National Highway Traffic Safety Administration (NHTSA) implement the Corporate Average Fuel Economy (CAFE) standards, which regulate GHG emissions and fuel economy for passenger cars and light trucks. Phase 1 of the CAFE standards were implemented for model years 2012 through 2016, and Phase 2 of the CAFE standards address GHG emissions and fuel economy of model years 2017 through 2025. In 2018, the United States Department of Transportation (USDOT) and EPA proposed to amend the existing CAFE standards and establish new standards for model years 2021 through 2026. In 2019, EPA and NHTSA published the "Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program" (84 Federal Register 51310 [September 27, 2019]). The One National Program revokes California's authority to set its own GHG emissions standards, and set zero-emission vehicle mandates in California. Part 2 of the regulations pertaining to emissions standards for model years 2021 through 2026 are still pending.

EPA and NHTSA have implemented Medium- and Heavy-Duty Vehicle GHG Emissions and Fuel Efficiency Standards. The standards were rolled out in two phases: Phase I applied to model years 2014–2018, and Phase 2 applies to model years through 2027. The agencies estimated that the Phase 1 standards would reduce carbon dioxide (CO₂) emissions by about 270 million metric tons, and Phase 2 would lower CO₂ emissions by approximately 1.1 billion metric tons over the lifetime of the vehicles sold under the program.

3.8.2.2 State

Independent of federal requirements, the State of California (State) has adopted its own GHG regulations and emission reduction goals. The following presents a summary of the State's GHG emission targets and related regulations, as well as a summary of key State policies and programs related to emission sources relevant to the proposed project.

Statewide Emission Reduction Targets Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32 and Senate Bill 32, and Executive Orders S-3-05 and B-30-15)

Executive Order (EO) S-3-05 (2005) and Assembly Bill (AB) 32 (2006)

Brought forth in recognition of California's vulnerability to the effects of climate change, EO S-3-05 established progressive GHG emission reduction targets for the State, as follows:

- By 2010, reduce GHG emission to the year 2000 level;
- By 2020, reduce GHG emissions to the year 1990 level; and
- By 2050, reduce GHG emissions to 80% below the 1990 level.

The California Global Warming Solutions Act of 2006, commonly known as AB 32, further detailed and put into law the midterm GHG reduction target established in EO S-3-05 to reduce statewide GHG emissions to 1990 levels by 2020, and created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 also directed CARB to accomplish the following core tasks:

- Establish the statewide goal of reducing GHG emissions.
- Establish a mandatory reporting system to track and monitor emissions levels.
- Develop various compliance options and enforcement mechanisms.

EO B-30-15 (2014) and Senate Bill (SB) 32 (2016)

EO B-30-15 established a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. This emission reduction goal serves as an interim goal between the AB 32 target to achieve 1990 emission levels by 2020, and the long-term goal set by EO S-3-05 to reduce statewide emissions 80 percent below 1990 levels by 2050. In addition, the executive order aligned California's 2030 GHG reduction goal with the European Union's 2030 reduction target that was adopted in October 2014.

SB 32 signed into law the emissions goal of EO B-30-15, extending the provisions of AB 32 from 2020 to 2030, with a new target of 40 percent below 1990 levels by 2030.

EO B-55-18 (2018)

EO B-55-18 acknowledges the environmental, community, and public health risks posed by future climate change. It further recognizes the climate stabilization goal adopted by 194 states and the European Union under the Paris Agreement. Although the United States was not party to the agreement, California is committed to meeting the Paris Agreement goals, and going beyond

them wherever possible. Based on the worldwide scientific agreement that carbon neutrality must be achieved by mid-century, EO B-55-18 establishes a new state goal to achieve carbon neutrality as soon as possible, and no later than 2045; and to achieve and maintain net negative emissions thereafter. The EO charges CARB with developing a framework for implementing and tracking progress towards these goals. EO B-55-18 is only binding on state agencies.

California's Climate Change Scoping Plan

CARB adopted its Climate Change Scoping Plan (Scoping Plan) in December 2008, which outlines California's primary strategies for achieving the GHG reductions required by AB 32. The Scoping Plan encourages local governments to align land use, transportation, and housing plans to minimize vehicle trips.

CARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. The First Update to the Climate Change Scoping Plan: Building on the Framework (2014 Scoping Plan Update) determined that the state was on schedule to achieve the 2020 target. However, an accelerated reduction in GHG emissions would be required to achieve the EO S-3-05 emissions reduction target for 2050.

California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan Update) was driven by the 2030 target (pursuant to SB 32). The 2017 Scoping Plan Update established a plan of action consisting of a variety of strategies to be implemented, rather than a single solution, to achieve the SB 32 emissions target.

Sustainable Communities and Climate Protection Act of 2008 (SB 375)

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) built on the existing framework of regional planning. CARB adopted regional GHG targets for passenger vehicles and light trucks for 2020 and 2035 for the 18 metropolitan planning organizations (MPOs) in California. Under this legislation, each MPO is required to incorporate these GHG emissions targets into the regional transportation planning process, and adopt either a "sustainable communities strategy" or an "alternative planning strategy" as part of its regional transportation plan to identify land use, housing, and transportation strategies that will achieve the regional GHG reduction targets.

Renewables Portfolio Standard

SB 1078, SB 107, EO S-14-08, and SB X1-2 have established increasingly stringent renewable portfolio standard (RPS) requirements for California's utility companies. RPS-eligible energy sources include wind, solar, geothermal, biomass, and small-scale hydro projects.

- SB 1078 required investor-owned utilities to provide at least 20 percent of their electricity from renewable resources by 2020.
- SB 107 accelerated the SB 1078 timeframe to take effect in 2010.
- EO-S-14-08, codified by SB X1-2, increased the RPS further to 33 percent by 2020.
- SB 350 increased the RPS to 50 percent by 2030.
- SB 100 increased the RPS to 60 percent by 2030, and required the State's electricity to come from carbon-free resources by 2045.

These requirements reduce the carbon content of electricity generation and reduce GHG emissions associated with both existing and new development.

Advanced Clean Cars Program/Zero Emission Vehicle Program (AB 1493)

AB 1493, also known as the Pavley regulations, required CARB to adopt regulations by January 1, 2005, that would result in the achievement of the “maximum feasible” reduction in GHG emissions from vehicles used in the state primarily for noncommercial, personal transportation. In 2009, the EPA Administrator granted a CAA waiver of preemption to California, allowing the state to implement its own GHG emissions standards for motor vehicles. California agencies worked with federal agencies to conduct joint rulemaking to approve a new emissions-control program for model years 2017–2025.

The program was implemented through a single package of standards called Advanced Clean Cars (California Code of Regulations [CCR] Title 13, Sections 1962.1 and 1962.2), inclusive of the Low-Emission Vehicle III amendments, the Zero-Emission Vehicle program, and the Clean Fuels Outlet regulation.

As described above under Federal Regulations, the SAFE Vehicles Rule Part One: One National Program, was effective November 26, 2019. Through this ruling, EPA withdrew California’s waiver of preemption and NHTSA finalized regulatory text related to preemption. California and 22 other states have filed suit to challenge the NHTSA preemptive regulations, and California filed suit to challenge EPA’s waiver rescission. Therefore, the future status of these programs is currently speculative.

Building Energy Policies

Title 24, Part 6.

Title 24 of the CCR was established in 1978, and serves to enhance and regulate California’s building standards. Although not initially developed to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

Title 24, Part 11.

The California Green Building Standards Code (Part 11 of Title 24), commonly referred to as CALGreen, set minimum mandatory standards, as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.

Title 20.

Title 20 of the CCR requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the California Energy Commission to demonstrate compliance with standards.

3.8.2.3 Regional and Local

San Joaquin Valley Air Pollution Control District

SJVAPCD has local air quality jurisdiction in the San Joaquin Valley Air Basin (SJVAB), including those in San Joaquin County, but does not have land use jurisdiction or jurisdiction over mobile sources. SJVAPCD has adopted advisory thresholds to assist California Environmental Quality Act (CEQA) lead agencies in determining the level of significance of a project's GHG emissions, which are outlined in its 2015 Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI) (SJVAPCD 2015).

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority composed of the County of San Joaquin and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. SJCOG serves as the regional transportation planning agency, which provides a forum for regional decision-making on issues such as growth, transportation, environmental management, housing, open space, air quality, fiscal management, and economic development. SJCOG also analyzes population statistics, airport land use, habitat and open space planning, and other regional issues.

Sacramento Metropolitan Air Quality Management District

SMAQMD regulates local air quality and air pollutant emission sources in Sacramento County. In the CEQA Guide to Air Quality Assessment, SMAQMD includes a GHG chapter that discusses the recommended approach to evaluating GHG emissions. SMAQMD states that GHG emissions should first be evaluated and addressed on a program level, if possible. For project-level analyses, SMAQMD also includes a list of analysis expectations and methodologies for CEQA analyses. In addition, in November 2014, SMAQMD adopted GHG thresholds of significance that are discussed further in the "Thresholds of Significance" subsection below.

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is designated by the State and federal governments as the MPO, and is responsible for developing a regional Metropolitan Transportation Plan (MTP) and Sustainable Communities Strategy (SCS) in coordination with Sacramento, Yolo, Yuba, Sutter, El Dorado, and Placer counties, and the 22 cities within those counties (excluding the Tahoe Basin).

SACOG plays a central role in transportation infrastructure planning for the region, while also serving as a forum for the study, planning, and resolution of other planning issues facing the local member governments. The most recent MTP/SCS for the SACOG region was adopted in November 2019. The 2020 MTP/SCS lays out a plan that links land use, air quality, and transportation needs. The MTP/SCS includes strategies and policies to reduce GHG emissions from passenger vehicles to meet state targets established by CARB.

Local General Plans

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.² ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which the project is proposed. Section 15125(d) of the CEQA Guidelines requires an Environmental Impact Report (EIR) to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during the preparation of this analysis, and were reviewed to assess whether the project would be consistent with the plans of relevant jurisdictions. The project would be generally consistent with the applicable goals, policies, and objectives related to GHG emissions identified in Appendix E.

Table 3.3-2 in Section 3.3, *Air Quality*, provides a summary of the county and city general plans that have been identified, reviewed, and considered for the preparation of this analysis. Sacramento County and the cities of Lodi and Elk Grove have adopted climate action plans for their jurisdictions. These plans all call for reductions in GHG emissions below current levels, as well as for actions to reduce vehicle miles traveled and associated transportation emissions. All include increased transit service as a key strategy in reducing local GHG emissions.

Although the proposed project would increase railroad-related emissions by introducing service using diesel-powered locomotives in the jurisdictions the alignment traverses, the improvements are expected to result in a transportation mode shift (i.e., attract passengers who otherwise would have driven their cars). This shift would reduce travel by personal (household) automobiles, reducing mobile source emissions and congestion. Accordingly, the proposed project would be consistent with local general plan GHG policies and climate action plans.

3.8.3 Environmental Setting

This section describes the environmental setting related to GHGs and climate change. The study area is much broader than for the air quality analysis included in Section 3.3, *Air Quality*, due to the global nature of climate change. Although the GHG analysis focuses along the project corridor, the analysis considers potential regional and global GHG effects.

² Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

3.8.3.1 Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space through the atmosphere. However, infrared radiation is selectively absorbed by GHGs in the atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on Earth. Anthropogenic (e.g., human-caused) emissions of these GHGs lead to atmospheric levels in excess of natural ambient concentrations, and have the potential to adversely affect the environment, because such emissions contribute, on a cumulative basis, to global climate change.

The Intergovernmental Panel on Climate Change (IPCC) concluded that variations in natural phenomena, such as solar radiation and volcanoes, produced most of the warming of the earth from pre-industrial times to 1950. Some variations in natural phenomena also had a small cooling effect. From 1950 to the present, increasing GHG concentrations resulting from human activity, such as fossil fuel burning and deforestation, have been responsible for most of the observed temperature increase (IPCC 2015).

During the same period when increased global warming has occurred, many other changes have occurred in other natural systems. Sea levels have risen; precipitation patterns throughout the world have shifted, with some areas becoming wetter and others drier; snowlines have increased elevation, resulting in changes to the snowpack, runoff, and water storage; and numerous other conditions have been observed. Although it is difficult to prove a definitive cause-and-effect relationship between global warming and other observed changes to natural systems, there is a high level of confidence in the scientific community that these changes are a direct result of increased global temperatures caused by the increased presence of GHGs in the atmosphere (IPCC 2018).

GHGs are present in the atmosphere naturally; are released by natural and anthropogenic (human-caused) sources; and are formed from secondary reactions taking place in the atmosphere. Examples of natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; volcanic activity; and evaporation from the oceans. Common sources of anthropogenic sources include the combustion of fossil fuels by stationary and mobile sources, waste treatment, and agricultural processes.

As defined in AB 32, GHGs include the following gases: CO₂, methane (CH₄), nitrous oxide (N₂O), perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons. The State CEQA Guidelines (Section 15364.5) also identify these six gases as GHGs. The primary GHGs of concern associated with the proposed project are CO₂, CH₄, and N₂O. The principal characteristics of these pollutants are discussed in this section.

- Carbon Dioxide: Natural sources of CO₂ include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; and evaporation from oceans. Anthropogenic (human) sources include burning of coal, oil, natural gas, and wood.

- Methane: CH₄ is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide: Primary human-related sources of N₂O are agricultural soil management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. N₂O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

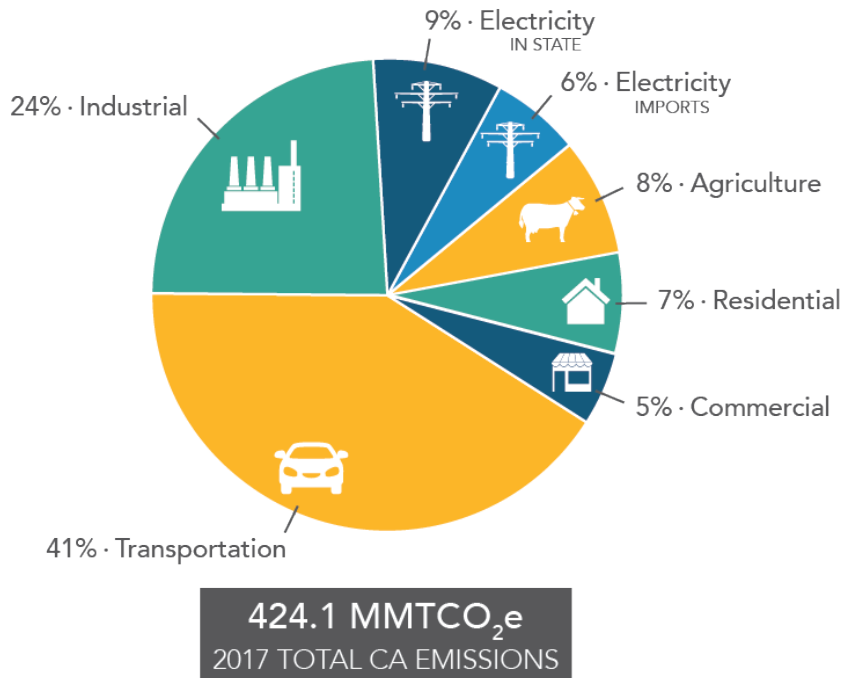
3.8.3.2 Global Warming Potential

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method to compare GHG emissions is the global warming potential (GWP) methodology defined in IPCC reference documents. GWP is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation, and the length of time the gas remains in the atmosphere (“atmospheric lifetime”). IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of metric tons of CO₂ equivalents (MTCO₂e), which compares the gas in question to that of the same mass of CO₂ (CO₂ has a GWP of 1, by definition).

3.8.3.3 Greenhouse Gas Emissions Inventories

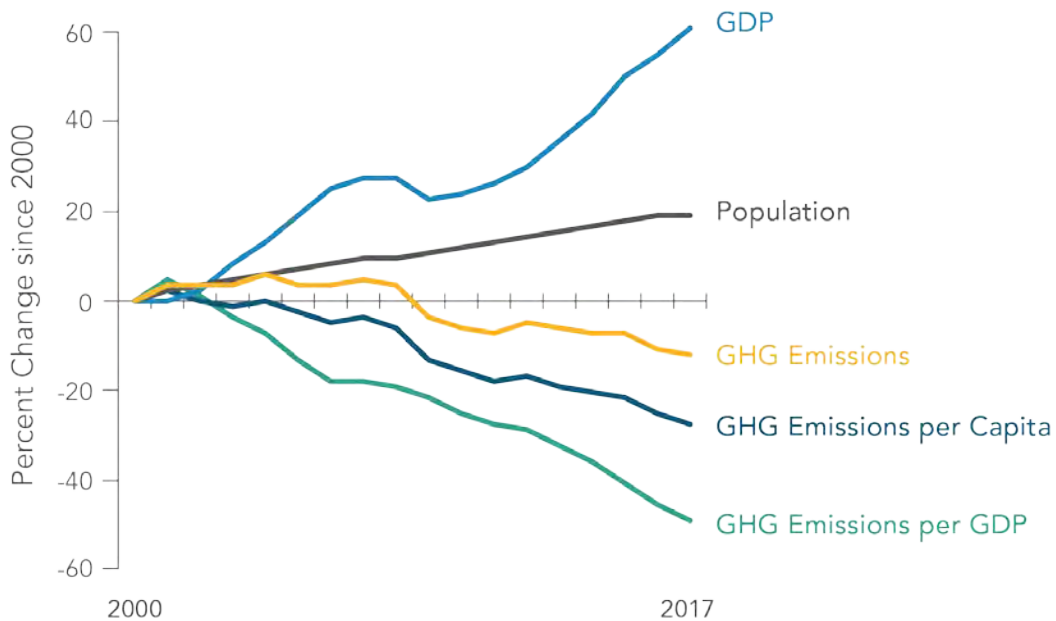
CARB prepares an annual, statewide GHG emissions inventory. GHGs are typically analyzed by “sector” or type of activity. As shown in Figure 3.8-1, California produced 424.1 million MTCO₂e in 2017. Combustion of fossil fuel in the transportation sector was the single largest source of California’s GHG emissions in 2017, accounting for 41 percent of total GHG emissions. Transportation was followed by industry, which accounted for 24 percent, and then the electricity sector (including in-state and out-of-state sources) accounted for 9 percent of total GHG emissions (CARB 2020).

As described above, California has implemented several programs and regulatory measures to reduce GHG emissions. Figure 3.8-2 demonstrates California’s progress in achieving statewide GHG emissions reduction targets. Since 2007, California’s GHG emissions have been declining; GHG emissions have continued to decline even as population and gross domestic product have increased.



Source: CARB 2017

Figure 3.8-1. 2015 California GHG Emissions Inventory by Sector



Source: CARB 2017

Figure 3.8-2. Trends in California GHG Emissions (Years 2000 to 2015)

3.8.3.4 Potential Effects of Climate Change in California and in the Study Area

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea level rise (both globally and regionally), as well as changes in climate and rainfall, among other effects, there remains uncertainty with regard to characterizing precise *local* climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that substantial climate change is expected to occur in the future, although the precise extent will take further research to define. Consequently, the SJVAB and the Sacramento Valley Air Basin (SVAB), including the study area, will be affected by changing climatic conditions, including the following (UC Davis 2018, and UC Merced 2018):

- Warming air and water temperatures.
- More intense droughts and floods with less predictability.
- More extreme heat-waves.
- Higher Delta water levels compounded by subsidence.
- More frequent and intense wildfires.
- Loss of ecosystem habitat.
- Increased heat and decreased air quality, with the result that public health will be placed at risk, and native plant and animal species may be lost.

3.8.4 Environmental Analysis

The discussion below presents the environmental impacts of the proposed project improvements associated with GHG emissions. It describes the methods used for the GHG analysis, and how the significance of the proposed project's GHG emissions was determined. Methods to mitigate potentially significant impacts are described, where appropriate.

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project would contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system. Therefore, impacts are analyzed in the context of the potential contribution to the cumulatively significant impact of climate change.

3.8.4.1 Methods for Analysis

Construction and operations of project improvements would take place along the project alignment, which is within the jurisdiction of two air districts: SJVAPCD and SMAQMD. Construction and operational activities occurring within the boundaries of both air districts were quantified and analyzed separately. Emissions estimates for each project improvement in both air districts were based on a combination of project-specific data inputs and model defaults. The proposed project's GHG emissions were estimated using the methods described in Section 3.3, *Air Quality*. A summary of the methodology unique to GHG emissions is provided here. Detailed

project inputs, assumptions, and calculations are provided in Appendix B, *Quantification of Criteria Air Pollutant and Greenhouse Gas Emissions, and Energy Use*.

In cases for which a project improvement includes both a proposed improvement and alternative or variant, emissions were estimated for both alternatives and all variants. To calculate the maximum daily and maximum annual emissions scenarios in either air district, the greater of the emissions estimates from a proposed improvement versus alternative or variant were used.

Construction

Construction of the proposed project would generate GHG (CO₂, CH₄, and N₂O) emissions from off-road equipment exhaust, locomotive exhaust (from intermittent use of diesel-powered locomotives to transport rail materials during construction), and on-road vehicle (employee vehicle and haul truck) exhaust. These emissions would be temporary (i.e., limited to the construction period), and would cease when construction activities are complete. Construction emissions forecasts were estimated using emission factors from CalEEMod (Version 2016.3.2), CARB's EMFAC2017 model, and the methods summarized in Section 3.3, *Air Quality*.

Operations

Passenger Shuttle Bus and Locomotive Operations

Operations would result in increased diesel-fuel combustion and associated GHG emissions from locomotive emissions from new and extended passenger rail service between the Stockton Downtown/ACE Station to the proposed Natomas/Sacramento Airport Station (inclusive of stops at the proposed new stations along the route), and the proposed shuttle bus between the proposed Natomas/Sacramento Airport Station and the Sacramento Airport. Indirect GHG emissions would also be generated from electricity use and waste generation at the proposed stations.

Although the proposed improvements would increase the operational emission sources in the air districts the alignment traverses, the proposed project is expected to result in a transportation mode shift (i.e., attract passengers who otherwise would have driven cars). This shift would reduce travel by personal (household) automobiles, reducing mobile source emissions and congestion.

The new passenger rail service would result in increased diesel fuel combustion and associated GHG emissions from increased locomotive activity. On-road vehicle engine exhaust GHG emissions were estimated using EMFAC2017 emission factors. Locomotive engine exhaust emission factors were based on EPA's 2009 Emission Factors for Locomotives Technical Highlights (EPA-240-F-09-025), and the conversion factors for CH₄ and N₂O from EPA's 2018 Emission Factors for Greenhouse Gas Inventories guide. Maximum daily emissions were estimated using vehicle miles traveled (VMT) (daily trips X trip distance) for the shuttle bus, and total daily operational hours for the new passenger train operations that would result from the proposed project, inclusive of idling time at each station. Daily criteria pollutant emissions were annualized conservatively assuming 365 operating days per year. Locomotive emissions were apportioned to SJVAPCD and SMAQMD based on the number of track miles in each air district.

Locomotives would idle during passenger boarding and exits; however, the emissions estimates discussed above already account for train idling activity. Accordingly, to avoid double-counting, station idling emissions were not quantified separately for the mass emissions analysis.

Station Operation

Proposed improvements include the construction of six new stations. Operation of new stations would increase electricity consumption. The stations would not include bathrooms or other structures that would use water, nor would they consume natural gas. Emission factors for electricity use were unique to each local electricity provider (Pacific Gas and Electric Company [PG&E] in the SJVAPCD, and the Sacramento Municipal Utility District [SMUD] in the SMAQMD). Emission factors were from the PG&E 2018 Corporate Responsibility and Sustainability Report and EPA eGrid data. Monthly forecasted electricity use for each station was based on historical information from electricity use by existing stations, and adjusted for the size of the proposed stations. Emission factors for waste disposal were based on CalEEMod. Monthly forecasted waste generation for each station was based on historical information from existing stations, and adjusted for the size of the proposed stations.

Displaced Vehicle Miles

The new rail service would cause some commuters to mode-shift from automobile use to transit use. This would cause a reduction in VMT associated with on-road vehicles. Passenger vehicle emissions reductions were estimated for the reduced VMT based on emission factors from EMFAC2017. Emissions reduction estimates were then apportioned to the SJVAPCD and SMAQMD air districts based on the project alignment length in each air district.

3.8.4.2 Thresholds of Significance

The State CEQA Guidelines Appendix G (14 CCR Section 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts from GHG emissions. The proposed project would have a significant impact if construction or operation of the proposed project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

As stated in Appendix G, the significance criteria established by the applicable air quality management district may be relied on to make the above determinations.

SJVAPCD has not set a quantitative GHG emission threshold for GHG emissions. Instead, SJVAPCD has developed recommendations for land use development projects stating that a project's GHG emissions would be a less-than-significant impact if:

- The project complies with an adopted statewide, regional, or local plan for reduction or mitigation of GHG emissions;

- The project achieves 29 percent GHG emission reduction by using approved Best Performance Standards; or
- A quantification of GHG emissions demonstrates that the project achieves AB 32-targeted 29 percent GHG emission reductions compared to business as usual.

For the purposes of determining whether the proposed project's construction-related and operational GHG emissions may have a significant impact on the environment, for land development and construction projects, SMAQMD considers a project to exceed GHG emission thresholds if the annual construction-related or operational emissions exceed 1,100 MTCO₂e/year.

These qualitative and quantitative thresholds are only applicable to land use development and stationary source projects. These thresholds were also established based on statewide emission reduction goals outlined in AB 32, and do not consider deeper reductions that will be required to meet the long-term goals of SB 32 and California EO S-03-05 (if legislatively adopted). The proposed project is a transportation project that does not fit into the land use development or stationary source project categories. Therefore, direct and indirect GHG emissions from project improvements are discussed with respect to larger statewide GHG emission reduction goals, where a significant impact would occur if project emissions would obstruct attainment of the targets outlined under AB 32, SB 32, or California EO S-03-05 and EO S-55-18.

3.8.4.3 Impacts and Mitigation Measures

Impact GHG-1: The proposed project could generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. However, this potentially significant impact would be reduced to a less-than-significant level through implementation of Mitigation Measure GHG-1.1 (Less-than-Cumulatively Considerable Impact with Mitigation).

Implementation of the proposed project would generate short-term construction and long-term operational GHG emissions. Construction-related GHG emissions would occur over the approximately 3-year construction period, and cease following the completion of construction. Operational emissions are considered long-term, and assumed to occur for the lifetime of the proposed project.

Construction would generate GHG impacts through the use of heavy-duty equipment, construction worker vehicle trips, and truck hauling trips. The GHG emissions from construction activity would be temporary, and would cease when construction is complete.

Operations have the potential to generate GHG emissions through passenger rail, shuttle bus, and station electricity use and waste generation activity. However, operations would also improve passenger rail opportunities for the region, which would remove on-road vehicles from the transportation network.

GHG emissions generated by construction and operational sources, as well as emissions avoided through the reduction in on-road mobile emissions, were quantified using emission factors and methodologies described above. Table 3.8-1 summarizes estimated construction-related GHG emissions, and Table 3.8-2 summarizes estimated operational GHG emissions that would be

Table 3.8-1. Estimated GHG Emissions from Construction of the Proposed Project

| Project Element | Construction Year | Maximum Annual Emissions (tons per year) | | | Total Annual GHG Emissions (metric tons per year) |
|--|-------------------|--|-----------------|------------------|---|
| | | CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
| Improvement Within the SJVAPCD | | | | | |
| Lodi Station | 2021 | 740 735 | 0.14 | 0.08 | 692 686 |
| Lodi Station South Alternative | 2021 | 740 735 | 0.14 | 0.08 | 692 686 |
| Track Curve Reconstruction East March Lane to East Swain Road | 2022 | 64 | 0.01 | 0.01 | 60 |
| Track Curve Reconstruction North of North New Hope Road | 2022 | 64 | 0.01 | 0.01 | 60 |
| Hammer Lane Siding Upgrade | 2023 | 129 127 | 0.02 | 0.01 | 120 119 |
| Thornton Siding Upgrade/Extension | 2023 | 257 255 | 0.05 | 0.02 | 240 238 |
| Lodi Siding Variants | 2021 | 515 510 | 0.09 | 0.05 | 480 476 |
| Improvement Within the SMAQMD | | | | | |
| North Elk Grove Station Access Variant 2 (New Intersection West of Existing) Inclusive of Elk Grove platform improvements[†] | 2021 | 648 | 0.13 | 0.07 | 606 |
| North Elk Grove Station Access Variant 1 (Fourth Leg of Existing Intersection) Inclusive of Elk Grove platform improvements[†] | 2021 | 648 | 0.13 | 0.07 | 606 |
| City College Station | 2023 | 658 652 | 0.12 | 0.06 | 614 608 |
| Midtown Sacramento Station | 2021 | 841 834 | 0.16 | 0.08 | 785 779 |
| Old North Sacramento Station | 2023 | 985 976 | 0.18 | 0.09 | 919 911 |
| Natomas/Sacramento Airport Station | 2021 | 808 803 | 0.16 | 0.08 | 756 751 |

| Project Element | Construction Year | Maximum Annual Emissions (tons per year) | | | Total Annual GHG Emissions (metric tons per year) |
|---|-------------------|--|--------------------------------|--------------------------------|---|
| | | CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
| Track Curve Reconstruction South of Desmond Road | 2022 | 64 | 0.01 | 0.01 | 60 |
| Track Curve Reconstruction North of North Elk Grove Station | 2022 | 64 | 0.01 | 0.01 | 60 |
| Philips Siding Upgrade/Extension | 2021 | <u>129</u> 127 | 0.02 | 0.01 | <u>120</u> 119 |
| Pollock Siding Upgrade | 2023 | <u>129</u> 127 | 0.02 | 0.01 | <u>120</u> 119 |
| South Sacramento Siding Upgrade | 2023 | <u>304</u> 301 | 0.05 | 0.02 | <u>283</u> 280 |
| Del Paso Siding Upgrade/Extension | 2021 | <u>1,060</u> 1048 | 0.18 | 0.09 | <u>998</u> 978 |
| North Elk Grove Siding Variants | 2021 | 571 | 0.10 | 0.05 | 533 |
| New Crossover Track South of City College Station | 2023 | <u>129</u> 127 | 0.02 | 0.01 | <u>120</u> 119 |
| Maximum Annual Emissions During Each Construction Year ² | 2021 | <u>4,093</u> 5,277 | <u>0.76</u> 0.98 | <u>0.40</u> 0.51 | <u>3,821</u> 4,928 |
| | 2022 | <u>257</u> 255 | 0.05 | 0.02 | <u>240</u> 238 |
| | 2023 | <u>2,590</u> 2,566 | 0.46 | 0.24 | <u>2,416</u> 2,394 |
| | Total | <u>6,940</u> 8,098 | <u>1.28</u> 1.49 | <u>0.67</u> 0.77 | <u>6,477</u> 7,560 |

Notes: MTCO₂e= metric tons of CO₂ equivalents; CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide.
¹ Although Elk Grove platform improvement variants would differ in location, they are equivalent in emissions-generating construction activity.
² Totals do not all add correctly as a result of rounding.
 Source: Modeled by AECOM in ~~2020~~ 2019. See Appendix B-1 for complete modeling inputs, assumptions, and calculations.

Table 3.8-2. Estimated GHG Emissions from Operations of the Proposed Project

| Operational Activity | Maximum Annual Emissions (tons per year) | | | Total Annual GHG Emissions (metric tons per year) |
|----------------------------------|---|--------------------|------------------|--|
| | CO ₂ | CH ₄ | N ₂ O | CO ₂ e |
| Locomotive Operations | <u>6,800</u> | <u>0.053</u> | <u>0.017</u> | <u>6,228</u> |
| | 2,533 | 0.20 | 0.06 | 2,320 |
| Station Electricity Emissions | <u>37</u> | 0.00 | 0.00 | <u>37</u> |
| | 75 | | | 75 |
| Station Waste Emissions | <u>6</u> | <u>0.28</u> | 0.00 | <u>12</u> |
| | 40 | 0.50 | | 22 |
| Shuttle Bus | <u>52</u> | 0.00 | 0.01 | <u>49</u> |
| | 73 | | | 69 |
| <i>Sub-total</i> | <u>6.894</u> | <u>0.81</u> | <u>0.18</u> | <u>6,326</u> |
| | 2,694 | 0.70 | 0.08 | 2,487 |
| On-Road Mobile Emissions Reduced | <u>(19,103)</u> | <u>(0.16)</u> | <u>(0.34)</u> | <u>(17,425)</u> |
| | (13,378) | (0.11) | (0.24) | (12,203) |
| Net Regional Emissions | <u>(12,209)</u> | <u>0.65</u> | (0.16) | <u>(11,099)</u> |
| | (10,687) | 0.59 | | (9,716) |

Notes: CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂e= CO₂ equivalents

¹ Totals do not all add correctly as a result of rounding.

Source: Modeled by AECOM in ~~2020~~ 2019. See Appendix B-1 for complete modeling inputs, assumptions, and calculations.

generated in both air districts (SJVAPCD and SMAQMD). Refer to Appendix B-1, *Quantification of Criteria Air Pollutant and Greenhouse Gas Emissions, and Energy Use*, for detailed emissions calculations.

As shown in Table 3.8-2, operations would result in a net GHG reduction due to changes in regional traffic and diverted private automobile trips to mass transit. Estimated net regional GHG emission reductions would be 11,0999,746 MTCO₂e/year. Operational emissions and reductions were estimated for the year 2025, when the proposed project would be fully operational; net emission reductions would decline as a function of time because the vehicles that would be removed from the road will be progressively cleaner due to engine improvements and vehicle modernization.

GHG emission reductions achieved through proposed project operations would offset the temporary construction emissions within the first year of operation. Emission savings achieved thereafter would contribute to a regional reduction in GHG emissions. This reduction would be an environmental benefit, and would assist the State in meeting larger statewide GHG reduction goals outlined under AB 32, SB 32, and California EO S-03-05. Therefore, this impact would be less than cumulatively considerable.

Mitigation Measures: Although the proposed project would result in a net regional reduction of GHG emissions, short-term construction emissions would generate an increase in GHG emissions. To conservatively ensure that the project implements all feasible measures to minimize such emissions, Mitigation Measure GHG-1.1 would be required to minimize potential construction-related GHG emissions. Mitigation Measure GHG-1.1 would reduce potential GHG emissions from off-road and on-road construction vehicles by improving fuel efficiency from construction equipment. Even with implementation of Mitigation Measure GHG-1.1, construction activities would still generate GHG emissions in the short-term, but would be offset in the long-term by GHG emissions reductions resulting from operations of the proposed project, this impact would be less-than-cumulatively-considerable with implementation of Mitigation Measure GHG-1.1.

GHG-1.1: Implement construction emission reductions to minimize construction-related GHG emissions.

The SJRRC shall implement construction GHG emission reduction measures, including the following, as feasible. These are consistent with emission reduction measures identified in the SMAQMD Guidance for Construction GHG Emission Reductions.

- Improve fuel efficiency from construction equipment:
 - Minimize idling time either by shutting equipment off when not in use, or reducing the time of idling to no more than 3 minutes (a 5-minute limit is required by the State airborne toxics control measure [Title 13, Sections 2449 (d)(3) and 2485 of the CCR]). Provide clear signage that posts this requirement for workers at the entrance to the site.
 - Maintain all construction equipment in proper working condition according to manufacturers' specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

- Train equipment operators in proper use of equipment.
- Use the proper size of equipment for the job.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Perform on-site material hauling with trucks equipped with on-road engines (if determined to be less emissive than off-road engines).
- Use alternative fuels for generators such as propane or solar, or use electrical power.
- Use a CARB low-carbon fuel for construction equipment.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking for construction worker commutes.
- Recycle or salvage non-hazardous construction and demolition debris, with a goal of at least 75 percent by weight.
- Use locally sourced or recycled construction materials; use wood products certified through a sustainable forestry program.
- Minimize the amount of concrete for paved surfaces, or use a low-carbon concrete option.

Impact GHG-2: The proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases (Less-than-Cumulatively-Considerable Impact).

California adopted AB 32 in 2006 and SB 32 in 2016, which codified the State's short-term (2020) and mid-term (2030) GHG reduction targets, respectively. Several jurisdictions in the study area have adopted or are currently preparing climate action plans to reduce community GHG emissions. The local MPOs (i.e., SJCOG and SACOG) have also developed transportation plans with policies and goals that are relevant to transportation and rail projects. Consistency with these documents is evaluated in this impact. This analysis also considers the long-range (2045 and 2050) reduction targets outlined in California EO S-55-18 and EO S-3-05.

AB 32 codifies the State's GHG reduction target for 2020, and SB 32 establishes the State's GHG reduction target for 2030. CARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving AB 32. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. Some reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some would come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder would need to come from state and local plans, policies, or regulations that will lower carbon emissions, such as those adopted by local government throughout the plan area. The 2017 Scoping Plan Update for achieving SB 32 extends and furthers much of the policies and programs included in the AB 32 Scoping Plan. In 2018, CARB adopted more aggressive SB 375 targets as one measure to support progress toward the 2017 Scoping Plan goals. However, in 2019, CARB identified that additional state and local actions are needed to achieve the transportation system reductions necessary to

meet the State goals, which is approximately 25 percent reduction in statewide per-capita GHG emissions by 2035 relative to 2005 (CARB 2019).

As described in the above analysis of Impact GHG-1, proposed construction activities would generate GHG emission in the short-term. Proposed operations would provide new commuter rail service, providing the opportunity for commuters to mode-shift from personal (household) automobiles to mass transit, thereby helping to alleviate traffic congestion and reduce VMT in the region. The Scoping Plan and local climate action plans include strategies to reduce single-occupancy vehicle usage, and to increase alternative transportation. SACOG's current MTP/SCS was adopted in November 2019. As noted above, CARB recognized that the MTP/SCS is not currently on track to provide sufficient reductions in VMT to generate GHG emissions reductions in the transportation system to meet the State emissions goals, and additional actions will be needed (CARB 2019). Notwithstanding these facts, VMT reductions are a necessary part of meeting State GHG reduction goals, and the proposed project's benefits would support implementation of SJCOG's RTP/SCS and SACOG's MTP/SCS, even if reduction measures under those plans may need to be expanded to meet State goals. Implementation of the proposed project would also be consistent with the California High Speed Rail Authority's 2016 Business Plan and the 2013 CA State Rail Plan. The emission reductions achieved by the proposed project's operations (see Table 3.8-1) would facilitate attainment of State and regional GHG reduction targets, and thereby support advancement of more aggressive statewide climate change planning, as represented by the California EO S-03-05 long-term goal of reducing statewide emissions by 80 percent below 1990 levels by 2050, and the California EO S-55-18 long-term goal of being carbon neutral by 2045. Therefore, this impact would be less-than-cumulatively-considerable, and no mitigation is required.

3.9 Hazards and Hazardous Materials

3.9.1 Introduction

This section describes the regulatory and environmental setting for hazardous materials in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts from hazardous materials that would result from implementation of the proposed project and mitigation measures that would reduce significant impacts, where feasible and appropriate.

The term “hazardous material” is defined in this section as 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 (abbreviated from the California Health and Safety Code [H&S Code] Section 25501). The term “hazardous waste” generally refers to a hazardous material that has been used for its original purpose, and is about to be discarded or recycled. In California, a hazardous waste is defined as a waste, or combination of wastes, that due to its quantity, concentration, or physical, chemical, or infectious characteristics may do one of the following:

- Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, 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 (abbreviated from H&S Code Section 25141).

Public safety concerns discussed in this section include the management of hazardous materials and the disturbance of existing hazardous materials in soil, ballast, groundwater, and building materials within footprints of the individual improvements included in the proposed project during construction and operation. Cumulative impacts from hazardous materials, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to hazards and hazardous materials were received:

- providing safe modes of travel; and
- exposure of school children to industrial chemicals from facilities no longer part of the proposed project, including the Natomas Maintenance and Layover Facility.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.9.2 Regulatory Setting

3.9.2.1 Federal

Federal Transit Administration

The Federal Transit Administration (FTA) is a federal agency under the U.S. Department of Transportation (USDOT). FTA administers the State Safety Oversight Program to provide a broad, systems-oriented safety strategy for the rail fixed guideway public transportation industry. Through audits, training, and outreach, FTA supports State Safety Oversight Agency (SSOA) compliance with the State Safety Oversight rule (49 Code of Federal Regulations [CFR] Parts 659 and 674); professional development of rail transit and state safety managers and staff; and the advancement of system safety principles in the design, engineering, construction, operations, and maintenance of rail transit systems.

Hazardous Materials Management

The U.S. Environmental Protection Agency (EPA) is the lead agency with responsibility for enforcing federal laws and regulations that govern hazardous materials that can affect public health or the environment. The major federal laws and regulations pertaining to the management of hazardous materials for the proposed project are the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

In 1976, the RCRA was enacted to provide a general framework for EPA to regulate hazardous waste from the time it is generated until its ultimate disposal. Under the RCRA, a waste may be considered “hazardous” if it exhibits certain hazardous characteristics (ignitability, corrosivity, reactivity, or toxicity) or if it is included on a specific list of wastes that EPA has determined are hazardous. In accordance with the RCRA, facilities that generate, treat, store, or dispose of hazardous waste are required to ensure that the waste is properly managed from “cradle to grave” by complying with the federal waste manifest system.

In 1976, the TSCA was enacted to provide EPA authority to regulate the production, transportation, use, and disposal of chemicals that pose a risk of affecting public health and the environment. The TSCA and subsequent amendments give EPA authority to regulate the cleanup and/or abatement of sites with specific toxic chemicals, such as polychlorinated biphenyls (PCBs), asbestos-containing materials (ACM), and lead-based paint (LBP).

In 1972, an amendment to the FIFRA provided EPA authority to regulate the manufacture, distribution, and import of pesticides. EPA approves registered uses of a pesticide based on an evaluation of its potential effects on human health and the environment.

Hazardous Materials Transportation

In 1990 and 1994, the federal Hazardous Materials Transportation Act was amended to strengthen regulations for protecting life, property, and the environment from the inherent risks of transporting hazardous materials in all major modes of commerce. Further, USDOT developed hazardous materials regulations pertaining to classification, packaging, transport, and handling,

as well as regulations regarding employee training and incident reporting (49 CFR Sections 171–180). The transport of hazardous materials is subject to both the RCRA and USDOT regulations.

Petroleum Pipelines

Petroleum pipelines have been subject to pipeline safety and maintenance regulations since 1979, including the federal Hazardous Liquid Pipeline Safety Act (49 CFR Section 195.412). These regulations require that petroleum pipelines be designed with equipment, such as low-pressure alarms and safety shut-down devices, to minimize spill volume in the event of a leak.

Worker Health and Safety

The Occupational Safety and Health Administration (OSHA) is the federal agency responsible for enforcing and implementing federal laws and regulations pertaining to worker health and safety. OSHA's Hazardous Waste Operations and Emergency Response regulations require training and medical supervision for workers at hazardous waste sites (29 CFR Section 1910.120). Additional regulations have been developed regarding exposure to lead (29 CFR Section 1926.62) and asbestos (29 CFR Section 1926.1101) to protect construction workers.

Railroad Safety

The Federal Railroad Administration (FRA) is a federal agency under USDOT. They are responsible for requiring each railroad carrier providing intercity rail passenger or commuter rail passenger transportation to develop a Railroad Safety Risk Reduction Program, which includes railroad safety improvements, highway-rail grade crossing and pedestrian safety and trespasser prevention, and railroad safety enhancements.

FRA is also responsible for enforcing safety rules and standards under CFR Title 49, Sections 200–272, which address a comprehensive range of railroad safety topics, including: track safety, roadway workplace safety, railroad operation rules, communications, locomotive safety standards, inspections and maintenance, signal systems, grade crossing safety, bridge safety standards, emergency preparedness, passenger safety, safety training, dispatching, and qualification/certification of conductors.

The purpose of Part A of Subtitle V of Title 49 of the United States Code (49 U.S.C. Sections 20101–20121) is to promote safety in every area of railroad operations and reduce railroad-related accidents and incidents. The U.S.C. contains a series of statutory provisions affecting the safety of railroad operations related to signal systems, safety appliances, locomotives, and accidents and incidents.

Aviation Safety

The Federal Aviation Administration (FAA) is a federal agency under USDOT that is responsible for regulating all aspects of civil aviation to ensure airspace safety and efficiency. FAA establishes distances of ground clearance for take-off and landing safety based on criteria such as the type of aircraft using the airport. These distances affect land uses and dimensional standards for buildings within the approaches.

Federal Aviation Regulation (FAR) Part 77 establishes requirements such as providing notice to FAA of certain proposed construction, or alteration of existing structures; and the process for

aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities, or equipment.

Section 77.9 Construction or alteration requiring notice

Notice must be provided to FAA if:

- a) Any construction or alteration that is more than 200 ft. above ground level (AGL)
- b) Any construction or alteration that exceeds an imaginary surface

Section 77.17: Obstruction Standards

- a) An existing object or future object, including a mobile object, would be an obstruction to air navigation if it is of greater height than any of the following height:
 1. A height of 499 feet AGL at the site of the object
 2. A height that is 200 feet AGL, or above the established airport elevation
 3. A height within a terminal obstacle clearance area
- b) For railroads, the obstruction height shall be decreased by 23 feet (or the highest railroad vehicle).

Section 77.19: Civil airport imaginary surfaces

Airport imaginary surfaces are established with relation to the airport and each runway. The size of each imaginary surface is based on the category of each runway, and the slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach procedure existing or planned for that runway end.

3.9.2.2 State

Hazardous Materials Management

In California, the Department of Toxic Substances Control (DTSC) administers the RCRA program, as well as additional state-specific requirements for managing hazardous waste in accordance with the California Hazardous Waste Control Law (H&S Code Section 25100 et seq.). The state criteria for identifying hazardous waste, as described in Title 22 of the California Code of Regulations (CCR) Sections 66261.10–66261.24, are more comprehensive than the federal RCRA hazardous waste criteria; therefore, hazardous wastes in California can be identified as either RCRA hazardous waste or non-RCRA hazardous waste.

EPA has granted the California Department of Pesticide Regulation (DPR) authority to enforce federal laws pertaining to the proper and safe use of pesticides (CCR Title 3). DPR can also designate pesticides as “restricted material” based on potential effects on public health, applicators, farm workers, domestic animals, honeybees, the environment, wildlife, or crops other than those being treated.

In California, hazardous waste and materials handling is regulated under the Unified Program. The Unified Program consolidates the administrative requirements, permits, inspections, and enforcement activities for the following existing programs:

- Hazardous Waste Generator and Tiered Permitting Program (H&S Code Chapter 6.5);
- Underground Storage Tank Program (H&S Code Chapter 6.7);

- Aboveground Petroleum Storage Tank Program (H&S Code Chapter 6.67);
- California Accidental Release Prevention Program (H&S Code Chapter 6.95);
- Hazardous Materials Release Response Plan and Inventory Program (H&S Code Chapter 6.95); and
- Hazardous Material Management Plan and Hazardous Material Inventory Statement Program (California Fire Code and H&S Code Chapter 1).

The Unified Program requires facilities to properly manage hazardous materials and disclose information regarding such materials to minimize the risk of a hazardous materials release, and improve emergency response actions in the event of a release. The California Environmental Protection Agency (Cal/EPA) oversees the entire program; and local government agencies, known as Certified Unified Program Agencies (CUPA), implement and enforce the elements of the Unified Program. The following state agencies are involved with the Unified Program: Cal/EPA, DTSC, the State Water Resources Control Board (State Water Board), the Governor's Office of Emergency Services, and the Office of the State Fire Marshal.

Hazardous Materials Transportation

The California Highway Patrol, California Department of Transportation, and DTSC are responsible for enforcing federal and state regulations pertaining to the transport of hazardous materials. If a discharge or spill of hazardous materials occurs during transportation, the transporter is required to take appropriate immediate action to protect human health and the environment (e.g., notify local authorities and contain the spill); the transporter is also responsible for cleanup (22 CCR Section 66260.10 et seq.).

Petroleum Pipelines

California Government Code Section 51010–51019.1 requires that petroleum pipelines be designed with equipment, such as low-pressure alarms and safety shut-down devices, to minimize spill volume in the event of a leak.

Hazardous Materials Release Sites

In California, EPA has granted most enforcement authority of federal hazardous materials regulations to Cal/EPA. Under the authority of Cal/EPA, the State Water Board and DTSC are responsible for overseeing the remediation of contaminated soil and groundwater sites. The provisions of Government Code Section 65962.5 (also known as the Cortese List) require the State Water Board, DTSC, the California Department of Health Services, and the California Department of Resources Recycling and Recovery to submit information to Cal/EPA pertaining to sites that were associated with solid waste disposal, hazardous waste disposal, and hazardous materials releases.

Hazardous Building Materials

Asbestos-Containing Materials

Exposure to asbestos, a state-recognized carcinogen, can result in lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), or asbestosis (scarring of lung tissues that results in constricted breathing). ACMs, such as thermal system insulation, surfacing materials, and asphalt and vinyl flooring, may be present in building and bridge structures constructed prior to 1981 (8 CCR Section 5208). Therefore, workers who conduct asbestos abatement must be trained in accordance with state and federal OSHA requirements. California's local air districts oversee the removal of regulated ACMs; the near-term and longer-term improvements are in the jurisdictions of the Sacramento Metropolitan Air Quality Control District and the San Joaquin Valley Air Pollution Control District. All friable (i.e., crushable by hand) ACMs or non-friable ACMs that may be damaged must be abated prior to demolition in accordance with applicable requirements. Friable ACMs must be disposed of as asbestos waste at an approved facility. Non-friable ACMs may be disposed of as non-hazardous waste at landfills that accept such wastes.

Lead-Based Paint

Exposure to lead, a state-recognized carcinogen, can result in stomach and lung cancer and impair nervous, renal, cardiovascular, and reproductive systems. Although LBP in residential structures was banned in 1978, this restriction did not apply to commercial and industrial structures (e.g., buildings and bridges); therefore, any commercial or industrial structures, regardless of construction date, could have surfaces that have been coated with LBP (OSHA 2004). Loose and peeling LBP must be disposed of as a state and/or federal hazardous waste if the concentration of lead equals or exceeds applicable waste thresholds. State and federal OSHA regulations require a supervisor who is certified with respect to identifying existing and predictable lead hazards to oversee air monitoring and other protective measures during demolition activities in areas where LBP may be present. Special protective measures and notification of California Division of Occupational Safety and Health (Cal/OSHA) are required for highly hazardous construction tasks related to lead, such as manual demolition, abrasive blasting, welding, cutting, or torch burning of structures, where LBP is present.

Prior to 1997, the California Department of Transportation also used LBP for yellow traffic stripe and pavement markings along roadways. The residue that may be produced from the yellow thermoplastic and yellow paint during road improvement activities may contain lead and chromium. The debris produced during the removal of yellow thermoplastic and yellow paint may need to be disposed of as a state or federal hazardous waste if the concentrations of lead or chromium exceed applicable hazardous waste thresholds (California Department of Transportation 2019a).

Universal Wastes

Universal wastes include a wide variety of hazardous wastes that are commonly produced in households and businesses. For example, universal wastes include electrical transformers, fluorescent lighting, electrical switches, heating/cooling equipment, and thermostats that could contain hazardous materials such as PCBs, diethylhexyl phthalate, mercury, and other metals. The disposal of these materials is regulated under the California Universal Waste Rule (CCR Title

22, Chapter 23), which is less stringent than most other federal and state hazardous waste regulations. To manage universal waste in accordance with the streamlined requirements for the state, generators must relinquish the waste to a universal waste transporter, another universal waste handler, or a universal waste destination facility.

Treated-Wood Waste

Railroad ties along existing railroad corridors are commonly treated with wood preservatives, such as arsenic, chromium, copper, pentachlorophenol, or creosote. If treated-wood waste is not properly disposed of, the chemicals it contains can potentially contaminate soil, surface water, and/or groundwater. If treated-wood waste is classified as hazardous, it must be managed under full hazardous waste management requirements or under the Alternative Management Standards adopted by DTSC under CCR Title 22, Chapter 34. In general, the DTSC's Alternative Management Standards lessen storage requirements, extend accumulation periods, allow shipments without a hazardous waste manifest and a hazardous waste hauler, and allow disposal at specific non-hazardous waste landfills.

Worker Health and Safety

State worker health and safety regulations related to construction activities are enforced by Cal/OSHA. These regulations include requirements for protective clothing, training, and limits on exposure to hazardous materials. Cal/OSHA also enforces occupational health and safety regulations specific to lead and asbestos investigation and abatement. These regulations equal or exceed their federal counterparts. Specific worker safety measures for excavation hazards (e.g., falling or cave-in of the excavation wall) are described in CCR Title 8, Section 1541.

Railroad Safety

The California Public Utilities Commission (CPUC) regulates privately owned railroad, railroad transit, and passenger transportation companies, via the following: Safety and Enforcement Division (SED); the California Public Utilities Code; CPUC rules of Practice and Procedure; and CPUC General Orders. SED is responsible for inspection, surveillance, and investigation of the rights-of-way (ROW), facilities, equipment, and operations of railroads and public mass transit guideways, and enforcing federal and state laws.

The CPUC covers railroad safety and emergency planning and response to locomotives, including both passenger and freight trains. Under this code, the CPUC is required to adopt safety regulations, and to report sites on railroad lines that are deemed hazardous in California. The CPUC rules of Practice and Procedure, and CPUC General Orders set protocols for railroad safety. CPUC's Rules 3.7 to 3.11 discuss rail crossings, including in regard to public road access, railroad across railroad, railroad across public road, and alteration or relocation of existing railroad crossings (California Public Utilities Commission 2018).

All Rail Transit Agencies (RTA) are required to submit an initial System Safety Program Plan (SSPP)—a document adopted by an RTA detailing its safety policies, objectives, responsibilities, and procedures—to CPUC for approval. As required by the FTA, the designated SSOA must perform a review of each rail transit agency's system safety program a minimum of once every 3 years. The purpose of the triennial review is to verify compliance and evaluate the effectiveness of each rail transit agency's SSPP and its Security and Emergency Preparedness Program Plan,

and to assess the level of compliance with General Orders and other Commission safety and security requirements.

3.9.2.3 Regional and Local

Regional Plans and Local General Plans

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to hazards and hazardous materials identified in Appendix E.

Emergency Response Plans

County of San Joaquin Office of Emergency Services

County of San Joaquin Office of Emergency Services’ (OES) primary responsibility is to plan, implement, and evaluate existing hazards and impending disasters. OES is the key disaster preparedness office of the County, supporting and coordinating County departments carrying out their functions in the field. OES also provides disaster information, logistical support, facilities mutual aid requests and facilitates inter-jurisdictional coordination with agencies from 7 cities, 120 special districts, and locally based state and federal agencies (County of San Joaquin, 2017).

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

County of San Joaquin Emergency Medical Services Agency

The San Joaquin County Emergency Medical Services Agency (SJCEMSA), in cooperation with Public Health Services, serves as the lead agency for medical disaster response with the Emergency Medical Services (EMS) Administrator serving as the County's Medical Health Operational Area Coordinator. SJCEMSA oversees the Hospital Preparedness Program, which provides for disaster planning in targeted areas, including healthcare system preparedness and recovery, emergency operation coordination, information sharing, medical surge, and medical volunteer management. In addition, SJCEMSA receives grant funds from the State of California EMS Authority to serve as the lead agency for disaster medical planning and coordination for the eleven counties composing the Office of Emergency Services Mutual Aid Region IV (SJCEMSA 2018).

County of Sacramento 2012 Emergency Operations Plan

The purpose of the County of Sacramento Emergency Operations Plan (EOP) is to serve as the principal guide for emergency response before, during, and after a disaster occurring within the County's geographical boundaries. Specially, the EOP is intended to:

- Facilitate multi-jurisdictional and interagency coordination in emergency operations between local government, private sector, state response levels and federal agencies;
- Serve as a County plan and guide, and be used in coordination with applicable local, state, and federal contingency plans;
- Establish protocols required for effective response, management, and recovery from major emergencies and/or disasters; and
- Establish operation concepts and procedures associated with field response to emergencies, and Emergency Operations Center activities.

Establish the organizational framework of California Standardized Emergency Management System and the National Incident Management Systems (County of Sacramento, 2012).

3.9.3 Environmental Setting

For the purposes of this analysis, the study area for hazardous materials consists of the following:

- Potential sources of hazardous materials in the footprints of the individual project improvements;
- Potential sources of groundwater contamination within 0.25 mile of the footprints of the individual project improvements; and
- Schools within 0.25 mile of the footprints of the individual project improvements.

The principle data resources reviewed to describe existing hazardous materials concerns in the study area are as follows:

- Existing railroad and major roadway corridors mapped by the California Department of Transportation (2019b);

- Naturally-occurring asbestos mapped by the U.S. Geological Survey (USGS) (Van Gosen and Clinkenbeard 2011);
- Existing and historic agricultural land mapped by the California Department of Conservation (2016) Farmland Mapping and Monitoring Program, or shown on historic aerial photography (Google 2019);
- Petroleum pipelines mapped by the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) (2019);
- Environmental records of hazardous materials release sites from the State Water Board's 2019 GeoTracker database and the DTSC's 2019 EnviroStor database;
- Ambient groundwater levels from observation wells reported in the California Department of Water Resources' (2018) *Groundwater Information Center*, and
- Presence of structures determined through review of aerial photography (Google 2019).

The hazardous materials information was geocoded (as needed) and imported into a Geographic Information System (GIS) to identify the potential sources of hazardous materials in the study area for the proposed project.

3.9.3.1 Potential Hazardous Materials Sources

This section describes the potential hazardous materials sources in the study area, and indicates the likely media (building materials, soil, ballast, or groundwater) that such sources could have affected, as well as the likely constituents of concern from such sources. The potential sources, potentially affected media, and constituents of potential concern are summarized in Table 3.9-1. More detail regarding each potential hazardous materials source and the proposed project improvements that may have been potentially affected by each source follows the table.

Hazardous Building Materials from Building, Bridge, Roadway, and Railroad Structures

Hazardous building materials can pose a health risk to construction workers, maintenance workers, and the public if not handled and disposed of properly. Existing building, bridge, roadway, and railroad structures in the study area may contain hazardous building materials. Any building or bridge structures constructed before 1981 could potentially contain ACMs. Any residential building structures constructed before 1979 and any commercial or industrial building (regardless of construction date) could potentially contain LBP. Traffic stripes and pavement markings applied to roadways or parking lots could also contain lead and chromium. All railroad ties along existing railroad corridors could contain wood preservatives, such as arsenic, chromium, copper, pentachlorophenol, or creosote. All building structures could also contain other common hazardous materials (e.g., PCBs, diethylhexyl phthalate, mercury, and other metals) that would be considered universal wastes during demolition activities.

All project improvements have railroad materials in their footprints, which could contain hazardous building materials such as such as arsenic, chromium, copper, pentachlorophenol, or creosote.

Table 3.9-1. Potential Sources of Hazardous Materials and Primary Hazardous Materials of Concern within the Study Area

| Potential Source of Hazardous Materials | Primary Hazardous Materials of Concern | Defined Study Area | Potential Media Affected within Study Area | | | |
|--|---|--------------------------|--|---|---|--------------|
| | | | BM | S | B | GW |
| Building structures | ACM, LBP, and universal wastes (e.g., PCBs and mercury) | Footprint | X | | | |
| Roadways and parking lots | Lead and chromium in striping and marking paint | Footprint | X | | | |
| Railroad corridors | Metals, petroleum hydrocarbons, and wood preservatives (e.g., creosote) | Footprint | X | X | X | |
| Major roadway corridors | Aerially-deposited lead | Footprint | | X | | |
| Agricultural land | Arsenic and OCPs | Footprint | | X | | |
| Petroleum pipelines ^a | Petroleum products (e.g., gasoline, diesel, jet fuel) | Footprint plus 0.25 mile | | X | | X |
| Hazardous materials release sites ^a | Petroleum hydrocarbons, chlorinated solvents, and metals | Footprint plus 0.25 mile | | X | | X |
| Ultramafic Bedrock | Naturally occurring asbestos | Footprint | | | | ^b |

BM = building material

S = soil

B = ballast

GW = groundwater

LBP = lead-based paint

OCPs = organochlorine pesticides

ACM = asbestos containing material

PCB = polychlorinated biphenyl

Notes:

^a Petroleum pipelines and hazardous materials release sites outside the improvement footprints would not be expected to affect the chemical quality of soil in the footprint, but could potentially impact groundwater beneath the footprint.

^b No naturally-occurring asbestos was identified in the study areas for the proposed improvements.

Based on review of aerial photography (Google 2019), the following project improvements have existing buildings, bridges, or roadways in their footprints that could contain hazardous building materials such as ACM, LBP, PCBs, or universal wastes:

- Hammer Lane Siding Upgrade (bridge);
- Lodi Station, Lodi Station South Alternative, and Lodi Siding Variants (roadways);
- Thornton Siding Upgrade/Extension (roadways);
- Track Curve Reconstruction North of North New Hope Road (roadways);
- Phillips Siding Upgrade/Extension (roadways);
- ~~North Elk Grove Station and Siding (including all access and platform variants) (bridges and roadways);~~
- Pollock Siding Upgrade (roadways);
- City College Station and South Sacramento Siding Upgrade (roadways);
- Midtown Sacramento Station (roadways);
- Old North Sacramento Station (buildings, roadways and parking lots);
- Del Paso Siding Upgrade/Extension (bridges and roadways); and
- Natomas/Sacramento Airport Station.

The following improvements do not have any buildings, bridges, roadways or parking lots in their footprints; however, railroad-related hazardous building materials such as railroad ties may be present in their footprints:

- Track Curve Reconstruction between East March Lane and East Swain Road;
- Track Curve Reconstruction South of Desmond Road;
- Track Curve Reconstruction North of ~~the North Elk Grove Station~~; and
- Crossover Track South of City College Station.

Contamination from Railroad Corridors

The most commonly reported soil contamination along railroad corridors are metals and petroleum products from railroad operations (Rails-To-Trails Conservancy 2019). For example, elevated concentrations of arsenic are common in shallow soils from historical applications of inorganic herbicides and leaching from chemically preserved railroad ties and/or arsenic-laced slag used as ballast material. Other sources of contaminants associated with historical railroad operations may include coal ash from engines and polynuclear aromatic hydrocarbons PAHs from diesel exhaust. The risk of soil contamination is generally greater at railyards and along railroad corridors that are adjacent to industrial areas, where historical loading practices, leaks during material transfers or storage, and repair activities may have contaminated the soil.

All improvements of the proposed project contain existing railroad corridors that may have affected soil, ballast, or groundwater quality.

Aerially Deposited Lead from Major Roadway Corridors

Lead alkyl compounds were first added to gasoline in the 1920s. Beginning in 1973, EPA ordered a gradual phase-out of lead from gasoline that significantly reduced the prevalence of leaded gasoline by the mid-1980s. Prior to the 1970s, EPA estimated that vehicles emitted approximately 75 percent of the lead consumed in leaded gasoline as particulate matter in exhaust (Department of Toxic Substances Control 2004). As a result, shallow soils in major roadway corridors, which include soils within approximately 25 meters of the curb, have the potential to be contaminated with aerially deposited lead from historical car emissions prior to the elimination of lead in gasoline (Department of Toxic Substances Control 2004).

Caltrans classifies roads in California based on their purpose and average daily trips. For the purposes of this analysis, “major roadway” is interpreted to mean roads with a functional classification of “interstate,” “freeway,” or “other principal arterial” (Caltrans 2019).

The following project improvements have existing major roadway corridors in their footprints that could have resulted in soils affected by aerially deposited lead:

- Hammer Lane Siding Upgrade;
- Lodi Station; and
- Lodi Siding Variants.

Pesticide Residues from Existing Agricultural Land

Prior to 1950, inorganic pesticides that contained elevated concentrations of metals, such as arsenic, were commonly used in California agriculture. After 1950, organochlorine pesticides (OCPs) were commonly used in California agriculture until about the mid-1970s. Arsenic from inorganic pesticides and residues from OCPs used in the past have the potential to persist for many decades in shallow soils, and can affect human health and the environment (Department of Toxic Substances Control 2010). Shallow soils in the hazardous materials study area could potentially be contaminated with arsenic and OCPs from historical pesticide applications in areas on agricultural land.

The approximate locations of agricultural lands in the study area were delineated based on mapping of agricultural lands provided by Sacramento and San Joaquin counties. The historic presence of agricultural lands in proximity to project improvements was also reviewed based on available historic aerial photographs (Google 2019) and other historic sources.

The following project improvements have been identified as currently or historically having agricultural land in or directly adjacent to their footprints that could have pesticide-affected soils:

- Hammer Lane Siding Upgrade;
- Lodi Station;
- Lodi Station South Alternative;
- Lodi Siding Variants;
- Thornton Siding Upgrade/Extension;
- Track Curve Reconstruction North of North New Hope Road;
- Track Curve Reconstruction South of Desmond Road;
- Philips Siding Upgrade/Extension;
- ~~North Elk Grove Station (including all access and platform variants);~~
- Track Curve Reconstruction North of ~~North Elk Grove Station~~;
- Pollock Siding Upgrade;
- City College Station, Crossover Track South of City College Station, and South Sacramento Siding Upgrade;
- Del Paso Siding Upgrade/Extension; and
- Natomas/Sacramento Airport Station.

Petroleum from Utility Pipelines

Existing pipeline safety regulations minimize impacts associated with potential future releases of petroleum; however, they do not address the potential impacts related to undocumented petroleum releases that may have occurred in the past. Contaminants of concern from petroleum pipelines include gasoline, diesel, jet fuel, and PAH compounds. As a result, groundwater in the vicinity of near-term and longer-term improvements could potentially be contaminated by

documented or undocumented releases from petroleum pipelines mapped within 0.25 mile of the near-term and longer-term improvement footprints.

The approximate locations of petroleum pipelines in the study area were delineated based on mapping from the Pipeline and Hazardous Materials Safety Administration's (PHMSA's) Public Map Viewer. In accordance with PHMSA's security policy, the scale of the Public Map Viewer is restricted to 1:24,000, and the minimum accuracy of the mapped pipeline locations is 500 feet.

The following proposed project improvements have petroleum pipelines in their footprints that could have affected soil and/or groundwater:

- Track Curve Reconstruction between East March Lane and East Swain Road; and
- Midtown Sacramento Station Bicycle/Pedestrian Path.

Hazardous Materials from Release Sites

The review of hazardous materials release sites reported in the GeoTracker and EnviroStor databases included environmental records derived from a number of federal and state regulatory programs. Based on a review of the environmental records, 109 hazardous materials release sites were identified within 0.25 mile of the footprints of the individual improvements included in the proposed project. Of the 109 hazardous materials release sites identified, 80 sites are closed cases or have a certified or no further action status (i.e., investigation and cleanup are complete) without land-use restrictions. The remaining 29 sites have land-use restrictions, or investigation and cleanup have not been completed, and therefore pose a greater potential for affecting environmental conditions in the study area. Sites that overlap the footprint of project improvements may have affected soil or groundwater in the project footprint. Sites that are within 0.25 mile of project improvements are unlikely to have affected soil in the footprint, but could have affected groundwater underlying the component footprint.

The following project improvements have hazardous materials release sites in their footprint, which could have affected soil and/or groundwater within the footprint:

- Old North Sacramento Station; and
- Natomas/Sacramento Airport Station.

The following project improvements have hazardous materials release sites within 0.25 mile of their footprints, which could have affected groundwater in the footprint:

- Track Curve Reconstruction between East March Lane and East Swain Road;
- City College Station and South Sacramento Siding Upgrade;
- Midtown Sacramento Station; and
- Del Paso Siding Upgrade/Extension.

The 29 hazardous materials release sites of concern, the potential media affected, and the project component footprints they may have affected are summarized in Table 3.9-2. The primary contaminants in soil and groundwater at many of the hazardous materials release sites of concern are petroleum hydrocarbons, chlorinated solvents, and metals.

Table 3.9-2. Hazardous Materials Release Sites of Concern

| Database & Site ID | Site Name¹ | Contaminant of Potential Concern | Potential Media Affected² | Potentially Affected Component Footprint | Approximate Depth to Groundwater (GW) (feet) |
|-------------------------------|--|--|---|--|---|
| Geotracker T0607770320 | 76 Station | Gasoline | GW | Track Curve Reconstruction between East March Lane and East Swain Road | 35 to 55 |
| EnviroStor 34400003 | Union Pacific Railroad, Curtis Park | Metals, Petroleum, PCBs, PAHs, VOCs | GW GW | City College Station South Sacramento Siding Upgrade | 20 to 30 |
| Geotracker SLT5S2963332 | Union Pacific Railroad, Curtis Park Railyard | TCA, Arsenic, ACM, Benzene, Diesel, Gasoline, Lead, Other Chlorinated Hydrocarbons, Other Solvent or Non-Petroleum Hydrocarbons, PCBs, PAHs, PCE, TCE, Waste Oil/Motor/Hydraulic/Lubricating | Soil Soil | City College Station South Sacramento Siding Upgrade | 20 to 30 |
| Geotracker T0606701050 | UPRR Yard | Waste Oil/Motor/Hydraulic/Lubricating | GW GW | City College Station South Sacramento Siding Upgrade | 20 to 30 |
| EnviroStor 34480005 | Sacramento Cable | Arsenic, Lead | GW GW | City College Station South Sacramento Siding Upgrade | 20 to 30 |
| EnviroStor 34890001 | U.S. Cold Storage | Arsenic, Beryllium and Compounds, Lead | GW GW | City College Station South Sacramento Siding Upgrade | 20 to 30 |
| EnviroStor 60002499 | SMUD Station E Substation | Benzo(A)Pyrene, Metals, Petroleum, PCBs | GW | Midtown Sacramento Station | 18 to 45 |
| EnviroStor 34340007 | Alta Plating and Chemical Corp. | Cyanide, Metals, Uncategorized | GW | Midtown Sacramento Station | 15 to 30 |
| EnviroStor 34280048 | Orchard Supply Company | Metals, OCPs, VOCs | GW | Midtown Sacramento Station | 15 to 30 |
| EnviroStor 70000051 | Ken's Buff and Plating | Metals, Other | GW | Midtown Sacramento Station | 15 to 30 |

| Database & Site ID | Site Name¹ | Contaminant of Potential Concern | Potential Media Affected² | Potentially Affected Component Footprint | Approximate Depth to Groundwater (GW) (feet) |
|-------------------------------|---|--|---|---|---|
| EnviroStor 34340093 | A-1 Plating Co. (Inactive #3) | Chromium III, Chromium VI, Copper and Compounds, Aqueous Solution with Metals | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker T10000007794 | A-1 Plating Co. | Chromium, Chromium VI, Copper, Other Metal, PCE, TCE | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker T10000007795 | Capital City Plating Works | Chromium, Chromium VI, Copper, Cyanide, Other Acid or Corrosive, Other Metal, PCE, TCE | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker SL0606729753 | S Street Redevelopment Project | Chromium VI, Gasoline, Solvents | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker T0606700243 | Orchard Supply | Gasoline | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker SLT5S2063245 | Orchard Supply | TCP, DCA, Other Chlorinated Hydrocarbons | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker SL0606755780 | 19th & Q Streets Brownfield Cleanup | Arsenic, Lead, Waste Oil/ Motor/Hydraulic/Lubricating | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker T10000010973 | Phillips 66/Chevron Fueling Station Site (Former) | TPH | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker SLT5S2463285 | Sacramento Bee Facility | TPH, Other Petroleum, PCE | GW | Midtown Sacramento Station | 15 to 30 |
| Geotracker T0606700037 | Lawrence Mayflower Moving & Storage | Total Petroleum Hydrocarbons, Benzene, Xylene, Toluene, Ethylbenzene | S, GW | Midtown Sacramento Station | 16 to 19 |
| EnviroStor 34360054 | Sierra Battery Sales | Lead | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |

| Database & Site ID | Site Name¹ | Contaminant of Potential Concern | Potential Media Affected² | Potentially Affected Component Footprint | Approximate Depth to Groundwater (GW) (feet) |
|-------------------------------|-----------------------------------|--|---|--|---|
| Geotracker T0606744987 | Sacramento RT Baxter/Del Paso Lot | Other Solvent or Non-Petroleum Hydrocarbon | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| EnviroStor 34280094 | Universal Chemical Company | Halogenated Solvents, Unspecified Alkaline Solutions, Unspecified Aqueous Solution | S, GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| EnviroStor 34340002 | A-1 Plating Company | Cyanide, Metals | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| EnviroStor 60001003 | Pell Drive | PCE, TCE | GW | Del Paso Siding Upgrade/Extension | 40 to 55 |
| Geotracker SL185472918 | Continental Chemical Co | DCA, PCE, TCE, Waste Oil/ Motor/Hydraulic/Lubricating | S, GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| Geotracker SL0606762702 | Micheletti Property | Benzene, PCE, TCE | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| Geotracker T10000011440 | Former Workroom Supply | PCE, TCE | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |
| Geotracker T0606700685 | Colfax Yard | Benzene, Diesel, Gasoline | GW GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 25 to 50 |

| Database & Site ID | Site Name ¹ | Contaminant of Potential Concern | Potential Media Affected ² | Potentially Affected Component Footprint | Approximate Depth to Groundwater (GW) (feet) |
|-------------------------|---|---|---------------------------------------|---|--|
| Geotracker T0606793621 | Former Rawson/McKesson Facility | Total petroleum Hydrocarbons, Benzene, Methyl Tert Butyl Ether, 1,2-Dichloroethane, Naphthalene, Lead | S, GW | Old North Sacramento Station Del Paso Siding Upgrade/Extension | 28 to 35 |
| Geotracker T0606700530 | Mel's Cargo Supply | Total Petroleum Hydrocarbons, Benzene, Toluene, Ethylbenzene, Xylene | S, GW | Del Paso Siding Upgrade/Extension | 23 to 25 |
| Geotracker SLT5S4693421 | John Taylor Fertilizers (currently the Wilbur Ellis Facility) | Nitrate, Ammonium | S | Natomas/Sacramento Airport Station | 45 |
| Geotracker T0606701095 | Central Concrete Supply Co. (currently Bay Cities Building Materials) | Petroleum hydrocarbons | S, GW | Natomas/Sacramento Airport Station | 29 to 45 |

Sources: Department of Toxic Substances Control 2019; State Water Resources Control Board 2019; California Department of Water Resources 2018; JD Smith Consulting 2013
 Notes:

1. Site names (including spellings) are derived directly from the database.
 2. The Potential Media Affected column indicates the potential media in the component footprint that may have been affected by the hazardous materials release site. Release sites outside of the component footprint are not considered likely to have affected soils in the component footprint.
- S = Site in footprint of project component and may have contaminated site soils.
 GW = Site in 0.25 mile of project component and may have contaminated site groundwater.
- DCA = Dichloroacetic Acid
 PAHs = Polynuclear Aromatic Hydrocarbons
 VOCs = Volatile Organic Compounds
 OCPs = Organochlorine Pesticides
 ACM = Asbestos-Containing Material
 PCB = Polychlorinated Biphenyl
 PCE = Perchloroethylene
 TCA = Trichloroacetic Acid
 TCE = Trichloroethylene
 TCP = Trichloropropane
 TPH = Total petroleum Hydrocarbons

Naturally Occurring Asbestos from Bedrock

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos fibers can be released when such rock is broken or crushed, and may become airborne, causing air quality and human health hazards. Asbestos is a known carcinogen, and inhalation of asbestos fibers may result in the development of lung cancer or mesothelioma. Geologic mapping by USGS does not show any areas of ultramafic rock in the hazardous materials study area (Van Gosen and Clinkenbeard 2011). Therefore, naturally occurring asbestos in bedrock would not be expected to be encountered in the study area for any of the project component footprints.

Summary of Hazardous Materials Sources

The potential sources of hazardous materials identified in the study area and the primary hazardous materials of concern (that could have affected soil, ballast, groundwater, and building materials) in the study area of the project improvements are summarized in Table 3.9-3.

Table 3.9-3. Hazardous Materials Sources with Potential to Affect Existing Conditions in the Sacramento Extension Component Footprints

| Project Component | Bridges | Building Structures | Roadways/ Parking Lots | Railroad Corridors | Major Roadway Corridors | Agricultural Land | Petroleum pipelines | Hazardous Materials Release Sites |
|---|---------|---------------------|---------------------------|--------------------|-------------------------|-------------------|---------------------|-----------------------------------|
| Stockton to Lodi Segment | | | | | | | | |
| Track Curve Reconstruction between East March Lane and East Swain Road | | -- | -- | BM, S, B | -- | -- | S, GW | GW |
| Hammer Lane Siding Upgrade | BM | -- | -- | BM, S, B | S | S | -- | -- |
| Lodi Station | -- | -- | BM | BM, S, B | S | S | -- | -- |
| Lodi Station South Alternative | -- | -- | BM | BM, S, B | -- | S | -- | -- |
| Lodi Siding Variants | -- | -- | BM | BM, S, B | S | S | -- | -- |
| Lodi to Elk Grove Segment | | | | | | | | |
| Thornton Siding Upgrade/Extension and Track Curve Reconstruction North of North New Hope Road | -- | -- | BM | BM, S, B | -- | S | -- | -- |
| Track Curve Reconstruction South of Desmond Road | -- | -- | -- | BM, S, B | -- | S | -- | -- |
| Phillips Siding Upgrade/Extension | -- | -- | BM | BM, S, B | -- | S | -- | -- |
| North Elk Grove Station (including all access and platform variants) | BM | -- | BM | BM, S, B | -- | S | -- | -- |
| Elk Grove to Natomas Segment | | | | | | | | |
| Track Curve Reconstruction North of North Elk Grove Station | -- | -- | -- | BM, S, B | -- | S | -- | -- |
| Pollock Siding Upgrade | -- | -- | BM | BM, S, B | S | S | -- | -- |
| South Sacramento Siding Upgrade | -- | -- | BM | BM, S, B | S | S | -- | GW |

| Project Component | Bridges | Building Structures | Roadways/ Parking Lots | Railroad Corridors | Major Roadway Corridors | Agricultural Land | Petroleum pipelines | Hazardous Materials Release Sites |
|--|---------|---------------------|---------------------------|--------------------|-------------------------|-------------------|---------------------|-----------------------------------|
| Crossover Track South of City College Station | -- | -- | -- | BM, S, B | -- | S | -- | -- |
| City College Station | -- | -- | BM | BM, S, B | S | S | -- | GW |
| Midtown Sacramento Station and Area Improvements | -- | -- | BM | BM, S, B | S | -- | S, GW | GW |
| Old North Sacramento Station | -- | BM | BM | BM, S, B | S | -- | -- | S, GW |
| Del Paso Siding Upgrade/Extension | BM | -- | BM | BM, S, B | S | S | -- | GW |
| Natomas/Sacramento Airport Station | -- | BM | BM | BM, S, B | S | S | -- | S, GW |

BM = building material
S = soil

B = ballast
GW = groundwater

Notes: Petroleum pipelines and hazardous materials release sites outside the improvement footprints would not be expected to affect the chemical quality of soil in the footprint.

3.9.3.2 Overview of Existing Schools in Study Area

Eleven existing public and private schools and one planned public school with grades ranging from pre-kindergarten to 12th grade were identified within 0.25 mile of the footprints of the individual improvements of the proposed project, based on a review of federal records from the National Center for Education Statistics (2018) for private schools and records from the GreenInfo Network for public schools (2018). These schools are summarized in Table 3.9-4.

The following project improvements have schools within 0.25 mile of their footprint:

- Track Curve Reconstruction between East March Lane and East Swain Road;
- Hammer Lane Siding Upgrade;
- Lodi Siding Variants;
- Track Curve Reconstruction North of North New Hope Road;
- Pollock Siding Upgrade;
- South Sacramento Siding Upgrade;
- City College Station; and
- Midtown Sacramento Station.

Table 3.9-4. Existing and Proposed Schools within the Study Area

| School Name | Address | Project Component(s) within 0.25 Mile |
|---------------------------------|--|--|
| Acacia Middle Charter | | Hammer Lane Siding Upgrade |
| Acacia Elementary Charter | 703 East Swain Road, Stockton | Track Curve Reconstruction between East March Lane and East Swain Road |
| Delta Bridges Charter | | |
| Turner Academy | 18051 North Ray Road, Lodi | Lodi Siding Variants |
| New Hope Elementary | 26675 North Sacramento Boulevard, Thornton | Track Curve Reconstruction North of North New Hope Road |
| Cesar Chavez Intermediate | 7500 32nd Street, Sacramento | Pollock Siding Upgrade |
| Luther Burbank High | 3500 Florin Road, Sacramento | Pollock Siding Upgrade |
| Collis P. Huntington Elementary | 5921 26th Street, Sacramento | South Sacramento Siding Upgrade |
| C. K. McClatchy High | 3066 Freeport Boulevard, Sacramento | City College Station and South Sacramento Siding Upgrade |
| Eliezer Christian Academy | 4311 Attawa Avenue, Sacramento | City College Station and South Sacramento Siding Upgrade |
| Washington Elementary | 520 18th Street, Sacramento | Midtown Sacramento Station Area Improvements |
| | | |

Sources: National Center for Education Statistics 2018; GreenInfo Network 2018.

3.9.3.3 Overview of Existing Airports in Study Area

Several of the project improvements are within 2 miles of a public use airport, as shown in Table 3.9-5.

Table 3.9-5. Airports and Public Use Airstrips within the Project Area

| Facility (FAA ID) | Address | Project Components with 2 miles |
|------------------------------------|---------------------------------------|--|
| Kingdon Airpark (O20) | 12145 Devries Road Lodi | Lodi Station Lodi Station South Alternative Lodi Siding Variants |
| Franklin Field (F72) | 12480 Bruceville Road Elk Grove | Philips Siding Upgrade/Extension Track Curve Reconstruction South of Desmond Road |
| Sacramento Executive Airport (SAC) | 6151 Freeport Boulevard Sacramento | Pollock Siding Upgrade City College Station South Sacramento Siding Upgrade Crossover Track South of City College Station |
| Rio Linda (L36) | 931 E Street Rio Linda | Natomas/Sacramento Airport Station |

Note: Bold indicates those project improvements that are partially located in the land use planning area of the airport.

Kingdon Airpark is a privately owned, public use airfield, approximately 4 miles southwest of the City of Lodi. The airpark hosts a variety of aviation activities, including pilot training and aerial application of agricultural chemicals (crop dusting) and is home to the Delta Flying Club (SJCAS

2018). The Lodi Station South Alternative and the southern portions of the Lodi Siding Variants would be constructed within the Airport Influence Area for Kingdon Airpark identified in the San Joaquin County Aviation System Airport Land Use Compatibility Plan (SJCAS 2018). The Lodi Station would be constructed within 2 miles of Kingdon Airpark, but the footprint is outside the Airport Influence Area. Lodi Airpark, adjacent to Kingdon Airpark, is more than 2 miles from the nearest project component footprint.

Franklin Field is a publicly owned airfield operated by Sacramento County, approximately 7 miles southwest of the City of Elk Grove (SACOG 1992a). The airfield is used by general aviation aircraft, both single- and multi-engine types, for training and touch-and-go activity. Crop dusters also use the facility during the planting and spraying season. The Comprehensive Land Use Plan (CLUP) for Franklin Field identifies Approach-Departure Zones and Overflight Zones for the airport (SACOG 1992a). The southernmost approximately 0.4 mile of the Philips Siding Upgrade/Extension component is in the Overflight Zone. Although Track Curve Reconstruction South of Desmond Road would be constructed within 2 miles of the airfield, the footprint is just outside the identified Overflight Zone.

Sacramento Executive Airport is a general aviation airport, owned by the City of Sacramento and operated by Sacramento County (SACOG 1999). The airport is approximately 3 miles south of downtown Sacramento. It contains three runways and covers approximately 600 acres. A small portion (approximately 0.3 mile, between 24th and 29th Avenues) of the South Sacramento Siding Upgrade would be constructed in the Approach-Departure Zone 2, and areas to the south of 29th Avenue are in the Overflight Zone. The Crossover Track South of City College Station is also in Approach-Departure Zone 2. Although the City College Station and Pollock Siding Upgrade would be constructed within 2 miles of this airport, no portions of these improvements are in identified land use zones of the CLUP (SACOG 1999).

Rio Linda Airport is a privately owned, public use airfield on a 40-acre site, approximately 6 miles north of downtown Sacramento. No project improvements would be constructed in the identified land use zones of the CLUP (SACOG 1992b); however, the Natomas/Sacramento Airport Station would be constructed within 2 miles of the airport.

3.9.3.4 Overview of Wildfire Hazard Zones

According to the California Department of Forestry and Fire Protection's (CAL FIRE's) Fire and Resource Assessment Program fire hazards severity zone maps for San Joaquin and Sacramento counties, none of the project improvements would occur in areas identified as moderate, high, or very high fire hazard severity zones (CAL FIRE 2007a, 2007b, 2012a, 2012b).

3.9.4 Environmental Analysis

3.9.4.1 Thresholds of Significance

The State CEQA Guidelines Appendix G (14 CCR 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on hazards and hazardous materials. The project would result in a significant impact on hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

3.9.4.2 Impacts and Mitigation Measures

Impact HAZ-1: The proposed project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials (Less-than-Significant Impact).

Construction

Construction activities associated with project improvements are expected to involve the routine transport, use, and disposal of hazardous materials (e.g., fuels, paints, and lubricants) that could pose a significant threat to human health or the environment if not properly managed. The transport, use, and disposal of hazardous materials during construction is regulated and enforced by federal and state agencies.

Workers who handle hazardous materials are required to adhere to OSHA and Cal/OSHA health and safety requirements. During construction, hazardous materials must be transported in accordance with the RCRA and USDOT regulations, stored in accordance with the Unified Program enforced by local CUPAs, and disposed of in accordance with RCRA and the CCR at a facility permitted to accept the waste.

In accordance with the State Water Boards, a stormwater pollution prevention plan (SWPPP) must be prepared and implemented during construction for coverage under the Construction General Permit. As detailed in Section 3.10, *Hydrology and Water Quality*, the SWPPP requires implementation of Best Management Practices (BMPs) for hazardous materials storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing stormwater collection systems or waterways.

Therefore, adherence to federal and state regulations reduces the risk of exposure to hazardous materials used during construction, as well as the accidental release of hazardous materials. Compliance with existing regulations is mandatory; therefore, construction of the proposed project is not expected to create a hazard to construction workers, the public, or the environment through the routine transport, use, disposal, or accidental release of hazardous materials. As a result, impacts related to the routine transport, use, disposal, or accidental release of hazardous materials during construction of the proposed project would be less than significant, and no mitigation is required.

Operation

Operation and maintenance activities associated with the proposed project are expected to involve the routine use of diesel to power locomotives, and pesticides to clear vegetation from track areas, similar to current operations. Routine transport, use, and disposal of such hazardous materials could result in the exposure of workers, the public, and/or the environment to hazardous materials if the materials are not properly managed.

The transport, use, and disposal of hazardous materials during operation is regulated and enforced by federal and state agencies. Workers who handle hazardous materials are required to adhere to OSHA and Cal/OSHA health and safety requirements, which limit potential exposure of workers to hazardous materials by requiring appropriate administrative or engineering controls. Pesticides use for vegetation removal near the tracks would be required to comply with DPR regulations, which are intended to protect human health and the environment. Hazardous materials must be transported in accordance with RCRA and USDOT regulations; managed, stored, and used in accordance with the Unified Program enforced by local CUPAs; and disposed of in accordance with RCRA and CCR at a facility permitted to accept the waste.

Therefore, adherence to federal and state regulations and the Unified Program reduces the risk of exposure to hazardous materials. Compliance with existing regulations and the Unified Program is mandatory; therefore, operation and maintenance of the proposed project is not expected to create a hazard to the public or the environment through the routine transport, use, disposal, or accidental release of hazardous materials. As a result, impacts related to the routine transport, use, or disposal of hazardous materials during operation and maintenance of the proposed project analyzed in this environmental document would be less than significant, and no mitigation is required.

Impact HAZ-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment. However, this potentially significant impact would be reduced to a less-than-significant level through implementation of Mitigation Measures HAZ-2.1, HAZ-2.2, HAZ-2.3, and AQ-2.3, (Less-than Significant Impact with Mitigation).

Construction

Construction of the proposed project is expected to involve the disturbance of existing hazardous materials in soil, ballast, groundwater, and building, roadway, and railroad structures, which could result in the release of hazardous materials into the environment. The potential sources of

hazardous materials identified in the study area that could have affected existing conditions in the footprint of each proposed project component are summarized above in Table 3.9-3.

As discussed above, construction could include the removal and disposal of chemically treated railroad ties and the disturbance of soil and ballast potentially contaminated from operation of the existing railroad corridors. In addition, construction of the Hammer Lane Siding Upgrade and Del Paso Siding Upgrade/Extension could disturb potentially hazardous building materials associated with existing bridges. Construction of the Old North Sacramento Station and Natomas/Sacramento Airport Station could also disturb potentially hazardous building materials associated with existing buildings. Construction and maintenance of the Lodi Station and Lodi Siding Variants; Thornton Siding Upgrade/Extension; Track Curve Reconstruction North of North New Hope Road; Philips Siding Upgrade/Extension; ~~North Elk Grove Station (including all access and platform variants)~~; Pollock Siding Upgrade; City College Station; South Sacramento Siding Upgrade; Midtown Sacramento Station and Area Improvements; Old North Sacramento Station; Del Paso Siding Upgrade/Extension; and Natomas/Sacramento Airport Station could include removal and disposal of potential yellow traffic stripes and pavement markings from roadways or parking lots.

Soil underlying project improvements (except for Track Curve Reconstruction between East March Lane and East Swain Road; Midtown Sacramento Station; and Old North Sacramento Station) could be contaminated with pesticide residues from historical agriculture operations. Soil underlying the Lodi Station and Lodi Siding Variants could potentially be contaminated with aerially deposited lead from major roadway corridors. Soil and/or groundwater underlying the Track Curve Reconstruction between East March Lane and East Swain Road and the Midtown Sacramento Station area improvements could be contaminated from undocumented releases of petroleum (if any) from petroleum pipelines.

Groundwater underlying the Track Curve Reconstruction between East March Lane and East Swain Road; South Sacramento Siding Upgrade; City College Station; Midtown Sacramento Station; Old North Sacramento Station, Del Paso Siding Upgrade/Extension; and Natomas/Sacramento Airport Station could be contaminated from nearby hazardous materials release sites; and soil underlying the Old North Sacramento Station and Natomas/Sacramento Airport Station could be contaminated by on-site hazardous materials release sites. More information regarding potential contamination at these specific project component sites is provided under discussion of Impact HAZ-4, below.

Construction of the proposed project would involve soil and ballast disturbance up to a depth of 80 feet, which could be deep enough to encounter groundwater in some locations. Therefore, construction could result in the disturbance of potentially contaminated soil, ballast, and/or groundwater, which could affect the health of construction workers and/or the public through direct contact or inhalation of contaminated dust particles; or could result in the release or migration of contaminants to the environment. The disturbance of potentially contaminated soil, ballast, and/or groundwater is a potentially significant impact.

Construction of the proposed project could also result in the disturbance and release of hazardous building materials (e.g., LBP or ACM) that could pose a health risk to construction workers, the public, and/or the environment if not handled and disposed of properly. Adherence to federal and state laws and regulations reduces the risk of exposure to and improper disposal of hazardous

building materials. Compliance with existing laws and regulations is mandatory; therefore, the disturbance of hazardous building materials during construction of the proposed project is not expected to create a hazard to construction workers, the public, and/or the environment. As a result, impacts related to the disturbance of hazardous building materials during construction of the proposed project would be less than significant, and no mitigation is required.

Mitigation Measures: The following mitigation measures would require a voluntary oversight agreement, site investigations, a construction risk management plan (CRMP), and fugitive dust controls, respectively.

Implementation of Mitigation Measures HAZ-2.1, HAZ-2.2, HAZ-2.3, and AQ-2.3 would reduce impacts from the disturbance of potentially contaminated soil, ballast, and/or groundwater during construction and maintenance to a less-than-significant level.

HAZ-2.1: Implement voluntary oversight agreement.

Prior to construction, SJRRC will establish an agreement with a state regulatory agency to oversee the investigation and management (described in Mitigation Measures HAZ-2.2, HAZ-2.3, and AQ-2.3) of contaminated soil, ballast, and/or groundwater that would potentially be disturbed by construction of the proposed project. Regulatory agency oversight may be provided by, but is not limited to, the State Water Board under the Site Cleanup Program, or DTSC under the Voluntary Cleanup Program.

HAZ-2.2: Conduct site investigations.

Prior to construction, SJRRC will conduct a site investigation for project improvements to evaluate the chemical quality of soil, ballast, and/or groundwater that could be disturbed during construction activities. A licensed professional will prepare a work plan describing how representative samples of soil, ballast, and groundwater will be collected and analyzed for potential contamination in each component from the following potential sources of hazardous materials:

- Railroad corridors;
- Major roadway corridors;
- Agricultural land;
- Petroleum pipelines; and
- Hazardous materials release sites.

Work plans will be submitted to the appropriate oversight agency for review and approval. In accordance with the approved work plans, the site investigations will be conducted and evaluated by a licensed professional for the proposed project. A technical report summarizing the field activities and analytical results will be submitted to the appropriate oversight agency for review and approval.

HAZ-2.3: Implement a construction risk management plan (CRMP).

Prior to construction, SJRRC will prepare a CRMP for the project improvements that provides a framework for proper characterization and management of contaminated soil, ballast, and groundwater that could be disturbed during construction activities. The CRMP will describe how to meet the following key objectives:

- Identify various scenarios under which large volumes of soil and railroad ballast generated during construction can be safely reused.
- Identify maximum acceptable contaminant levels to protect workers, passengers, the public, and ecological receptors for each soil and ballast reuse scenario.
- Identify maximum acceptable contaminant levels to protect station workers and passengers potentially exposed to vapor intrusion, if any, from soil or groundwater contamination.
- Identify sampling and analysis, stockpiling, transportation, health and safety, and other procedures by which soil and ballast must be managed to meet safety, regulatory and other standards.
- Define how the groundwater that would be encountered during construction will be characterized, properly managed, and discharged or disposed to a permitted facility.

Based on the analytical results of the site investigations required under HAZ-2.2, maximum acceptable contaminant levels will be established for the following soil and ballast reuse scenarios:

- “Unrestricted Onsite Reuse,” in which soil and ballast excavated from the project component footprints can be reused in any onsite area;
- “Stations Reuse,” in which soil and ballast excavated from the project component footprints can be reused in station areas where there is anticipated to be relatively frequent potential exposure;
- “Right-of-Way Reuse,” in which soil and ballast excavated from the project component footprints can be reused in areas where there is anticipated to be relative infrequent potential exposure along the ROW of the tracks; and
- “Encapsulation,” in which soil and ballast excavated from the project component footprints can be reused under barriers or other structures (and covered on all exposed sides by clean material).

To protect ecological receptors, the reuse scenarios will incorporate additional limitations, as necessary, near creeks, surface waters, or other aquatic habitats based on the findings of an ecological risk assessment. Soil or ballast that contains chemical constituents at levels greater than the acceptable reuse scenarios will be disposed of in accordance with RCRA and CCR at a facility permitted to accept the waste. Imported fill materials will be characterized to demonstrate they satisfy the criteria for “Unrestricted Onsite Reuse” established in the CRMP.

All extracted groundwater will be considered potentially affected and require characterization to determine the appropriate treatment requirements (if necessary) for discharge or disposal. The extracted groundwater will be collected and managed for disposal or treatment prior to discharge in compliance with local and state regulations and permit requirements. Based on the preliminary groundwater analytical results from the site investigations required under HAZ-2.2, groundwater discharge and disposal options may include the following:

- Discharge directly to receiving waters;
- Discharge to the local sanitary sewer system;
- Discharge to the storm drain system; and
- Disposal/recycling at an appropriately permitted offsite facility.

Health and safety procedures described in the CRMP will include requirements for an air quality monitoring program during excavation in areas with elevated contaminants of concern to ensure that fugitive dust emissions do not pose an unacceptable health risk to workers or the public. The air monitoring program will identify action levels for total particulates that require respiratory protection, implementation of engineering controls, and ultimately, work stoppage. This monitoring program will be in addition to the fugitive dust controls required under Mitigation Measure AQ 2.3.

A licensed professional will prepare the CRMP and submit it to the appropriate oversight agency for review and approval prior to construction. The approved CRMP will be implemented during construction of the proposed project.

AQ-2.3: Implement fugitive dust control measures at all construction and staging areas to reduce construction-related fugitive dust, consistent with SJVAPCD Regulation VIII and SMAQMD Basic Emission Control Practices.

Refer to measure description under Impact AQ-1 in Section 3.3, *Air Quality*.

Operation

Potential accident conditions resulting from operation of freight and passenger trains could include the accidental release of hazardous materials such as diesel fuels or bulk chemicals being transported by freight trains. However, based on historic FRA accident/incident data, these occurrences are rare, and travel by rail remains one of the safest modes of transportation. The proposed project would result in increased services for both the San Joaquins and ACE services, as described in Chapter 2, *Project Description*. Track improvements would also allow trains to travel more quickly, and achieve speeds of up to 79 miles per hour. However, increased train movements and train speeds are not expected to substantially increase hazards to workers, passengers, or adjacent human and environmental receptors along the project corridor, because the project would result in physical changes to existing infrastructure, such as track curve reconstruction, new passing sidings, and new at-grade crossings that would make conditions safer and more efficient compared to existing conditions.

Operation of San Joaquins and ACE services with the proposed project would comply with stringent federal and state protocols and regulations intended to reduce the likelihood of accident conditions. The risk of accident conditions, including the accidental release of hazardous materials, are therefore not expected to increase as a result of the proposed project.

As discussed for Impact HAZ-1 above, there is a robust framework of federal, state, and local regulations outside of CEQA that are applicable to the storage, use, and disposal of hazardous materials. Compliance with these regulations would reduce the likelihood of accidental spill or releases due to mishandling or poor storage practices during project operations. Therefore, adherence to federal and state regulations and the Unified Program reduces the risk of accidental releases of hazardous materials. Compliance with existing regulations and the Unified Program is mandatory; therefore, operation and maintenance of the proposed project is not expected to create a hazard to the public or the environment through the accidental release of hazardous materials. As a result, impacts related to the accidental release of hazardous materials during operation and maintenance of the proposed project would be less than significant, and no mitigation is required.

Impact HAZ-3: The proposed Project would emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. However, implementation of Mitigation Measures HAZ 2-3 and AQ 2.3 would reduce this potentially significant impact to a less-than-significant level (Less-than-Significant Impact with Mitigation).

Construction

The handling or emission of hazardous or acutely hazardous materials near schools must consider potential health effects on children, who are considered sensitive receptors. As identified in Table 3.9-3, the Hammer Lane Siding Upgrade; Track Curve Reconstruction East March Lane to East Swain Road; Lodi Siding Variants; Pollock Siding Upgrade; South Sacramento Siding Upgrade; City College Station; and Midtown Sacramento Station improvements would be within 0.25 mile of one or more schools. Construction of other project improvements are not within 0.25 mile of a school, and therefore would not impact schools.

The primary exposure pathway of concern for children at schools within 0.25 mile of a project improvement during project construction is through the inhalation of air contaminants, such as particulate matter, which could come from the following construction-related sources:

- Diesel particulate matter from the exhaust of construction equipment;
- Emissions of hazardous vapors or fine particulates during routine use of hazardous materials during construction; and
- Fugitive dust emissions from disturbance of existing soil and/or ballast contamination during construction activities.

Emissions of diesel particulate matter from construction equipment could pose health risks to nearby sensitive receptors, as discussed in Section 3.3, *Air Quality*. Based on conservative air dispersion modeling and health risk analyses, it was determined that emissions of diesel particulate matter from construction equipment could pose health risks to nearby sensitive receptors. However, nearby sensitive receptors potentially affected would not include schools.

As discussed in relation to Impact HAZ-2 above, hazardous materials used during construction of the proposed project would be managed in accordance with applicable laws and regulations, and would not be expected to create a hazard to human health for nearby receptors, including schools.

As also discussed under Impact HAZ-2 above, construction activities that disturb existing soil and/or ballast contamination could generate dust that poses a health risk to the public, which includes nearby schools. Construction of the Track Curve Reconstruction between East March Lane and East Swain Road; Hammer Lane Siding Upgrade; Lodi Siding Variants; Pollock Siding Upgrade; South Sacramento Siding Upgrade; City College Station; and Midtown Sacramento Station area improvements could generate dust from the disturbance of potentially contaminated soil and/or ballast that could have a potentially significant impact on the health of children at nearby schools.

Mitigation Measures: The following mitigation measures would require air quality monitoring and dust control measures during excavation in areas with elevated contaminants of concern. Implementation of Mitigation Measures HAZ-2.3 and AQ-2.3 would mitigate potential impacts on school children from emissions of contaminated dust from construction activities at the Track Curve Reconstruction East March Lane to East Swain Road; Hammer Lane Siding Upgrade; Lodi Siding Variants; City College Station; Midtown Sacramento Station area improvements; Track Curve Reconstruction North of North New Hope Road; and Pollock Siding Upgrade to a less-than-significant level.

HAZ-2.3: Implement a construction risk management plan (CRMP).

Refer to measure description under discussion of Impact HAZ-2 above.

AQ-2.3: Implement fugitive dust control measures at all construction and staging areas to reduce construction-related fugitive dust, consistent with SJVAPCD Regulation VIII and SMAQMD Basic Emission Control Practices.

Refer to measure description under Impact AQ-1 in Section 3.3, *Air Quality*.

Operation

Of those project improvements that are within 0.25 mile of one or more schools (Track Curve Reconstruction between East March Lane and East Swain Road; Hammer Lane Siding Upgrade; Lodi Siding Variants; Track Curve Reconstruction North of North New Hope Road; Pollock Siding Upgrade; South Sacramento Siding Upgrade; City College Station; and Midtown Sacramento Station), the primary exposure pathway of concern for children at nearby schools during project operation is through the inhalation of air contaminants, such as particulate matter, which could come from the following operation-related sources:

- Diesel particulate matter from the exhaust of diesel engines associated with increased passenger rail service;
- Emissions of hazardous vapors or fine particulates during routine use of hazardous materials during operation; and
- Accidental releases of hazardous vapors or fine particulates due to rail accidents.

Emissions of diesel particulate matter from increased operation of San Joaquin and ACE services during operation of the proposed project would not pose substantial health risks to nearby sensitive receptors, such as schools, as discussed in more detail in Section 3.3, *Air Quality*.

As discussed for Impacts HAZ-1 and HAZ-2 above, there is a robust framework of federal, state, and local regulations outside of CEQA that are applicable to the storage, use, and disposal of hazardous materials. Compliance with these regulations would reduce the likelihood of accidental spill or releases due to mishandling or poor storage practices during project operations, and measures taken in compliance with these regulations to protect maintenance workers using hazardous materials from overexposure would also serve to protect nearby sensitive receptors such as schools and the general public.

As discussed for Impact HAZ-2 above, despite increased train frequency of San Joaquin and ACE services during operation of the project, the proposed track improvements and upgrades would improve safety. Stringent federal and state protocols and regulations intended to reduce the likelihood of accident conditions would continue to be complied with. Accident conditions, including the accidental release of hazardous materials, are therefore not expected to increase with the proposed project. Therefore, operation of the proposed project would result in a less-than-significant impact from hazardous emissions within one-quarter mile of schools, and no mitigation is required.

Impact HAZ-4: Various project improvements would be located on sites that are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. However, implementation of Mitigation Measures HAZ-2.1, HAZ-2.2, HAZ-2.3, and AQ-2.3 would reduce this potentially significant impact to a less-than-significant level (Less-than-Significant Impact with Mitigation).

Construction

As shown in Table 3.9-2, the Hammer Lane Siding Upgrade, Lodi Station, Lodi Station South Alternative, Lodi Siding Variants, Thornton Siding Upgrade/Extension, Track Curve Reconstruction North of North New Hope Road, Track Curve Reconstruction South of Desmond Road, Phillips Siding Upgrade/Extension, ~~North Elk Grove Station (including all access and platform variants)~~, Track Curve Reconstruction North of the ~~North Elk Grove Station~~, and Pollock Siding Upgrade improvements are not located on or within 0.25 mile of a listed hazardous materials release site with potential to have caused contamination of site soils or groundwater; therefore, construction of these improvements would not create a potentially significant hazard to the public or the environment.

The Old North Sacramento Station footprint overlaps two listed hazardous materials sites: the Universal Chemical Company (EnviroStor database); and the Continental Chemical Co (GeoTracker database). Both sites are at the address of 2175 Acoma Street, and appear to be associated with the same facility that occupies the majority of the Old North Sacramento Station footprint. Information available on EnviroStor for the Universal Chemical Company site indicates that the case was referred to the Regional Water Quality Control Board (RWQCB) in 1981. In 2010, the Central Valley RWQCB issued a Cleanup and Abatement Order for the Continental Chemical Co site, requiring groundwater monitoring and remediation (Central Valley RWQCB 2010). The Continental Chemical Co site is contaminated with volatile organic compounds (VOCs), including chlorinated solvents, which have migrated below the property to the north of

the site (Central Valley RWQCB 2010). A soil vapor extraction (SVE) system was installed and operated on the site from 1999 to 2002, and a workplan for rebuilding, startup, and operation and maintenance of the existing SVE system was prepared for the site in 2011 (JD Smith Consulting 2011). However, as of 2013, the workplan and operation of the SVE system had not been implemented (JD Smith Consulting 2013). Groundwater monitoring was performed periodically between 2010 and 2013, which documented elevated VOC concentrations in groundwater.

A contaminated groundwater plume associated with the former Central Concrete Supply Company is present immediately adjacent to and west of—and may be located directly underneath—the Natomas/Sacramento Airport Station (depending on final site design). The direction of groundwater flow is to the east, towards the proposed Natomas/Sacramento Airport Station. Project improvements that could occur directly on top of or immediately adjacent to the contaminated groundwater plume consist of excavation for the foundation of the station platform and associated underground utilities, and installation of new railway tracks. The depth to groundwater in the vicinity of the plume ranges from 29 to 49 feet below ground surface (bgs) (Kleinfelder 2012). Excavation for the new station platform, underground utilities, and the new rail line would not exceed 5 feet bgs. Therefore, excavation for these proposed improvements is unlikely to encounter contaminated groundwater. However, land use controls are in place at this hazardous materials site to prevent contact with groundwater, and prevent land uses other than industrial. Consultation with State Water Board would be required prior to the start of construction activities in the vicinity of the former Central Concrete Supply site. The impacts associated with disturbance of potentially contaminated groundwater at these improvements are addressed in the discussion of Impact HAZ-2, above.

The footprints of the track reconstruction in the vicinity of the proposed Midtown Sacramento Station (on the southeastern side of I street) and the Del Paso Siding Upgrade/Extension (at the southern end) are both on a listed hazardous materials site. The Mel's Cargo Supply site resulted in a small contaminated groundwater plume that extends eastward underneath the existing UPRR tracks and the proposed track improvements at the southern end of the Del Paso Siding Upgrade/Extension. The Lawrence Mayflower Moving & Storage site resulted in a contaminated groundwater plume on the southern side of I Street extending off-site to the west, partially underneath the existing UPRR tracks and the proposed Midtown Sacramento Station track improvements. The impacts associated with disturbance of potentially contaminated groundwater at these improvements are addressed in the discussion of Impact HAZ-2, above.

The footprints of the Track Curve Reconstruction between East March Lane and East Swain Road; South Sacramento Siding Upgrade; and City College Station are not on a listed hazardous materials site, but are within 0.25 mile of such a listed site; therefore, groundwater in these footprints may have been affected by contaminants from a listed site. The impacts associated with disturbance of potentially contaminated groundwater at these improvements are addressed in the discussion of Impact HAZ-2, above.

As discussed under Impact HAZ-2, construction and maintenance that disturbs existing soil and/or groundwater contamination from hazardous materials release sites could pose a health risk to construction workers, maintenance workers, the public, and/or the environment if not characterized, handled, and disposed of properly, which is a significant impact.

Mitigation Measures: The following mitigation measures would require a voluntary oversight agreement, site investigations, a CRMP, and fugitive dust controls, respectively. Therefore, implementation of Mitigation Measures HAZ-2.1, HAZ-2.2, HAZ-2.3, and AQ-#. # would reduce impacts from the disturbance of soil or groundwater contaminated by listed hazardous materials release sites to a less-than-significant level.

HAZ-2.1: Implement voluntary oversight agreement.

Refer to measure description under discussion of Impact HAZ-2 above.

HAZ-2.2: Conduct site investigations.

Refer to measure description under discussion of Impact HAZ-2 above.

HAZ-2.3: Implement a construction risk management plan (CRMP).

Refer to measure description under discussion of Impact HAZ-2 above.

AQ-2.3: Implement fugitive dust control measures at all construction and staging areas to reduce construction-related fugitive dust, consistent with SJVAPCD Regulation VIII and SMAQMD Basic Emission Control Practices.

Refer to measure description under Impact AQ-1 in Section 3.3, *Air Quality*.

Operation

The proposed project would include operation of San Joaquin and ACE services, portions of which (Old North Sacramento Station and Natomas/Sacramento Airport Station) overlap listed hazardous materials facilities, as discussed above for Construction impacts.

However, any necessary measures to protect human health and the environment during the project's operational phase would be specified during the consultation and permitting process with the State Water Board and the local CUPA, and implemented during the project's construction phase. Furthermore, operation of the proposed project would not involve excavation, grading, or other ground-disturbing activities. Therefore, no impact would occur during project operations, and no mitigation is required.

Impact HAZ-5: The proposed project would not be located in an airport land use plan, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport; nor would the project result in a safety hazard or excessive noise for people residing or working in the project area (No Impact).

Construction

As discussed above, although many project improvements are within 2 miles of nearby airports, only the Lodi Station South Alternative; Lodi Siding Variants; Philips Siding Upgrade/Extension; and South Sacramento Siding Upgrade are partially in the airport land use planning zones for the respective airports.

Staging areas and construction activities associated with these improvements would primarily occur in the existing UPRR ROW or adjacent areas, and would not intrude in required airport

setbacks or be inconsistent with FAA height or safety policies. The maximum height of structures to be erected during construction would be approximately 40 feet above grade at the Lodi Station South Alternative, which would not exceed airport imaginary surfaces, obstruction standards, or other FAR requirements. Therefore, there would be no impact, and no mitigation is required.

Operation

Operation of the project in the land use planning zones of nearby airports would not increase interference with airstrip operations or introduce new land uses that could pose hazards for people residing or working in the study areas. The proposed project would be consistent with FAA height and safety policies, and would not result in obstructions. Project operations would include continued and slightly increased use of existing railroad services, and would not introduce new residents or workers in airport safety or noise zones. Therefore, there would be no impact, and no mitigation is required.

Impact HAZ-6: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan (Less-than-Significant Impact).

Construction

During the construction of the proposed project, staging areas and construction activities would primarily occur in the existing UPRR ROW. There would be limited, temporary road closures, and road construction that could potentially cause increased traffic congestion in areas where emergency vehicles operate. These improvements could potentially disrupt traffic during construction activities and interfere with emergency response times. These impacts are not expected to be substantial, because they would be temporary and occur in stages. Additionally, traffic control plans would address any impacts related to access, as described in Section 3.16, *Transportation*. Therefore, construction of the proposed project would result in less-than-significant impacts to an adopted emergency response plan or emergency evacuation plan, and no mitigation is required.

Operation

Operation of the project would be similar to existing conditions related to emergency response. The project would increase San Joaquin's and Amtrak services along the corridor, as described in Chapter 2, *Project Description*. Emergency vehicles traveling on streets that cross the at-grade crossings could potentially experience additional slight delays at the intersections due to more frequent gate-down events with increased train trips. However, this potential delay would be minimal, likely on the order of 1 minute per event. Therefore, gate-down times and delays at intersections are not expected to significantly increase.

Traffic congestion from passengers driving to and from proposed stations is not anticipated to cause delays to emergency vehicle response times. Emergency vehicles often identify and use multiple routes depending on time of day and traffic conditions. Peak-period traffic congestion generally does not result in delay for emergency vehicles, which have the right-of-way and often use multi-lane major arterials for access. Emergency vehicles also are permitted to use transit-only lanes or other vehicle-restricted lanes, if necessary. Therefore, operation of the proposed project would result in less-than-significant impacts, and no mitigation is required.

Impact HAZ-7: The proposed project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires (No Impact).

Construction

Based on review of CAL FIRE's Fire and Resource Assessment Program, and fire hazards severity zone maps for San Joaquin and Sacramento counties, there are no wildfire hazard zones at or above "moderate" level in the study areas (CAL FIRE 2007a, 2007b, 2012a, 2012b). Therefore, construction of the proposed project would not occur in wildland fire risk areas. In addition, all construction activities would be conducted in accordance with all requirements established by the County Fire Marshall's office, local jurisdictions, and other applicable fire code regulation for the construction of the proposed project. Therefore, there would be no impacts, and no mitigation is required.

Operation

Operation of the proposed project would not occur in wildfire risk areas. Nonetheless, operation of the new stations would be in compliance with applicable building code and fire code regulations per city, county, and state requirements. These include installing sprinkler systems, installing and maintaining fire extinguishers and fire alarm systems, and using fire-retardant building materials. Therefore, the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Therefore, there would be no impacts, and no mitigation is required.

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3.10 Hydrology and Water Quality

3.10.1 Introduction

This section describes the regulatory and environmental setting for hydrology and water quality in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on hydrology and water quality that would result from the implementation of the proposed project and the mitigation measures that would reduce significant impacts, where feasible and appropriate.

Cumulative impacts on hydrology and water quality, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to hydrology and water quality were received:

- construction of project-related improvements in floodways as related to policies contained in the Delta Plan;
- permits that must be obtained from the Central Valley Regional Water Quality Control Board;
- increases in peak surface water runoff from the construction of new impervious surfaces;
- stormwater discharge requirements, including hydraulic studies, related to Caltrans facilities;
- permits that must be obtained from Caltrans;
- construction of project-related facilities in Federal Emergency Management Agency flood hazard zones;
- permits that must be obtained for work conducted in a federal project levee;
- project effects on ongoing and future flood protection work (i.e., levee improvements) in the Natomas area;
- requirements for hydraulic studies related to Reclamation District 1000 (RD 1000) facilities in the Natomas Basin; and
- the potential for groundwater contamination from now deleted elements of the proposed project, including the maintenance and layover facility.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.10.2 Regulatory Setting

This section summarizes the federal, state, regional, and local regulations related to hydrology and water quality that are applicable to the proposed project.

3.10.2.1 Federal

Clean Water Act

The primary federal law governing water quality is the Clean Water Act (CWA) of 1972. The CWA provides for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. The CWA emphasizes technology-based (end-of-pipe) control strategies and requires discharge permits for the use of public resources for waste discharge. The CWA also limits the amount of pollutants that may be discharged and requires wastewater to be treated with the best treatment technology that is economically achievable, regardless of receiving water conditions. The control of pollutant discharge is established through National Pollutant Discharge Elimination System (NPDES) permits that list effluent limitations and standards. The U.S. Environmental Protection Agency (EPA) has delegated the responsibility for the implementation of portions of the CWA, such as Sections 303, 401, and 402 (discussed in this section), to the State Water Resources Control Board (State Water Board).

National Flood Insurance Program

In response to the increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded, flood-control structures and disaster relief by restricting development on floodplains. The National Flood Insurance Program (NFIP) was created as a result of the passage of the National Flood Insurance Act of 1968. The Federal Emergency Management Agency (FEMA) administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations by limiting development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. A FIRM is the official map of a community prepared by FEMA to delineate both the special flood hazard areas (SFHAs) and the flood risk premium zones applicable to the community.

The NFIP applies to proposed project improvements because portions of the corridor are in FEMA-designated SFHAs, as discussed above. SFHAs are defined as the areas that will be inundated by a flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance flood is also referred to as the *base flood* or *100-year flood*.

U.S. Army Corps of Engineers Section 404 Permit

The discharge of dredged or fill material into waters of the United States is subject to permitting under Section 404 (Discharges of Dredge or Fill Material) of the CWA. Section 404 of the CWA regulates the placement of fill material into the waters of the United States. Section 404 Permits are administered by the U.S. Army Corps of Engineers (USACE).

The proposed project improvements would be required to obtain a Section 404 Permit if structure foundations, other permanent features, or construction activities occur within federal jurisdictional waters.

U.S. Army Corps of Engineers Section 408 Permit

The sole authority to grant permission for temporary or permanent alterations of USACE-constructed public works projects, including levees in the Natomas Basin, is contained in Section 14 of the Rivers and Harbors Act of 1899 and codified in 33 U.S. Code Section 408. Approval for any modifications, alterations, or occupation of public works projects is granted through the USACE Section 408 program. Engineering Circular (EC) 1165-2-216 provides the policies and procedural guidance that USACE follows in processing Section 408 requests. USACE will evaluate the project for impacts to flood conveyance, structural integrity, operations and maintenance, NEPA requirements, and flood-fighting capabilities, as well as meeting USACE policy and criteria (USACE 2016).

A Section 408 permit to alter a federal levee and for modifications, additions, and deletions to State Plan of Flood Control facilities (which are part of the joint federal-state flood protection system) would be required if structure foundations, other permanent features, or construction activities occur within federal jurisdictional levees.

3.10.2.2 State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter Cologne) is the basic water quality control law for California. The Porter-Cologne Act authorizes the state to implement the provisions of the CWA and establishes a regulatory program to protect the water quality of the state and the beneficial uses of state waters.

The act requires project proponents whose projects would result in a discharge of wastes that could affect the quality of the state's water to file a report of waste discharge with the appropriate Regional Water Quality Control Board (Regional Water Board). The Porter-Cologne Act also requires that the State Water Board or a Regional Water Quality Board adopt basin plans for the protection of water quality. Basin plans are updated and reviewed every 3 years and provide the technical basis for determining waste discharge requirements (WDRs), taking enforcement actions, and evaluating clean water grant proposals. As required by the Porter-Cologne Act and the CWA, basin plans must include the following information:

- designated beneficial water uses,
- water quality objectives needed to protect the designated beneficial water uses, and
- strategies and time schedules for achieving the water quality objectives.

All proposed improvements lie within the jurisdiction of the Central Valley Regional Water Quality Control Board. The basin plan for the Central Valley is *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region* (Central Valley Basin Plan), last updated in 2018 (Central Valley Regional Water Quality Control Board 2018a). In addition, the proposed improvements at the Thornton Siding Upgrade/Extension and the improvements at the southern end of the Phillips Siding Upgrade/Extension are located within the boundaries of the Sacramento-San Joaquin Delta (Delta), and therefore are also within the boundaries of the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (Delta Estuary Plan) (State Water Resources Control Board 2018).

Regional Water Boards designate beneficial uses for all water body segments in their jurisdictions, and then set the criteria necessary to protect these uses. Consequently, the water quality objectives developed for particular water segments are based on the designated use and vary depending on such use. The Basin Plans specify region-wide and water body-specific beneficial uses. They include numeric and narrative water quality objectives for several substances and parameters for numerous surface waters. Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (Central Valley Regional Water Quality Control Board 2018a, State Water Resources Control Board 2018).

Clean Water Act Section 303(d) and Total Maximum Daily Loads

California adopts water quality standards to protect the beneficial uses of waters of the state as required by Section 303(d) of the CWA and the Porter-Cologne Act. The State Water Board identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If it is determined that waters of the state are impaired for one or more constituents, and the standards cannot be met through point-source or non-point-source controls (NPDES permits or WDRs), the CWA requires the establishment of total maximum daily loads (TMDLs). The implementation of this program is conducted by the Central Valley Water Board. To identify candidate water bodies for TMDL analysis, a list of water quality-impaired segments is generated by the State Water Board. These stream or river segments are impaired by the presence of pollutants and are more sensitive to disturbance because of this impairment.

In addition to the impaired water body list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report that assesses statewide surface water quality. For the current listing cycles, the State Water Board has combined its 303(d) list and the 305(b) report into the 2014 and 2016 California Integrated Report. Only the 303(d) list portion of the 2014 and 2016 California Integrated Report requires approval by the State Water Board and EPA. The 2014 and 2016 California Integrated Report was approved by the State Water Board on October 3, 2017, and approved by EPA on April 6, 2018 (State Water Resources Control Board 2017).

Clean Water Act Section 401—Water Quality Certification

Section 401 of the CWA requires an applicant that is pursuing a federal permit to conduct an activity that may result in the discharge of a pollutant to obtain a Water Quality Certification (or waiver). A Water Quality Certification requires the evaluation of water quality considerations associated with dredging or the placement of fill materials into waters of the United States. Water Quality Certifications are issued by one of the nine geographically separated Regional Water Boards in California. Under the CWA, the Regional Water Board must issue or waive a Section 401 Water Quality Certification for a project to be permitted under CWA Section 404. Where a project would take place in two or more jurisdictional regions of the Regional Water Boards, the State Water Board would issue the Water Quality Certification.

As described in Chapter 2, *Project Description*, project-related construction activities may require a Water Quality Certification if permanent facilities or construction disturbance is proposed within state jurisdictional waters.

Clean Water Act Section 402—National Pollutant Discharge Elimination System

The 1972 amendments to the Federal Water Pollutant Control Act established the NPDES permit program to control discharges of pollutants from point sources (Section 402). The 1987 amendments to the CWA created a new section of the CWA devoted to stormwater permitting (Section 402[p]). EPA has granted primary administration and enforcement of the provisions of the CWA and NPDES to the State Water Board and Regional Water Boards. NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. CWA Section 402 also includes WDRs for dewatering activities.

National Pollutant Discharge Elimination System Construction General Permit

The General NPDES Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order 2009-009-DWQ as amended by Order 2012-0006-DWQ) (Construction General Permit) regulates stormwater discharges for construction activities under CWA Section 402 (State Water Resources Control Board 2012a). Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit. The Construction General Permit requires the development and implementation of a stormwater pollution prevention plan (SWPPP). The Construction General Permit also includes post-construction stormwater performance standards that address water quality and channel protection.

The construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Proposed improvements would require a Construction General Permit because they would involve disturbances to more than 1 acre of ground, including clearing, grading, and excavation activities.

The Central Valley Water Board's NPDES Permit for Construction Dewatering Activity (Waste Discharge Requirements—Limited Threat Discharges to Surface Water, Order No. R5-2016-0079-01) authorizes three different tiers of discharge to surface waters (Central Valley Regional Water Quality Control Board 2016a). Tier 1A includes direct discharges to surface waters up to 250,000 gallons per day for up to a 4-month period each year. Tier 1A effluent water must not be contaminated and must be properly filtered or treated, using appropriate technologies such as retention in settling ponds and filtration using gravel and sand filters. Dewatering activities under Tiers 1B, 2, and 3 must include water quality testing and must meet certain Central Valley Water Board water quality standards as defined in the order. In addition, Tier 2 and 3 discharge requirements include monitoring and performance standards that, when implemented, ensure that the receiving water's quality is not substantially degraded.

The discharge of dewatering effluent is authorized under Order No. R5-2016-0079-01 if the following conditions are met:

- the discharge does not cause or contribute to a violation of any water quality standard,
- the discharge does not violate any other provision of the Construction General Permit,
- the discharge is not prohibited by the applicable basin plan,

- the discharger has included and implemented specific best management practices (BMPs) required by the Construction General Permit to prevent or reduce the contact of the non-stormwater discharge with construction materials or equipment,
- the discharge does not contain toxic constituents in toxic amounts or (other) significant quantities of pollutants,
- the discharge is monitored and meets the applicable numeric action levels, and
- the discharger reports the sampling information in the annual report.

The discharger must notify the Central Valley Regional Water Board of any anticipated non-stormwater discharges not already authorized by the Permit for Construction Dewatering Activity, to determine whether a separate NPDES permit is necessary.

National Pollutant Discharge Elimination System Municipal Stormwater Permits

CWA Section 402 mandates programmatic permits for municipalities to address stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4) (MS4 Permit). Phase I MS4 regulations cover municipalities with populations greater than 100,000, and Phase II (Small MS4) regulations cover municipalities with populations smaller than 100,000. NPDES permits for regulated MS4s require permittees to develop stormwater management plans, which describe the stormwater control practices that will be implemented, consistent with permit requirements to minimize the discharge of pollutants from the sewer system.

The State Water Board is advancing low-impact development (LID) in California as a means of complying with municipal stormwater permits. LID incorporates site design, including the use of vegetated swales and retention basins, and minimal impermeable surfaces, to manage stormwater to maintain a site's predevelopment runoff rates and volumes.

Stormwater runoff from stations and improvements associated with stations (e.g., station parking lots, platforms, roadways, walkways, and landscaped areas) would be regulated by various NPDES permits under the Municipal Storm Water Permitting Program. Currently, stormwater runoff from railroad track alignments within the Union Pacific Railroad (UPRR) right-of-way (ROW) is not actively regulated under municipal NPDES permits because UPRR is not included on the list of non-traditional Small MS4 Permittees (State Water Resources Control Board 2013). The proposed track improvements in Sacramento and San Joaquin counties would be located entirely within UPRR ROW, and therefore the NPDES permits applicable to the proposed project improvements would apply only to the proposed stations. The applicable NPDES permits are discussed in this section.

Central Valley Region

A regional Phase I MS4 NPDES Permit for municipal stormwater discharges (NPDES Permit No. CAS0085324, State Water Board Order No. R5-2016-0040) (Central Valley Monitoring and Reporting Program [MRP]) became effective for the Central Valley Region (which includes Sacramento and San Joaquin counties, as well as the cities of Stockton, Galt, Elk Grove, and Sacramento) on October 1, 2016 (Central Valley Regional Water Quality Control Board 2016b). The Central Valley MRP is administered by the Central Valley Water Board. Owners and

operators of large and medium MS4s (municipalities with populations greater than 100,000) are expected to enroll under the Central Valley MRP as their current individual Phase I MS4 Permits expire. Owners and operators of small regulated MS4s (municipalities with populations of less than 100,000) that are currently enrolled under the State Water Board's Statewide General Phase II MS4 Permit may voluntarily enroll under the Central Valley MRP.

The Central Valley MRP requires enrolled permittees to define the criteria and thresholds for the Priority Development Projects that will be required to incorporate appropriate stormwater mitigation measures, including LID source control, site design, stormwater treatment, and hydromodification management, into the design plan for their respective project. The Central Valley MRP indicates that the following projects are Priority Development Projects:

- Parking lots with 5,000 square feet or more or with 25 or more parking spaces.
- Redevelopment projects that add or create at least 5,000 square feet of impervious surface to the original developments; if the addition constitutes less than 50% of the original development, the design standard applies only to the addition.

Although the permittee's Storm Water Management Plan may include its own definition of Priority Development Projects, that definition must be designed to achieve the equivalent protection of water quality as that achieved with the above criteria (Central Valley Regional Water Quality Control Board 2016b). Proposed improvements associated with stations in the Central Valley Region would be Priority Development Projects under the Central Valley MRP because they would add or create more than 5,000 square feet of impervious surface.

California Department of Transportation National Pollutant Discharge Elimination System Permit

Stormwater discharges from California Department of Transportation (Caltrans) properties, including Caltrans ROWs, are regulated under the State Water Board's Statewide NPDES Permit No. CAS000003, State Water Board Order No. 2012-0011-DWQ as amended (Caltrans NPDES Permit) (State Water Resources Control Board 2012b). The Caltrans NPDES Permit is locally overseen by Caltrans and the Central Valley Water Board in the Central Valley Region. Projects within the Caltrans ROW that are new development or redevelopment must comply with the requirements of the *Stormwater Quality Handbooks, Project Planning and Design Guide* (California Department of Transportation 2019), which includes the following standard project planning and design requirements for new development and redevelopments:

- design pollution prevention BMPs,
- post-construction stormwater treatment controls for highway facility projects that create 1 acre or more of new impervious surface or non-highway facility projects that create 5,000 square feet or more of new impervious surface,
- hydromodification requirements, and
- stream crossing design guidelines to maintain natural stream processes.

Proposed project components that would involve improvements within existing or potential future Caltrans ROWs would be required to comply with the standard project planning and design requirements discussed above.

California Department of Pesticide Regulation

California Department of Pesticide Regulation (DPR) is the lead agency for regulating the registration, sale, and use of pesticides (including herbicides) in California. It is required by law to protect the environment, including surface waters, from the adverse effects of pesticides by prohibiting, regulating, or controlling the use of such pesticides. DPR has surface water and groundwater protection programs that address sources of pesticide residues in surface waters and has preventive and response components that reduce the presence of pesticides in surface water and groundwater. The preventive component includes local outreach and the promotion of management practices that reduce pesticide runoff and prevent continued movement of pesticides to groundwater in contaminated areas. To promote cooperation and to protect water quality from the adverse effects of pesticides, DPR and the State Water Board signed a Management Agency Agreement (MAA). The MAA and its companion document, *The California Pesticide Management Plan for Water Quality* (California Environmental Protection Agency, California Department of Pesticide Regulation, and State Water Resources Control Board 1997), are intended to coordinate interaction, facilitate communication, promote problem solving, and ultimately assure the protection of water quality.

Pesticides (including herbicides) are used as a part of current operations and maintenance to maintain and clear vegetation from the UPRR ROW. The current and future use of pesticides for vegetation removal near the track alignment and other facilities as part of operation and maintenance activities must comply with DPR regulations.

Central Valley Flood Protection Board and Central Valley Flood Protection Act of 2008

The Central Valley Flood Protection Board (CVFPB) regulates the alteration and construction of levees and floodways in the Central Valley, defined as part of the Sacramento Valley and San Joaquin Valley Flood Control Projects. The purpose and mission of the CVFPB, with authority granted under the California Water Code and Title 23 of the California Code of Regulations (Cal. Code Regs.), is threefold:

- control flooding along the Sacramento and San Joaquin rivers and their tributaries in cooperation with USACE;
- cooperate with various agencies of the federal, state, and local governments in establishing, planning, constructing, operating, and maintaining flood-control works; and
- maintain the integrity of the existing flood-control system and designated floodways through the board's regulatory authority by issuing permits for encroachments.

CVFPB requires applications to be filed for all proposed encroachments within the floodways under its jurisdiction and any levees adjacent thereto, as well as in streams that may affect those floodways. Proposed improvements would require encroachment permits from the CVFPB as improvements to railroad tracks, new railroad tracks, and new/replacement bridges would be constructed across levees and across floodways under CVFPB's jurisdiction.

The Central Valley Flood Protection Act of 2008 directed the California Department of Water Resources (DWR) to prepare the Central Valley Flood Protection Plan (CVFPP), adopted by the

CVFPB in 2012 and updated in 2017 (California Department of Water Resources 2017). The Central Valley Flood Protection Act establishes that urban areas (any contiguous area in which more than 10,000 residents are protected by State Plan of Flood Control levees) require protection from flooding that has a 0.5% annual exceedance probability (200-year flood). Portions of the proposed project in the Lodi to Elk Grove and Elk Grove to Natomas segments would encroach on levees and floodways under CVFPB's jurisdiction; therefore, compliance with the CVFPB would be required.

Urban Levee Design Criteria

California Government Code Sections 65865.5, 65962, and 66474.5 require that levees and floodwalls in the Sacramento-San Joaquin Valley provide protection against a 200-year flood event (0.5% annual exceedance probability). The Urban Levee Design Criteria (ULDC) prepared by DWR (DWR 2012) provides engineering criteria and guidance for civil engineers in meeting the government code requirements, and offers this same guidance to civil engineers working on levees and floodwalls anywhere in California. The ULDC also provides engineering criteria and guidance for DWR's urban levee evaluations and participation in urban levee projects.

Delta Stewardship Council

The Delta Stewardship Council was created as a result of Senate Bill (SB) X7 1 (Delta Reform Act of 2009) to achieve the state-mandated coequal goals for the Delta. The "coequal goals" consist of providing a more reliable water supply to California, and restoring and enhancing the Delta ecosystem. These coequal goals are to be achieved in a manner that protects the unique cultural, recreational, natural resource, and agricultural values of the Delta. The Council has seven members, along with an independent board of consulting scientists. The act also required the Council to adopt a "legally enforceable" Delta Plan. The Council adopted the Delta Plan on May 16, 2013, and the implementing regulations (23 Cal. Code Regs. Sections 5001–5016) became effective on September 1, 2013.

Through the Delta Reform Act, the Council has specific regulatory and appellate authority over certain actions that take place in whole or in part in the Delta and Suisun Marsh, which are referred to as *covered actions*. State and local agencies are required to demonstrate consistency with 14 regulatory policies identified in the Delta Plan (23 Cal. Code Regs. Sections 5001–5015) when carrying out, approving, or funding a covered action. The following policy in the Delta Plan related specifically to hydrology is related to the proposed project.

- Policy RR P3 (23 Cal. Code Regs. Section 5014). (a) No encroachment shall be allowed or constructed in a floodway, unless it can be demonstrated by appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety.

3.10.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the

requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to hydrology and water quality identified in Appendix E.

Reclamation District 1000 Drainage Requirements

Reclamation District No. 1000 (RD 1000) is a special district formed by the California State Legislature in 1911. RD 1000 maintains 42 miles of levees surrounding the Natomas Basin, over 30 miles of large drainage canals, and seven pump stations that collect and pump storm water and agricultural runoff back into the adjacent Sacramento and American River systems. RD 1000 is responsible for the operation and maintenance of the levees protecting the Natomas Basin in Sacramento and Sutter counties. RD 1000 also owns and operates the primary interior drainage conveyance system within the Natomas Basin. New development within the Natomas Basin is required to mitigate impacts to the RD 1000 drainage and flood control system. Upon review of improvement plans by RD 1000, and through coordination with each of the appropriate regulatory authorities (such as the U.S. Army Corps of Engineers, Sacramento Area Flood Control Agency, and CVFPB), new development is required to enter into drainage improvement agreements that define the facilities necessary to limit peak discharge into the RD 1000 drainage system, maintain current canal stages for the 100-year and 200-year events in the interior drainage and levee system per ULDC standards, and to meet other site-specific requirements (RD 1000 2016).

3.10.3 Environmental Setting

This section describes the environmental setting related to hydrology and water quality by segment for the proposed improvements. For the purposes of this analysis, the study area for hydrology and water quality includes the watersheds, tributaries, and receiving streams that are

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

connected to the footprint of the proposed improvements, which may be affected by changes within the improvement footprint.

This section begins with a general discussion of regional hydrology, surface and groundwater quality, and flooding. Following this discussion, a detailed description of the hydrology for each segment is presented that includes information regarding watersheds, subwatersheds, and surface waters that may receive runoff; beneficial uses of surface water and water quality; groundwater basins and subbasins and water quality (including beneficial uses); and flooding hazards.

3.10.3.1 Stockton to Lodi

Watersheds

Project improvements proposed in the Stockton to Lodi segment would be constructed in the San Joaquin River Hydrologic Basin. Track improvements in north Stockton would be constructed in the San Joaquin Delta Watershed, while the Lodi Station, Lodi Station South Alternative, and the Lodi Siding Variants would be constructed in the Lower Mokelumne Watershed. A watershed is an area of land drained by a stream or river system; it includes the surface water bodies, groundwater, and surrounding landscape.

The Delta is formed where the Sacramento and San Joaquin rivers intersect and mingle with smaller tributaries and tidal flows. The rivers' combined fresh water flows flow through the Carquinez Strait, a narrow break in the Coast Range, and into San Francisco Bay's northern arm, forming the Bay Delta. Sea water flowing east from the Pacific Ocean mixes with freshwater flowing west to form the Delta estuary, which is the largest on the west coast of North America, covering more than 40% of California—more than 738,000 acres in five counties. An estimated 25% of all warm water and anadromous sport fishing species and 80% of the state's commercial fishery species live in or migrate through the Delta, and at least half of California's Pacific Flyway migratory water birds rely on the region's wetlands. The Delta includes approximately 700 miles of sloughs and waterways surrounding more than 60 leveed tracts and islands. The Delta Watershed provides drinking water to two-thirds of California's population and for other urban uses, and it supplies some of the state's most productive agricultural areas, both inside and outside of the Delta. Although the proposed track improvements in north Stockton are within the San Joaquin Delta Watershed, they are approximately 0.3–1.1 miles east of the boundaries of the legal Delta (DWR 2019a).

The Lower Mokelumne Watershed encompasses the lower 34 miles of the Mokelumne River from Camanche Dam in the east to the river's confluence with the San Joaquin River in the west. Dry Creek and the Cosumnes River are both tributaries to the Lower Mokelumne. Below the Cosumnes River confluence, the Mokelumne enters the Delta, where it becomes tidally influenced and splits into north and south branches that encircle Staten Island. The north and south branches rejoin below Staten Island, and 2 miles below this point the Lower Mokelumne flows into the San Joaquin River. The Cosumnes River and its North, Middle, and South forks drain approximately 724 square miles in the northern part of the basin, or approximately 34% of the total watershed. Dry Creek, which itself is formed by four Sierra Nevada streams (Jackson, Sutter, Amador, and Rancheria Creeks), drains most of the area between the upper Mokelumne and Cosumnes basins, which encompasses approximately 324 square miles.

Subwatersheds and Surface Waters

Figure 3.10-1A shows the subwatersheds and surface waters in the Stockton to Lodi segment. Table 3.10-1 lists the subwatersheds intersected and surface waters crossed by or within 0.5 mile of the Stockton to Lodi segment that may receive runoff.

Table 3.10-1. Stockton to Lodi Segment—Subwatersheds and Surface Waters that May Receive Runoff

| Subwatersheds Intersected | Surface waters crossed or within 0.5 mile that may receive runoff |
|----------------------------------|--|
| Fivemile Creek-San Joaquin River | Mokelumne Aqueduct, Fivemile Creek, Calaveras River, unnamed irrigation ditches discharging to Calaveras River |
| Mosher Creek | Mosher Slough, Bear Creek/South Bear Creek, unnamed irrigation ditches discharging to Bear Creek, Beaver Slough, Eastern Delta waterways |
| Town of Lodi | None |
| Sycamore Slough | Unnamed irrigation ditches discharging to the Upland Canal/Sycamore Slough/Eastern Delta waterways |

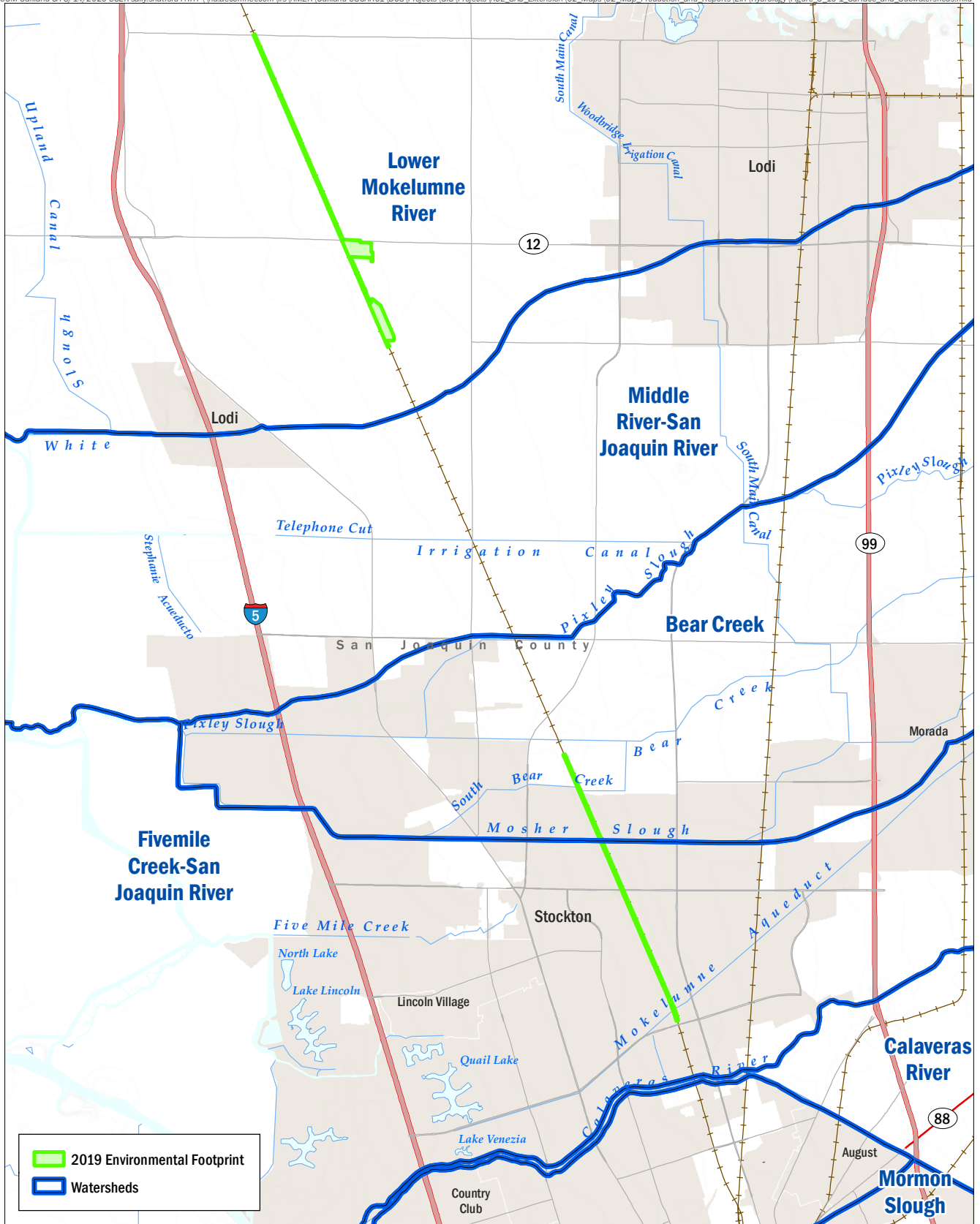
Source: U.S. Geological Survey National Hydrography Dataset 2011.

Beneficial Uses of Surface Waters and Water Quality

Table 3.10-2 lists the existing and potential beneficial uses designated in the Central Valley Basin Plan (Central Valley Regional Water Quality Control Board 2018a) for surface waters that could receive runoff from the Stockton to Lodi segment. Applying the Central Valley Water Board’s “tributary rule,” the beneficial uses of any specifically identified water body generally apply to all its tributaries. In addition, the Central Valley Water Board automatically attributes a beneficial use designation of “Municipal and Domestic Supply” to any water body that does not have a designated beneficial use.

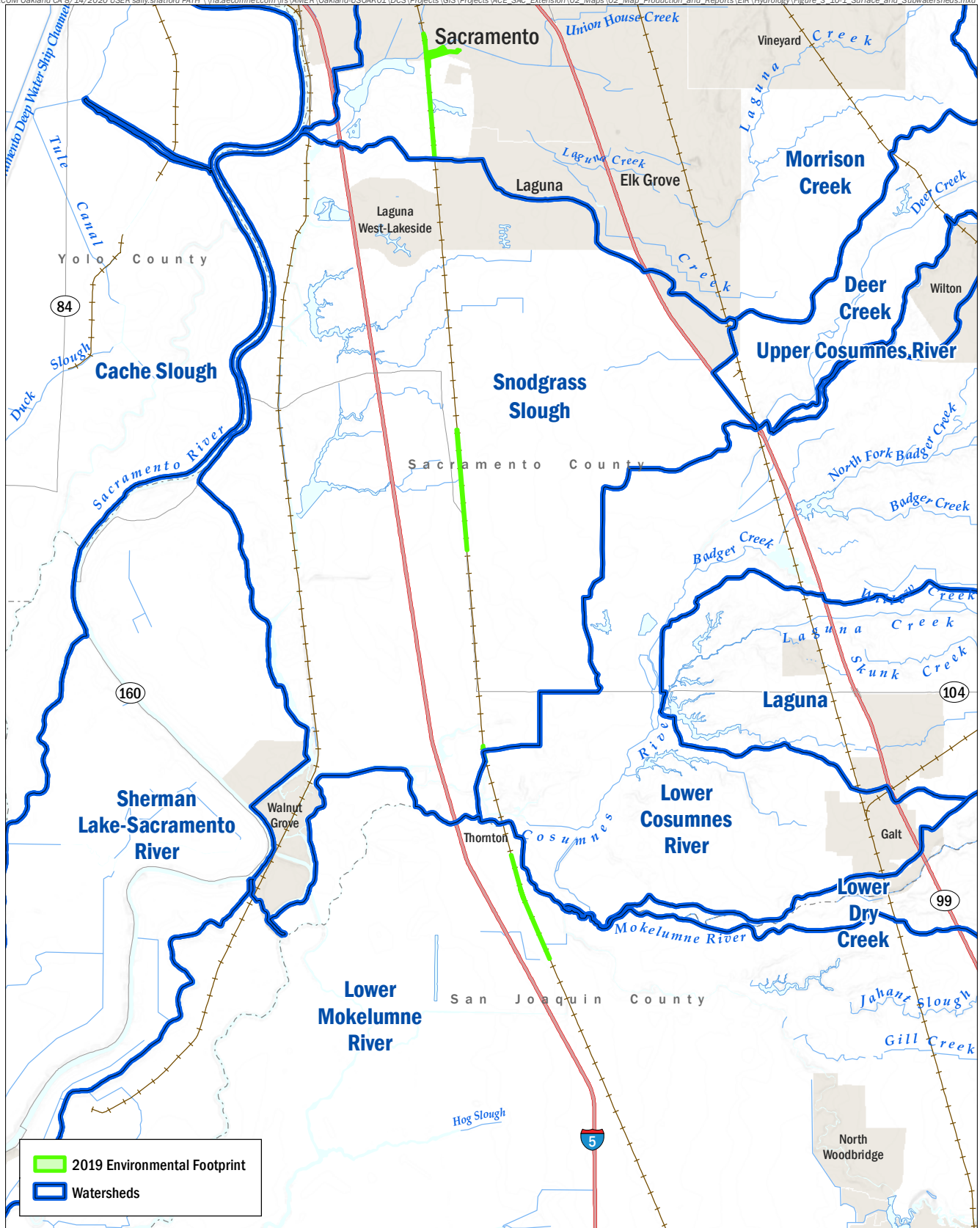
As noted previously, although the proposed north Stockton track improvements (Hammer Lane Siding Upgrade and Track Curve Reconstruction between East March Lane and East Swain Road) are within the San Joaquin Delta Watershed, they are approximately 0.3–1.1 miles east of the boundaries of the legal Delta, and therefore are not within the boundaries of the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (State Water Resources Control Board 2018).

As noted previously, although the proposed north Stockton track improvements (Hammer Lane Siding Upgrade and Track Curve Reconstruction between East March Lane and East Swain Road) are within the San Joaquin Delta Watershed, they are approximately 0.3–1.1 miles east of the boundaries of the legal Delta, and therefore are not within the boundaries of the *Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary* (State Water Resources Control Board 2018).



Source: NRCS 2013

FIGURE 3.10-1A
Watersheds
Stockton to Lodi

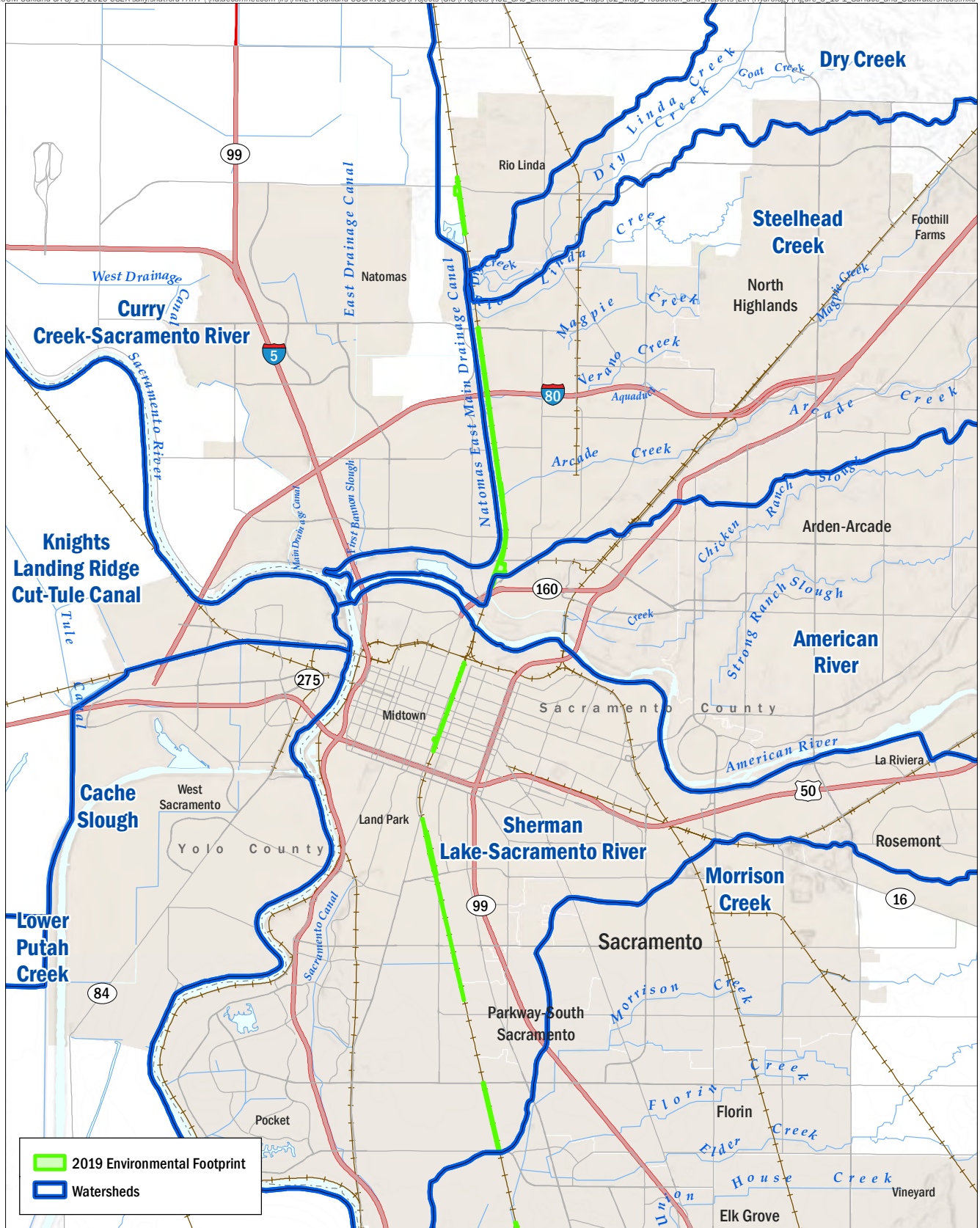


Source: NRCS 2013

AECOM
San Joaquin Regional Rail Commission

FIGURE 3.10-1B
Watersheds
Lodi to Elk Grove

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.



Source: NRCS 2013

FIGURE 3.10-1C
Watersheds
Elk Grove to Natomas

Table 3.10-2. Stockton to Lodi Segment —Beneficial Uses of Surface Waters

| Waterbodies | Agricultural Water Supply | Industrial Process & Service Supply | Commercial and Sport Fishing | Municipal & Domestic Water Supply | Cold Freshwater Habitat | Fish Migration | Fish Spawning | Warm Freshwater Habitat | Wildlife Habitat | Water Contact Recreation | Non-Contact Water Recreation | Navigation |
|--|----------------------------------|--|-------------------------------------|--|--------------------------------|-----------------------|----------------------|--------------------------------|-------------------------|---------------------------------|-------------------------------------|-------------------|
| Calaveras River (New Hogan Reservoir to Delta) | E | P | E | E | E | E | E | E | E | E | E | - |
| Sacramento-San Joaquin Delta ^a | E | E | E | E | E | E | E | E | E | E | E | E |

Source: Central Valley Regional Water Quality Control Board 2018a.

^a Includes Bear Creek, Beaver Slough, Calaveras River, Cosumnes River, Fivemile Creek, Hog Slough, Mokelumne River, Mosher Slough, San Joaquin River, Sycamore Slough, Upland Canal, and unnamed tributaries. Beneficial uses vary throughout the Delta and are evaluated on a case-by-case basis.

E = existing beneficial use; P = potential beneficial use

Table 3.10-3 lists impaired water bodies included on the State Water Board’s 303(d) list that could receive runoff from the Stockton to Lodi segment, the pollutants of concern, and whether they have approved TMDLs. Even if a stream is not included on the State Water Board’s 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment.

Table 3.10-3. Stockton to Lodi Segment—Impaired Water Bodies

| Impaired Water Body | Pollutants | TMDL Status | Pollutant Source |
|----------------------------------|---|--------------------|-------------------------|
| Lower Calaveras River | Chlorpyrifos | Approved in 2007 | Unknown |
| | Diazinon | Approved in 2007 | Unknown |
| | Indicator Bacteria | Approved in 2008 | Unknown |
| | Mercury | Approved in 2011 | Unknown |
| | Organic Enrichment/Low Dissolved Oxygen | Required | Unknown |
| Mosher Slough | Indicator Bacteria | Approved in 2008 | Unknown |
| Delta Waterways, Eastern Portion | Chlorpyrifos | Approved 2007 | Unknown |
| | DDT | Required | Unknown |
| | Diazinon | Approved 2007 | Unknown |
| | Group A Pesticides | Required | Unknown |
| | Invasive Species | Required | Unknown |
| | Mercury | Approved 2011 | Abandoned mines |
| | Toxicity | Required | Unknown |
| Bear Creek | Copper | Required | Unknown |
| | Diazinon | Required | Unknown |
| | Indicator Bacteria | Required | Unknown |
| | Low Dissolved Oxygen | Required | Unknown |

Source: State Water Resources Control Board 2017.

TMDL = total maximum daily load

Groundwater

The Stockton to Lodi segment is in the San Joaquin Valley Basin-Eastern San Joaquin Groundwater Subbasin (Basin ID 5-022.01) (DWR 2019b), as illustrated in Figure 3.10-2A. As designated by the Central Valley Water Board, all groundwaters in this basin are considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (Central Valley Regional Water Quality Control Board 2018a).

The Eastern San Joaquin Groundwater Subbasin encompasses 707,000 acres (1,105 square miles) in San Joaquin, Stanislaus, and Calaveras counties. Groundwater-bearing deposits in this subbasin consist of (1) undifferentiated alluvium and Modesto and Riverbank Formations with thicknesses ranging from 2–150 feet, (2) Delta floodplain deposits with thicknesses ranging from 1–1,400 feet, (3) the Laguna Formation with thicknesses ranging from 400–1,000 feet, and (4) the Mehrten Formation with thicknesses ranging from 400–1,300 feet. As a result of declining water levels due to groundwater pumping primarily for agricultural irrigation, water with a high saline content has migrated eastward from the Delta. In addition, large areas of elevated nitrate content are present southeast of Lodi and south of Stockton. Sources of groundwater inflow consist of natural recharge from rainfall and streamflow, percolation of applied agricultural irrigation water, and subsurface inflow (DWR 2006a).

Flooding Hazards

Flooding hazards from rivers and streams are mapped by FEMA for 100-year floodplain areas throughout the United States, as discussed above. As required by SB 5, DWR provides Best Available Maps of areas of the Sacramento-San Joaquin Valley that would be inundated by a flood event having a 0.5% annual chance of being equaled or exceeded in any given year, also referred to as a 200-year flood (California Department of Water Resources 2019c); these maps were prepared by USACE and California State Reclamation Board in 2002. FEMA has also mapped areas that are protected from flooding by levees.

Levees are evaluated by FEMA as part of flood risk studies performed under the NFIP. For levee systems to continue being recognized by FEMA as providing protection from a 100-year flood, regular maintenance of the levees must be performed in accordance with an officially adopted maintenance plan that documents the formal procedure that ensures that the stability, height, and overall integrity of the levee and its associated structures and systems are maintained. Levee construction and maintenance in California is generally under the jurisdiction and control of USACE, DWR, and, in some cases, local flood protection agencies (for maintenance activities). Levees under USACE jurisdiction are designed and constructed according to USACE standard engineering and design practices as detailed in USACE engineering technical memoranda. Most levees that are located in the Sacramento-San Joaquin Valley also fall under the jurisdiction of the CVFPB, which requires the implementation of DWR's *Urban Levee Design Criteria* (ULDC) (California Department of Water Resources 2012). The ULDC provides engineering criteria and guidance for the design, evaluation, operation, and maintenance of levees and floodwalls that provide an urban level of flood protection (i.e., 200-year level of flood protection) in California. The ULDC is also frequently used for levee design in areas outside of the CVFPB. All levees are engineered with a calculated amount of freeboard, bermed sides, heights, widths, and slopes that

are specifically designed to contain and channel flood waters so as to reduce flooding in the surrounding areas.

Mapped floodplains and areas protected from flooding by levees in the Stockton to Lodi segment are shown in Figure 3.10-3A and listed in Table 3.10-4.

Table 3.10-4. Stockton to Lodi Segment—Flooding Hazards

| Project Footprint | 1% AEP (100-year Flood) | 0.5% AEP (200-year Flood) | Areas Protected by Levees |
|--|----------------------------|------------------------------|------------------------------|
| Hammer Lane Siding Upgrade | Zone A | No | Yes |
| Track Curve Reconstruction between East March Lane and East Swain Road | Zone A | No | Yes |
| Lodi Station | No | No | No |
| Lodi Station South Alternative | No | No | No |
| Lodi Siding Variants | No | No | No |

Sources: Federal Emergency Management Agency 2018; California Department of Water Resources 2019c.

Zone A = a 100-year flood hazard zone for which the base flood elevation has not been determined.

AEP = annual exceedance probability

3.10.3.2 Lodi to Elk Grove

Watersheds

The Thornton Siding Upgrade/Extension, Track Curve Reconstruction south of Desmond Road, and the Phillips Siding Upgrade/Extension would be constructed in the San Joaquin Valley Hydrologic Region and the Lower Mokelumne Watershed. The Lower Mokelumne Watershed is described above under the Stockton to Lodi segment.

~~The proposed North Elk Grove Station (including all access and platform variants) and the Elk Grove Siding Variants would be constructed in the Sacramento Valley Hydrologic Region and the Lower Sacramento Watershed. The Sacramento River flows from north to south through the center of the Sacramento Valley for approximately 250 miles, providing surface water supply to agricultural and municipal users throughout California and habitat for fish and wildlife species. The Lower Sacramento River Watershed encompasses approximately 5,500 square miles and includes portions of 10 counties. The Lower Sacramento River begins at Shasta Dam. Flows downstream of the dam are regulated and typically are lower in the winter season (when releases from the dam are reduced for flood protection) and higher in the summer (when water is being released for downstream irrigation needs). Most of the water not consumed for irrigation or other purposes eventually returns to the river via various tributaries or percolates to groundwater that recharges local aquifers (Sacramento River Watershed Program 2010). Water quality protection for aquatic life, recreation, and domestic supply is a principal management issue in the Sacramento Valley. Water quality concerns include:~~

- ~~• pesticide contamination of surface and groundwater from agricultural and urban sources,~~
- ~~• nitrate contamination of groundwater,~~
- ~~• sediment binding pesticides that bioaccumulate through the food chain,~~

- ~~abandoned mines and discharge of heavy metals,~~
- ~~mercury from legacy mining operations and natural sources,~~
- ~~urban runoff, and~~
- ~~operations of dams and diversions that affect streamflow and water quality (Sacramento River Watershed Program 2010).~~

Subwatersheds and Surface Waters

Figure 3.10-1B shows the subwatersheds and surface waters in the Lodi to Elk Grove segment. Table 3.10-5 lists the subwatersheds intersected and surface waters crossed by or within 0.5 mile of the Lodi to Elk Grove segment that may receive runoff.

Table 3.10-5. Lodi to Elk Grove Segment—Subwatersheds and Surface Waters that May Receive Runoff

| Subwatersheds Intersected | Surface Waters Crossed or within 0.5 Mile that May Receive Runoff |
|-----------------------------------|---|
| Hog Slough | Beaver Slough, unnamed drainage ditches discharging to Mokelumne River, Dry Creek, and Cosumnes River |
| South Stone Lake-Snodgrass Slough | Unnamed drainage ditches discharging to South Stone Lake and/or Snodgrass Slough |
| Sacramento Drainage Canal | Franklin Creek and various unnamed drainage ditches discharging to South Stone Lake |
| Lower Morrison Creek | Morrison Creek |
| Laguna Creek | Laguna Creek |

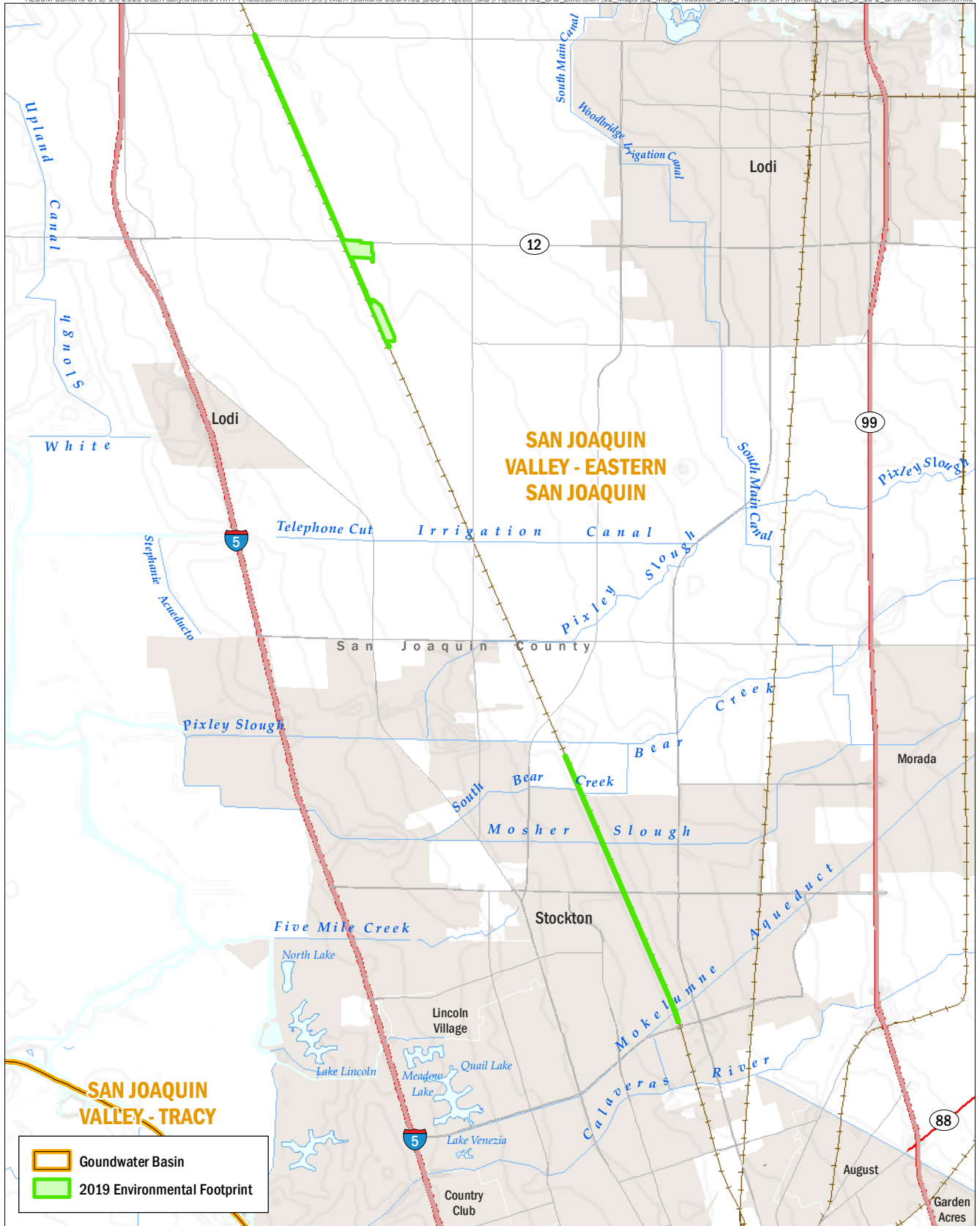
Source: U.S. Geological Survey National Hydrography Dataset 2011.

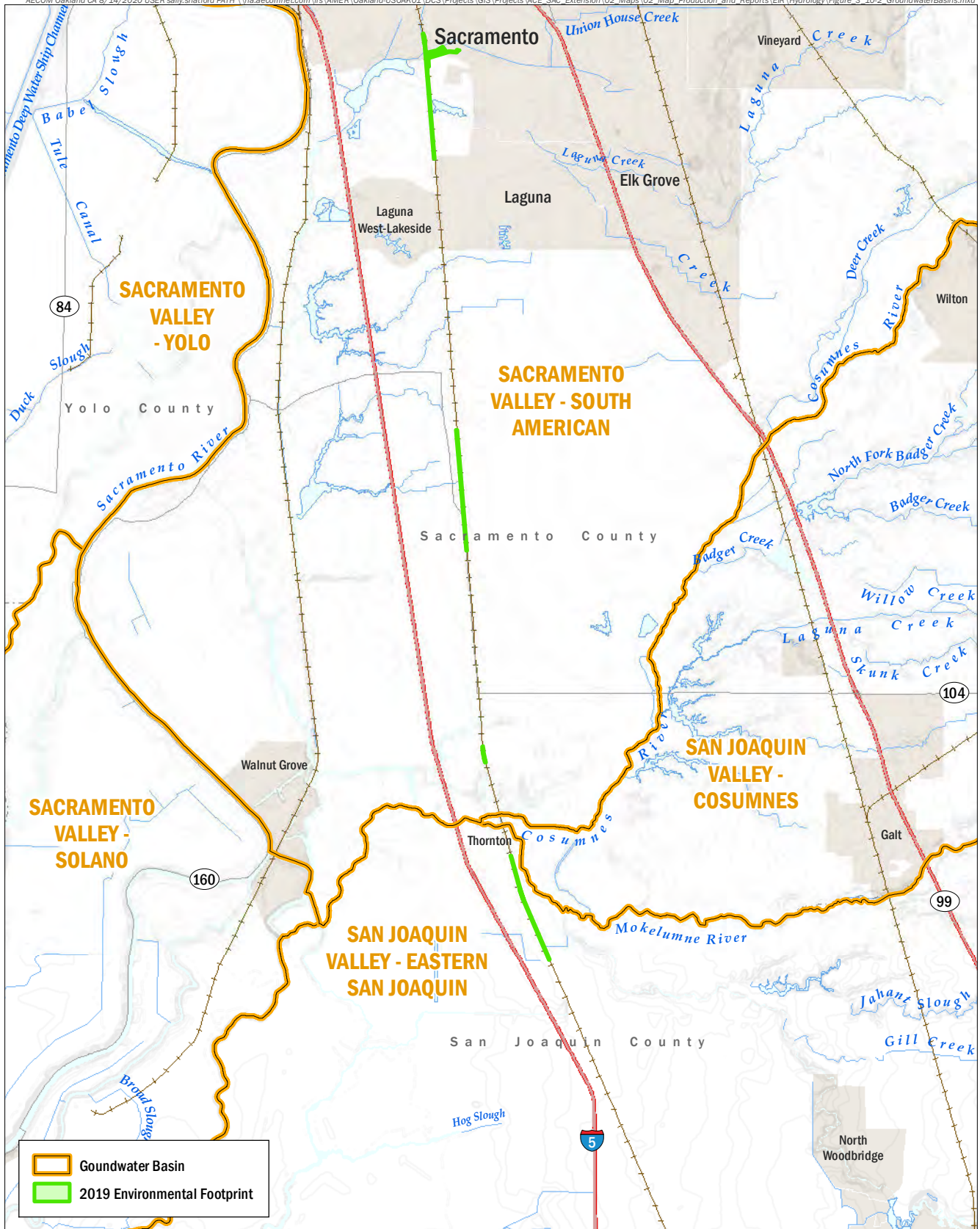
Beneficial Uses of Surface Waters and Water Quality

Table 3.10-6 lists the existing and potential beneficial uses of surface waters that could receive runoff from the Lodi to Elk Grove segment.

The improvements at the Thornton Siding Upgrade/Extension and improvements at the southern end of the Phillips Siding Upgrade/Extension are located within the boundaries of the legal Delta, and therefore are within the boundaries of the Delta Estuary Plan (State Water Resources Control Board 2018). The Delta Estuary Plan maintains the beneficial uses and water quality parameters for rivers covered by the Central Valley Basin Plan (discussed below), with the addition of dissolved oxygen, salinity (expressed as electrical conductivity), Delta outflow, river flows, export limits, and Delta Cross Channel gate operation for the Stanislaus River, Tuolumne River, Merced River, and the San Joaquin River from the mouth of the Merced River to Vernalis. An electrical conductivity monitoring station and parameter were also included for the South Fork Mokelumne River at Terminous (where the Mokelumne flows into the San Joaquin River), approximately 8.5 miles southeast of the Thornton Siding Upgrade/Extension.

All of the improvements in the Lodi to Elk Grove segment are regulated under the Central Valley Basin Plan (Central Valley Regional Water Quality Control Board 2018a). Applying the Central Valley Water Board's "tributary rule," the beneficial uses of any specifically identified water body generally apply to all its tributaries. In addition, the Central Valley Water Board automatically attributes a beneficial use designation of "Municipal and Domestic Supply" to any water body that does not have a designated beneficial use.





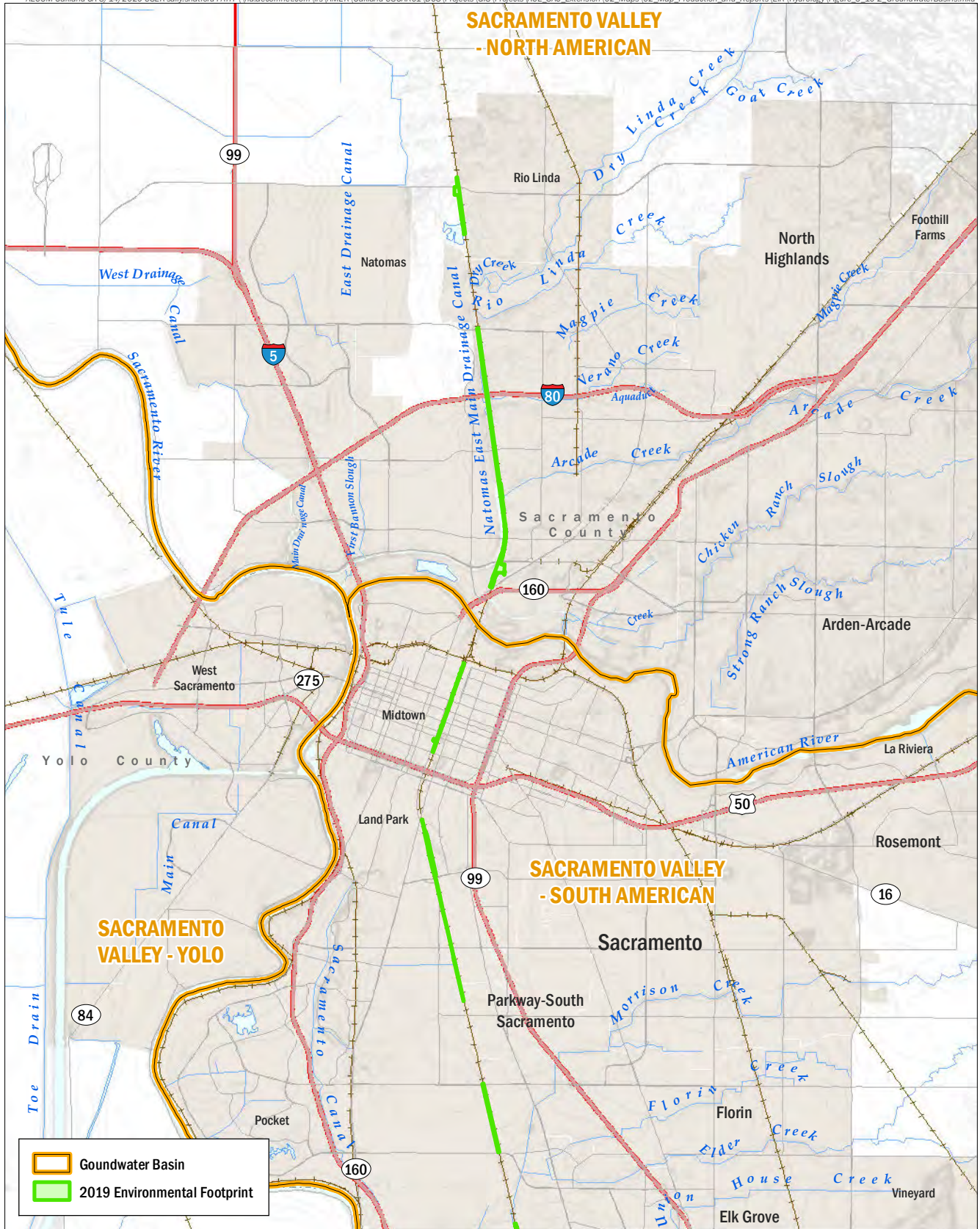
Source: NHD 2011 (HU12), NRCS 2013

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Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

FIGURE 3.10-2B
Groundwater Basins
Lodi to Elk Grove



Source: NHD 2011 (HU12), NRCS 2013

FIGURE 3.10-2C
*Groundwater Basins
Elk Grove to Natomas*

Table 3.10-6. Lodi to Elk Grove Segment—Beneficial Uses of Surface Waters

| Water Bodies | Agricultural Water Supply | Industrial Process & Service Supply | Commercial and Sport Fishing | Municipal & Domestic Water Supply | Cold Freshwater Habitat | Fish Migration | Fish Spawning | Warm Freshwater Habitat | Wildlife Habitat | Water Contact Recreation | Non-Contact Water Recreation | Navigation |
|--|---------------------------|-------------------------------------|------------------------------|-----------------------------------|-------------------------|----------------|---------------|-------------------------|------------------|--------------------------|------------------------------|------------|
| Cosumnes River (Source to Delta Boundary) | E | -- | -- | E | E | E | E | E | E | E | E | -- |
| Mokelumne River (Camanche Reservoir to Delta Boundary) | E | -- | -- | -- | E | E | E | E | E | E | E | -- |
| Sacramento-San Joaquin Delta ^a | E | E | E | E | E | E | E | E | E | E | E | E |

Source: Central Valley Regional Water Quality Control Board 2018a.

^a Includes Bear Creek, Beaver Slough, Calaveras River, Cosumnes River, Dry Creek, Fivemile Creek, Hog Slough, Morrison Creek, Mokelumne River, Mosher Slough, San Joaquin River, Sycamore Slough, Upland Canal, and unnamed tributaries. Beneficial uses vary throughout the Delta and are evaluated on a case-by-case basis.

E = existing beneficial use

Table 3.10-7 lists impaired water bodies included on the State Water Board’s 303(d) list that could receive runoff from the Lodi to Elk Grove segment, the pollutants of concern, and whether they have approved TMDLs. Even if a stream is not included on the State Water Board’s 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment.

Table 3.10-7. Lodi to Elk Grove Segment—Impaired Water Bodies

| Impaired Water Body | Pollutants | TMDL Status | Pollutant Source |
|----------------------------------|--------------------|---------------|------------------|
| Morrison Creek | Diazinon | Approved 2004 | Unknown |
| | Pentachlorophenol | Required | Unknown |
| | Pyrethroids | Required | Unknown |
| | Toxicity | Required | Unknown |
| Beaver Slough ¹ | Dissolved Oxygen | --- | --- |
| | Toxicity | --- | --- |
| Mokelumne River, Lower | Chlorpyrifos | Approved 2007 | Unknown |
| | Copper | Required | Unknown |
| | Dissolved Oxygen | Required | Unknown |
| | Toxicity | Required | Unknown |
| Cosumnes River, Lower | Indicator Bacteria | Required | Unknown |
| | Invasive Species | Required | Unknown |
| | Toxicity | Required | Unknown |
| Delta Waterways, Eastern Portion | Chlorpyrifos | Approved 2007 | Unknown |
| | DDT | Required | Unknown |
| | Diazinon | Approved 2007 | Unknown |
| | Group A Pesticides | Required | Unknown |
| | Invasive Species | Required | Unknown |
| | Mercury | Approved 2011 | Abandoned mines |
| | Toxicity | Required | Unknown |

Source: State Water Resources Control Board 2017.

TMDL = total maximum daily load; DDT = dichlorodiphenyltrichloroethane

¹ Beaver Slough is an assessed Category 2 water body; i.e., a water with water quality information that is insufficient to determine an appropriate decision recommendation, for reasons such as monitoring data have poor quality assurance, not enough samples in a dataset, no existing numerical objective or evaluation guideline, the information alone cannot support an assessment, etc. Therefore, it does not have numeric objectives or TMDLs on the 303(d) list at this time.

Groundwater

The southern half of the Stockton to Lodi segment is in the San Joaquin Valley-Eastern San Joaquin Subbasin (Basin ID 5-022.01) and the northern half is located in the Sacramento Valley-South American Groundwater Basin (Basin ID 5-021.65) (DWR 2019b), as illustrated in Figure 3.10-2B. As designated by the Central Valley Water Board, all groundwaters in these basins are considered to be suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (Central Valley Regional Water Quality Control Board 2018a). A description of groundwater in the Eastern San Joaquin Subbasin is provided above in the Stockton to Lodi segment.

The South American Subbasin encompasses 248,000 acres (388 square miles) in Sacramento County. Water-bearing deposits in the South American Subbasin consist of (1) younger alluvium (i.e., flood basin deposits, dredge tailings, and Holocene stream channel deposits) with a maximum combined thickness of approximately 100 feet, (2) older alluvium (i.e., Modesto, Riverbank, and Laguna Formations) with thicknesses of 100–650 feet, and (3) the Mehrten Formation with a thickness of 200–1,200 feet. The cumulative thickness of all of these water-bearing deposits increases from a few hundred feet near the Sierra Nevada foothills on the east to over 2,500 feet along the western margin of the subbasin. Groundwater quality is locally impaired in the vicinity of several Superfund sites. Sources of groundwater inflow consist of natural recharge from rainfall and streamflow, and percolation of applied agricultural irrigation water. There is also interaction between the groundwater of adjacent subbasins at greater depths (DWR 2004).

Flooding Hazards

Mapped floodplains and areas protected from flooding by levees in the Lodi to Elk Grove segment are shown in Figure 3.10-3B and listed in Table 3.10-8.

Table 3.10-8. Lodi to Elk Grove Segment—Flooding Hazards

| Project Footprint | 1% AEP (100-year Flood) | 0.5% AEP (200-year Flood) | Areas Protected by Levees |
|---|-------------------------|---------------------------|---------------------------|
| Thornton Siding Upgrade/Extension | AH | No | No |
| Track Curve Reconstruction north of North New Hope Road | AH | No | No |
| Track Curve Reconstruction south of Desmond Road | AE | No | No |
| Phillips Siding Upgrade/Extension | AE | No | No |
| North Elk Grove Station (including all access and platform variants) | AH | No | No |
| Elk Grove Siding Variants | AE and AH | North of McNamara Way | North of McNamara Way |

Sources: Federal Emergency Management Agency 2018; California Department of Water Resources 2019c.

Zone AH = a 100-year flood hazard zone where ponding occurs to a depth of 1–3 feet.

Zone AE = a 100-year flood hazard zone where the base flood elevation has been determined (varies with location).

AEP = annual exceedance probability

3.10.3.3 Elk Grove to Natomas

Watersheds

The Elk Grove to Natomas segment is in the Sacramento Valley Hydrologic Region, in the Lower Sacramento Watershed, which is described above in the Lodi to Elk Grove segment. In addition, the Old North Sacramento Station would be constructed at the northwestern boundary of the Lower American River Watershed.

The Lower American River begins at Folsom Dam and flows 30 miles to its confluence with the Sacramento River near downtown Sacramento. Folsom Dam impounds Folsom Lake, a popular recreation area, which has approximately 10,000 surface acres and 75 miles of shoreline. Releases of water from Folsom Dam vary greatly to meet changing demands for power generation, water supply, flood protection, recreation, and maintenance flows stipulated to protect fish and wildlife. Flows from Folsom Lake are captured by Nimbus Dam (7 miles downstream) and are re-regulated before flowing through the floodplain of the urbanized Sacramento area. Nimbus Dam forms Lake Natoma, another popular recreational area. The river is bordered by the 30-mile-long American River Parkway, which runs from Folsom to the Sacramento River confluence near Old Sacramento. Water quality is considered to be very good. The Lower American River has been designated a “Recreational River” under both the California Wild and Scenic Rivers Act and the National Wild and Scenic Rivers Act. The Lower American River Watershed supports more than 40 species of native and nonnative fish, including naturally spawning fall-run Chinook salmon, steelhead, striped bass, and American shad (Sacramento River Watershed Program 2010).

Subwatersheds and Surface Waters

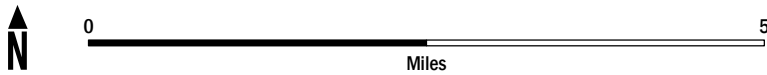
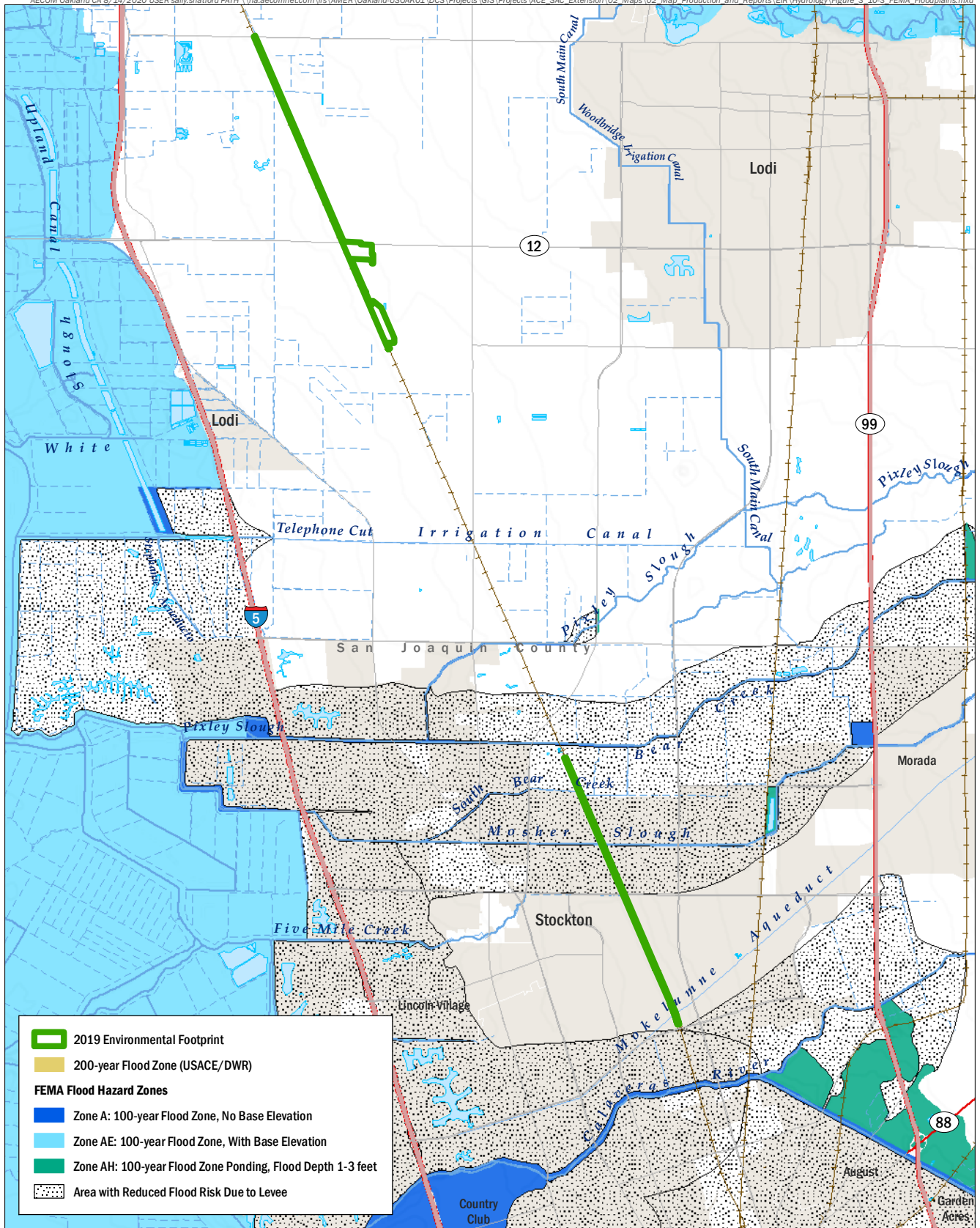
Figure 3.10-1C shows the subwatersheds and surface waters in the Elk Grove to Natomas segment. Table 3.10-9 lists the subwatersheds intersected and surface waters crossed by or within 0.5 mile of the Elk Grove to Natomas segment that may receive runoff.

Table 3.10-9. Elk Grove to Natomas Segment—Subwatersheds and Surface Waters that May Receive Runoff

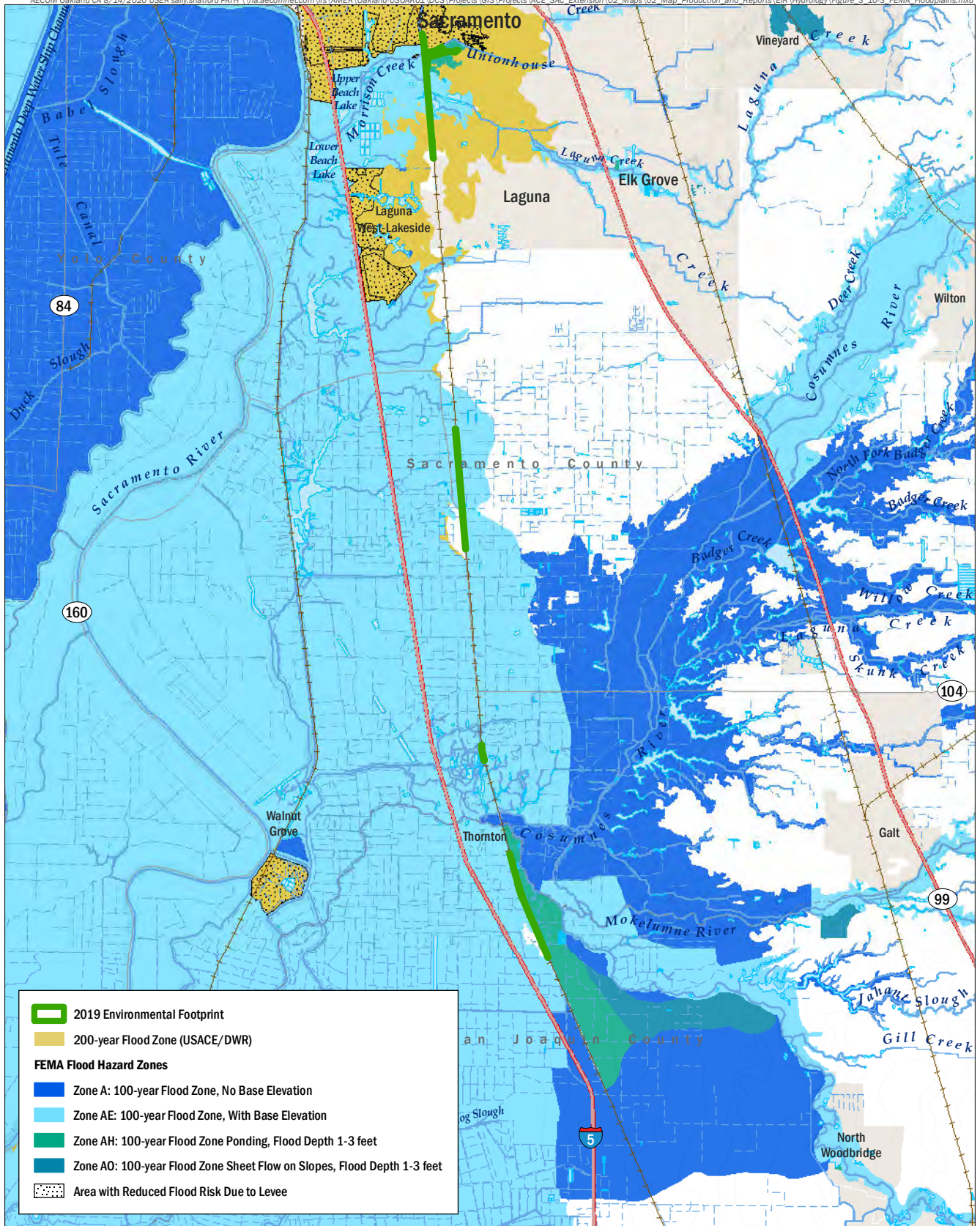
| Subwatersheds Intersected | Surface Waters Crossed or within 0.5 Mile that May Receive Runoff |
|--|--|
| Lake Greenhaven-Sacramento River | Unnamed drainage canal tributary to the Sacramento Canal, Morrison Creek |
| Lower American River | American River |
| Arcade Creek | Arcade Creek, Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, American River |
| Lower Steelhead Creek | NEMDC/Steelhead Creek, Magpie Creek, Rio Linda Creek |
| Green Lake-Dry Creek Watershed | Dry Creek |
| Upper Steelhead Creek | Steelhead Creek and unnamed tributaries |
| Natomas Main Drainage Canal-Sacramento River | NEMDC/Steelhead Creek, unnamed tributary to the East Drainage Canal (west of NEMDC) |

Source: U.S. Geological Survey National Hydrography Dataset 2011.

NEMDC = Natomas East Main Drainage Canal



Source: FEMA, 2018



Source: FEMA, 2018

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FIGURE 3.10-3B
FEMA Floodplains
Lodi to Elk Grove

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

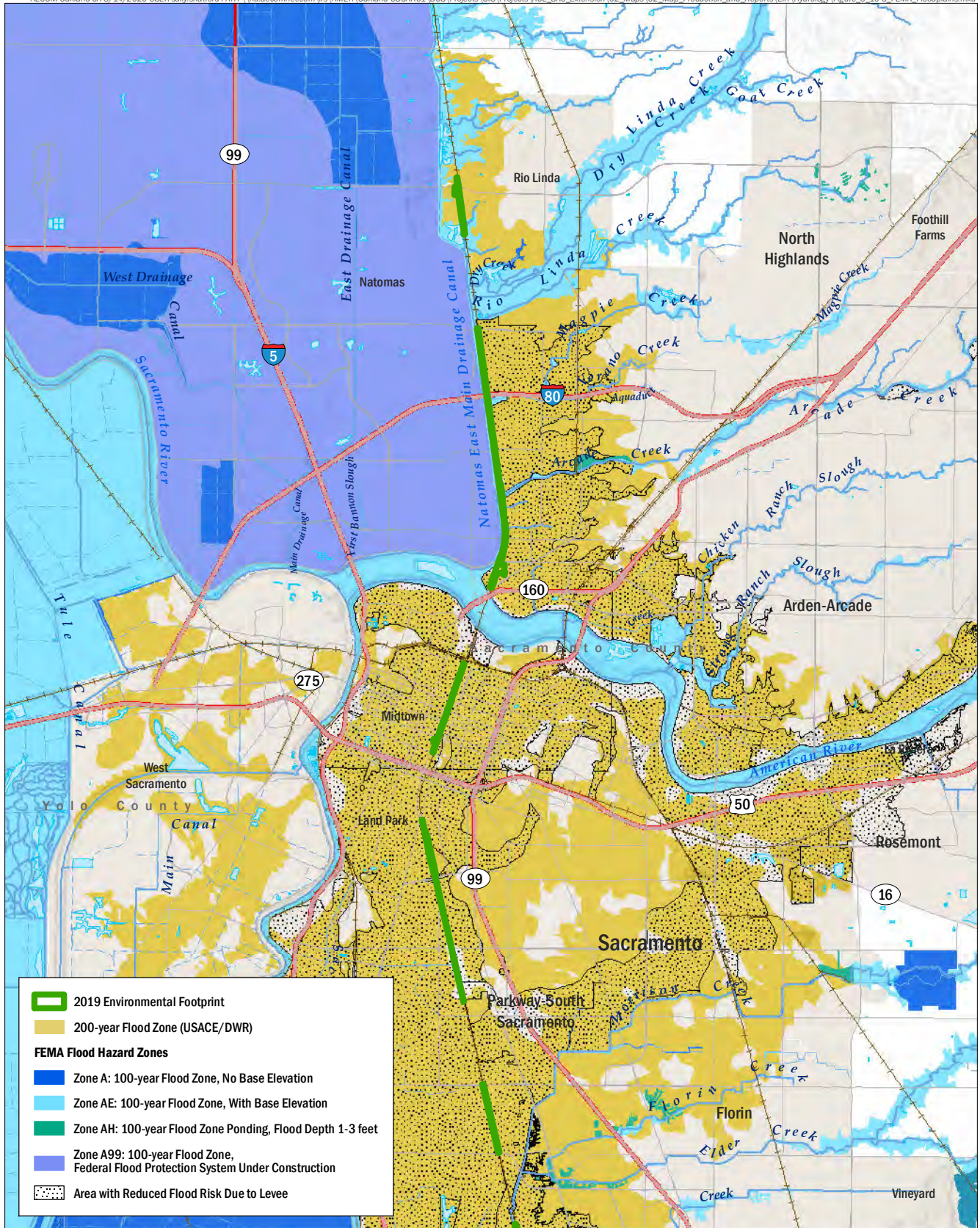
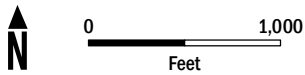
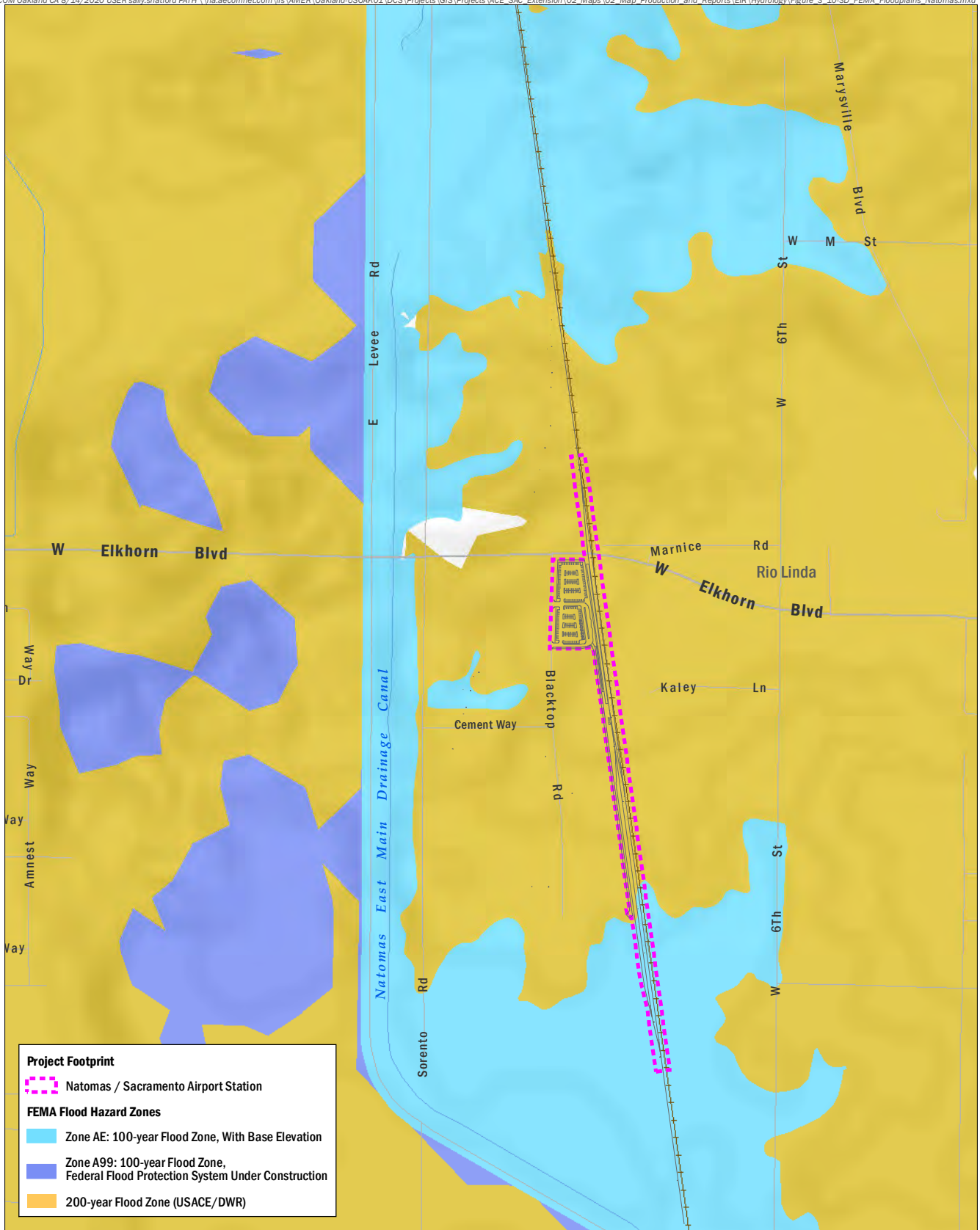


FIGURE 3.10-3C
FEMA Floodplains
Elk Grove to Natomas



Source: FEMA, 2018

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FIGURE 3.10-3D

FEMA Floodplains
Natomas/Sacramento Airport Station

Beneficial Uses of Surface Waters and Water Quality

Table 3.10-10 lists the existing and potential beneficial uses of surface waters that could receive runoff from the Elk Grove to Natomas segment. Improvements in the Elk Grove to Natomas segment are regulated under the Central Valley Basin Plan (Central Valley Regional Water Quality Control Board 2018a). Applying the Central Valley Water Board’s “tributary rule,” the beneficial uses of any specifically identified water body generally apply to all its tributaries. In addition, the Central Valley Water Board automatically attributes a beneficial use designation of “Municipal and Domestic Supply” to any water body that does not have a designated beneficial use.

Table 3.10-10. Elk Grove to Natomas Segment—Beneficial Uses of Surface Waters

| Waterbodies | Agricultural Water Supply | Industrial Process & Service Supply | Commercial and Sport Fishing | Municipal & Domestic Water Supply | Cold Freshwater Habitat | Fish Migration | Fish Spawning | Warm Freshwater Habitat | Wildlife Habitat | Water Contact Recreation | Non-Contact Water Recreation | Navigation |
|---|----------------------------------|--|-------------------------------------|--|--------------------------------|-----------------------|----------------------|--------------------------------|-------------------------|---------------------------------|-------------------------------------|-------------------|
| American River (Folsom Dam to Sacramento River) | E | E | -- | E | E | E | E | E | E | E | E | -- |
| Sacramento-San Joaquin Delta ^a | E | E | E | E | E | E | E | E | E | E | E | E |

Source: Central Valley Regional Water Quality Control Board 2018a.

^a Includes Sacramento River south of I Street bridge, unnamed tributaries. Beneficial uses vary throughout the Delta and are evaluated on a case-by-case basis.

E = existing beneficial use

Table 3.10-11 lists impaired water bodies included on the State Water Board’s 303(d) list that could receive runoff from the Elk Grove to Natomas segment, the pollutants of concern, and whether they have approved TMDLs. Even if a stream is not included on the State Water Board’s 303(d) list, any upstream tributary to a 303(d)-listed stream could contribute pollutants to the listed segment.

Table 3.10-11. Elk Grove to Natomas Segment —Impaired Water Bodies

| Impaired Water Body | Pollutants | TMDL Status | Pollutant Source |
|--|--------------------|---------------|--------------------------------|
| Dry Creek | Indicator Bacteria | Required | Unknown |
| Magpie Creek ¹ | -- | -- | -- |
| NEMDC/Steelhead Creek (North of Arcade Creek) | PCBs | Required | Unknown |
| Arcade Creek | Chlorpyrifos | Approved 2004 | Unknown |
| | Copper | Required | Unknown |
| | Diazinon | Approved 2004 | Unknown |
| | Malathion | Required | Unknown |
| | Pyrethroids | Required | Unknown |
| | Toxicity | Required | Unknown |
| NEMDC/Steelhead Creek (South of Arcade Creek) | Diazinon | Approved 2004 | Unknown |
| | Mercury | Required | Unknown |
| | PCBs | Required | Agricultural – aerial spraying |
| American River, Lower (Nimbus Dam to confluence with Sacramento River) | Bifenthrin | Required | Unknown |
| | PCBs | Required | Unknown |
| | Pyrethroids | Required | Unknown |
| | Toxicity | Required | Unknown |
| Morrison Creek | Diazinon | Approved 2004 | Unknown |
| | Pentachlorophenol | Required | Unknown |
| | Pyrethroids | Required | Unknown |
| | Toxicity | Required | Unknown |
| Delta Waterways, Northern Portion | Chlordane | Required | Unknown |
| | Chlorpyrifos | Approved 2007 | Unknown |
| | DDT | Required | Unknown |
| | Diazinon | Approved 2007 | Unknown |
| | Dieldrin | Required | Unknown |
| | PCBs | Required | Unknown |
| | Toxicity | Required | Unknown |

Source: State Water Resources Control Board 2017.

¹ Magpie Creek is an assessed Category 2 water body; i.e., a water body with water quality information that is insufficient to determine an appropriate decision recommendation, for reasons such as monitoring data have poor quality assurance, not enough samples in a dataset, no existing numerical objective or evaluation guideline, the information alone cannot support an assessment, etc. Therefore, it does not have numeric objectives or TMDLs on the 303(d) list at this time.

TMDL = total maximum daily load; NEMDC = Natomas East Main Drainage Canal; PCBs = polychlorinated biphenyls; DDT = dichlorodiphenyltrichloroethane

Groundwater

As shown in Figure 3.10-2C, the southern half of the Elk Grove to Natomas segment (south of the American River) is in the Sacramento Valley Basin-South American Groundwater Subbasin (Basin ID 5-021.65), while the northern half of the Elk Grove to Natomas segment (north of the American River) is in the Sacramento Valley Basin-North American Groundwater Subbasin (Basin

ID 5-021.64) (DWR 2019b). As designated by the Central Valley Water Board, all groundwaters in these basins are considered suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply (Central Valley Regional Water Quality Control Board 2018a). A description of groundwater in the South American Groundwater Subbasin is provided above for the Lodi to Elk Grove segment.

The North American Groundwater Subbasin encompasses 351,000 acres (548 square miles) in Sutter, Placer, and Sacramento counties. Water-bearing formations in this subbasin consist of (1) younger alluvium (flood basin and recent stream channel deposits) with thicknesses of 0–100 feet; (2) the Modesto, Riverbank, Turlock Lake, and Laguna Formations with thicknesses of 100–650 feet; and (3) the Mehrten Formation with thicknesses of 200–1,200 feet. Groundwater quality along the Sacramento River from the Sacramento International Airport to the Bear River is impaired due to high levels of total dissolved solids, chloride, sodium, bicarbonate, manganese, and arsenic. The groundwater in the southern part of the subbasin is generally characterized as good quality, low in disinfection by-product precursor materials, and moderate in mineral content, although some localized contamination issues do exist. Groundwater is also locally impaired at several Superfund sites. Sources of groundwater inflow consist of natural recharge from rainfall and streamflow, and percolation of applied agricultural irrigation water (DWR 2006b).

Flooding Hazards

Mapped floodplains and areas protected from flooding by levees in the Elk Grove to Natomas segment are shown in Figures 3.10-3C and 3.10-3D, and are listed in Table 3.10-12.

Table 3.10-12. Elk Grove to Natomas—Flooding Hazards

| Project Footprint | 1% AEP (100-year Flood) | 0.5% AEP (200-year Flood) | Areas Protected by Levees |
|--|-------------------------|---------------------------|---------------------------|
| Track Curve Reconstruction north of North Elk Grove Station (including all access and platform variants) | No | Yes | Yes |
| Pollock Siding Upgrade | No | Yes | Yes |
| South Sacramento Siding Upgrade | No | Yes | Yes |
| Crossover Track south of City College | No | Yes | Yes |
| City College Station | No | Yes | Yes |
| Midtown Sacramento Station | No | Yes | Yes |
| Old North Sacramento Station | No | Yes | Yes |
| Del Paso Siding Upgrade/Extension | Yes | Yes | Yes |
| Natomas/Sacramento Airport Station | A99/AE | Yes | No |

Sources: Federal Emergency Management Agency 2018; California Department of Water Resources 2019c.

Zone AE = a 100-year flood hazard zone where the base flood elevation has been determined (varies with location).

Zone A99 = 100-year flood hazard zone where federal levee flood protection improvements are under construction.

AEP = annual exceedance probability

3.10.4 Environmental Analysis

The State CEQA Guidelines Appendix G (14 Cal. Code Regs. 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on hydrology and water quality. This section describes the environmental impacts of the

proposed project improvements on hydrology and water quality. It describes the thresholds used to determine whether an impact would be significant, and measures for mitigating significant impacts are provided, where appropriate.

3.10.4.1 Thresholds of Significance

The project would result in a significant impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that there the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 1. result in substantial erosion or siltation on- or off-site,
 2. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or
 3. create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- In flood hazard, tsunami, or seiche zones, create a risk that pollutants would be released due to project inundation.
- Conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan.

In addition to the thresholds above, for the purposes of this EIR, an impact would be considered significant if the construction or operation of the project would impede or redirect flood flows.

3.10.4.2 Impacts and Mitigation Measures

Impact HYD-1: The proposed project could violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. However, this potentially significant impact would be reduced to a less-than-significant level through the implementation of Mitigation Measures HYD-1.1, HYD-1.2, HAZ-2.2, and HAZ-2.3 (Less-than-Significant Impact with Mitigation).

Construction

The proposed project, including all variants, and alternatives, would involve disturbing and handling existing soil and imported fill materials, and the use and storage of hazardous materials (e.g., fuels and lubricants for construction equipment) during construction activities. The improper handling and management of disturbed soil and imported fill could result in the pollution of stormwater runoff with sediment and contaminants that may be in the existing soil or imported fill materials, potentially reducing the quality of the receiving waters. If spilled or improperly stored, substances such as fuels and oils could directly enter nearby surface waters or be transported to

nearby surface waters in stormwater runoff, potentially reducing the quality of the receiving waters. Polluted stormwater runoff and spills of hazardous materials could also infiltrate through pervious surfaces and degrade groundwater quality. The handling and management of existing soil, imported fill material, and hazardous materials in upland construction areas would be performed in accordance with a SWPPP, as required by the Construction General Permit, to ensure that stormwater runoff, surface waters, and groundwater are not polluted by these construction activities.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and timing (i.e., wet season versus dry season activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive receiving water. A sediment-sensitive water body is one that appears on the most recent 303(d) list for water bodies impaired for sediment; has a USEPA-approved TMDL implementation plan for sediment; or has the beneficial uses of cold freshwater habitat, fish migration, and fish spawning. The determination of the project risk level would be made by the project applicant when the Notice of Intent is filed (and more details of the timing of the construction activity are known).

The performance standard in the Construction General Permit is that dischargers would be required to minimize or prevent pollutants in stormwater discharges and authorized non-stormwater discharges through the use of controls, structures, and BMPs that achieve Best Available Technology for the treatment of toxic and non-conventional pollutants and Best Conventional Technology for the treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purpose of the SWPPP is (1) to help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges, and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity.

The SWPPP must also include a construction site monitoring program. Depending on the project risk level, the monitoring program would involve visual observations of site discharges, water quality monitoring of site discharges (e.g., pH, turbidity, and non-visible pollutants, if applicable), and receiving water monitoring (e.g., pH, turbidity, suspended sediment concentration, and bioassessment, if applicable) (State Water Resources Control Board 2012c).

With the exception of the Pollock Siding Upgrade, Crossover Track south of City College, City College Station, and Midtown Sacramento Station, all other elements, variants, and alternatives in all three project segments would include construction activities adjacent to, within, or crossing over surface waters (see Figures 3.10-1A, 3.10-1B, and 3.10-1C). As discussed in Chapter 2, *Project Description*, wherever possible the construction of bridges over waterways would involve the placement of a single span across the waterway by cranes operating on both banks, with the new pier foundations located just outside the waterway, which would minimize potential impacts on water quality. For longer spans, bridge pier foundations within waterways may be accessed from the ground by pushing clean fill into the waterway on top of temporary pipe culverts or narrowing or diverting the waterway, then restoring the original condition when done. An alternative method for accessing pier foundations in waterways would be to build a temporary

trestle bridge from which the construction equipment can work. Bridge supports within waterways would consist of either concrete columns or standard railroad trestle bents with steel H-piles. Concrete columns would be constructed by driving steel pile shafts into the bottom of the waterway, drilling through the pile shaft, and forming and casting the reinforced concrete columns and pier caps. Temporary limited dewatering of the pile shafts would be required to form and cast the concrete columns. For standard railroad trestle bents, steel H-piles would be driven directly into the bottom of the waterway, which would not require dewatering (except as needed for equipment access). Where applicable, existing bridge piers, footings, and piles would be removed down to 3 feet below the finished grade, which may require dewatering and/or diverting of surface water for equipment access.

These construction activities could violate water quality standards or WDRs because the disturbance of soil along the banks of surface waters or sediment within surface waters could result in increased turbidity and potentially release contaminants entrained in soil or sediments. Construction materials that are not appropriately handled and installed could potentially be released into surface waters, which could increase turbidity and contribute pollutants to the surface water. Also, surface waters could be polluted by spills or leaks of hazardous materials (e.g., fuels and lubricants for construction equipment) directly into or adjacent to surface waters.

As discussed in detail in above, all construction activities within federal jurisdictional waters would require a Clean Water Act Section 404 permit issued by the USACE and a Clean Water Act Section 401 Water Quality Certification issued by the State Water Resources Control Board or Regional Water Quality Control Board, and all construction activities within non-federal jurisdictional waters would require a Waste Discharge Requirement permit issued by the Regional Water Quality Control Board ~~within the banks of surface waters would require a USACE Section 404 permit and a State Water Board Section 401 Water Quality Certification~~, and work within a stream or on a streambank would require a California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement. These permit applications must include a discussion of construction Best Management Practices (BMPs), including erosion and sediment control BMPs, which would minimize impacts on water quality. The permits would include any additional requirements for the protection of water quality as deemed necessary by the reviewing agencies. Compliance with these permits would reduce potential impacts on water quality during construction activities both along the banks of and within surface waters.

The improper handling and management of groundwater or dewatering discharges could result in the discharge of contaminated water or water-containing sediments into nearby surface waters, which could violate water quality standards or WDRs. The Regional Water Board's Permit for Construction Dewatering Activity allows the discharge of dewatering effluent to storm drains or directly to surface waters if the groundwater is not contaminated, is properly filtered or treated using appropriate technology, and the Construction General Permit conditions (discussed under *NPDES General Permit for Construction Activities* above) are met, to ensure that the receiving water's quality is not substantially degraded.

Operation

All project improvements, variants, and alternatives would involve grading and the reuse of existing soil and the use of imported fill materials. If contaminants are present in reused existing soil or in fill materials that are placed in a location exposed to stormwater, contaminants could

leach into stormwater runoff from the reused existing soil or imported fill and result in pollution of stormwater runoff and surface water, potentially reducing the quality of the receiving water.

Herbicides would be used (similar to current operations) to maintain and clear vegetation from the track areas. The future use of herbicides for vegetation removal near the tracks would be required to comply with DPR regulations that are intended to protect human health and the environment (see the discussion under *California Department of Pesticide Regulation*, above). DPR puts special controls on pesticides that can be especially dangerous to human health or the environment if not used correctly, limiting their use to trained individuals and only at times and places approved by a permit from the County Agricultural Commissioners (California Department of Pesticide Regulation 2008). The use of herbicides for vegetation removal near the tracks in compliance with DPR regulations would therefore result in a less-than-significant impact on water quality.

Trains can be sources of pollutants such as petroleum products (oil, grease, and diesel) and metals. Under normal operating conditions, the amount of these pollutants released by modern trains is minimal (i.e., only minor drips), because trains undergo regular inspections and maintenance to prevent and fix leaks. Impacts from minor drips would be limited to the area immediately below the railroad tracks, and the track ballast material would minimize stormwater runoff from the area of localized impacts and prevent significant impacts on water quality. Therefore, the operation of the proposed project within track areas would not contribute new significant sources of pollutants to stormwater runoff unless an accidental release of hazardous materials occurs along the tracks. The operation of the proposed project would comply with stringent federal and state protocols and regulations intended to reduce the likelihood of accident conditions. Accident conditions, including the accidental release of hazardous materials and the potential effects on water quality, are not expected to increase with project operations.

Project improvements within track areas would include altering drainage patterns (e.g., altering or creating drainage systems) along tracks. If appropriate stormwater control and treatment systems are not designed and constructed as part of these improvements, pollutants that may be entrained in sediments could be transported from track areas to surface waters in stormwater runoff. The Construction General Permit includes post-construction stormwater performance standards that address water quality and channel protection for construction projects that are not in an area subject to post-construction standards of an active Phase I or Phase II MS4 permit with an approved Storm Water Management Plan. The Construction General Permit requires post-construction runoff to match preconstruction runoff, which would not only reduce the risk of impact on the receiving water's channel morphology but would also provide some protection of water quality. The Construction General Permit also requires the implementation of post-construction BMPs to reduce pollutants in stormwater discharges that are reasonably foreseeable after all construction phases have been completed. Compliance with the post-construction requirements of the Construction General Permit must be demonstrated by submitting a map and post-construction runoff calculation worksheets with the Notice of Intent.

Detailed design-level studies may conclude that increases in the post-construction runoff would exceed the Construction General Permit criteria in some locations. If estimated post-construction runoff volumes are found to exceed the criteria, the improvements within track areas would be required to incorporate hydromodification management to control flows to reduce the post-construction flow rates and durations for the management of erosion and sediment.

Hydromodification management may include facilities to retain, detain, bypass, split, or infiltrate runoff to mimic preconstruction flows, durations, and associated sediment transport. Stormwater control and treatment BMPs would be designed and constructed for proposed improvements within track areas in accordance with the *Storm Water Quality Handbooks, Project Planning and Design Guide* (PPDG) developed by Caltrans (California Department of Transportation 2019), and may include biofiltration swales, biofiltration strips, infiltration devices, detention devices, media filters, wet basins, and dry weather diversion. The design and construction of stormwater control and treatment BMPs as required by the PPDG would ensure that the operation of improvements to track areas would have a less-than-significant impact on water quality.

Project improvements associated with stations would include the construction of new paved surfaces for station platforms, parking lots, parking structures, roadways, and walkways. These improvements would alter drainage patterns (e.g., increase runoff from new impervious surfaces) and provide new sources of polluted runoff associated with motor vehicle traffic. Increased runoff can cause the erosion of unlined drainage courses (e.g., natural creeks and earthen canals/ditches) that would receive runoff from project improvements, which can increase the turbidity of surface waters and cause sedimentation downstream. Pollutants that may be transported in runoff from parking lots and roadways include sediment; metals; organic compounds including diesel, gasoline, and oil; and trash and debris. For the project improvements associated with stations that meet the criteria of regulated projects under local MS4 Permits, the design and construction of stormwater controls and treatment systems would be performed in accordance with local MS4 Permit requirements, including hydromodification requirements. As discussed above under *National Pollutant Discharge Elimination System Municipal Stormwater Permits*, the criteria for determining regulated projects under local MS4 Permits includes the amount of new impervious surface area that would be created and proposed land uses (e.g., parking lots). The design and construction of stormwater controls and treatment systems in accordance with local MS4 Permit requirements (e.g., using infiltration features, vegetated swales, retention basins, and biofiltration, and minimizing impermeable surfaces to manage stormwater to maintain predevelopment runoff rates, volumes, and quality) would ensure that stormwater runoff would not contain significant levels of pollutants or cause erosion and sedimentation in receiving waters.

New station platforms that would be located within the UPRR or Caltrans ROWs would not be regulated under local MS4 Permits, because these agencies have separate stormwater discharge permits issued by the State Water Board. Stormwater runoff from station platforms would not generate significant levels of pollutants as the station platforms would have only foot traffic. Compliance with the post-construction stormwater performance standards of the Construction General Permit would be required for new station platforms, and would ensure that stormwater runoff from station platforms would not cause erosion and sedimentation in receiving waters.

Significance Conclusion and Mitigation Measures

The handling and management of existing soil, imported fill material, and hazardous materials in upland construction areas for all elements, variants, and alternatives in accordance with a SWPPP (as required by the State Water Board) would ensure that the construction of proposed improvements that are not adjacent to, within, or crossing surface water and would not involve the discharge of groundwater or dewatering effluent would result in less-than-significant impacts on water quality in all segments and for all project improvements and alternatives.

However, potentially-significant impacts on water quality could occur during the construction of all project improvements, variants, and alternatives due to the potential for the discharge of groundwater or dewatering effluent to nearby surface waters, and the potential for soil, sediment, construction materials, and hazardous materials to be released into surface water during work adjacent to, within, or crossing surface water in all segments and for all elements and alternatives.

Operation and maintenance of the proposed project could cause potentially significant impacts to water quality that may violate water quality standards or waste discharge requirements. Such impacts could occur as a result of polluted surface runoff from operations and maintenance activities. Such runoff could substantially degrade surface or ground water quality and thereby violate water quality standards or exceed allowable waste discharge thresholds. This impact is considered potentially significant.

Mitigation Measures: Implementation of Mitigation Measures HYD-1.1, HYD-1.2, HAZ-2.2, and HAZ-2.3, which require specific procedures for the discharge of groundwater or dewatering effluent and work adjacent to, within, or crossing surface water; the implementation of a risk management plan (RMP) (to ensure that fill materials are not used in a manner that could pollute stormwater runoff, surface waters, or groundwater), along with design and construction of stormwater controls and treatment systems in accordance with the PPDG; compliance with the post-construction requirements of the Construction General Permit; and compliance with the local MS4 Permit requirements for stormwater control and treatment, would reduce impacts on water quality during the construction and operation of all proposed improvements, variants, and alternatives to a less-than-significant level.

HYD-1.1: Avoid water quality impacts from groundwater or dewatering discharges.

Groundwater and dewatering effluent generated by temporary construction dewatering activities will be contained by the construction contractor(s) in an appropriately sized storage tank and tested to determine whether the effluent is contaminated prior to discharging. Testing and discharging of the effluent will be performed in accordance with the Construction General Permit, Permit for Construction Dewatering Activity (Order No. R5-2016-0079-01), RMP, and applicable resource agency permit requirements, including treating the effluent prior to discharge, if necessary.

If groundwater or dewatering effluent would be discharged to storm drainage systems (e.g., storm drains, conveyance pipes, canals, ditches, creeks, and rivers) in accordance with permit requirements, the discharge flow rates will be limited to ensure that the capacity of storm drainage systems would not be exceeded by the discharge. The construction contractor(s) will determine the capacity of storm drainage systems that would receive discharges by coordinating with the local government agencies that have jurisdiction over the protection and maintenance of the storm drainage systems. The capacity of the storm drainage systems will be determined for various times of year and various storm events. If the capacity of the storm drainage systems cannot be determined through coordination with local government agencies, evaluations of the capacity of the storm drainage systems that would receive discharges will be performed and certified by a professional engineer. The discharge flow rates will not exceed the capacity determined for various times of year and various storm events, as required by the local jurisdictional agency.

If the effluent is not suitable for discharge to storm drains or directly to receiving waters, as discussed above, the effluent will be discharged to sanitary sewer systems or transported for disposal at an appropriate offsite treatment or disposal facility. If the effluent would be discharged to a sanitary sewer, the appropriate permit will be obtained from the local utility agency with jurisdiction over discharges to the sanitary sewer system, and permit criteria for discharging to the sewer will be followed. These criteria include testing the effluent, the application of treatment technologies that would result in achieving compliance with the wastewater discharge limits, and discharging at or below the maximum allowable flow rate.

HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters.

The construction contractor(s) will obtain applicable resource agency permits and approvals and comply with permit requirements to prevent impacts on water quality and demonstrate that water quality standards and/or WDRs are not violated. Prior to the start of construction activities that could disturb potentially contaminated soil or sediment adjacent to or within surface waters, sampling and analysis of the potentially contaminated soil or sediment will be performed as required by Mitigation Measure HAZ-2.2 (see Section 3.9, *Hazards and Hazardous Materials*), to ensure that the soil or sediment is appropriately handled, reused, or disposed of based on the sampling and analysis results. The sampling and analysis results will be presented to the State Water Board for review so that appropriate water quality monitoring parameters can be designated in the permit requirements. The CDFW, USACE, and/or the State Water Board may require the following permit requirements and avoidance measures:

- Install temporary physical barriers (e.g., coffer dams and/or silt curtains) in water around construction activities to prevent potential localized impacts on water quality (e.g., increase in turbidity) from spreading within the surface water.
- Install temporary physical barriers (e.g., elevated platforms and/or netting, or floating platforms) over surface waters and beneath elevated construction activities to prevent construction materials from being released into the surface water below.
- Design and install temporary physical barriers as part of permit requirements and avoidance measures to ensure that stream flow (including storm flows) would not be impeded to the degree that adverse flooding impacts could occur.
- Perform water quality monitoring, including sampling and analysis for constituents required by resource agency permits, which may include total suspended solids, pH, temperature, conductivity, pollutants of concern identified in soil or sediment during preconstruction sampling and analysis, and pollutants with TMDLs established for the surface water if construction activities could result in the release of these pollutants.
- Compare the results of water quality monitoring to performance standards established by the State Water Board in the CWA Section 401 certification. If water quality monitoring indicates that performance standards are not being achieved, additional avoidance measures (e.g., installation of additional silt curtains) will be implemented

until water quality monitoring indicates that performance standards are being achieved.

HAZ-2.2: Conduct site investigations.

Refer to the measure description under Impact HAZ-2 in Section 3.9, *Hazards and Hazardous Materials*.

HAZ-2.3: Implement a construction risk management plan (CRMP).

Refer to the measure description under Impact HAZ-2 in Section 3.9, *Hazards and Hazardous Materials*.

Impact HYD-2: The proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin (Less-than-Significant Impact).

Construction

As discussed under Impact HYD-1, temporary and limited dewatering would be required for project improvements that are located in areas where the groundwater table is high. This includes the construction of facilities in or across streambeds, such as new bridges and culverts. At the Lodi Station South Alternative, where a tunnel is proposed for pedestrian access between the parking area and the new station, groundwater is approximately 30 feet below the ground surface (DWR 2018). Therefore, dewatering may be required during the construction of this tunnel. Other facilities may also require dewatering, depending on the depth to groundwater. Effluent from dewatering activities would be treated and discharged (in accordance with provisions of the Construction General Permit, RMP, and Mitigation Measure HYD-1.1).

The diversion of surface water performed during construction in all segments for all project improvements, variants, and alternatives would have a less-than-significant impact on groundwater recharge, as the extent of surface water diversion would be limited to the area immediately surrounding areas where the groundwater table is high enough to result in contact with project-related excavation. Furthermore, dewatering effluent that is generated during the construction of the proposed project would be treated and discharged (in accordance with provisions of the Construction General Permit, RMP, and Mitigation Measure HYD-1.1) and would eventually make its way back to surface water either through direct discharge or through the storm drainage system, where it would percolate back to the groundwater.

Operation

Operation of the proposed project would not involve dewatering or any other use of groundwater that could deplete groundwater resources. Improvements associated with the stations would involve the creation of new impervious surfaces that can impede groundwater recharge because stormwater would run off of the impervious surfaces rather than infiltrate the ground surface and recharge the aquifers. As discussed above, improvements associated with station platforms would be required to comply with the post-construction requirements of the Construction General Permit, which requires post-construction runoff to match preconstruction runoff; and all other station improvements (e.g., parking lots, parking structures, roadways, and walkways) would be

required to comply with local MS4 Permit requirements for stormwater control and treatment, which include LID source control, site design, stormwater treatment, and hydromodification management. Stormwater control and treatment systems may include vegetated swales, retention basins, biofiltration, and minimal impermeable surfaces to maintain predevelopment runoff rates, volumes, and quality and enhance infiltration and groundwater recharge. Furthermore, project improvements do not include drilling new groundwater wells.

Significance Conclusion and Mitigation Measures

Because dewatering activities would be of short duration and would only occur in limited areas, and the discharged water would eventually be returned to surface waters where it would percolate through to the aquifer, construction dewatering in all segments for all project improvements, variants, and alternatives would have a less-than-significant impact on groundwater resources and groundwater recharge.

The design and construction of stormwater controls and treatment systems in accordance with the PPDG, compliance with the post-construction requirements of the Construction General Permit, and compliance with the local MS4 Permit requirements for stormwater control and treatment would ensure that the operation of all elements, variants, and alternatives in all segments would have a less-than-significant impact on groundwater resources and recharge, and therefore no mitigation measures are required.

Impact HYD-3: The proposed project would substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that could result in substantial erosion or siltation on- or off-site; substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems; or provide substantial additional sources of polluted runoff. However, this potentially significant impact would be reduced to a less-than-significant level through the implementation of Mitigation Measure HYD-3.1 (Less-than-Significant Impact with Mitigation).

Construction

Project-related construction that would substantially alter the existing drainage patterns in a manner that could result in substantial erosion or siltation is evaluated under Impact HYD-1.

Operation

Project-related operation could substantially increase the rate or amount of surface runoff, resulting in flooding; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems; or provide substantial additional sources of polluted runoff.

Based on a review of Natural Resources Conservation Service (NRCS) (2018) soil survey data, soils in all three project segments have a moderate-to-high stormwater runoff potential. The required design storm interval for new stormwater drainage systems and improvements over drainage courses would depend on the location (rural or urban) and type of drainage systems.

The necessary engineering and design of these project improvement have not yet been performed.

Project-related improvements would also include the creation of new impervious surfaces, which would alter drainage patterns and create new sources of runoff. If stormwater control systems are not appropriately designed for these improvements, stormwater runoff could exceed the capacity of stormwater drainage systems and result in downstream pollutant transport.

Trackside drainage ditches may not connect to downstream drainage systems to act as retention and infiltration basins, and therefore excess runoff from the ditches may flow overland into adjacent properties during extreme storm events. In developed urban areas, project improvements cross several major arterial roads with existing storm drain systems, and new drainage systems may be connected to the existing local roadway drainage system. In rural areas, drainage systems may be connected to adjacent creeks or rivers after implementing appropriate stormwater management systems.

All new ditches/stormwater drainage systems adjacent to tracks are required to be designed to pass a 25-year flood for rural areas and a 50-year flood for urban areas. Stormwater controls would be designed and constructed for near-term improvements within track areas in accordance with the PPDG, and may include biofiltration swales, biofiltration strips, infiltration devices, detention devices, media filters, wet basins, and dry weather diversion. Compliance with the post-construction stormwater performance standards of the Construction General Permit would make certain that the stormwater controls are designed so that runoff from track areas would match existing runoff conditions (as required by the State Water Board).

Proposed I improvements associated with the stations would include the construction of new paved surfaces for station platforms, parking lots, parking structures, roadways, and walkways. These near-term improvements would alter drainage patterns (e.g., increase runoff from new impervious surfaces). For the project improvements associated with stations that meet the criteria of regulated projects under local MS4 Permits, design and construction of stormwater controls would be performed in accordance with local MS4 Permit requirements, including hydromodification requirements. These designs may include the use of vegetated swales, retention basins, and biofiltration, and minimal impermeable surfaces to manage stormwater to maintain predevelopment runoff rates and volumes.

New station platforms that would be located in UPRR and Caltrans ROWs would not be regulated under local MS4 Permits, because these agencies have their own stormwater discharge permits issued by the State Water Board. Stormwater controls within track areas (which would be designed and constructed in accordance with the PPDG) would handle runoff from station platforms, and compliance with the post-construction stormwater performance standards of the Construction General Permit would ensure that the stormwater controls are designed so that runoff from station platforms would match existing runoff conditions (as required by the State Water Board).

Significance Conclusion and Mitigation Measures

The operation of all elements, variations, and alternatives in all three project segments would increase runoff from new impervious surfaces, which has the potential to exceed stormwater drainage capacity, result in downstream flooding, and/or result in an increased potential for the

transport of onsite and offsite downstream pollutants. Compliance with the applicable MS4/NPDES Permit requirements, including post-construction requirements of the Construction General Permit, would ensure that the operation of the proposed project would minimize increases in stormwater runoff compared to the existing conditions. However, increases in stormwater runoff could still result from improvements such as the creation of new pavement surfaces and the connection of trackside drainage ditches to existing storm drainage systems where previously no such connections existed. The new surfaces and connections to existing storm drainage systems could contribute toward the exceedance of the capacity of existing storm drainage systems and/or result in increased pollutant transport. This is a potentially-significant impact.

Mitigation Measure: Implementation of Mitigation Measure HYD-3.1, which would require detailed hydraulic evaluations and the modification of stormwater controls if required, would reduce potential impacts related to the creation of new impervious surfaces that would in turn increase the rate or volume of stormwater runoff, which could result in the exceedance of storm drainage system capacity and/or downstream flooding and pollutant transport, to a less-than-significant level for all proposed improvements, variants, and alternatives in all segments.

HYD-3.1: Perform detailed hydraulic evaluations and implement new or modify existing stormwater controls as required to prevent storm drainage system capacity exceedance and reduce pollutant transport.

Detailed hydraulic evaluations will be performed and completed during the design phase for all project improvements that include the alteration of drainage patterns such as the alteration and construction of trackside ditches, the construction of new impervious pavement and stormwater drainage systems at stations and parking lots, and the construction of new connections to existing stormwater drainage systems, to ensure that the new stormwater control infrastructure is appropriately designed and that runoff from near-term improvements would not exceed the capacity of storm drainage systems or result in substantial additional pollutant transport. The detailed hydraulic evaluations will be performed in accordance with the requirements of the latest edition of the Caltrans *Highway Design Manual* for track areas and station platforms, and in accordance with the regulations and design requirements of local municipalities (including the local MS4 Permit requirements) for other improvements associated with stations. A professional engineer will perform and certify the following detailed hydraulic evaluations, to ensure that:

- improvements comply with the regulations and design requirements of local municipalities for discharges to storm drainage systems within those jurisdictions;
- improvements are designed to accommodate storm frequencies, precipitation data, and runoff calculations; and
- the capacity of existing or proposed storm drainage systems that would receive discharges is adequate.

If improvements could result in the exceedance of existing or proposed storm drainage systems and subsequent downstream pollutant transport, modification of onsite stormwater control designs or offsite storm drainage systems will be performed to reduce

and control runoff and the potential for flooding. These modifications may include the following measures:

- reducing impervious surfaces through use of permeable pavement surfaces for station improvements;
- increasing the size of drainage ditches, swales, retention basins, infiltration basins, trenches, and cross-drainage facilities within track and station areas; and
- increasing the capacity of downstream stormwater drainage systems by increasing the size of offsite storm drains, drainage canals, and retention and infiltration basins.

In general, the drainage design for project improvements would involve the following tasks:

- construct trackside swales or ditches to collect runoff from the track areas;
- allow infiltration and detention onsite and offsite, if feasible;
- evaluate or improve the capacity of the existing drainage system to carry runoff from near-term improvements, if required;
- construct cross-culverts under the existing or new tracks to carry runoff across the trackway system to maintain the flow pattern; and
- construct catch basins as required to convey excess flows from the near-term improvements to the local drainage system, and install and operate appropriate BMPs to reduce and/or treat (as required by the appropriate jurisdiction) pollutants washed from new, project-related impervious surfaces.

Impact HYD-4: Proposed project-related construction could create a risk for pollutant release due to project inundation in flood hazard, tsunami, or seiche zones. However, this potentially significant impact would be reduced to a less-than-significant level through the implementation of Mitigation Measure HYD-4.1 (Less-than-Significant Impact with Mitigation).

Proposed improvements would not be constructed in tsunami or seiche zones; therefore, there would be no impact from these hazards.

Proposed improvements would require construction activities to take place within drainage courses during the construction of bridges and culverts, and within 100-year and 200-year flood hazard zones (see Figures 3.10-3A, 3.10-3B, 3.10-3C, and 3.10-3D). In addition, project construction activities would be required within or across small urban or rural streams that could flood during winter storm events, even if those small streams are not designated as 100- or 200-year floodplains. If flooding of construction areas occurs, stockpiles of construction materials could be inundated and result in the pollution of onsite or offsite downstream surface waters.

Significance Conclusion and Mitigation Measures

The proposed project in all three segments would include construction activities within drainage courses and/or 100- and 200-year flood zones, and within small-stream watercourses that are subject to high flow events during winter rainstorms. If storm-related flooding of construction areas occurs, stockpiled construction materials could be inundated and carried into onsite or offsite

waterbodies, which could result in pollution of surface waters. This is a potentially significant impact.

Mitigation Measure: Implementation of Mitigation Measure HYD-4.1, which would prevent construction materials from being exposed to storm flooding hazards, would reduce potential construction-related impacts from substantial sources of additional polluted runoff and the release of pollutants due to project inundation to a less-than-significant level.

HYD-4.1: Prevent construction materials from being exposed to storm flooding hazards.

Construction materials (particularly soil stockpiles and hazardous materials such as fuels, lubricants, and oils) will not be stored in areas of potential storm flooding inundation (i.e., 100-year or 200-year flood zones and within drainage courses).

Impact HYD-5: The proposed project could conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. However, this potentially-significant impact would be reduced to a less-than-significant level through the implementation of Mitigation Measures HYD-1.1, HYD-1.2, HAZ-2.2, HAZ 2.3, HYD-3.1, and HYD-4.1 (Less-than-Significant Impact with Mitigation).

Construction and Operation

For the reasons discussed above under Impact HYD-2, the proposed project would not conflict with or obstruct the implementation of the sustainable groundwater management plans for the Sacramento Valley or San Joaquin Valley groundwater basins. This impact would be less than significant.

However, as discussed above under Impacts HYD-1, HYD-3, and HYD-4, the proposed project could conflict with or obstruct the implementation of the Central Valley Basin Plan or the Delta Estuary Plan as a result of (1) the discharge of groundwater or dewatering effluent to nearby surface waters, and the potential for soil, sediment, construction materials, and hazardous materials to be released into surface water during work adjacent to, within, or crossing over surface waters; (2) increased stormwater runoff from new impervious surfaces, which could challenge the capacity of existing storm drainage systems and/or result in increased pollutant transport; and (3) storm-related flooding of stockpile areas and subsequent downstream pollutant transport.

Significance Conclusion and Mitigation Measures

The proposed project in all three segments would include construction activities adjacent to, crossing over, or within drainage courses and/or 100- and 200-year flood zones, and would generate new impervious surfaces that would result in increased stormwater runoff during project operation. Therefore, both project construction and operation could degrade water quality, in conflict with the applicable Basin Plans. This is a potentially significant impact.

Mitigation Measures: Implementation of Mitigation Measures HYD-1.1, HYD-1.2, HAZ-2.2, HAZ-2.3, HYD-3.1, and HYD-4.1, which require the avoidance of water quality impacts, the implementation of a risk management plan, and performance of site-specific hydraulic evaluations to modify storm drainage systems as necessary, would reduce potential project impacts from

conflict with water quality control plans to a less-than-significant level for all project improvements, variants, and alternatives in all segments.

HYD-1.1: Avoid water quality impacts from groundwater or dewatering discharges.

Refer to measure description under discussion of Impact HYD-1 above.

HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters.

Refer to measure description under discussion of Impact HYD-1 above.

HAZ-2.2: Conduct site investigations.

Refer to measure description under Impact HAZ-2 in Section 3.9, *Hazards and Hazardous Materials*.

HAZ-2.3: Implement a construction risk management plan (CRMP).

Refer to measure description under Impact HAZ-2 in Section 3.9, *Hazards and Hazardous Materials*.

HYD-3.1: Perform detailed hydraulic evaluations and implement new or modify existing stormwater controls as required to prevent storm drainage system capacity exceedance and reduce pollutant transport.

Refer to measure description under discussion of Impact HYD-3 above.

HYD-4.1: Prevent construction materials from being exposed to storm flooding hazards.

Refer to measure description under discussion of Impact HYD-4 above.

Impact HYD-6: Operation of the proposed project could impede or redirect flood flows and result in the downstream transport of pollutants. However, this potentially-significant impact would be reduced to a less-than-significant level through the implementation of Mitigation Measure HYD-6.1 (Less-than-Significant Impact with Mitigation).

Improvements proposed in all three segments would include the construction and operation of new facilities across small drainages and larger watercourses as shown in Figures 3.10-1A, 3.10-1B, and 3.10-1C; and in FEMA 100-year flood zones and CVFPB 200-year flood zones as shown in Figures 3.10-3A, 3.10-3B, 3.10-3C, and 3.10-3D.

Proposed improvements in all three segments would include the construction of new bridges and culverts across drainage courses, and improvements within flood zones. If these improvements are not appropriately designed, their operation could potentially impede or redirect flood flows during project operation. This could result in downstream offsite flooding, as well as the onsite inundation of railroad tracks. Railroad tracks that are damaged by inundation would increase the risk of derailment. Derailment can result in serious injuries or deaths and spills of pollutants that can impact surface water or groundwater. However, under existing standard procedures, if tracks were to be inundated by flooding, the line would be shut down, the tracks would be inspected,

repairs and the removal of debris would be performed (if needed), and operation would begin again once the water has receded and the tracks are determined to be safe and free of debris. Therefore, damage to tracks from flooding inundation would not expose people, structures, or property to a significant risk of loss, injury, or death. Potential impacts related to the flooding of tracks during operation would be less than significant and are not discussed further.

The proposed ~~North Elk Grove Station (including all access and platform variants)~~, Natomas/Sacramento Airport Station, Del Paso Siding Upgrade/Extension, and Thornton Siding Upgrade/Extension would all be located in areas subject to 100- and 200-year flooding, as discussed below.

- ~~**Elk Grove.** The proposed North Elk Grove Station (including all access and platform variants) would be constructed on the south side of Unionhouse Creek, which is in the Beach/Stone Lakes basin—a system of streams, lakes, and floodplains that drains the area southeast of Laguna and Elk Grove creeks and the Morrison Creek watershed. Unionhouse Creek is a tributary of Morrison Creek. The Sacramento Area Flood Control Agency’s (SAFCA) South Sacramento County Streams Group Program provided improved flood protection along Morrison Creek and the eastern end of Unionhouse Creek, for the areas north of the proposed North Elk Grove Station (including all access and platform variants) (SAFCA 2019a). The North Elk Grove Station (including all access and platform variants) would be located on the south side of the levees, and therefore requires protection from a 100-year flood (see Figure 3.10-3B).~~
- **Natomas.** The Natomas/Sacramento Airport Station would be located on the east side of NEMDC/Steelhead Creek, as shown in Figure 3.10-3D. The NEMDC/Steelhead Creek drains a subwatershed area that encompasses approximately 500–550 square miles, including Dry, Arcade, Robla, and Magpie creeks, and a large portion of the Natomas area north of the confluence with Dry Creek up to Sankey Road. Improvements to the NEMDC/Steelhead Creek, Dry Creek, and Arcade Creek levees are ongoing as part of SAFCA’s Natomas Levee Improvement Program and the Levee Accreditation Program, along with levee improvements conducted by the U.S. Army Corps of Engineers (SAFCA 2019b, 2019c). Improvements to these levees are intended to provide improved flood protection throughout the Natomas Basin. However, because these levee improvements have not yet been completed, the Natomas/Sacramento Airport Station would require protection from a 100- and 200-year flood (see Figure 3.10-3D). Furthermore, the operation of this facility could impede planned floodway improvements. This area is also part of RD 1000’s forebay storage area, which is used for the detention and routing of drainage water, and project implementation could impede forebay storage. Finally, the Del Paso Siding Upgrade/Extension would require crossing over the Arcade and Magpie Creek drainage and floodways, and the entire siding upgrade and extension area is within the NEMDC/Dry Creek floodway; therefore, this facility could impede flood flows (see Figure 3.10-3C). Finally, all of the above facilities would require work in State Plan of Flood Control levees.
- **Thornton.** Improvements associated with the Thornton Siding Upgrade/Extension are within the boundaries of the legal Delta and would occur within a 100-year floodplain (see Figure 3.10-3B). Delta Plan Policy RR P3 (23 Cal. Code Regs. Section 5014) prohibits construction of an encroachment in a floodway unless it can be demonstrated by

appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety.

Significance Conclusion and Mitigation Measures

The construction and operation of a variety of project-related structures in 100- and 200-year floodplains could impede flood flows and increase upstream or downstream flooding, and would require work in or crossing through existing State Plan of Flood Control levees in various locations in the Lodi to Elk Grove and Elk Grove to Natomas segments. Proposed improvements at the Thornton Siding Upgrade/Extension require Delta Plan compliance with floodway improvements and could potentially reduce the effectiveness of flood improvements planned as part of the CVFPP. The necessary engineering and design of these project improvements have not yet been finalized. This impact is considered potentially significant.

Mitigation Measure: Mitigation Measure HYD-6.1 requires that (1) detailed, site-specific hydrologic and hydraulic studies be conducted and used to design project facilities such that stormwater flows would not be impeded or redirected; (2) SJRRC consult with RD 1000, DWR, and CVFPP to ensure that all proposed project improvements are designed so they will not interfere with flood protection efforts; and (3) SJRRC consult with, design, and obtain all necessary permits from agencies with regulatory authority over construction on and through levees. Mitigation Measure HYD-6.1 would reduce potential impacts related to structures that would impede flood flows or result in pollutant transport during project operation for all proposed improvements, variants, and alternatives in all segments to a less-than-significant level.

HYD-6.1: Perform hydrologic and hydraulic studies for project improvements to be located in floodplains, implement appropriate engineering designs, coordinate with regulatory agencies, and obtain required permits.

During the detailed project design phase, SJRRC will prepare site-specific detailed hydrologic and hydraulic studies for improvements that are proposed within the 100- and 200-year floodplains. The results of these studies will be used to inform the design of proposed improvements, such that they are specifically designed to pass 100- and 200-year flows without impedance as required by RD 1000, FEMA, DWR, USACE, and CVFPP standards so that upstream, onsite, and downstream flooding would not occur. All proposed facilities that are located in mapped floodplains will be designed and engineered to withstand 100-year flood flows (to meet FEMA requirements) and 200-year flood flows (to meet DWR, USACE, and CVFPP requirements), which may require elevating the proposed facilities. The proposed bridge crossings through the Dry Creek floodway associated with the Del Paso Siding Upgrade/Extension (at Arcade and Magpie Creeks) will be designed and engineered to withstand 100- and 200-year flood flows. Furthermore, during the detailed project design phase, SJRRC will consult with DWR and CVFPP regarding project-related work associated with the Thornton Siding Upgrade/Extension to ensure that all project improvements are designed so they will not impair any of the flood improvements that are planned by DWR and CVFPP as part of the CVFPP and the North Delta Flood Control and Ecosystem Restoration Program. Finally, prior to the start of any earthmoving activities, SJRRC will obtain all necessary permits and will provide copies of engineering plans and consult with any necessary agencies with levee jurisdiction, such as RD 1000, DWR, CVFPP, and USACE, for all project-related work that would be

required in or through existing levees. Project-related work in or through existing levees will be performed in accordance with the terms of the permits, which would contain site-specific BMPs and measures to protect public safety and water quality that must be implemented, as issued by the applicable regulatory agency.

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3.11 Land Use and Planning

3.11.1 Introduction

This section describes the regulatory and environmental setting for land use and planning in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on land use and planning that would result from implementation of the proposed project and the mitigation measures that would reduce significant impacts, where feasible and appropriate.

The proposed project traverses San Joaquin and Sacramento counties, and also includes portions of the following cities: Stockton, Lodi, Elk Grove, and Sacramento. Land uses along the proposed project consist of varying levels of urban, suburban, and rural development. The proposed project is primarily surrounded by agricultural uses in unincorporated areas and by low-density residential, industrial, and commercial uses.

The evaluation of rail operations and infrastructure on nearby land uses is largely a function of how the rail activities support or impede the activities and functions that occur at different land uses. Some uses, like single-family residential neighborhoods, are more sensitive to changes to the physical environment, and substantial alterations to the visual, noise, safety, and transportation setting can disrupt and interfere with the character and enjoyment of the uses. Other uses, such as manufacturing facilities, are less sensitive to such changes and would not be significantly affected by new uses or activities that alter the physical setting. Because land use compatibility and impacts are a function of other factors, this section is closely related to other resource topics (see Sections 3.1, *Aesthetics*; 3.3, *Air Quality*; 3.9, *Hazardous Materials*; 3.12, *Noise and Vibration*; 3.13, *Population and Housing*; 3.14, *Public Services*; 3.15, *Recreation*; 3.16, *Transportation*; and 3.18, *Utilities and Service Systems*). Analyses in those sections supplement this land use evaluation, and mitigation measures identified in those sections would also aid in reducing potential land use conflicts or incompatibilities with the proposed project.

Cumulative impacts on land use and planning, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to land use and planning were received:

- Ensure the proposed project's consistency with the Delta Stewardship Council's Delta Plan.

This section addresses this concern. The comments received during the scoping period are included in Appendix A, *NOP, and Scoping Summary Report*.

3.11.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations (including land use and transportation plans) related to land use and planning and applicable to the proposed project.

3.11.2.1 Federal

There are no federal regulations related to land use and planning.

3.11.2.2 State

California Sustainable Communities and Climate Protection Act

The California Sustainable Communities and Climate Protection Act (Senate Bill [SB] 375) requires regional planning agencies to develop regional land use plans (sustainable communities strategies [SCSs]) to meet greenhouse gas (GHG) emission reduction goals set forth in the California Global Warming Solutions Act (Assembly Bill 32). These plans address reducing vehicle miles traveled (VMT) by co-locating uses to shorten necessary trips and by coordinating land use and transportation/transit planning. Coordination is enforced by requiring transportation planning projects to comply with the SCSs to receive state funding. SB 375 also allows projects that meet regional SCSs to qualify for California Environmental Quality Act (CEQA) exemptions or streamlining.

The proposed project would traverse regions covered by regional transportation plans/SCSs of the San Joaquin Council of Governments (SJCOG) and Sacramento Area Council of Governments (SACOG).

General Plans

The California State Planning and Zoning Law delegates most of the state's local land use and development decisions to cities and counties. California Government Code §65301 requires every city and county to adopt a general plan. General plans lay out the pattern of future residential, commercial, industrial, agricultural, open space, public, and recreational land uses within a community. Local jurisdictions implement their general plans by adopting zoning, subdivision, grading, and other ordinances. Zoning identifies the specific types of land uses or forms of development that may be allowed on a given site and establishes regulations that are imposed on new development. Zoning regulations vary from jurisdiction to jurisdiction. Typical zoning regulations address permissible types of uses, the density and size of structures, the siting of structures relative to parcel boundaries, architectural design, and the percentage of building coverage allowed relative to the overall square footage of a parcel.

The proposed project includes improvements outside the existing Union Pacific Railroad (UPRR) right-of-way (ROW). These improvements would be located in various cities and unincorporated county areas along the alignment.

Specific, Precise, and Area Plans

A specific plan is a tool for the systematic implementation of a city or county general plan. A specific plan effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. Precise plans are flexible documents adopted by some California cities to facilitate the use of innovative or unconventional urban planning techniques. Area plans are plans that cover specific subareas of a community. Within these plans, general policies contained in the general plan elements are made more precise as the policies relate to specific parts of the jurisdiction.

The area of analysis overlaps with, or runs adjacent to, several adopted specific, precise, or area plans that address land development in defined geographic areas within a jurisdiction.

3.11.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to land use identified in Appendix E.

Consistency Analysis

As discussed above, CEQA requires that an EIR consider whether a proposed project would conflict with a land use plan, policy, or regulation (including but not limited to general plans, specific plans, or zoning ordinances) that was adopted for the purpose of avoiding or mitigating an environmental effect. The plans described in Appendix E, *Regional Plans and Local General Plans*, were reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions. An inconsistency with regional plans and local general plan policies is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

Implementation of the proposed project would be consistent with most of the applicable general plan goals, objectives, and policies of affected jurisdictions. The land use plans, as further discussed under Impacts LU-2, include policies to integrate land use and transportation planning and maintain orderly, compact, and balanced land uses. Project components would increase

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

connectivity and transportation options for the cities and counties where the proposed project would provide service and would support the ability of cities to pursue transit-oriented development where stations are proposed. As a result, the proposed project would complement and help fulfill local plans concerning land use patterns and intensities throughout the project corridor. The proposed project would provide improved mobility and an alternative to automobile travel, which is especially beneficial for regional planning agencies in meeting their responsibilities under SB 375 to promote and implement an SCS.

There are instances, however, in which the proposed project could be inconsistent with the local plan goals, objectives, and policies. In particular, the following local policies emphasize future development within existing cities and the preservation of rural and agricultural uses in unincorporated and incorporated areas.

- San Joaquin County General Plan Policy Document Policies LU-1.1, LU-2.1, and TM-1.12 (San Joaquin County 2016)
- City of Sacramento General Plan Policy LU 1.1.7

Several project components would be sited in locations with agricultural uses. These potential inconsistencies are discussed in further detail below.

3.11.3 Environmental Setting

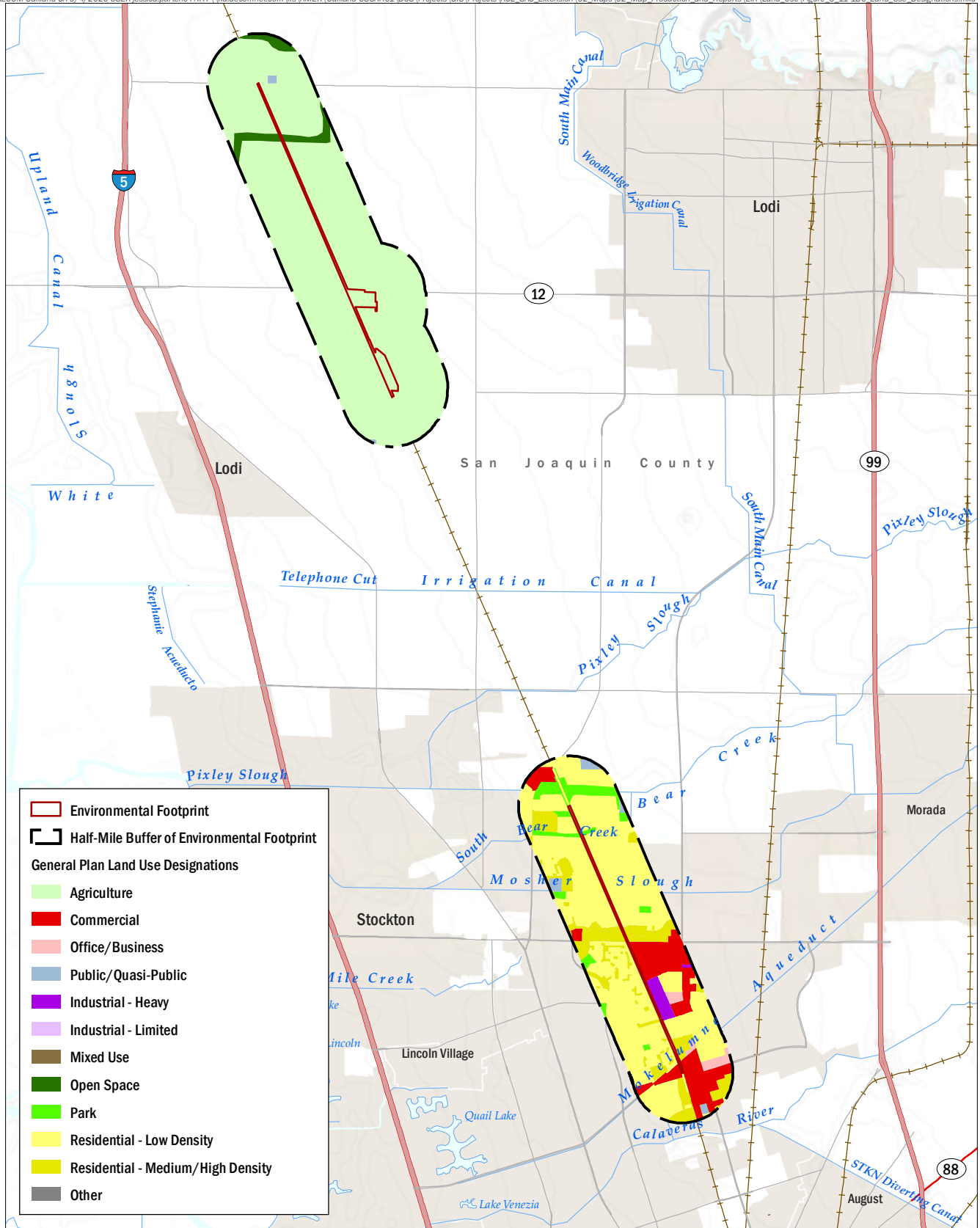
This section describes the environmental setting for the proposed project related to land use and planning by geographic segments. For the purpose of this analysis, the study area for land use and planning is defined as the area within 0.5 mile of the proposed project's environmental footprints.

This study area around the project alignment and facilities is commonly used in transit studies and assessments to capture potential land use changes around stations; because it also represents a reasonable walking distance to a station, the study area is a useful indicator of the proximity of existing or proposed transit-supported or transit-oriented development. A study area of 0.5 mile from the alignment is also appropriate to capture direct and indirect land use impacts from new track work for sidings, crossovers, and maintenance of way.

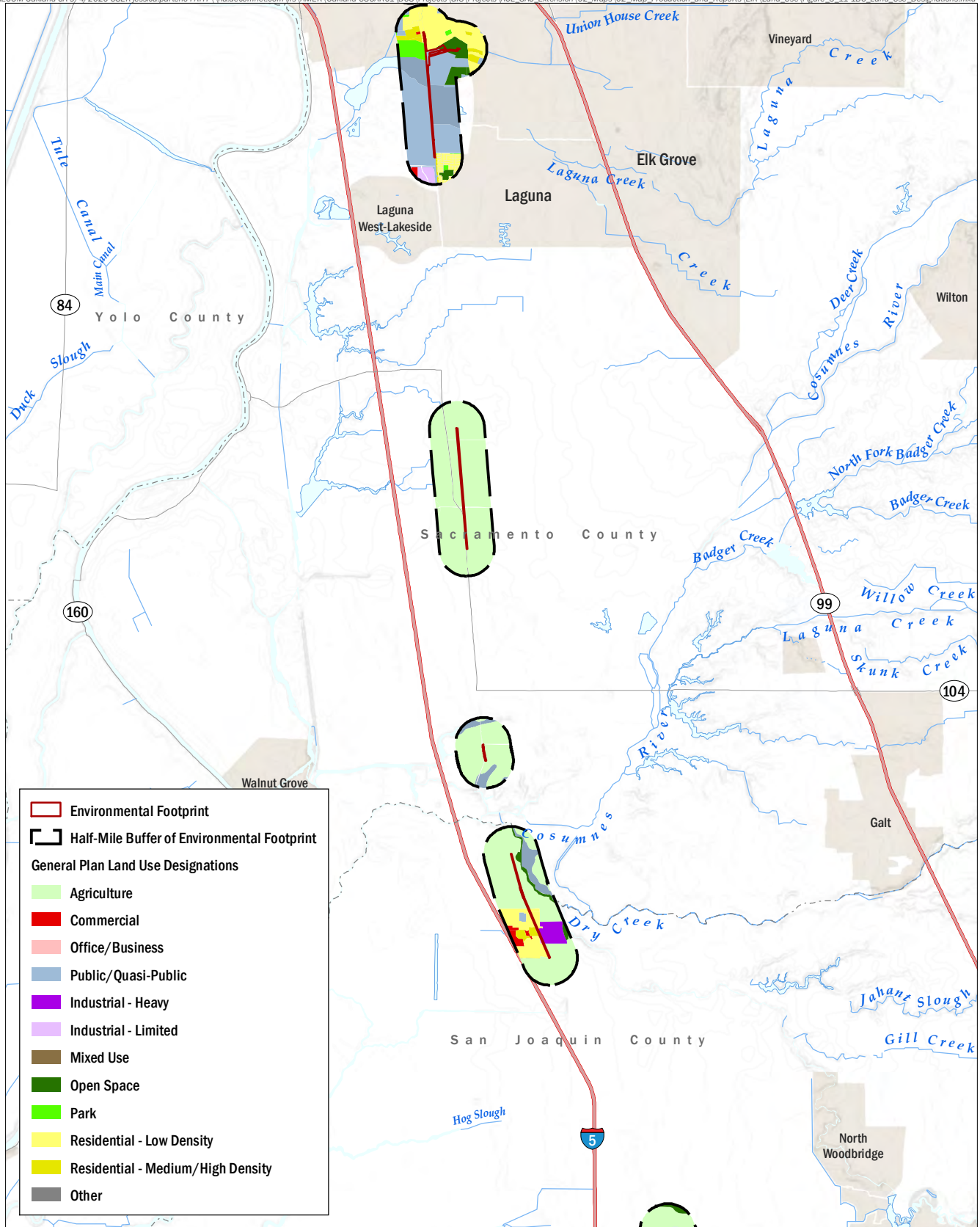
Figures 3.11-1A through 3.11-1C depict the general plan–designated land uses in the study area. These maps provide a basis for understanding a community's land use plan and the spatial relationship between the proposed project and planned land uses.

Because general plan land use designations vary among jurisdictions, the land use maps in this section use the following group of land use categories for consistency:

- Agriculture
- Commercial
- Commercial/Industrial
- Industrial (limited)
- Industrial (heavy)
- Mixed Use
- Open Space
- Office/Business
- Office/Business/Industrial
- Park
- Public/Quasi Public
- Residential (Low Density)
- Residential (Medium/High Density)
- Urban Core
- Urban Reserve



Sources: General Plans for the City of Sacramento, City of Stockton, City of Elk Grove, County of Sacramento, and County of San Joaquin; AECOM, 2019.



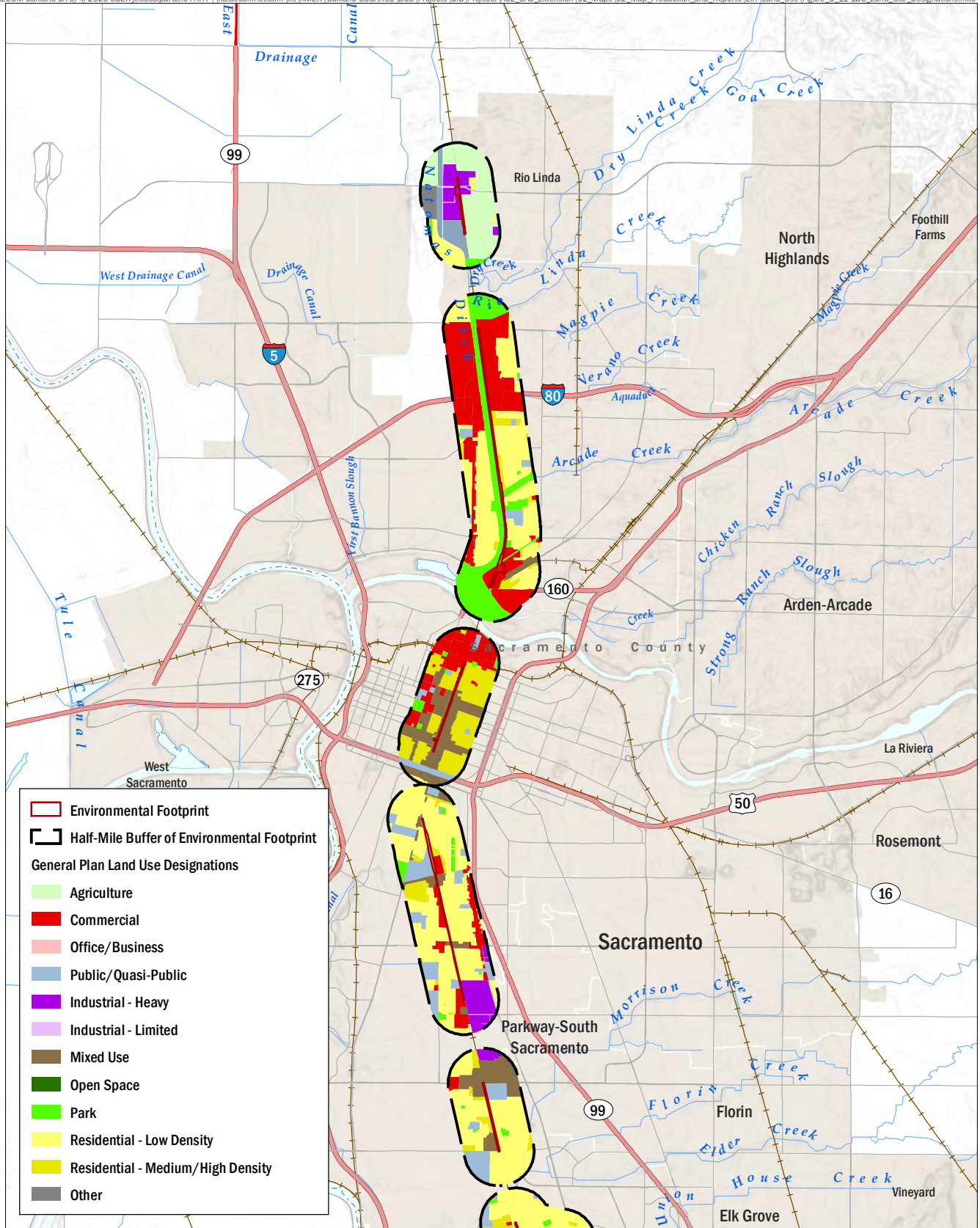
Sources: General Plans for the City of Sacramento, City of Stockton, City of Elk Grove, County of Sacramento, and County of San Joaquin; AECOM, 2019.

AECOM

San Joaquin Regional Rail Commission

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

FIGURE 3.11-1B
*Land Use Designations
 Lodi to Elk Grove*



- Environmental Footprint
- Half-Mile Buffer of Environmental Footprint
- General Plan Land Use Designations**
- Agriculture
- Commercial
- Office/Business
- Public/Quasi-Public
- Industrial - Heavy
- Industrial - Limited
- Mixed Use
- Open Space
- Park
- Residential - Low Density
- Residential - Medium/High Density
- Other



Sources: General Plans for the City of Sacramento, City of Stockton, City of Elk Grove, County of Sacramento, and County of San Joaquin; AECOM, 2019.

FIGURE 3.11-1C
*Land Use Designations
Elk Grove to Natomas*

Overview of Jurisdictions within the Study Area

The proposed alignment would pass through the jurisdiction of two regional planning agencies, two counties, and three incorporated cities. Project improvements are also proposed in unincorporated county areas. These jurisdictions are listed in Table 3.11-1.

Table 3.11-1. Valley Rail Sacramento Extension Project Jurisdictions

| Regional Agency | Counties | Incorporated Cities | Segment |
|--|--------------------|-----------------------------|----------------------|
| San Joaquin Council of Governments (SJCOG) | San Joaquin County | Stockton | Stockton to Lodi |
| | | Unincorporated county areas | |
| Sacramento Area Council of Governments (SACOG) | Sacramento County | Unincorporated county areas | Lodi to Elk Grove |
| | | Elk Grove | Elk Grove to Natomas |
| | | Sacramento | |

3.11.3.1 Stockton to Lodi

The Stockton to Lodi segment is located in the northern central portion of San Joaquin County. The segment extends from the Stockton Downtown/ACE Station to Turner Road, along the existing UPRR Sacramento Subdivision. It includes the existing Stockton Downtown/ACE Station and the following proposed components:

- Hammer Lane Siding Upgrade
- Track Curve Reconstruction East March Lane and East Swain Road
- Lodi Siding Variants
- Lodi Station
- Lodi Station South Alternative

Existing Land Uses

Land uses in the Stockton area consist mainly of single-family homes, commercial areas, and open space/agricultural uses. Through the unincorporated areas of San Joaquin County, the project improvements would be located adjacent to open space and agricultural land uses. The proposed Lodi Station and Lodi Station South Alternative would be located in existing agricultural or vacant and undeveloped areas.

General Plan Land Use Designations

Figure 3.11-1A presents the general plan land use designations in the Stockton to Lodi segment. Track improvements proposed within the Stockton to Lodi segment would traverse through the city of Stockton and unincorporated San Joaquin County and would be within the UPRR ROW, where no land use designation is identified. Designated land uses in the Stockton portion of the segment are primarily low-density residential, commercial, and open space/agricultural designated uses. The proposed Lodi Station and Lodi Station South Alternative would be located within unincorporated San Joaquin County. The proposed Lodi Station would be located adjacent to State Route 12 in an area designated for agricultural uses. The proposed Lodi Station South

Alternative would be located along the north side of West Harney Lane in an area designated for agricultural uses.

3.11.3.2 Lodi to Elk Grove

The Lodi to Elk Grove segment traverses the northern portion of San Joaquin County and central portion of Sacramento County. The segment extends from Turner Road to just north of the proposed North Elk Grove Station (including all access and platform variants) along the existing UPRR Sacramento Subdivision. It includes the following project components:

- Thornton Siding Upgrade/Extension
- Track Curve Reconstruction North of North New Hope Road
- Track Curve Reconstruction South of Desmond Road
- Phillips Siding Upgrade/Extension
- North Elk Grove Siding Variants
- North Elk Grove Station (including all access and platform variants)

Existing Land Uses

Through the Lodi to Elk Grove segment, proposed project components would be primarily adjacent to open space and agricultural uses. Through the areas of Elk Grove, land uses consist of residential and open space areas. Existing land uses in unincorporated areas of Sacramento County and the city of Sacramento consist of open space, low-density residential, and commercial areas. The proposed North Elk Grove Station (including all access and platform variants) would be located on vacant, undeveloped land adjacent to residential uses and open space. The station and associated parking area would be developed adjacent to and beneath the Cosumnes River Boulevard/Morrison Creek viaduct.

General Plan Land Use Designations

Figure 3.11-1B presents the general plan land use designations in the Lodi to Elk Grove segment. Track improvements within the Lodi to Elk Grove segment would traverse through unincorporated San Joaquin County, census-designated places in San Joaquin County, the city of Elk Grove, unincorporated Sacramento County, and the city of Sacramento, and would be within the UPRR ROW, where no land use designation is identified. Designated land uses in this segment are primarily agricultural, single-family residential, public, and natural preserve-designated areas. The proposed North Elk Grove Station (including all access and platform variants) would be located within unincorporated Sacramento and would be designated as Public and Quasi-Public per the Sacramento County General Plan (Sacramento County 2011). The North Elk Grove Station (including all access and platform variants) and associated parking area would be adjacent to residential uses and the Sacramento Regional Transit (SacRT) Franklin Station. Portions of the North Elk Grove Station (including all access and platform variants) and the associated parking area and access road variants would be located in the city of Sacramento in open space-designated areas (City of Sacramento 2019).

3.11.3.3 Elk Grove to Natomas

The Elk Grove to Natomas segment traverses the central and northern portion of Sacramento County. The segment extends from just north of the proposed North Elk Grove Station (including all access and platform variants) to Natomas along the existing UPRR Sacramento Subdivision. The segment includes the following proposed components:

- Track Curve Reconstruction North of the North Elk Grove Station
- Pollock Siding Upgrade
- South Sacramento Siding Upgrade
- New Crossover Track South of City College Station
- City College Station
- Midtown Sacramento Station
- Old North Sacramento Station
- Del Paso Siding Upgrade/Extension
- Natomas/Sacramento Airport Station

Existing Land Uses

The Elk Grove to Natomas segment passes through the city of Sacramento, census-designated places of Sacramento County, and unincorporated areas of Sacramento County. Within the study area in the city of Sacramento, land uses consist of single-family residential, office/business, public, and commercial areas. Through unincorporated and census-designated places in Sacramento County, land uses consist of vacant, undeveloped land. The proposed City College Station would be located adjacent to the existing SacRT City College light rail transit station. The proposed Midtown Sacramento Station, Old North Sacramento Station, and Natomas/Sacramento Airport Station would be located on sites currently developed with commercial and industrial uses.

General Plan Land Use Designations

Figure 3.11-1C presents the general plan land use designations in the Elk Grove to Natomas segment. Track improvements proposed within the Elk Grove to Natomas segment would traverse the city of Sacramento, census-designated places of Sacramento County, and unincorporated areas of Sacramento County, and they would be within UPRR ROW where no land use designation is identified. Designated land uses in the Sacramento portion of the segment are primarily public/quasi-public, low-density neighborhood residential, urban corridor high, parks and recreation, and employment center low rise. The proposed City College Station would be in areas designated public/quasi-public. The proposed Midtown Sacramento Station would be located in an area designated “Urban Corridor Low” per the *City of Sacramento 2035 General Plan* (City of Sacramento 2015).). The proposed Old North Sacramento Station would be in an area designated “Employment Center Low Rise” per the Sacramento General Plan (City of Sacramento 2015). The proposed Natomas/Sacramento Airport Station would be located in unincorporated Sacramento County in areas designated heavy industrial.

3.11.4 Environmental Analysis

This section describes the environmental impacts of the proposed project on land use and planning. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are provided where appropriate.

3.11.4.1 Thresholds of Significance

The State CEQA Guidelines Appendix G (14 California Code of Regulations 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on land use and planning resources.

The project would result in a significant impact on land use and planning if it would:

- physically divide an established community or
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

3.11.4.2 Impacts and Mitigation Measures

Impact LU-1: The proposed project would not physically divide an established community (Less-than-Significant Impact).

Construction

Detours or impeded access due to construction of the proposed project would be temporary. Construction of individual components with the potential to impede access or require detours would typically last 15 working days at a particular location and would not result in a permanent impediment to circulation or access to common uses that define an established community. Construction activities that could temporarily disrupt and interfere with uses that contribute to community cohesion and identity would be less than significant. In addition, Mitigation Measure TRA-1.1, described in Section 3.16, *Transportation*, requires the preparation and adoption of a construction road traffic control plan for the proposed project and would include strategies to reduce impacts from street or lane closures and detours, maintain local circulation and traffic flow, and limit pedestrian and bicycle transit access closures, and ensure that potential impacts would be less than significant.

Operation

Many of the proposed improvements would be constructed along and within the existing rail lines and ROW, such as siding improvements, track curve reconstructions, and the addition of platforms, siding improvements, and new track at the proposed new rail stations, except for construction of station parking at the Lodi Station, Lodi Station South Alternative, ~~North Elk Grove Station (including all access and platform variants)~~, Old North Sacramento Station, and the Natomas/Sacramento Airport Station. The existing rail lines and ROW act as existing physical barriers and separators within the communities they traverse. Increased use of the UPRR ROW would not create a new physical division along the project corridor or substantially alter the

existing operations along the tracks. Because the proposed improvements would be located entirely along this existing barrier, construction and operation of the proposed project would not create a new physical division within a community. In addition, proposed improvements that are along or within the railroad ROW would not displace important facilities that contribute to a sense of community (e.g., neighborhood-serving and community-serving retail centers, parks, and public uses), and would not sever important thoroughfares that connect areas within an established community, and thus would not divide an established community. In addition, most proposed stations would be constructed in developed urban areas that already contain similar types of rail facilities. The proposed project would appear visually similar to existing development and would not contribute to a loss of community cohesion. Furthermore, the proposed improvements would not be of a scale or height that would introduce a substantial visual barrier that could also contribute to loss of community cohesion.

Improvements located outside the UPRR ROW would not be at a size or vertical scale large enough to impede access or create barriers within a community. The largest of these improvements, such as construction of new stations, expanded surface parking lots, pedestrian overcrossings, and track connections, would not block access from one area of a community from another; change area roadways or circulation systems such that access is impeded and a community division is created; impede access to a public service or other community center, such as a government service, community center, or retail centers; or otherwise create a division or barrier within a community. These improvements would be compatible with the surrounding land uses (e.g., constructing a parking lot on a vacant or mostly vacant parcel in an area with other parking lots). Other project improvements in developed areas would be in areas adjacent to existing track and would not impede access to connectivity with communities. These improvements would preserve road connectivity in the surrounding areas and would not block access within the community. Certain proposed improvements, such as enhanced bicycle/pedestrian pathways near proposed stations, would increase community connectivity. Therefore, the improvements associated with the proposed project would have a less-than-significant impact related to dividing an established community.

Impact LU-2: The proposed project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect (Less-than-Significant Impact).

As described above, project improvements within the UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Construction and operation of the proposed project could conflict with adopted regional and local plans and regulations. Table 3.11-2 provides the location of proposed improvements proposed outside of the existing UPRR ROW (by parcel) and the existing general plan land use and zoning designations for these parcels. Table 3.11-3 presents the regional and local plans and policies to which project components located outside the UPRR ROW would be subject and provides a consistency analysis of the proposed project in relation to these plans and policies. Many of these policies are adopted for the purpose of restricting growth in planned areas and preventing development outside of established urban areas to prevent sprawl, support transit development, and prioritize infill development. Each relevant policy or regulation is accompanied by an analysis of the proposed project's potential to conflict or be inconsistent with each respective policy.

Table 3.11-2. Project Right-of-Way Requirements

| Accessor's Parcel Number (APN) | Ownership | Area (Acres) | Reason for Acquisition | General Plan Land Use Designation | Zoning |
|---|-----------|---------------|-------------------------------------|--------------------------------------|--|
| Lodi Station | | | | | |
| 05517026 | Private | 10.38 | Station Parking | General Agriculture A/G | AG-40 |
| Lodi Station South Alternative | | | | | |
| 05524028 | Private | 500 (Sq. Ft.) | Pedestrian Access and PG&E Easement | General Agriculture A/G | AG-40 |
| 05524026 | Private | 9.86 | Station Parking | General Agriculture A/G | AG-40 |
| North Elk Grove Station (including all access and platform variants) | | | | | |
| 119-0080-036 | Public | 484 (Sq. Ft.) | Station Parking | PQP - Cemetery, Public, Quasi-Public | AG-80 |
| 119-0080-037 | Public | 7.96 | Station Parking | PQP - Cemetery, Public, Quasi-Public | AG-80 |
| 119-0080-040 | Public | 4.35 | Station Parking | Open Space | A-Agriculture |
| 119-0080-027 | Public | 0.34 | Station Parking | Suburban Neighborhood Low Density | R-1 - Single Family Residential |
| 119-0080-046 | Public | 0.54 | Station Parking | Open Space | A-Agriculture |
| 119-0080-043 | Public | 1.67 | Station Parking | PQP - Cemetery, Public, Quasi-Public | AG-80 |
| 119-0080-044 | Public | 0.76 | Access Road A1 | PQP - Cemetery, Public, Quasi-Public | AG-80 |
| 119-0080-047 | Public | 0.18 | Access Road A1 | Open Space | A-Agriculture |
| 119-0080-045 | Public | 2.41 | Access Road A2 | PQP - Cemetery, Public, Quasi-Public | AG-80 |
| 119-0080-048 | Public | 0.88 | Access Road A2 | Open Space | A-Agriculture |
| 119-0080-047 | Public | 0.44 | Access Road A2 | Open Space | A-Agriculture |
| 119-0080-042 | Public | 5.79 | Access Road A2 | Open Space | A-Agriculture |
| Old North Sacramento Station | | | | | |
| 275-0111-006 | Private | 5.82 | Station Parking | Employment Center Low Rise | M-1-SPD - Light Industrial/Special Planning District |
| Natomas/Sacramento Airport Station | | | | | |
| 214-0010-013 | Public? | 0.25 | Station Layover | NAT PRES - Natural Preserve | IR - Interim-Agricultural Reserve |
| 214-0290-001 | Private | 1.74 | Station Parking | INT IND - Intensive Industrial | M-2 - Heavy Industrial |
| 214-0290-002 | Private | 2.14 | Station Parking | INT IND - Intensive Industrial | M-2 - Heavy Industrial |
| 214-0290-003 | Private | 0.24 | Station Layover | INT IND - Intensive Industrial | M-2 - Heavy Industrial |
| 214-0290-034 | Private | 0.17 | Station Layover | INT IND - Intensive Industrial | M-2 - Heavy Industrial |
| 214-0290-037 | Private | 0.80 | Station Layover | INT IND - Intensive Industrial | M-2 - Heavy Industrial |
| 214-0290-038 | Private | 0.17 | Station Layover | INT IND - Intensive Industrial | M-2 - Heavy Industrial |

Table 3.11-3. Project Consistency with Applicable Local Land Use Plans and Policies

| Plan | Policy | Consistency Determination |
|--|---|---|
| <p><i>San Joaquin Council of Governments 2018 Regional Transportation Plan/Sustainable Communities Strategy (SJCOG 2018)</i></p> | <p>Strategy #1: Encourage Efficient Development Patterns that Maintain Agricultural Viability and Natural Resources</p> | <p>Potentially Inconsistent. The Lodi Station and Lodi Station South Alternative would be sited in areas with agricultural resources. However, loss of minor amounts of agricultural land due to the construction of the Lodi Station or the Lodi Station South Alternative would not affect the viability of agriculture within the county.</p> |
| | <p>Strategy #2: Enhance the Connection between Land Use and Transportation Choices through Projects Supporting Energy and Water Efficiency</p> | <p>Consistent. Proposed improvements would offer an energy-efficient transportation alternative that would lead to and serve transportation-oriented development along the rail corridor.</p> |
| | <p>Strategy #3: Improve Air Quality by Reducing Transportation-Related Emissions</p> | <p>Consistent. Project operations would provide an alternative to single-occupancy vehicles and reduce transportation-related emissions. See Section 3.3, <i>Air Quality</i>, and Section 3.8, <i>Greenhouse Gas Emissions</i>, for a more detailed analysis of emissions reductions impacts.</p> |
| | <p>Strategy #7: Provide Transportation Improvements to Facilitate Non-Motorized Travel, including Incorporation of Complete Streets Elements as Appropriate</p> | <p>Consistent. Proposed improvements would provide alternatives to motorized travel along the existing rail corridor.</p> |
| | <p>Strategy #9: Facilitate Projects that Reduce the Number of and Severity of Traffic Incidents</p> | <p>Consistent. Proposed improvements could reduce the number of auto-related collisions injuries and incidents. See Section 3.16, <i>Transportation and Traffic</i>, for a more detailed analysis of safety impacts.</p> |
| | <p>Strategy #15: Improve Transportation Options Linking Residents to Employment Centers within and out of the County</p> | <p>Consistent. Proposed improvements would provide a transportation option connecting the region between San Joaquin and Sacramento counties.</p> |
| | <p>Strategy #18: Support Transportation Improvements that Improve Economic Competitiveness, Revitalize Commercial Corridors and Strategic Economic Centers, and Enhance Travel and Tourism Opportunities</p> | <p>Consistent. Proposed improvements would increase transportation options for passengers and commuters and improve freight movement in the region, thus allowing for increased economic competitiveness, travel, and tourism opportunities.</p> |

| Plan | Policy | Consistency Determination |
|--|---|--|
| <i>Delta Plan (Delta Stewardship Council 2018)</i> | DP P1. Locate New Urban Development Wisely. | Consistent. Proposed improvements would not induce land use changes that would result in new or unplanned growth around the station sites. See Section 3.13, <i>Population and Housing</i> . |
| | G P1. Detailed Findings to Establish Consistency with the Delta Plan. | Not Applicable. The proposed project is not a covered action under the Delta Plan. See Section 3.4, <i>Biological Resources</i> . Consistent. Prior to implementation of the proposed project, SJRRC will submit a certificate of consistency with the Delta Plan. |
| | WR P1. Reduce Reliance on the Delta and Improve Regional Self Reliance | Not Applicable. The proposed project would not involve implementation of water efficiency and water management laws. |
| | WR P2. Transparency in Water Contracting | Not Applicable. The proposed project would not involve water contracting. |
| | ER P1. Update Delta Flow Objectives | Not Applicable. The proposed project would not affect flow in the Delta. |
| | ER P2. Restore Habitats at Appropriate Elevations | Consistent. See Section 3.4, <i>Biological Resources</i> , for a more detailed discussion of potential impacts to habitat and appropriate mitigation measures. |
| | ER P3. Protect Opportunities to Restore Habitat | Consistent. Refer to discussion for Policy ER P2. |
| | ER P4. Expand Floodplains and Riparian Habitats in Levee Projects | Not Applicable. The proposed project would not involve construction or rehabilitation of levees. |
| | ER P5. Avoid Introductions and Habitat Improvements that Enhance Survival and Abundance of Nonnative Invasive Species | Consistent. The proposed project would comply with Executive Order 13112, as detailed in Section 3.4, <i>Biological Resources</i> . |
| | DP P2. Respect Local Land Use When Siting Water or Flood Facilities or Restoring Habitats | Consistent. Proposed improvements do not involve siting of water management facilities or flood management infrastructure. The proposed project does involve restoration activities (as discussed in several mitigation measures in Section 3.4, <i>Biological Resources</i> ; these activities would not affect local land uses. |

| Plan | Policy | Consistency Determination |
|--|---|--|
| | RR P1. Prioritization of State Investments in Delta Levees and Risk Reduction | Not Applicable. Proposed improvements would not be subject to development of funding priorities for State of California investments in Delta levees. |
| | RR P2. Require Flood Protection for Residential Development in Rural Areas | Not Applicable. Proposed improvements would not involve residential development in rural areas. |
| | RR P3. Protect Floodways | Consistent. See Section 3.10, <i>Hydrology and Water Quality</i> , for a more detailed discussion of potential impacts to floodways and in floodplains. |
| | RR P4. Protect Floodplains | Consistent. Refer to discussion for Policy RR P3. |
| Sacramento Area Council of Governments 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (SACOG 2016) | Goal 4: Build and maintain a safe, reliable, and multimodal transportation system. | Consistent. Proposed improvements would contribute to an integrated, multimodal transit system by providing new intercity and intercounty passenger rail service. |
| | Policy 19: Transit expansion, particularly light rail and other fixed infrastructure transit options. Should be targeted at community with supportive land use policies and development patterns that will generate transit ridership and improve the cost recovery rates for transit service. | Potentially Inconsistent. Proposed improvements would contribute to an integrated, multimodal transit system by providing new intercity and intercounty passenger rail service. However, portions of the North Elk Grove Station (including all access and platform variants) and Natomas/Sacramento Airport Station would be situated in areas designated as agriculture, open space, and natural preserve areas. |
| | Policy 25: Prioritize investments in transportation improvements that reduce greenhouse gas emissions and vehicle miles traveled. | Consistent. Project operations would provide an alternative to single-occupancy vehicles and reduce transportation-related emissions. See Section 3.3, <i>Air Quality</i> , and Section 3.8, <i>Greenhouse Gas Emissions</i> , for a more detailed analysis of emissions reductions impacts. |
| San Joaquin County 2035 General Plan | Policy LU-1.1 Compact Growth and Development. The County shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock. | Potentially Inconsistent. Portions of the project, including the Lodi Station and Lodi Station South Alternative, would be located in areas zoned for agriculture uses. |

| Plan | Policy | Consistency Determination |
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| | <p>Policy 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.</p> | <p>Consistent. Development of proposed improvements would increase accessibility to rail and increase non-auto transportation choices. Project operation would also provide an alternative to single-occupant vehicles and provide an energy-efficient transportation alternative.</p> |
| | <p>Policy LU-2.1 Compatible and Complimentary Development. The County shall ensure that new development is compatible with adjacent uses and complements the surrounding natural or agricultural setting</p> | <p>Potentially Inconsistent. Portions of the Lodi Station and Lodi Station South Alternative would be located in areas zoned for agriculture.</p> |
| | <p>Policy TM-1.6 Automobile Dependency Alternatives. The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving.</p> | <p>Consistent. Refer to discussion for Policy LU-1.8.</p> |
| | <p>Policy TM-1.7 Energy Conservation. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions.</p> | <p>Consistent. Refer to discussion for Policy LU-1.8.</p> |
| | <p>Policy TM-1.12 Transportation and Land Use. The County shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns.</p> | <p>Potentially Inconsistent. Refer to Policy LU-1.1 for discussion.</p> |
| | <p>Policy TM-5.3 Variety of Transit Types. The County shall consider a variety of transit types including regional rail, bus rapid transit, regional and local buses, express buses, and neighborhood shuttles, to meet the needs of residents, workers, and visitors.</p> | <p>Consistent. Proposed improvements would provide a new regional rail service to meet the needs of residents, workers, and visitors.</p> |
| | <p>Policy TM-5.4 Alternative to the Automobile. The County shall promote public and private transit systems in addition to the automobile.</p> | <p>Consistent. Proposed improvements would provide an alternative transportation mode to the automobile.</p> |
| | <p>Policy TM-5.8 Increased Rail Frequency. The County shall encourage increased passenger rail service (e.g., Amtrak, ACE) frequency to the County.</p> | <p>Consistent. Proposed improvements would provide increased passenger rail service to San Joaquin County.</p> |

| Plan | Policy | Consistency Determination |
|---|---|--|
| | <p>Policy TM-5.14 Rail Crossings. The County shall ensure all at-grade rail crossings with roads have appropriate safety equipment.</p> | <p>Consistent. Existing at-grade crossings would be modified as part of the proposed project at the Lodi Station and Lodi Station South Alternative, both of which are located in unincorporated San Joaquin County, and would be installed with appropriate safety equipment as determined by the lead agency.</p> |
| <p><i>Sacramento County General Plan of 2005-2030</i></p> | <p>CI-3. Travel modes shall be interconnected to form an integrated, coordinated and balanced multi-modal transportation system, planned and developed consistent with the land uses to be served.</p> | <p>Consistent. Proposed improvements would contribute to a more integrated and multimodal transit system by increasing passenger rail service options in the region.</p> |
| | <p>CI-4. Provide multiple transportation choices to link housing, recreational, employment, commercial, educational, and social services.</p> | <p>Consistent. New passenger rail service provided by proposed improvements would increase transportation options linking various uses in the region.</p> |
| | <p>CI-5. Land use and transportation planning and development should be cohesive, mutually supportive, and complement the objective of reducing per capita vehicle miles travelled (VMT).</p> | <p>Consistent. Proposed improvements would complement the objective of reducing VMT and would be supportive of surrounding land uses at stations in Sacramento County.</p> |
| | <p>CI-13. Collaborate with regional transportation planning agencies and neighboring jurisdictions to provide cross jurisdictional mobility.</p> | <p>Consistent. Proposed improvements would provide mobility across cities between Stockton and Sacramento and beyond.</p> |
| | <p>CI-19. Collaborate with transit service providers to provide transit services within the County that are responsive to existing and future transit demand.</p> | <p>Consistent. Proposed improvements would provide passenger rail service to meet future demand of workers and residents in the region.</p> |
| | <p>CI-46. Support multi-modal stations at appropriate locations to integrate rail transportation with other transportation modes.</p> | <p>Consistent. Rail stations associated with the proposed project in Sacramento County would contain bus drop-off areas and multimodal functionality.</p> |
| | <p>LU-115. It is the goal of the County to reduce greenhouse gas (GHG) emissions to 1990 levels by the year 2020. This shall be achieved through a mix of State and local action.</p> | <p>Consistent. New intercity rail service would reduce GHG emissions associated with automobile trips. See Section 3.8, <i>Greenhouse Gas Emissions</i>, for a more detailed analysis.</p> |

| Plan | Policy | Consistency Determination |
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| | <p>OS-2. Maintain open space and natural areas that are interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement and sustain ecosystems.</p> | <p>Potentially Inconsistent. A portion of the Natomas/Sacramento Airport Station would be sited in areas designated as <i>Natural Preserve</i>. Section 3.4, <i>Biological Resources</i>, contains mitigation measures to minimize impacts on county resources to a less-than-significant level.</p> |
| <p><i>City of Sacramento 2035 General Plan</i></p> | <p>LU 1.1.1 Regional Leadership. The City shall be the regional leader in sustainable development and encourage compact, higher-density development that conserves land resources, protects habitat, supports transit, reduces vehicle trips, improves air quality, conserves energy and water, and diversifies Sacramento’s housing stock.</p> | <p>Consistent. Proposed improvements would support the City of Sacramento’s transit service by increasing the passenger rail options in the area, reduce automobile trips via mode shifts to passenger rail, and improve air quality by reducing regional VMT.</p> |
| | <p>LU 1.1.4 Leading Infill Growth. The City shall facilitate infill development through active leadership and the strategic provision of infrastructure and services and supporting land uses.</p> | <p>Consistent. Proposed improvements would provide additional transit services that would be supportive of infill development in the areas surrounding the stations.</p> |
| | <p>LU 1.1.5 Infill Development. The City shall promote and provide incentives (e.g., focused infill planning, zoning/rezoning, revised regulations, provision of infrastructure) for infill development, reuse, and growth in existing urbanized areas to enhance community character, optimize City investments in infrastructure and community facilities, support increased transit use, promote pedestrian- and bicycle-friendly neighborhoods, increase housing diversity, ensure integrity of historic districts, and enhance retail viability.</p> | <p>Consistent. Proposed improvements would provide additional passenger rail transit service.</p> |
| | <p>M 1.2.1 Multimodal Choices. The City shall develop an integrated, multimodal transportation system that improves the attractiveness of walking, bicycling, and riding transit over time to increase travel choices and aid in achieving a more balanced transportation system and reducing air pollution and greenhouse gas emissions.</p> | <p>Consistent. Proposed improvements would contribute to the City’s goal of an integrated, multimodal transit system by providing new intercity passenger rail service.</p> |
| | <p>M 1.2.4 Multimodal Access. The City shall facilitate the provision of multimodal access to activity centers such as commercial centers and corridors, employment centers, transit stops/stations, airports, schools, parks, recreation areas, medical centers, and tourist attractions.</p> | <p>Consistent. Rail stations associated with proposed improvements would include bus drop-off areas, which would support increasing multimodal access to transit stations.</p> |

| Plan | Policy | Consistency Determination |
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| | <p>M 3.1.1 Transit for All. The City shall support a well-designed transit system that provides accessibility and mobility for all Sacramento residents, workers and visitors. The City shall enhance bicycle and pedestrian access to stations.</p> | <p>Consistent. Proposed improvements would support the City’s vision of a well-designed transit system by increasing passenger rail options within and outside of the Sacramento area.</p> |
| | <p>M 3.1.2 Increase Transit Service. The City shall work with transit operators and community partners to increase public transit service (i.e. frequency, number of lines and stops, dedicated transit lanes) above and beyond what is already planned in the MTP/SCS [Metropolitan Transportation Plan/Sustainable Communities Strategy], as funding is available.</p> | <p>Consistent. Proposed improvements would increase transit service options in the city of Sacramento.</p> |
| | <p>M 3.1.3 Expand Transit Coverage. The City shall work with transit operators and community partners to develop and implement a policy that expands affordable public transportation coverage to within walking distance of all city residents, as funding is available.</p> | <p>Consistent. Proposed improvements would increase transit service options for residents in the city of Sacramento.</p> |
| | <p>3.1.5 Variety of Transit Types. The City shall consider a variety of transit types including high speed rail, intercity rail, regional rail, light rail transit, bus rapid transit, trolleys (streetcars), enhanced buses, express buses, local buses, car sharing, bike sharing, neighborhood shuttles, pedi-cabs, and jitneys to meet the needs of residents, workers, and visitors.</p> | <p>Consistent. Proposed improvements would introduce a new intercity regional passenger rail system to increase the transit options for residents, workers, and visitors.</p> |
| | <p>M 3.1.10 Transit Service. The City shall support the enhancement and improvement of transit service, particularly in Frequent Transit Corridors and street segments where transit is prioritized in the Roadway Network and Street Typologies section.</p> | <p>Consistent. Proposed improvements would increase transit service options in the city of Sacramento.</p> |
| | <p>M 3.2.1 Passenger Rail Service. The City shall encourage and promote the enhancement of passenger rail service to and through the Sacramento area, including the development of new infrastructure and services associated with the California High Speed Rail Project.</p> | <p>Consistent. Proposed improvements would enhance passenger rail service to and through the Sacramento area by introducing a new intercity passenger rail service between Stockton and Natomas.</p> |

Stockton to Lodi

The Lodi Station and Lodi Station South Alternative would be located in areas currently zoned for agriculture and with a land use designation for agricultural uses. As shown above in Table 3.11-3, the Lodi Station and Lodi Station South Alternative could conflict with San Joaquin County General Plan Policies LU-1.1, LU-2.1, and TM-1.12 (San Joaquin County 2016). These policies contain language that development outside city boundaries could cause unplanned growth or conversion of agricultural lands and should therefore be opposed. The consistency analysis was provided for the purpose of environmental review. An inconsistency with an applicable land use plan or policy would not constitute a significant impact under CEQA unless it relates to a physical impact on the environment that is significant in its own right. Changes in land use patterns are a function of market conditions, local attitudes toward development, and policy changes enacted by the local municipality. Thus, siting of a transit station by itself would not necessarily result in substantial land use changes that would conflict with existing policies. Where development of the stations would result in potentially significant environmental impacts within the project footprint, as identified in relevant sections throughout this EIR, mitigation measures are identified to ensure those impacts are reduced to less-than-significant levels where possible. The majority of physical effects associated with construction and operation of the proposed stations would be less than significant with incorporation of the mitigation identified in this EIR.

However, as described in Section 3.2, *Agriculture and Forestry*, implementation of the Lodi Station or the Lodi Station South Alternative would result in significant unavoidable impacts on agriculture due to a conflict with existing zoning and the conversion of these farmlands to nonagricultural uses. The conversion of approximately 11 acres of prime and or unique farmlands due to the construction of either the Lodi Station or the Lodi Station South Alternative would represent a small fraction of the approximately 615,100 acres of Important Farmland that currently exists in San Joaquin County. Therefore, construction of the Lodi Station or the Lodi Station South Alternative would not conflict with policies and goal adopted to ensure the continued viability of agriculture in San Joaquin County.

In addition, although the policies in the San Joaquin County General Plan (San Joaquin County 2016) contain language to oppose development outside city boundaries, the project's inconsistency with the policies would not constitute a significant impact. As discussed in Section 3.13, *Population and Housing*, the nearby city of Lodi has anticipated population growth at full build-out of its general plan, and therefore the proposed station would serve this planned growth and would not induce new or unplanned growth on agricultural lands. In addition, because development of the area surrounding the station sites is limited through San Joaquin County's land use designation and zoning and infrastructure constraints, the Lodi Station and Lodi Station South Alternative would not induce land use changes that result in new or unplanned growth around the station sites. Thus, potential inconsistencies with San Joaquin County's zoning and land use designations would be less than significant.

Lodi to Elk Grove

As described in Table 3.11-3, no inconsistencies with adopted plans and policies were identified for project components proposed in the Lodi to Elk Grove segment. ~~However, parking associated with the proposed North Elk Grove Station (including all access and platform variants) would be located in areas designated for open space or public/quasi-public uses and zoned for agricultural~~

~~uses within the city of Sacramento and within the City of Sacramento Sphere of Influence. The North Elk Grove Station (including all access and platform variants) would develop a pocket of undeveloped land in this area adjacent to existing residential development in the city of Sacramento and west of the SacRT Franklin Station. The North Elk Grove Station (including all access and platform variants) would be inconsistent with the proposed allowable uses under the public/quasi-public uses and open space designation. However, the North Elk Grove Station (including all access and platform variants) would reduce the area designated for public/quasi-public uses by only approximately 13 acres of the parcels designated for public/quasi-public uses (approximately 85 acres) and would not preclude the designation for public/quasi-public uses on the remainder of the parcels. The North Elk Grove Station (including all access and platform variants) would also reduce the area designated for open space by only approximately 12 acres of the parcels designated for open space uses (approximately 80 acres) and would not preclude the designation of open space uses on the remainder of the parcels. The total conversion of public/quasi-public and open space areas would be small in the context of the entire area designated for public/quasi-public and open space uses and would not cause a substantial reduction in the total amount of public/quasi-public and open space areas.~~

~~The proposed North Elk Grove Station (including all access and platform variants) would not increase development potential in the surrounding area. Despite potential inconsistencies with the City and County's land use and zoning designations, the North Elk Grove Station (including all access and platform variants) would positively support residents' mobility and other city and county planning goals. The North Elk Grove Station (including all access and platform variants) would provide nearby residents with greater inter-city and inter-county passenger rail service throughout the Sacramento Valley. In addition, land use policies in the *City of Sacramento 2035 General Plan* (City of Sacramento 2015) and the *County of Sacramento 2030 General Plan* (Sacramento County 2011) emphasize the need to expand and increase transit service, support improved transit service, and reduce per capita VMT. The North Elk Grove Station (including all access and platform variants) would not only be consistent with, but would contribute to, the achievement of these goals and policies by providing transit service and an additional transportation method for residents.~~

~~Although the proposed North Elk Grove Station (including all access and platform variants) would be inconsistent with the land use and zoning designations, these inconsistencies do not relate to a secondary physical impact on the environment that is significant in its own right. Secondary effects associated with conversion of land designated as open space is addressed in Section 3.4, *Biological Resources*. The inconsistency with the North Elk Grove Station (including all access and platform variants) with land use designations and zoning would be less than significant, as the physical impact on biological resources in its own right would be less than significant.~~

Elk Grove to Natomas

The proposed Old North Sacramento Station would be constructed in areas currently zoned Employment Center Low Rise and designated as Light Industrial / Special Planning District. Allowable uses within Employment Center Low Rise areas include "transit stops near business park entries" (City of Sacramento 2015). Development of the site and proposed station parking would be consistent with the allowable development and would not significantly change the land use pattern envisioned for this area.

As described in Table 3.11-3, the Natomas/Sacramento Airport Station would be inconsistent with policies to preserve biological resources found in the *County of Sacramento 2030 General Plan* (Sacramento County 2011). The Natomas/Sacramento Airport Station's associated parking area is in areas currently designated as and zoned for heavy industrial uses. Parking lots and garages are permitted in areas zoned for heavy industrial uses (Sacramento County 2015). A portion of the Natomas/Sacramento Airport Station site is in areas designated for natural preserve land uses in the general plan and zoned for Interim-Agricultural Reserve. The natural preserve land use designation provides for resource protection of critical natural habitat (Sacramento County 2017). The Natomas/Sacramento Airport Station would be inconsistent with the allowable uses under the natural preserve designation. However, the Natomas/Sacramento Airport Station would reduce the area designated for natural preserve by only approximately 0.25 acre along the perimeter of the designated natural preserve parcel (approximately 65 acres) and would not preclude the designation of natural preserve for the remainder of the parcel. The total conversion of natural preserve area would be small in the context of the entire natural preserve–designated area and would not cause a substantial reduction in the total amount of natural preserve–designated area.

Although the Natomas/Sacramento Airport Station would be inconsistent with policies to retain and preserve biological resources, these inconsistencies do not relate to a secondary physical impact on the environment that is significant in its own right. Secondary effects associated with conversion of this land are addressed in Section 3.4, *Biological Resources*. The inconsistency of the Natomas/Sacramento Airport Station with policies related to preserving biological resources would be less than significant, as the physical impact on biological resources in its own right would be less than significant.

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3.12 Noise and Vibration

3.12.1 Introduction

This section describes the regulatory setting and environmental setting for noise and vibration in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the potential impacts from noise and vibration that may result from implementation of the proposed project, and mitigation measures that would reduce significant impacts, where feasible and appropriate.

Cumulative impacts from noise and vibration, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to noise and vibration were received:

- Concern over potential increase in project-related noise to existing residents in the project area.

These concerns are addressed in this section. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.12.2 Fundamentals of Environmental Noise and Vibration

3.12.2.1 Overview of Noise and Sound

Noise from transit systems is expressed in terms of a *source-path-receiver* framework. The *source* generates noise levels that depend on the type of source (e.g., a commuter train) and its operating characteristics (e.g., speed). The *receiver* is the noise-sensitive land use (e.g., 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 buildings, and topography. Environmental noise impacts are assessed at the receiver. Noise criteria are established 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 quantifies what humans hear in a more meaningful way because it reduces the sound levels of higher and lower frequency sounds—similar to what humans hear. Figure 3.12-1 shows typical maximum A-weighted sound levels (L_{max}) for transit and non-transit sources.

Analysts use four primary noise measurement metrics or 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 the maximum sound level (L_{max}).

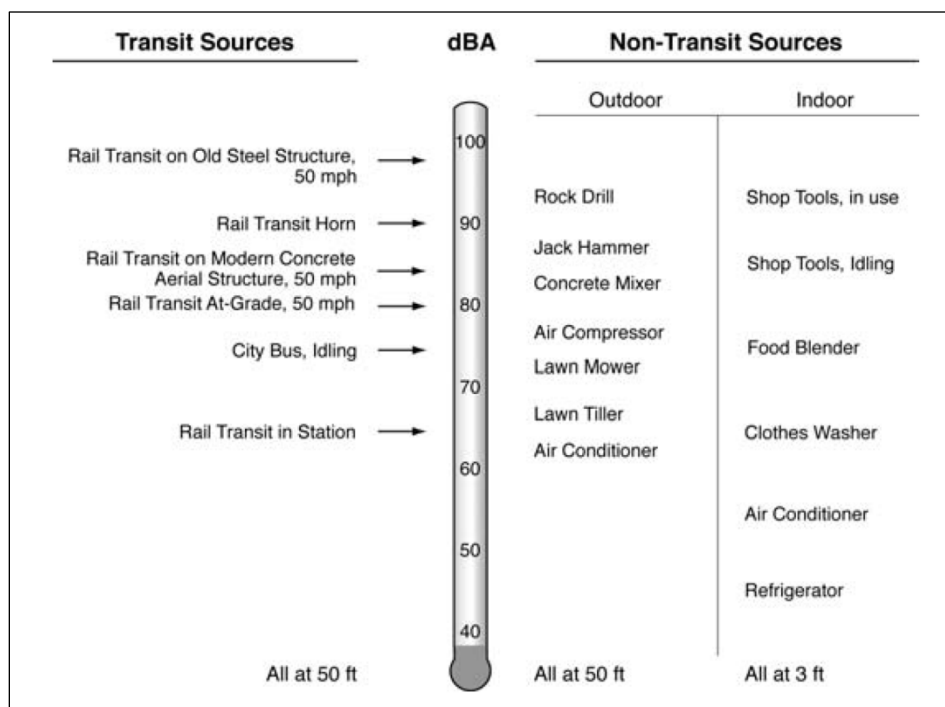
L_{eq} (equivalent level): The level of a constant sound for a specified period of time that has the same sound energy as an actual fluctuating noise over the same period of time. The peak-hour

L_{eq} is used for all traffic and commuter rail noise analyses at locations with primarily daytime use, such as schools and churches.

L_{dn} (day-night level): 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. Figure 3.12-2 shows typical L_{dn} noise exposure levels.

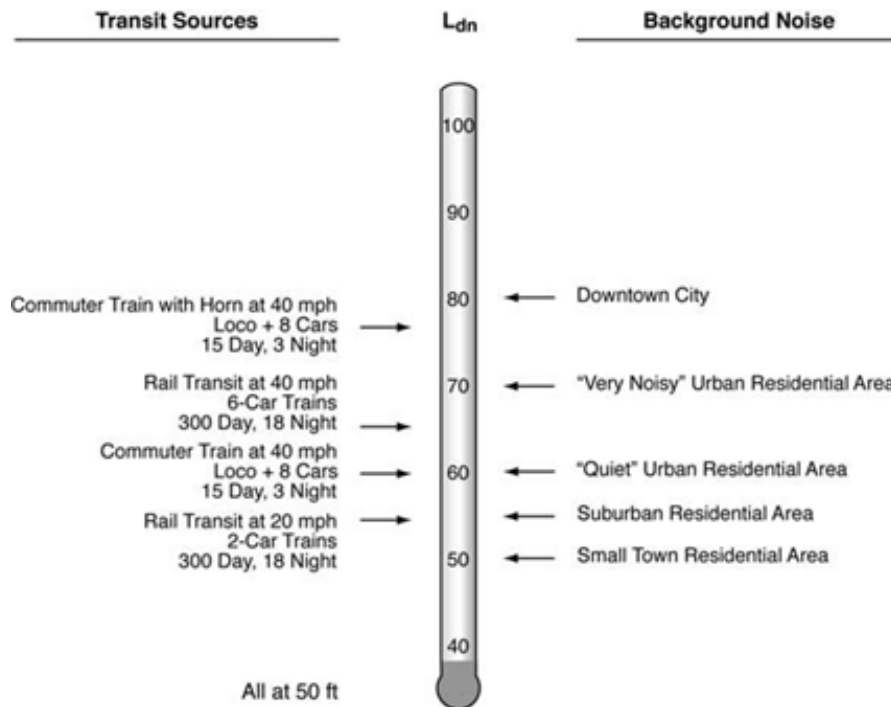
SEL (sound exposure level): The SEL is the primary descriptor of a single noise event (e.g., noise from a train passing a specific location along the track). The SEL represents a receiver's cumulative noise exposure from an event, and the total A-weighted sound energy during the event normalized to a 1-second interval.

L_{max} (maximum sound level): The loudest 1 second of noise over a measurement period. L_{max} is used in many local and state ordinances for noise emitted from private land uses and for construction noise impact evaluations.



Source: FTA 2018

Figure 3.12-1. Examples of Typical A-Weighted Sound Levels



Source: FTA 2018

Figure 3.12-2. Typical L_{dn} Noise Exposure Levels

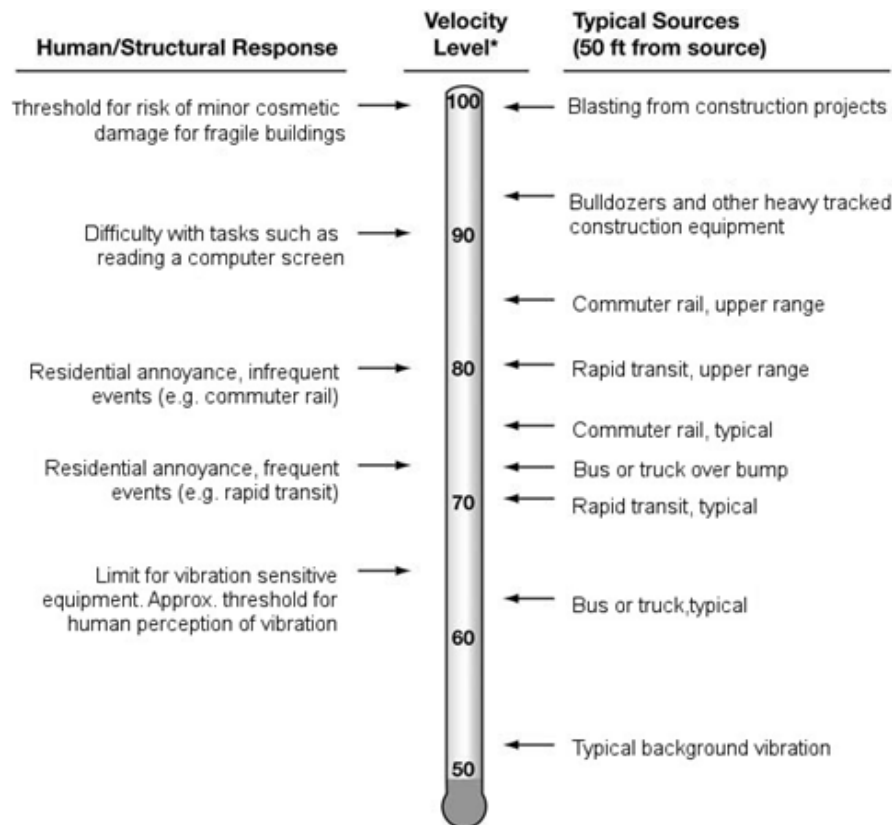
3.12.2.2 Overview of Groundborne Vibration

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 vibration energy transmitted through the supporting structure under the tracks and into the ground. Once the vibration gets into the ground, it propagates through the various soil and rock strata—the *path*—to the foundations of nearby buildings—the *receivers*. Groundborne vibrations are generally reduced with distance, and the rate of reduction depends on the local geological conditions. A receiver is a vibration-sensitive building (e.g., residence, hospital, or school) where the vibrations may cause perceptible shaking of the floors, walls, and ceilings, and a rumbling sound inside rooms. Not all receivers have the same vibration sensitivity. Consequently, vibration criteria are established for the various types of receivers. Groundborne noise occurs as a perceptible rumble, and is caused by the noise radiated from the vibration of room surfaces.

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 vibration is most accurately described using velocity or acceleration. In this analysis, the vibration velocity level in decibels (VdB) is the primary measure to evaluate the effects of vibration.

Figure 3.12-3 illustrates typical groundborne vibration velocity levels for common sources, and thresholds for human and structural response to groundborne vibration. As shown, the range of interest is from approximately 50 to 100 VdB in terms of vibration velocity level (i.e., from imperceptible background vibration to the threshold of damage). Although the threshold of human

perception to vibration is approximately 65 VdB, annoyance does not usually occur unless the vibration level exceeds 70 VdB.



* RMS Vibration Velocity Level in VdB relative to 10⁻⁶ inches/second

Source: FTA 2018

Figure 3.12-3. Typical Levels of Ground-Borne Vibration

3.12.3 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to noise and vibration and applicable to the proposed project.

3.12.3.1 Federal

Noise Control Act of 1972

The Noise Control Act of 1972 (42 United States Code 4910) was the first comprehensive statement of national noise policy. The Noise Control Act declared “it is the policy of the U.S. to promote an environment for all Americans free from noise that jeopardizes their health or welfare.” Although the Noise Control Act, as a funded program, was ultimately abandoned at the federal level, it served as the catalyst for comprehensive noise studies and the generation of noise assessment and mitigation policies, regulations, ordinances, standards, and guidance for many states, counties, and municipal governments. For example, the noise elements of community general plan documents and local noise ordinances considered in this analysis were largely created in response to the passage of the Noise Control Act.

U.S. Environmental Protection Agency Railroad Noise Emission Standards

Interstate rail carriers must comply with U.S. Environmental Protection Agency (EPA) (40 Code of Federal Regulation [CFR] Part 201) noise emission standards, which are expressed as maximum measured noise levels, and are applicable to locomotives manufactured after 1979. These standards are as follows:

- 100 feet from geometric center of stationary locomotive, connected to a load cell and operating at any throttle setting except idle—87 dBA (at idle setting, 70 dBA).
- 100 feet from geometric center of mobile locomotive—90 dBA.
- 100 feet from geometric center of mobile railcars, at speeds of up to 45 miles per hour (mph) —88 dBA (or speeds greater than 45 mph—93 dBA).

Federal Railroad Administration Guidelines and Noise Emission Compliance Regulation

The Federal Railroad Administration (FRA) has developed a guidance manual for assessing noise and vibration impacts from major rail projects. Although not at the level of a rule or a standard, FRA guidance is intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process.

FRA also has a regulation governing compliance of noise emissions from interstate railroads. FRA's Railroad Noise Emission Compliance Regulation (49 CFR Part 210) prescribes compliance requirements for enforcing railroad noise emission standards adopted by EPA (40 CFR Part 201).

Federal Transit Administration Guidelines

Similar to FRA, the Federal Transit Administration (FTA) has developed a guidance manual for assessing noise and vibration impacts from major rail projects intended to satisfy environmental review requirements and assist project sponsors in addressing predicted construction and operation noise and vibration during the design process. The FTA guidance manual noise and vibration impact criteria for rail projects and their associated fixed facilities, such as storage and maintenance yards, passenger stations and terminals, parking facilities, and substations, are described below for California Environmental Quality Act (CEQA) Thresholds of Significance, and are the primary noise criteria used for the proposed project. FTA guidance is accepted by FRA.

3.12.3.2 State

California Noise Control Act

At the state level, the California Noise Control Act, enacted in 1973 (Health and Safety Code 46010 et seq.), requires the Office of Noise Control in the Department of Health Services to provide assistance to local communities developing local noise control programs. The Office of Noise Control also works with the Office of Planning and Research to provide guidance for preparing required noise elements in city and county general plans, pursuant to Government Code Section 65302(f). In preparing the noise element, a city or county must identify local noise sources, and analyze and quantify, to the extent practicable, current and projected noise levels

for various sources, including highways and freeways; passenger and freight railroad operations; ground rapid transit systems; commercial, general, and military aviation and airport operations; and other ground stationary noise sources. These noise sources also would include commuter rail alignments. The California Noise Control Act stipulates the mapping of noise-level contours for these sources, using community noise metrics appropriate for environmental impact assessment as defined below. Cities and counties use these as guides to making land use decisions to minimize the community residents' exposure to excessive noise.

3.12.3.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss "any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to noise and vibration identified in Appendix E.

The project corridor traverses and is located in the jurisdiction of two counties and three incorporated cities. Table 3.12-1 provides a list of county and city general plans, and a summary of applicable noise and vibration policies that have been reviewed and considered for the preparation of this analysis.

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

Table 3.12-1. List of Local Plans Regarding Noise and Vibration³

| Document Title | Summary | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|----------------------------------|--|-------|--------------------------------|----------------------------------|--|----------------------------------|----|---|----|----|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|
| San Joaquin County | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>San Joaquin County General Plan Policy Document (San Joaquin County 2016)</i> | Policy PHS-9.1 sets the maximum allowable noise exposure from transportation noise sources at 65 dB L _{dn} for residential and other noise-sensitive land use. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Stockton General Plan 2035 Goals and Policies Report (City of Stockton 2007)</i> | Policy HS-2.1 prohibits noise-generating land uses adjacent to existing noise-sensitive land uses if noise levels are expected to exceed 70 dB CNEL. Policy HS-2.2 sets the maximum allowable ambient noise exposure at 60 dB L _{dn} for residential and other noise-sensitive land use, and 70 dB L _{dn} for outdoor activity areas. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sacramento County | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>County of Sacramento General Plan (County of Sacramento 2017)</i> | <p>Policy NO-9 requires that noise from transportation projects should be mitigated to below 60 dBA if the projected future traffic noise level exceeds 65 dBA at sensitive land uses. If the pre-project traffic noise level exceeds 65 dBA, noise should be mitigated if there is a projected significant increase in noise defined as follows:</p> <table border="1"> <thead> <tr> <th>Pre-Project Noise Environment (L_{dn})</th> <th>Significant Increase</th> </tr> </thead> <tbody> <tr> <td>Less than 60 dB</td> <td>5+ dB</td> </tr> <tr> <td>60 to 65 dB</td> <td>3+ dB</td> </tr> <tr> <td>Greater than 65 dB</td> <td>1.5+dB</td> </tr> </tbody> </table> <p>For railroads, a maximum (L_{max}) noise level standard of 70 dB shall be applied to all sleeping rooms to reduce the potential for sleep disturbance during nighttime train passages.</p> | Pre-Project Noise Environment (L _{dn}) | Significant Increase | Less than 60 dB | 5+ dB | 60 to 65 dB | 3+ dB | Greater than 65 dB | 1.5+dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pre-Project Noise Environment (L _{dn}) | Significant Increase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Less than 60 dB | 5+ dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 to 65 dB | 3+ dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Greater than 65 dB | 1.5+dB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>City of Sacramento General Plan 2035 (City of Sacramento 2015)</i> | <p>Policy EC 3.1.2 defines exterior incremental noise standards for different land use types. The City requires noise mitigation for all development that increases the existing noise levels by more than the allowed increment, to the extent feasible.</p> <table border="1"> <thead> <tr> <th colspan="2"><i>Residences and buildings where people normally sleep</i></th> <th colspan="2"><i>Institutional land uses with primarily daytime and evening uses</i></th> </tr> <tr> <th><i>Existing L_{dn}</i></th> <th><i>Allowable Noise Increment</i></th> <th><i>Existing Peak Hour L_{eq}</i></th> <th><i>Allowable Noise Increment</i></th> </tr> </thead> <tbody> <tr><td>45</td><td>8</td><td>45</td><td>12</td></tr> <tr><td>50</td><td>5</td><td>50</td><td>9</td></tr> <tr><td>55</td><td>3</td><td>55</td><td>6</td></tr> <tr><td>60</td><td>2</td><td>60</td><td>5</td></tr> <tr><td>65</td><td>1</td><td>65</td><td>3</td></tr> <tr><td>70</td><td>1</td><td>70</td><td>3</td></tr> <tr><td>75</td><td>0</td><td>75</td><td>1</td></tr> <tr><td>80</td><td>0</td><td>80</td><td>0</td></tr> </tbody> </table> <p>Policy EC 3.1.5 requires projects to ensure acceptable interior vibration levels at nearby residential and commercial uses based on FTA criteria.</p> | <i>Residences and buildings where people normally sleep</i> | | <i>Institutional land uses with primarily daytime and evening uses</i> | | <i>Existing L_{dn}</i> | <i>Allowable Noise Increment</i> | <i>Existing Peak Hour L_{eq}</i> | <i>Allowable Noise Increment</i> | 45 | 8 | 45 | 12 | 50 | 5 | 50 | 9 | 55 | 3 | 55 | 6 | 60 | 2 | 60 | 5 | 65 | 1 | 65 | 3 | 70 | 1 | 70 | 3 | 75 | 0 | 75 | 1 | 80 | 0 | 80 | 0 |
| <i>Residences and buildings where people normally sleep</i> | | <i>Institutional land uses with primarily daytime and evening uses</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Existing L_{dn}</i> | <i>Allowable Noise Increment</i> | <i>Existing Peak Hour L_{eq}</i> | <i>Allowable Noise Increment</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 8 | 45 | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 | 5 | 50 | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 3 | 55 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 2 | 60 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 1 | 65 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 70 | 1 | 70 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 0 | 75 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | 0 | 80 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>City of Elk Grove General Plan (City of Elk Grove Planning 2016)</i> | Policy NO-5 states that noise created by the construction of new transportation noise sources shall be mitigated so as not to exceed 60 dBA L _{dn} . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Notes:

- BA = A-weighted decibel
- TA = Federal Transit Administration
- B = decibels
- dn = day-night sound level
- eq= equivalent sound level
- max = maximum sound level
- NEL = community noise equivalent level

³ All general plans follow the noise standards set by the State of California.

3.12.4 Environmental Setting

This section describes the environmental setting related to noise and vibration for the proposed project. For the purposes of this analysis, the study area for noise and vibration is defined as follows:

- The study area for noise is the area within approximately 500 feet of the track centerline.
- The study area for vibration is the area within approximately 200 feet of the track centerline.

Figure 3.12-4 depicts the noise and vibration study areas for the proposed project.

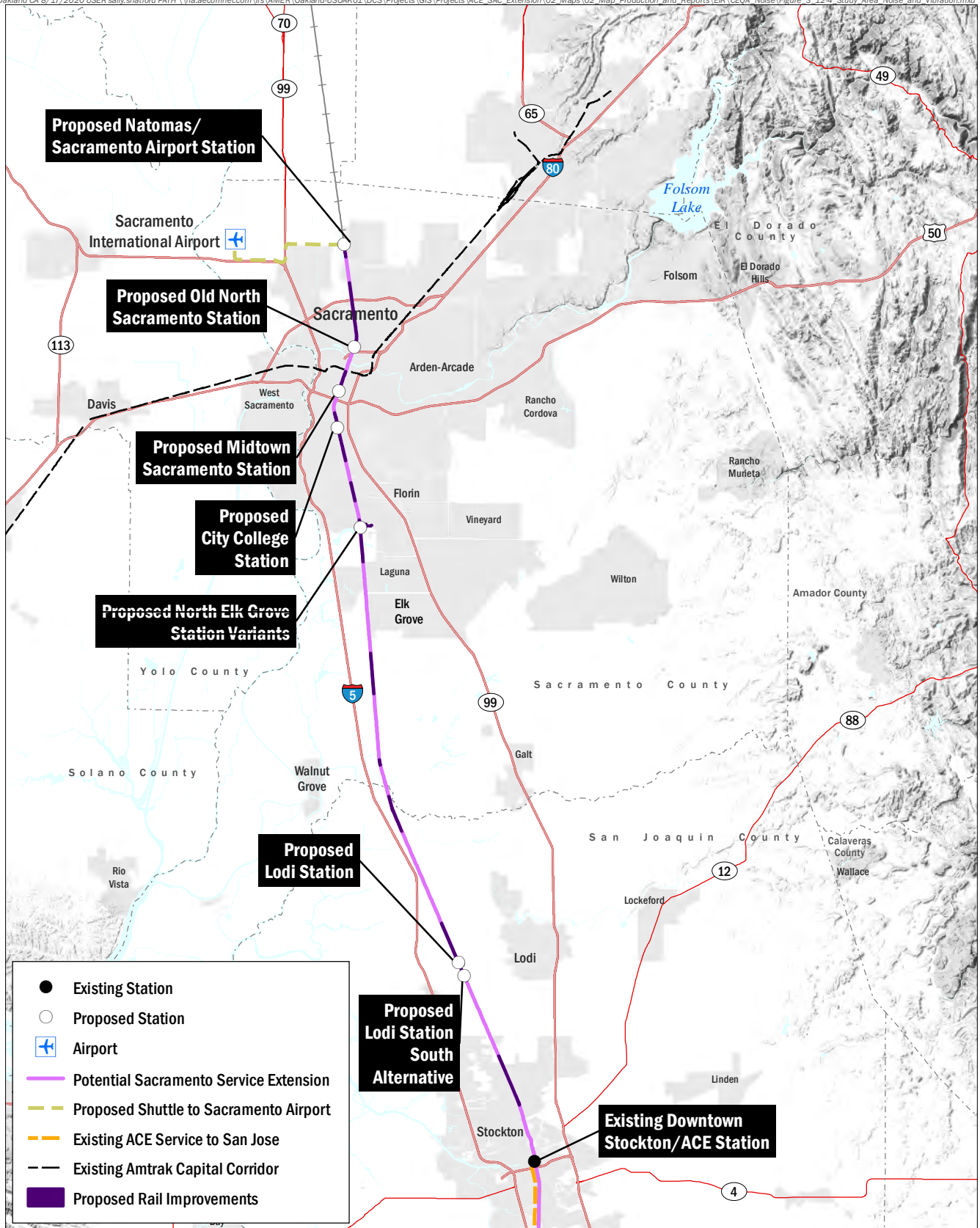
Information presented in this section regarding noise and vibration was obtained from the following sources:

- Available reports and data (federal and state statutes, regional agency policies, and ordinances).
- Field reconnaissance throughout the study area to assess potential locations for noise measurements.
- Noise measurements at locations throughout the study area to document existing conditions at sensitive receivers.
- ACE data on existing locomotive fleet and operations.
- Available data on UPRR freight train volumes.
- General plan noise elements for jurisdictions along the project corridor.

Existing noise sources in the study area include freight rail operations, roadway traffic, and general community activity. Significant sources of vibration in the study area are freight rail operations.

Because the thresholds for noise impacts in FTA noise criteria are based on the existing noise levels, measuring and characterizing the existing noise levels at noise-sensitive receiver locations in the study area is an important step in the impact assessment. The noise measurements include both long-term (24-hour) and short-term (1-hour) monitoring of the A-weighted sound level at noise-sensitive receiver locations in the study area.

The noise measurements were performed with NTi Audio model XL2 noise monitors that conform to American National Standard Institute standards for Type 1 (precision) sound level meters. Calibrations, based on the U.S. National Institute of Standards and Technology standards, were completed before and after each measurement. The noise monitors were set to continuously monitor and record multiple noise level metrics, as well as to obtain audio recordings during the measurement periods.



Data Source: ESRI, 2019; AECOM, 2019;
 San Joaquin and Capital Corridor Rail Alignments:
 California Department of Transportation, 2013.

AECOM
 San Joaquin Regional Rail Commission

FIGURE 3.12-4

Study Area for Noise and Vibration

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

Table 3.12-2 presents results of the existing noise measurements for the study area for the proposed project. Figures 3.12-5 and 3.12-6 show the locations of the 13 long-term (LT) noise sites and 2 short-term noise sites (ST). The long-term noise measurements are used to characterize the existing noise levels at residential locations, and the short-term sites are used to characterize the existing noise levels at noise-sensitive non-residential locations.

Table 3.12-2. Existing Noise Level Measurements in the Study Area

| Site No. | City | Measurement Location | Measurement Start Date/Time | | Meas. Dur. (Hrs.) | Noise Level (dBA) ^a | |
|----------|------------|---------------------------|-----------------------------|-------|-------------------|--------------------------------|-----------------|
| | | | | | | L _{eq} | L _{dn} |
| LT-1 | Stockton | 1106 College Avenue | 2016-12-19 | 12:00 | 24 | 47 | 57 |
| LT-2 | Stockton | 5706 Linda Sue Drive | 2018-10-8 | 10:00 | 24 | 48 | 57 |
| LT-3 | Stockton | 10419 Gianna Court | 2018-10-8 | 11:00 | 24 | 50 | 57 |
| LT-4 | Lodi | 11615 Davis Road | 2018-10-8 | 11:00 | 24 | 54 | 68 |
| LT-5 | Thornton | 26625 North Nowell Road | 2018-10-8 | 12:00 | 24 | 58 | 61 |
| LT-6 | Elk Grove | 10389 Dennis Way | 2018-10-9 | 12:00 | 24 | 52 | 60 |
| LT-7 | Elk Grove | 4305 Escambia Court | 2018-10-9 | 12:00 | 24 | 44 | 55 |
| LT-8 | Sacramento | 19 Lesbos Court | 2018-10-9 | 10:00 | 24 | 51 | 58 |
| LT-9 | Sacramento | 2521 Fernandez Drive | 2018-10-9 | 16:00 | 24 | 55 | 59 |
| LT-10 | Sacramento | 2183 Weller Way | 2018-10-9 | 16:00 | 24 | 51 | 54 |
| LT-11 | Sacramento | 415 20th Street | 2018-10-10 | 15:00 | 24 | 59 | 62 |
| LT-12 | Sacramento | 61 Bay Drive | 2018-10-10 | 18:00 | 24 | 53 | 56 |
| LT-13 | Rio Linda | 7005 Marysville Boulevard | 2018-10-10 | 12:00 | 24 | 49 | 51 |
| ST-1 | Stockton | Robert J. Cabral Station | 2015-12-16 | 10:07 | 1 | 62 | 60 |
| ST-2 | Lodi | Ray Road and Turner Road | 2018-10-8 | 13:00 | 1 | 62 | 60 |

^a L_{dn} is used for Category 2 (residential) land use and L_{eq} is used for Category 3 (institutional) land use.

LT-# = long-term noise sites

ST-# = short-term noise sites

No. = number

hrs. = hours

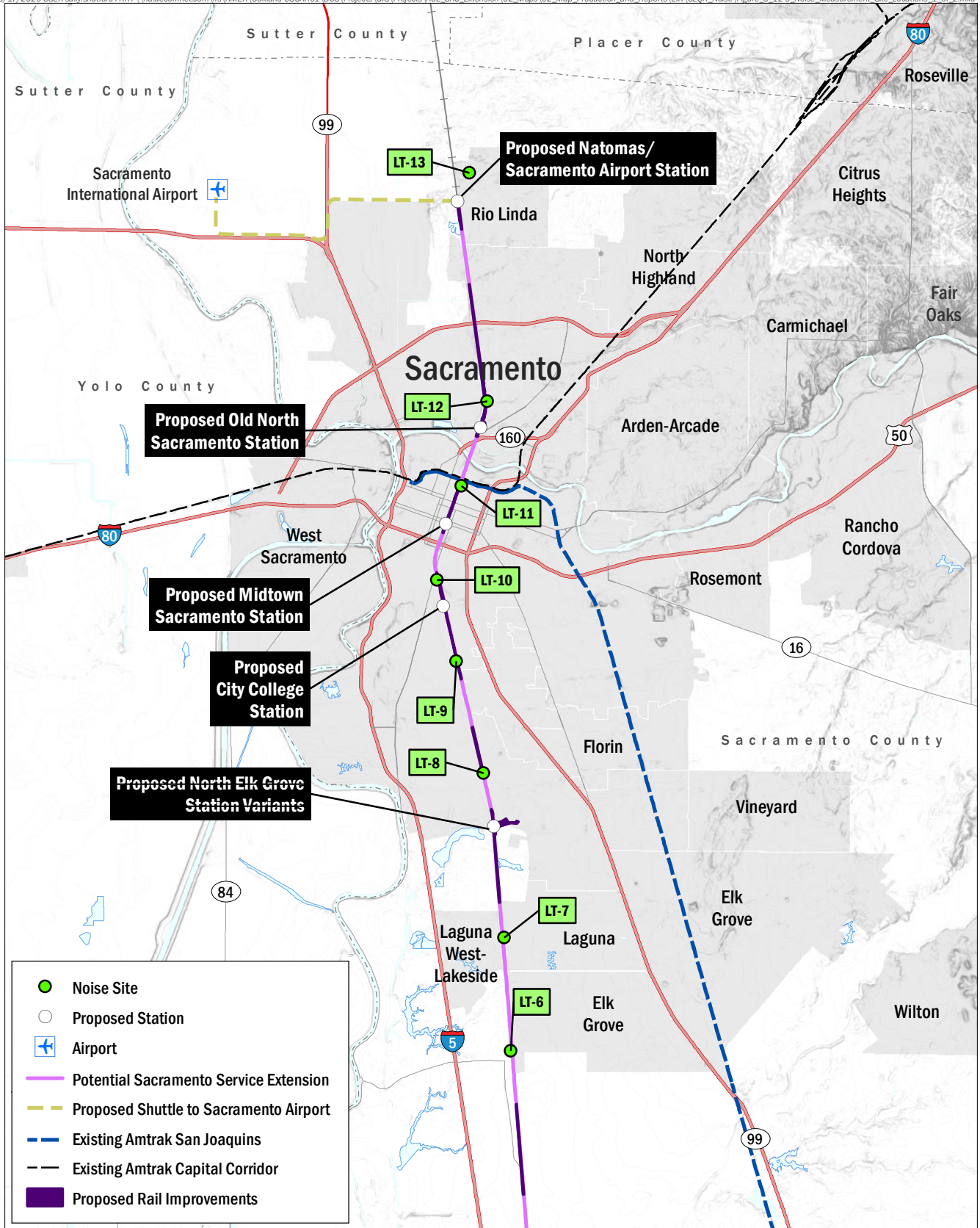
dBA = A-weighted decibels

L_{eq} = equivalent sound level

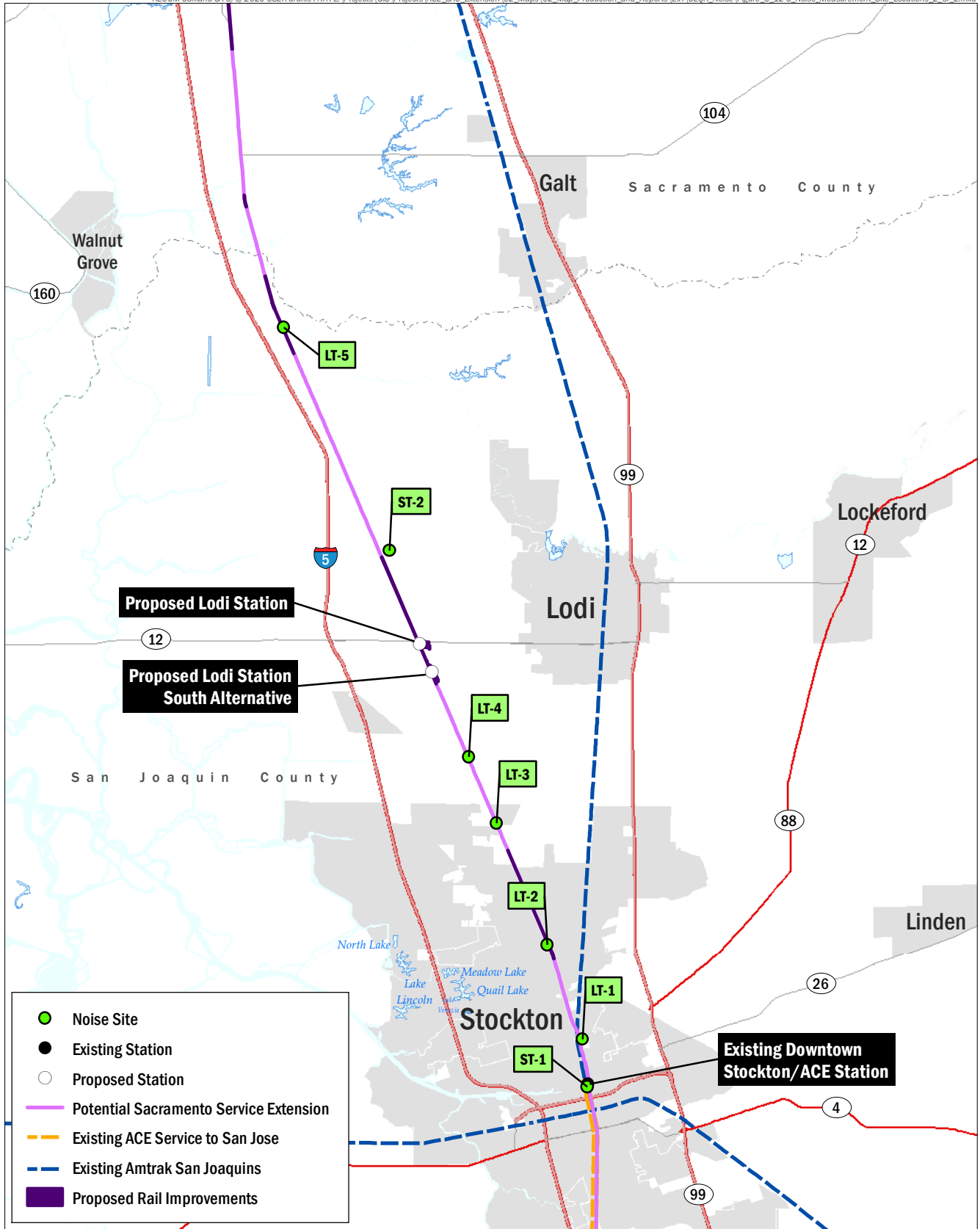
L_{dn} = day-night sound level

Meas. Dur. = measurement duration

The sensitive land use for vibration is essentially the same as for noise, except that parkland is not considered vibration-sensitive. Because a general vibration assessment (rather than a detailed vibration analysis) was performed, existing vibration levels were not measured for this analysis.



Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.



3.12.4.1 Stockton to Lodi

The land uses for the Stockton to Lodi segment include a densely populated area in Stockton and a sparsely populated area north of Stockton. Noise- and vibration-sensitive land use in the Stockton area includes Jane Frederick High School, Stockton Pre-School, Iglesia Nueva Vido En Cristo, Richard Pittman Elementary School, Temple Israel Cemetery, Health Careers Academy, San Joaquin Catholic Cemetery, Stockton Rural Cemetery, Valley Ministries MCC, Delta Bridges K-8 Charter School, Community Medical Centers, Congregation of Zion, Mary Help of Christians Center, and single- and multi-family residences. North of Stockton, the noise- and vibration-sensitive land uses include sparsely distributed single-family residences.

The noise sites that are used to represent this area include LT-1, LT-2, LT-3, LT-4, and ST-1. Below are the descriptions of each site.

Site LT-1, College Avenue (Stockton): The L_{dn} measured at this location was 57 dBA. The dominant noise sources were light traffic on local streets and existing freight trains. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from East Weber Avenue to Calaveras River in Stockton.

Site LT-2, Linda Sue Drive (Stockton): The L_{dn} measured at this location was 57 dBA. The dominant noise sources were light traffic on local streets and existing freight trains. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from Calaveras River to East Hammer Lane in Stockton.

Site LT-3 Gianna Court (Stockton): The L_{dn} measured at this location was 57 dBA. The dominant noise sources were light traffic on local streets and existing freight trains. There was a sound wall between the property and the existing freight track. Noise levels were measured for 24 hours in the backyard of the residence. This noise measurement site is representative of all noise-sensitive land uses from East Hammer Lane to Eight Mile Road in Stockton.

Site LT-4, Davis Road (Lodi): The L_{dn} measured at this location was 68 dBA. The dominant noise sources were vehicular traffic on Davis Road and the existing freight trains. The home was close to the at-grade crossing with Davis Road, where the freight trains sound their horns. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses in the rural areas from Eight Mile Road in Stockton to Bilby Road in Elk Grove. This noise measurement is not used for the noise-sensitive land uses in Thornton.

Site ST-1, Cabral Station (Stockton): The L_{eq} measured at this location was 62 dBA. The dominant noise sources were traffic on East Weber Avenue and State Route (SR) 4, and community noise. Noise levels were measured for 1 hour on the sidewalk at the northwestern corner of Channel Street and East Weber Avenue. This noise site is representative of institutional noise-sensitive land use close to Cabral Station.

3.12.4.2 Lodi to Elk Grove

The land use for the Lodi to Elk Grove segment includes populated areas in Elk Grove and Thornton, and sparsely populated areas in-between Lodi and Thornton, and Thornton and Elk Grove. The noise- and vibration-sensitive land uses include Turner School, New Hope Elementary School, and single- and multi-family residences.

The noise sites that are used to represent this area include LT-4, LT-5, LT-6, LT-7, and ST-2. Below are the descriptions of each site.

Site LT-4, Davis Road (Lodi): See description in previous section.

Site LT-5, North Nowell Road (Thornton): The L_{dn} measured at this location was 61 dBA. The dominant noise source was the existing freight trains. Noise levels were measured for 24 hours in the backyard of the residence behind the barn, which housed goats, chickens, and a cow. This noise measurement site is representative of all noise-sensitive land uses in Thornton.

Site LT-6, Dennis Way (Elk Grove): The L_{dn} measured at this location was 60 dBA. The dominant noise source was the existing freight trains and local traffic on Bilby Road. There is an at-grade crossing at Bilby Road, but a quiet zone is in effect, so freight trains do not sound their horns. Noise levels were measured for 24 hours in the backyard of the residence. This noise measurement site is representative of all noise-sensitive land uses from Tusk Way to Whitelock Parkway in Elk Grove.

Site LT-7, Escambia Court (Elk Grove): The L_{dn} measured at this location was 55 dBA. The dominant noise source was the existing freight trains. There is a sound wall between the property and the existing freight track. Noise levels were measured for 24 hours in the side yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from Whitelock Parkway to Big Horn Boulevard in Elk Grove.

Site ST-2, Ray Road and Turner Road (Lodi): The L_{eq} measured at this location was 62 dBA. The dominant noise sources were local vehicular traffic on Ray Road and Turner Road, and freight trains. Noise levels were measured for 1 hour on the eastern shoulder of Ray Road, about 1,000 feet north of Turner Road. This noise site is representative of the Turner School in Lodi.

3.12.4.3 Elk Grove to Natomas

The Elk Grove to Natomas segment traverses a densely populated area that includes residential, commercial, and industrial land uses. The noise- and vibration-sensitive land uses include the Chinese United Methodist Church, Nichirin Buddhist Church, Seven Stars Baptist Church, Resurrection Christian Center, Wo'se Community Church, Calvary Chapel Rivercity Church, Victory Restoration Center, Bayside Church, and Thistle Dew Dessert Theatre, The Formulation Room, First Tabernacle Fellowship, KCRA/KQCA TV Studio, and single- and multi-family residences.

The noise sites that are used to represent this area include LT-8, LT-9, LT-10, LT-11, LT-12, and LT-13. Below are the descriptions of each site.

Site LT-8, Lesbos Court (Sacramento): The L_{dn} measured at this location was 58 dBA. The dominant noise sources were existing freight trains, light-rail trains, and nearby crossing bells for

the light-rail trains. There is a sound wall between the property and the existing freight and light-rail tracks. Noise levels were measured for 24 hours in the side yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from Cosumnes River Boulevard to 47th Avenue in Sacramento.

Site LT-9, Fernandez Drive (Sacramento): The L_{dn} measured at this location was 59 dBA. The dominant noise sources were existing freight trains and light-rail trains. There is a sound wall between the property and the existing freight and light-rail tracks. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from 47th Avenue to 12th Avenue in Sacramento.

Site LT-10, Weller Way (Sacramento): The L_{dn} measured at this location was 54 dBA. The dominant noise sources were existing freight trains and light-rail trains. There is a sound wall between the property and the existing freight and light-rail tracks. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from 12th Avenue to Highway 50 in Sacramento.

Site LT-11, 20th Street (Sacramento): The L_{dn} measured at this location was 62 dBA. The dominant noise sources were local vehicular traffic on 20th Street and existing freight trains. Noise levels were measured for 24 hours in the front yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from Highway 50 to the American River in Sacramento.

Site LT-12, Bay Drive (Sacramento): The L_{dn} measured at this location was 56 dBA. The dominant noise source was existing freight trains. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from the American River to Interstate 80 (I-80).

Site LT-13, Marysville Boulevard (Rio Linda): The L_{dn} measured at this location was 51 dBA. The dominant noise sources were local vehicular traffic and distant freight trains. Noise levels were measured for 24 hours in the back yard of the residence. This noise measurement site is representative of all noise-sensitive land uses from I-80 to the end of the proposed alignment.

3.12.5 Environmental Analysis

This section describes the environmental noise and vibration impacts of the proposed project. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are provided, where appropriate.

3.12.5.1 Methods for Analysis

The approach to evaluating noise and vibration impacts varies for the construction and operational phases of the project. Construction and operational noise and vibration impacts are assessed quantitatively, using prediction models from the FTA guidance manual. The operational analysis uses project-specific parameters such as train type, speed, and frequencies. The construction analysis uses assumptions based on typical construction scenarios, because details on construction means and methods have yet to be determined.

Construction Noise and Vibration Impact Assessment Methodology

The construction noise impact assessment used the methodology described in the FTA guidance manual (Federal Transit Administration 2018). SJRRC, UPRR, and their contractors will make decisions regarding procedures and equipment. 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 ROW;
- Proximity of construction activities to nearby noise-sensitive receivers; and
- FTA construction noise assessment criteria.

The FTA guidance manual (Federal Transit Administration 2018) also provides the methodology for the assessment of construction vibration impacts. Estimated construction scenarios have been developed for typical railroad construction projects, allowing a quantitative construction vibration assessment to be completed. Construction vibration is assessed quantitatively where the potential for blasting, pile driving, vibratory compaction, demolition, or excavation close to vibration-sensitive structures exists. The methodology included the following information:

- Vibration source levels from equipment used by contractors;
- Estimated site layouts of equipment along the ROW;
- Relationship of construction activities to nearby vibration-sensitive receivers; and
- FTA vibration impact criteria for annoyance and building damage.

Train Operation Noise and Vibration Impact Assessment Methodology

Train operational noise and vibration levels were projected using proposed operational plans and the prediction models provided in the FTA guidance manual (Federal Transit Administration 2018). Potential impacts were evaluated in accordance with the Detailed Noise Analysis and General Vibration Assessment procedures outlined in the FTA guidance manual. The methodology and assumptions for train operations are as follows:

- The project would introduce 7 new roundtrips per day.
- The train consists will have one diesel locomotive and eight rail cars.
- The train speeds at sensitive receivers are estimated using speed profiles for the corridor. Maximum train speeds are 79 mph.
- Horn noise is included in the assessment for receivers located within a quarter mile of a grade crossing where horns are sounded. Many of the grade crossings through

Sacramento are in designated quiet zones. Trains will not be required to sound their horns at those intersections, and horn noise is not included in the analysis for those areas.

Projected and existing ambient noise exposures were estimated at the identified noise-sensitive receivers, and the level of impact (no impact, moderate impact, or severe impact) were identified by comparing the existing and train noise exposure based on applicable FTA noise impact criteria.

3.12.5.2 Thresholds of Significance

The State CEQA Guidelines in Appendix G (14 California Code of Regulations 15000 et seq.) has identified significance criteria for determining whether a project could have significant impacts on noise- and vibration-sensitive land use from noise and vibration.

An impact would be considered significant if construction or operation of the project would have any of the following consequences:

- Expose persons to (or generate noise levels in excess of) impact standards for a severe impact established by FTA for transit projects and other changes related to the project. These standards cover both permanent and temporary/periodic increases in ambient noise levels in the project vicinity above levels existing without the proposed project.
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels.
- Permanently substantially increase ambient noise levels in the project vicinity above levels existing without the project.
- Temporarily or periodically substantially increase ambient noise levels in the project vicinity above levels existing without the project.

The noise and vibration impact criteria for the proposed project are based on FTA and FRA guidelines, which are described in the following subsections.

FTA Noise Criteria

Construction Noise and Vibration Impact Assessment Criteria

Construction activities for a large transportation project often generate noise and vibration complaints even though they take place only for a limited time. For the proposed project, construction noise and vibration impacts are assessed where the exposure of noise- and vibration-sensitive receivers to construction-related noise or vibration is expected to occur at levels exceeding standards established by FTA, and established thresholds for architectural and structural building damage (Federal Transit Administration 2018).

Construction Noise Impact Criteria

Table 3.12-3 presents the FTA noise assessment criteria for construction activity. The last column applies to construction activities that extend over 30 days near any given receiver. 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 from construction noise calculations

use the noise emission levels of the construction equipment, its location, and operating hours. The construction noise limits are normally assessed at the noise-sensitive receiver property line.

Table 3.12-3. Federal Transit Administration Construction Noise Assessment Criteria

| Land Use | 8-hour L_{eq} , dBA | | Noise Exposure, L_{dn} , dBA |
|-------------|-----------------------|-------|--------------------------------|
| | Day | Night | 30-day Average |
| Residential | 80 | 70 | 75 |
| Commercial | 85 | 85 | 80a |
| Industrial | 90 | 90 | 85a |

Source: Federal Transit Administration 2018

Notes:

^a 24-hour L_{eq} , not L_{dn} .

L_{eq} =equivalent sound level

dBA=A-weighted decibel

L_{dn} =day-night sound level

dB=decibels

Construction Vibration Impact Criteria

Guidelines in the FTA guidance manual (Federal Transit Administration 2018) provide the basis for the construction vibration assessment. FTA provides construction vibration criteria designed primarily to prevent building damage, and to assess whether vibration might interfere with vibration-sensitive building activities or temporarily annoy building occupants during the construction period. The FTA criteria include two ways to express vibration levels.

- Root-mean-square (RMS) vibration velocity level (L_v , in VdB) for annoyance and activity interference.
- Peak particle velocity (PPV), which is the maximum instantaneous peak of a vibration signal used for assessments of damage potential.

To avoid temporary annoyance to building occupants during construction, or construction interference with vibration-sensitive equipment inside special-use buildings, such as a magnetic resonance imaging machine, FTA recommends using the long-term operational vibration criteria (discussed below in *Operational Noise and Vibration Impact Assessment Criteria*).

Table 3.12-4 presents the FTA building damage criteria for construction activity, and lists PPV and approximate L_v limits for four building categories. These limits are used to estimate potential problems that should be addressed during final design.

Table 3.12-4. Federal Transit Administration Construction Vibration Damage Criteria

| Building Category | PPV (inch/sec) | Approximate L_v^a |
|---|----------------|---------------------|
| I. Reinforced concrete, steel, or timber (no plaster) | 0.5 | 102 |
| II. Engineered concrete and masonry (no plaster) | 0.3 | 98 |
| III. Non-engineered timber and masonry buildings | 0.2 | 94 |
| IV. Buildings extremely susceptible to vibration damage | 0.12 | 90 |

Source: Federal Transit Administration 2018

Notes:

^a RMS vibration velocity level in VdB relative to 1 micro-inch/second.

PPV = peak particle velocity

RMS = root-mean-square

VdB = vibration decibel

Operational Noise and Vibration Impact Assessment Criteria

Train Noise Impact Criteria

The metrics and criteria for assessing noise impacts vary according to land use categories adjacent to the track. For land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), L_{dn} is the assessment metric. For other land use types where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), $L_{eq}(hr)$ for the noisiest hour of train activity is the assessment metric. Table 3.12-5 summarizes the three land use categories and noise metrics applied to each category.

Table 3.12-5. Federal Transit Administration Noise-Sensitive Land Use Categories

| Land Use Category | Land Use Type | Noise Metric (dBA) | Land Use Category |
|-------------------|------------------|-------------------------|--|
| 1 | High Sensitivity | Outdoor $L_{eq}(hr.)^a$ | Land where quiet is an essential element in their intended purpose. Example land uses include preserved land for serenity and quiet, outdoor amphitheatres and concert pavilions, and National Historic Landmarks with considerable outdoor use. Recording studios and concert halls are also included in this category. |
| 2 | Residential | Outdoor L_{dn} | This category is applicable to all residential land use and buildings where people normally sleep, such as hotels and hospitals. |
| 3 | Institutional | Outdoor $L_{eq}(hr.)^a$ | This category is applicable to institutional land uses with primarily daytime and evening use. Example land uses include schools, libraries, theaters, and churches; where it is important to avoid interference with such activities as speech, meditation, and concentration on reading materials. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities are also included in this category. |

Source: Federal Transit Administration 2018

Notes:

^a L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

dB = A-weighted decibel

L_{eq} = equivalent sound level

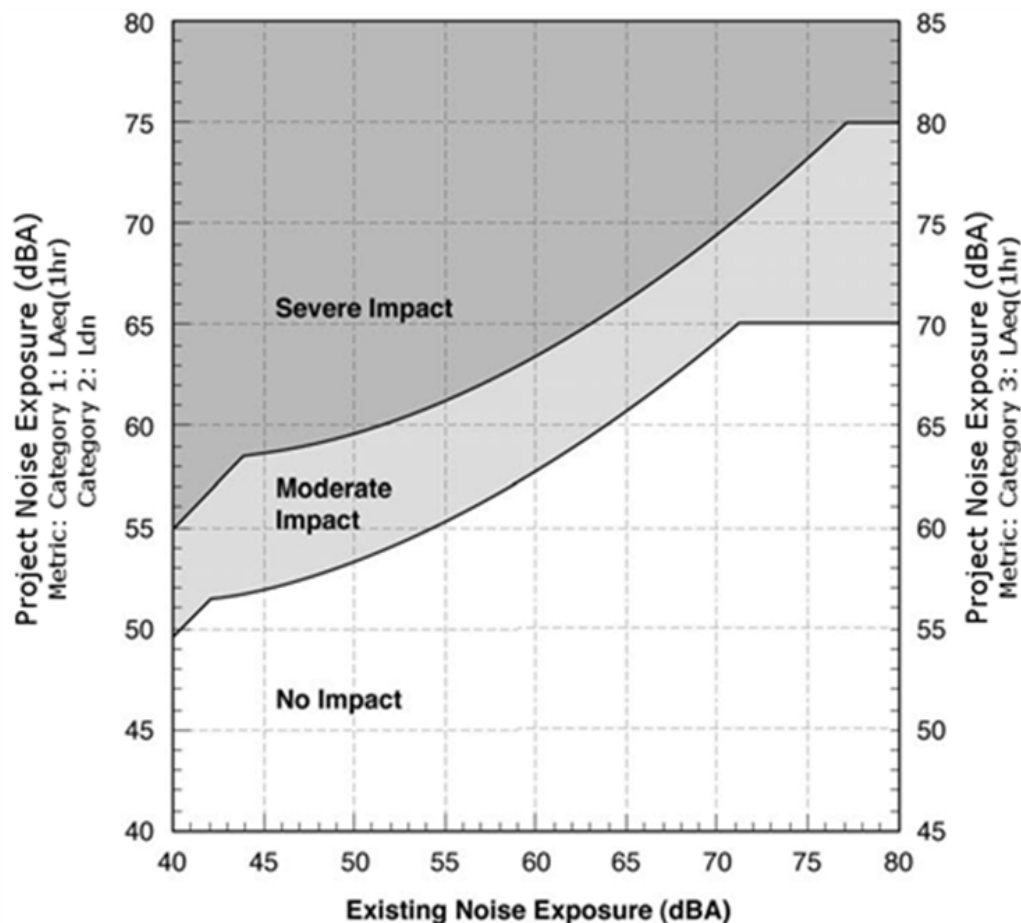
L_{dn} = day-night sound level

The noise impact criteria used by FTA and FRA are ambient based; the future increase in noise exposure (future noise levels with the proposed project compared to existing noise levels) is assessed rather than the noise caused by each passing train. It is important to note that the criteria do not specify a comparison of future project noise with projections of future No Project noise. This is because comparison of a 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 proposed project improvements generate noise, this approach of using existing noise conditions is conservative.

Figure 3.12-7 depicts the FTA noise impact criteria for human annoyance. Depending on the magnitude of the cumulative noise increases, FTA and FRA categorize impacts as follows.

- No impact;
- Moderate impact—The change in cumulative noise level would be noticeable to most people, but may not be sufficient to generate strong, negative reactions; and

- Severe impact—A significant percentage of people would be highly annoyed by the project’s noise.

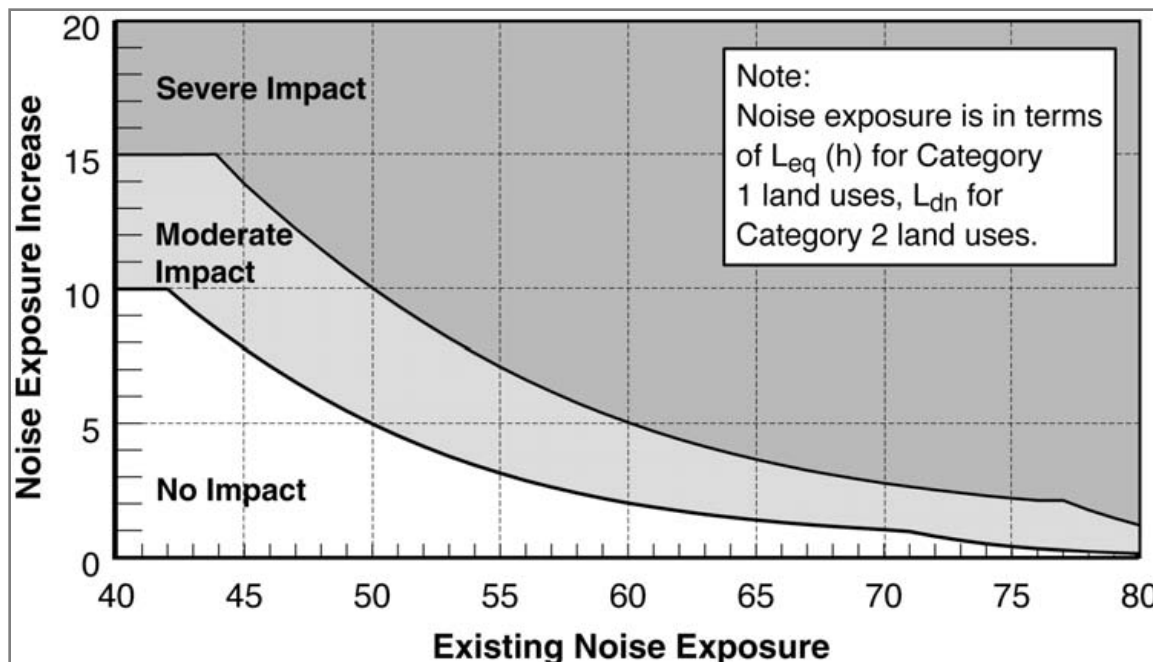


Source: FTA 2018

Figure 3.12-7. FTA Noise Impact Criteria

Although the curves in Figure 3.12-7 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 3.12-8 shows the noise 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. As shown in Figure 3.12-8, the criterion for a moderate impact 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.

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 allows for a project noise exposure that is lower than the existing noise exposure to still cause an effect.



Source: FTA 2018

Figure 3.12-8. FTA Cumulative Noise Impact Criteria

Train Vibration Impact Criteria

Table 3.12-6 summarizes FTA criteria for acceptable groundborne vibration, and presents vibration sensitivity in terms of the land use categories. These levels represent the maximum vibration level of an individual train passby. A vibration event occurs each time a train passes the building or property and causes discernible vibration. *Frequent events* are more than 70 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. Groundborne 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. As shown in Table 3.12-7, there are separate impact criteria for special buildings that are very sensitive to groundborne vibrations, such as concert halls, recording studios, and theaters.

Tables 3.12-6 and 3.12-7 include additional FTA criteria for groundborne 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 groundborne noise. Groundborne noise is a low-frequency rumbling sound inside buildings, caused by vibrations of floors, walls, and ceilings. Groundborne noise is generally not a problem for buildings near railroad tracks at or above grade, because the airborne noise from trains typically masks the effects of groundborne noise. Groundborne noise becomes an issue in cases where airborne noise cannot be heard, such as for buildings near tunnels.

Table 3.12-6. Federal Transit Administration Groundborne Vibration and Groundborne Noise Impact Criteria

| Land Use Category | Groundborne Vibration Impact Levels (VdB re 1 micro-inch /sec) | | | Groundborne 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 groundborne noise.

VdB=vibration decibel

dBA=A-weighted decibel

N/A=not applicable

Table 3.12-7. Federal Transit Administration Groundborne Vibration and Groundborne Noise Impact Criteria for Special Buildings

| Type of Building or Room | Groundborne Vibration Impact Levels (VdB re 1 micro-inch/sec) | | Groundborne Noise Impact Levels (dBA re 20 micro-Pascals) | |
|--------------------------|---|---------------------------------|---|---------------------------------|
| | Frequent Events | Occasional or Infrequent Events | Frequent Events | Occasional or Infrequent Events |
| Concert Halls | 65 VdB | 65 VdB | 25 dBA | 25 dBA |
| TV Studios | 65 VdB | 65 VdB | 25 dBA | 25 dBA |
| Recording Studios | 65 VdB | 65 VdB | 25 dBA | 25 dBA |
| Auditoriums | 72 VdB | 80 VdB | 30 dBA | 38 dBA |
| Theaters | 72 VdB | 80 VdB | 35 dBA | 43 dBA |

Source: Federal Transit Administration 2018

VdB = vibration decibel

dBA = A-weighted decibel

One factor not incorporated in the criteria is existing vibration. In most cases, except near railroad tracks, the existing environment does not include a substantial number of perceptible groundborne vibration or noise events. However, rail projects sometimes use existing railroad tracks. The criteria presented in Tables 3.12-6 and 3.12-7 do not indicate how to account for existing vibration, a common situation for rail projects using existing rail ROWs. FTA guidance is to account for existing vibrations using the following methods.

- **Infrequently used rail route:** Use the vibration criteria from Tables 3.12-6 and 3.12-7 when the existing rail traffic consists of four trains or fewer per day.
- **Moderately used rail route:** If the existing rail traffic consists of 5 to 12 trains per day with vibration that substantially exceeds the impact criteria, there would be no effect as long as the project vibration levels are at least 5 VdB less than the existing vibration.

- **Heavily used rail route:** If the existing traffic exceeds 12 trains per day and if the project would not substantially increase the number of vibration events (less than doubling the number of trains is usually considered not substantial), there would be no additional effect unless the project vibration, estimated using the procedures in the FTA guidelines, would be higher than the existing vibration. In locations where the new trains would be operating at higher speeds than the existing rail traffic, the trains would likely generate substantially higher levels of groundborne vibration. When the project would cause vibration more than 5 VdB greater than the existing source, the existing source can be ignored, and the vibration criteria in Tables 3.12-6 and 3.12-7 can be applied to the project.
- **Moving existing tracks:** Another scenario where existing vibration can be substantial is a new rail line in an existing rail ROW that requires shifting the location of existing tracks. Where the track relocation would cause higher vibration levels at sensitive receivers, the projected vibration levels from both relocated and new tracks must be compared to the appropriate impact criterion to determine if there is a predicted impact. If an exceedance of the criteria is judged to have existed prior to moving the tracks, new impacts would be assessed only if the relocation would result in an increase of more than 3 VdB in vibration level. Although the impact thresholds given in Tables 3.12-6 and 3.12-7 are based on experience with vibration from rail transit systems, the thresholds can be applied to freight train vibrations as well. However, locomotive and rail car vibration should be considered separately. Because locomotive vibration only lasts for a few seconds, the infrequent-event limit is appropriate, but for a typical line haul freight train where the rail car vibration lasts for several minutes, the frequent-event limits should be applied to the rail car vibration. Some judgment must be exercised to make sure that the approach is reasonable. For example, some spur rail lines carry very little rail traffic (sometimes only one train per week) or have short trains, in which case the infrequent-event limits are appropriate.

3.12.5.3 Impacts and Mitigation Measures

Impact NOI-1: Construction of the proposed project could expose sensitive receptors to substantial increases in noise levels. However, even with implementation of Mitigation Measure NOI-1.1, these increased noise levels would remain significant and unavoidable (Significant and Unavoidable Impact).

Impact Characterization

Construction for the various proposed improvements would include three basic activities: (1) site work, (2) rail work, and (3) structures work. Depending on the proposed improvement, site work is expected to occur over periods of 1 to 12 months, rail work is expected to occur over periods of 1 to 6 months, and structures work is expected to occur over periods of 3 to 6 months. Generally, construction of a proposed improvement could last anywhere from 1 to 12 months for track improvements and 8 to 14 months for the stations. Because most proposed improvements are on an active freight and passenger rail line, construction work could occur during the nighttime. The local noise ordinances for the cities and counties along the project corridor generally limit construction noise to particular time periods during weekday, weekend, and holiday daytime hours. Nighttime construction work is generally prohibited, but some jurisdictions allow for a variance.

Table 3.12-8 summarizes the estimated construction noise levels and residential noise impact screening distances for each of the planned construction activities. The noise estimates are based on scenarios for the construction activities, using FTA methodology and FTA criteria, both described above. However, to be conservative, the screening distance estimates did not assume any topography or ground effects. The results of the analysis indicate that noise impacts would be limited to residences within 135 to 270 feet from the construction site, depending on the activity. The potential for noise impact would be greatest during structures work at locations where pile driving is required for bridge construction.

Table 3.12-8. Residential Noise Impact Assessment for Construction Activities

| Construction Activity and Equipment | Noise Level at 50 feet (dBA) | Equipment Usage Factor (%) | 8-Hour L_{eq} at 50 feet (dBA) | | Approx. Noise Impact Distance (feet) |
|-------------------------------------|------------------------------|----------------------------|----------------------------------|-------------------|--------------------------------------|
| | | | Predicted Exposure | Daytime Criterion | |
| SITE WORK | | | 89 | 80 | 135 |
| Grader | 85 | 53 | 82 | -- | -- |
| Water Truck | 84 | 44 | 80 | -- | -- |
| D6 Dozer | 85 | 61 | 83 | -- | -- |
| D8 Dozer | 85 | 45 | 82 | -- | -- |
| Compactor | 82 | 45 | 79 | -- | -- |
| Dump Truck | 84 | 23 | 78 | -- | -- |
| RAIL WORK | | | 90 | 80 | 150 |
| Locomotive | 88 | 25 | 82 | -- | -- |
| D6 Dozer | 85 | 38 | 81 | -- | -- |
| Grader | 85 | 38 | 81 | -- | -- |
| Water Truck | 84 | 38 | 80 | -- | -- |
| Tamper | 83 | 20 | 76 | -- | -- |
| Aligner | 85 | 20 | 78 | -- | -- |
| Swinger | 85 | 19 | 78 | -- | -- |
| Welder | 74 | 38 | 70 | -- | -- |
| Flat Bed Truck | 84 | 31 | 79 | -- | -- |
| Pickup Truck | 75 | 25 | 69 | -- | -- |
| SUV | 75 | 31 | 70 | -- | -- |
| 35-Ton RT Crane | 83 | 38 | 79 | -- | -- |
| Flat Bed Tractor | 84 | 13 | 75 | -- | -- |
| Wheel Loader | 80 | 28 | 74 | -- | -- |
| STRUCTURES | | | 95 | 80 | 270 |
| Impact Pile Driver | 101 | 20 | 94 | -- | -- |
| Generator | 82 | 90 | 82 | -- | -- |
| 75-Ton Mobile Crane | 83 | 38 | 79 | -- | -- |
| Water Truck | 84 | 20 | 77 | -- | -- |
| Flat Bed Truck | 84 | 25 | 78 | -- | -- |
| Pickup Truck | 75 | 53 | 72 | -- | -- |
| Concrete Mixer | 85 | 13 | 76 | -- | -- |
| Concrete Pump | 82 | 18 | 75 | -- | -- |
| Wheel Loader | 80 | 20 | 73 | -- | -- |
| Welder | 74 | 31 | 69 | -- | -- |

L_{eq} = equivalent sound level
dBA = A-weighted decibel

Construction activities would be considered to have a significant impact if they would generate noise exposure in excess of the FTA thresholds. As shown in Table 3.12-8, the operation of certain construction equipment and construction activities could generate noise exposure in excess of FTA thresholds. Nighttime construction near residential uses would have larger impacts than daytime construction, and would result in a potentially significant impact.

Although the measures specified in Mitigation Measure NOI-1.1 below would generally reduce the construction noise levels, the measures would not necessarily guarantee that sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit during the day, or the 70 dBA limit at night. In addition, given the active railroad, it is probable that construction near some residential areas would have to be conducted at night to avoid disruption of freight and passenger rail operations, and to complete construction on schedule. Furthermore, a temporary sound wall may be effective in certain locations; but in many cases, the nature of the construction work makes use of such sound walls infeasible.

Construction-related noise would be short-term, and would cease after the construction is completed. Still, even with mitigation, the impact of temporary construction-related noise on nearby noise-sensitive receptors would remain a significant and unavoidable impact, particularly where heavy construction would occur immediately adjacent to residences, and where construction would occur at night near residences.

Mitigation Measure: The following mitigation measure would apply to all proposed improvements to minimize construction noise impacts. However, implementation of Mitigation Measure NOI-1.1 would not necessarily guarantee that sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit during the day, or the 70 dBA limit at night. Therefore, this impact would be significant and unavoidable.

NOI-1.1: Implement a construction noise control plan.

A noise control plan that incorporates, at a minimum, the following best practices into the construction scope of work and specifications to reduce the impact of temporary construction-related noise on nearby noise-sensitive receptors will be prepared and implemented:

- 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 where possible near noise-sensitive areas, or use quieter alternatives (e.g., 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.
- 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.
- Establish an active community liaison program to keep residents informed about construction, and to provide a procedure for addressing complaints.

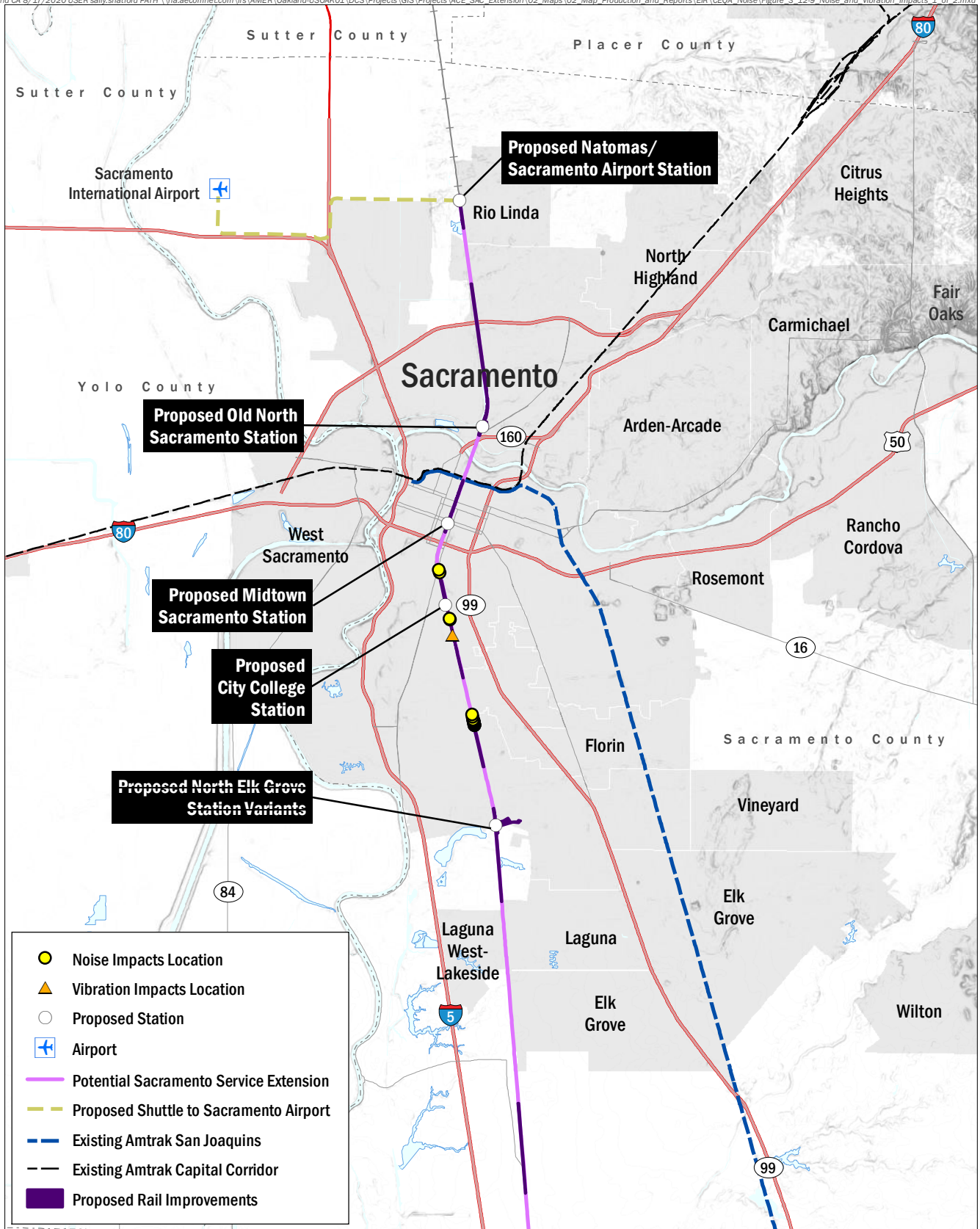
Impact NOI-2: The new passenger service could result in moderate noise impacts. However, the moderate increase in noise levels would be less than significant (Less-than-Significant Impact).

Impact Characterization

The noise impact assessment for the project operations evaluates three components.

1. Track improvements. Individual Track improvements were assessed for their potential for impact in the vicinity of the specific improvements. The individual track improvements by themselves do not result in noise impacts.
2. New passenger service. The new passenger service throughout the corridor made possible by the track improvements was assessed for impact. This assessment included all locations throughout the project corridor, and not just those near specific improvements. Because of the relatively small increase in trains due to new passenger service, there are minimal impacts related only to the new passenger service.
3. New Stations. The noise assessment included new stations in the analysis. For stations without parking and other features (platforms only), the dominant noise source is the trains operating at the station, which is included in the passenger service assessment. For stations with parking and other features that would generate noise, a screening assessment and impact evaluation were conducted for nearby sensitive receptors.

Table 3.12-9 summarizes the results of the noise impact assessment. Figures 3.12-9 and 3.12-10 show the locations of the noise and vibration impacts. For full results of the noise impact analysis performed for the proposed project, refer to Appendix H, *Supporting Noise and Vibration Analysis Documentation*.



AECOM

San Joaquin Regional Rail Commission

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

FIGURE 3.12-9

Noise and Vibration Impacts, Sheet 1 of 2

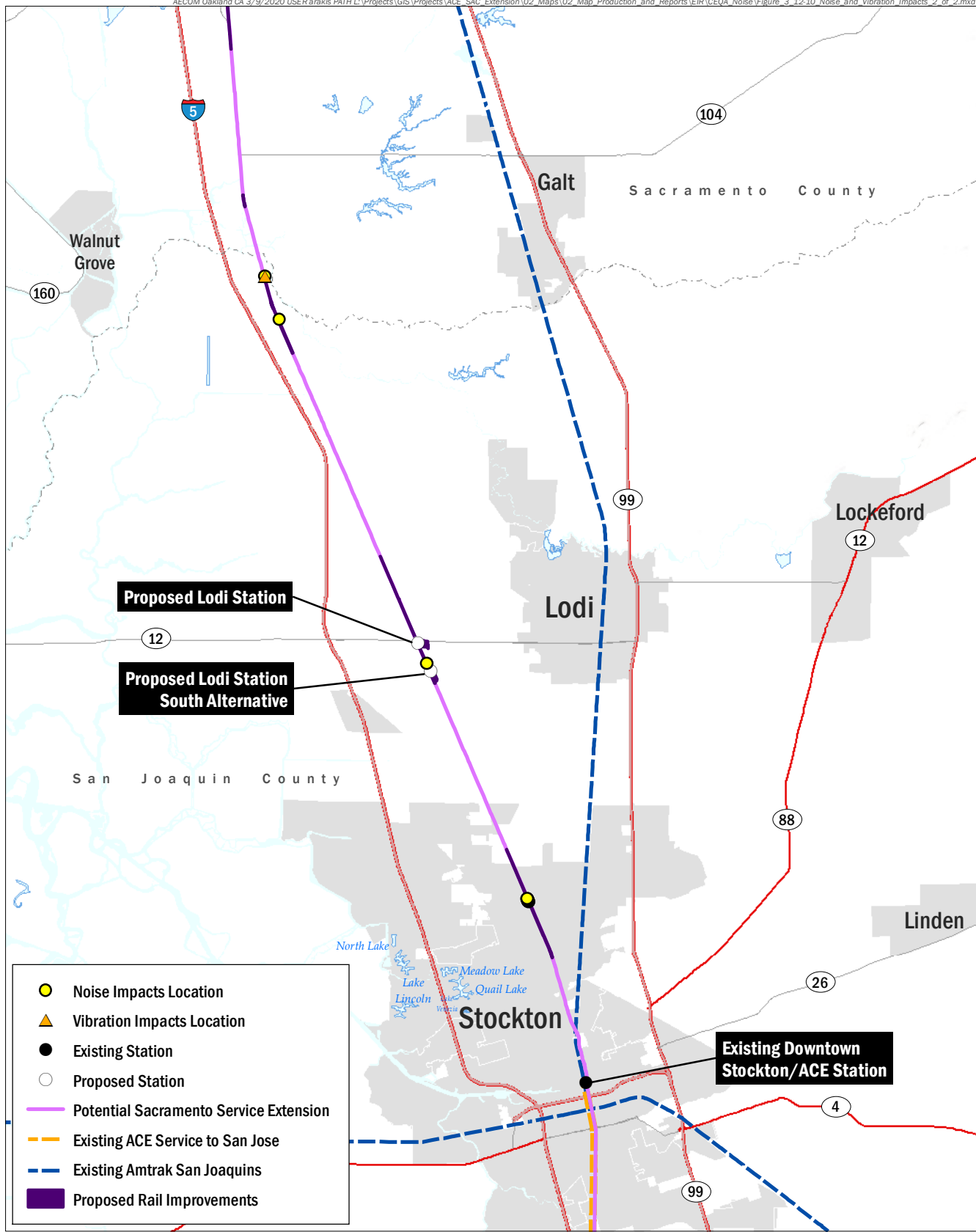


Table 3.12-9. Noise Impacts in the Vicinity of the Valley Rail Sacramento Extension Project

| Location | Noise Impacts | |
|--|---------------|--------|
| | Moderate | Severe |
| Stockton to Lodi ^a | 17 | 0 |
| Lodi Station ^b | 0 | 0 |
| Lodi Station South Alternative ^b | 0 | 0 |
| Lodi to Elk Grove ^a | 2 | 0 |
| North Elk Grove Station (All Access and Platform Location Variants) ^b | 0 | 0 |
| Elk Grove to Natomas ^a | 18 | 0 |
| City College Station ^b | 0 | 0 |
| Midtown Sacramento Station ^b | 0 | 0 |
| Old North Sacramento Station ^b | 0 | 0 |
| Natomas/Sacramento Airport Station | 0 | 0 |

Notes:

^a Impacts in these segments are related to the increase in passenger train traffic.

^b There are no sensitive receptors within the screening distance; therefore, no impacts are anticipated.

Stockton to Lodi

There would be no noise impacts associated within the vicinity of the proposed Lodi Station or the Lodi Station South Alternative because there are no sensitive receptors within the 250-foot screening distance for stations in the FTA guidance manual.

As shown in Table 3.12-9, there would be moderate noise impacts at residential receptors. There would be no noise impacts at institutional receptors. These noise impacts are due to the new passenger rail service in this segment. Noise impacts would occur at the following locations.

- East Hammer Lane to Mosher Creek (Stockton): Moderate noise impacts are projected at 16 residences along the southbound side of the alignment between East Hammer Lane and Mosher Creek. These impacts are due to proximity to the alignment.
- West Harney Lane to SR 12 (Lodi): A moderate noise impact is projected at one residence along the northbound side of the alignment between West Harney Land and SR 12. This impact is due to proximity to the alignment.

Lodi to Elk Grove

~~There would be no noise impacts associated with the North Elk Grove Station (including all access and platform variants) because there are no sensitive receptors within the 250-foot screening distance for stations in the FTA guidance manual.~~

As shown in Table 3.12-9, there would be moderate noise impacts at residential receptors. There would be no noise impacts on institutional receptors. These noise impacts are due to the new passenger rail service in this segment. Noise impacts would occur at the following locations.

- Thornton: A moderate noise impact is projected at one residence along the northbound side of the alignment in Thornton. This impact is due to proximity to the alignment.

- North New Hope Road to Mokelumne River: A moderate noise impact is projected at one residence along the northbound side of the alignment between in Thornton. This impact is due to proximity to the alignment.

Elk Grove to Natomas

There would be no noise impacts associated with the City College Station, Midtown Sacramento Station, Old North Sacramento Station, or Natomas/Sacramento Airport Station because either there are no station features other than platforms, or there are no sensitive receptors within the 250-foot screening distance for stations with additional features in the FTA guidance manual.

As shown in Table 3.12-9, there would be moderate noise impacts at residential receptors. There would be no noise impacts on institutional receptors. These noise impacts are due to the new passenger rail service in this segment. Noise impacts would occur at the following locations.

- Florin Road to 47th Avenue (Sacramento): Moderate noise impacts are projected at 14 residences along the northbound side of the alignment between Florin Road and 47th Avenue. These impacts are due to the proximity of the alignment.
- Fruitridge Road to Sutterville Road (Sacramento): Moderate noise impacts are projected at two residences along the northbound side of the alignment between Fruitridge Road to Sutterville Road. These impacts are due to the proximity of the alignment.
- 5th Avenue to Highway 50 (Sacramento): Moderate noise impacts are projected at two residences along the northbound side of the alignment between 5th Avenue to Highway 50. These impacts are due to the proximity of the alignment.

The addition of new passenger service would result in increases in noise levels for sensitive receptors along the corridor. However, because of the relatively high existing noise levels from existing trains and local traffic, especially in Sacramento, there are relatively few moderate noise impacts. Additionally, there are either no sensitive receptors within the screening distances for the proposed station locations, or there are no additional station features, other than the train operations at the platforms, which are included in the passenger service assessment.

Because there are no severe noise impacts identified, noise mitigation is not recommended.

Impact NOI-3: The new passenger service could result in substantial increases in groundborne vibration levels. However, this potentially significant impact would be reduced to a less-than-significant level through implementation of Mitigation Measure NOI-3.1 (Less-than-Significant Impact with Mitigation).

Impact Characterization

The vibration impact assessment for the track improvements evaluated four major components.

1. Track improvements. Individual near-term improvements were assessed for their potential for impact in the vicinity of the specific improvements. There are two potential vibration impacts associated with planned track improvements.
2. Increased passenger service. For locations with existing train traffic, including freight, commuter rail, and/or Amtrak service, FTA vibration criteria for locations with existing

vibration were used. Because of the high volume of train traffic throughout the corridor and the very small increase in the number of trains, and because the increased passenger service would not result in vibration levels greater than existing levels, no vibration impacts are projected at locations with existing train operations.

Table 3.12-10 summarizes the results of the vibration impact assessment for near-term improvements. The only vibration impacts are due to track improvements.

Impact Quantification

Table 3.12-10 provides an overview of the vibration impacts associated with the track improvements and new passenger service. Figures 3.12-9 and 3.12-10 show the locations of the noise and vibration impacts. For full results of the vibration impact analysis performed for the proposed project, refer to Appendix H, *Supporting Noise and Vibration Analysis Documentation*.

Table 3.12-10. Vibration Impacts in the Vicinity of the Valley Rail Sacramento Extension Project

| Location | Vibration Impacts |
|--|-------------------|
| Stockton to Lodi | 0 |
| Lodi Station ^a | 0 |
| Lodi Station South Alternative ^a | 0 |
| Lodi to Elk Grove | 0 |
| Thornton Siding Upgrade and Extension | 1 |
| North Elk Grove Station (All Access and Platform Location Variants)^a | 0 |
| Elk Grove to Natomas | 0 |
| New Crossover Track | 1 |
| City College Station ^a | 0 |
| Midtown Sacramento Station ^a | 0 |
| Old North Sacramento Station ^a | 0 |
| Natomas/Sacramento Airport Station | 0 |
| | |

^a There are no sensitive receptors within the screening distance; therefore, no impacts are anticipated.

Stockton to Lodi

As shown in Table 3.12-10, there would be no vibration impacts associated with proposed improvements in the Stockton to Lodi segment.

Lodi to Elk Grove

As shown in Table 3.12-10, there would be one vibration impact at a residential receptor in the Lodi to Elk Grove segment. There would be no vibration impacts on institutional receptors. The vibration impact is due to the Thornton Siding Upgrade/Extension.

- North New Hope Road to Mokelumne River: A vibration impact is projected at one residence along the northbound side of the alignment between North New Hope Road and Mokelumne River. This impact is due to proximity to the new turnout from the extension of the siding.

Elk Grove to Natomas

As shown in Table 3.12-10, there would be vibration impacts at one residential receptor in the Elk Grove to Natomas segment. There would be no vibration impacts at institutional receptors. This vibration impact is due to the New Crossover Track just south of the proposed City College Station.

- Fruitridge Road to Sutterville Road (Sacramento): A vibration impact is projected at one residence along the northbound side of the alignment between Fruitridge Road and Sutterville Road. This impact is due to proximity to the new crossover.

Mitigation Measure. The following mitigation measure would reduce the vibration levels to a less-than-significant level.

NOI-3.1: Conduct a detailed design-level vibration analysis.

During final design of the proposed project, a detailed design-level vibration analysis will be performed for all track improvements that have the potential for adverse vibration impacts. The analysis shall include design features to reduce the potential vibration impacts to less-than-significant levels. Potential measures include possibly relocating crossovers/turnouts to areas without sensitive receptors, or through the use of special trackwork at these locations to eliminate the gap in the tracks which causes the increase in vibration levels.

Impact NOI-4: Construction of proposed track improvements could expose sensitive receptors to substantial increases in groundborne vibration levels. However, this potentially significant impact would be reduced to a less-than-significant level through implementation of Mitigation Measure NOI-4.1 (Less-than-Significant Impact with Mitigation).

Impact Characterization

Construction of track improvements can be expected to generate vibration levels from 25 feet away as high as 94 VdB due to compactors during site work; 87 VdB due to bulldozers during rail work; and 104 VdB due to impact pile-drivers during structures work. Except for pile drivers, it is unlikely that such equipment would be used close enough to sensitive structures to have any damage effects. For pile driving, it is anticipated that the potential for damage effects would be limited to structures located at distances in the range of 30 to 75 feet from the operations, depending on the building category.

In terms of vibration annoyance effects or interference with the use of sensitive equipment, the potential extent of vibration impact from pile driving is expected to be even greater than for damage effects. Table 3.12-11 provides the approximate distances within which receptors could experience construction-related vibration annoyance effects based on FTA methodology. The results of the analysis indicate that vibration impacts would extend to distances of 230 to 630 feet from pile-driving operations, 100 to 240 feet from compacting, and less than 130 feet from bulldozers, depending on the vibration sensitivity of the land use category. Construction activities would be considered to have a potentially significant impact if they would generate vibration levels in excess of the FTA thresholds.

Table 3.12-11. Approximate Screening Distances for Vibration Annoyance Effects from Pile Driving

| Land Use Category ^a | 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 |

Notes:

^a See Table 3.12-6 for a description of land use categories.

VdB = vibration velocity

As shown in Table 3.12-11, construction activities would be considered to have a significant impact if they would generate vibration in excess of FTA thresholds. It is expected that groundborne vibration from construction activities would cause only intermittent localized disturbance along the rail corridor. Although processes such as earthmoving with bulldozers or the use of vibratory compaction rollers can create annoying vibration, there should be only isolated cases where it is necessary to use this type of equipment in close proximity to residential buildings. It is possible that construction activities involving pile drivers occurring at the edge of or slightly outside of the current ROW could result in vibration damage, and damage from construction vibration would be a potentially significant impact.

Mitigation Measure: Mitigation measure NOI-4.1 below would require the preparation and implementation of a construction vibration control plan to reduce the impacts of construction vibration on nearby vibration-sensitive land uses that could be exposed to vibration levels in excess of FTA thresholds. In the event building damage occurs due to construction, repairs would be made, or compensation would be provided. With implementation of Mitigation Measure NOI-4.1, impacts resulting from construction vibration structural damage would be less than significant.

NOI-4.1: Implement a construction vibration control plan.

A vibration control plan that incorporates, at a minimum, the following best practices into the construction scope of work and specifications to reduce the impact 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 (e.g., 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.

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3.13 Population and Housing

3.13.1 Introduction

This section describes the regulatory and environmental setting for population and housing in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on population and housing that would result from implementation of the proposed project.

Cumulative impacts on population and housing, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comment relevant to population and housing was received:

- Concern regarding the now deleted Natomas Maintenance and Layover Facility affecting residential neighborhoods.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.13.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to population and housing and applicable to the proposed project.

3.13.2.1 Federal

There are no federal regulations related to population and housing.

3.13.2.2 State

There are no state regulations related to population and housing.

3.13.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to population and housing identified in Appendix E.

3.13.3 Environmental Setting

Although track improvements are necessary for the operation of the proposed project, these track improvements would not provide riders increased accessibility to the proposed project. The physical distribution of ridership throughout the region is the primary driving factor in changes to population and housing; therefore, the study area does not include areas of proposed track work. Rather, the discussion of population and housing focuses on communities where new stations are proposed and communities where new riders would access new stations and take advantage of new operations of the proposed project. Environmental impacts related to areas of proposed track work are discussed in other sections of this EIR.

Discussion of population and housing is provided for the following municipalities:

- Unincorporated San Joaquin County for the proposed Lodi Station and proposed Lodi Station South Alternative;
- ~~Unincorporated Sacramento County for portions of the proposed Elk Grove Station (including all variants);~~
- ~~City of Sacramento for portions of the proposed Elk Grove Station (including all variants);~~
- City of Sacramento for the proposed City College Station;
- City of Sacramento for the proposed Midtown Station;
- City of Sacramento for the proposed Old North Sacramento Station; and
- Unincorporated Sacramento County for the Natomas/Sacramento Airport Station.

3.13.3.1 Population

Table 3.13-1 presents historical, current, and projected population trends for Sacramento and San Joaquin counties and the cities of Sacramento, Elk Grove, and Lodi. The California Department of Finance (DOF) estimates that Sacramento County’s total population increased from 799,407 in 2000 to 930,450 in 2018; a 25 percent increase over the 18-year period (DOF

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

2012, 2018a). The city of Sacramento grew at a slightly lower annual rate than Sacramento County as a whole from 2000 to 2018, with a growth rate of 23.2 percent. The population of Elk Grove increased substantially between 2000 and 2018. From its incorporation in 2000, Elk Grove’s total population increased from 72,665 in 2000 to 172,116 in 2017; an increase of 136.9 percent.³ Populations are projected to increase by 51.1 percent in Sacramento County, 54.5 percent in Sacramento, and 185.9 percent in Elk Grove between 2000 and 2035 (City of Elk Grove 2018, City of Sacramento 2013, DOF 2018b).

Table 3.13-1. Historical, Current, and Projected Population, 2000–2035

| Location | Historic/Current Trends | | | | Projected Conditions | | |
|--------------------|-------------------------|-----------|-----------|--------------------------|----------------------|-----------|--------------------------|
| | 2000 | 2010 | 2018 | Percent Change 2000-2018 | 2020 | 2035 | Percent Change 2000-2035 |
| Sacramento County | 1,223,499 | 1,418,788 | 1,529,501 | 25.0 | 1,572,886 | 1,848,985 | 51.1 |
| Sacramento | 407,018 | 466,488 | 501,344 | 23.2 | 528,866 | 629,010 | 54.5 |
| Elk Grove | 72,665 | 153,015 | 172,116 | 136.9 | 175,680 | 207,740 | 185.9 |
| San Joaquin County | 563,598 | 685,306 | 758,744 | 34.6 | 782,662 | 947,019 | 68.0 |
| Lodi | 57,011 | 62,134 | 67,121 | 17.7 | 69,219 | 82,626 | 44.9 |

Sources: California Department of Finance 2012, 2018a, 2018b; City of Elk Grove 2018; City of Sacramento 2013; Eberhardt School of Business 2016

San Joaquin County’s total population increased from 563,598 in 2000 to 758,744 in 2018, or a 34.6 percent increase over the 18-year period (DOF 2012, 2018a). From 2000 to 2018, the city of Lodi grew at a rate less than half of San Joaquin County’s growth, at a rate of 17.7 percent. Populations are projected to increase by 68 percent in San Joaquin County, and 44.9 percent in Lodi between 2000 and 2035 (Eberhardt School of Business 2016).

3.13.3.2 Housing

Table 3.13-2 presents housing trends as well as the percentage of single-family dwellings, vacancy rates, and average household size for Sacramento and San Joaquin counties and the cities of Sacramento, Elk Grove, and Lodi. According to DOF, the total number of housing units in Sacramento County was 570,035 in 2018 with single-family homes comprising approximately 71 percent of the total number of housing units. Sacramento County had an average household size of 2.81 persons per unit and a vacancy rate of 5.8 percent. Sacramento had a smaller percentage of single-family homes (66 percent), a similar number of persons per household (2.71 persons), and a higher vacancy rate (6.6 percent) than Sacramento County as a whole; while Elk Grove had a larger percentage of single-family homes (90 percent), more persons per household (3.28 persons), and a lower vacancy rate (3.6 percent) than Sacramento County (DOF 2018a).

In 2018, the total number of housing units in San Joaquin County was 543,420, with an average household size of 3.26 persons per unit, and a vacancy rate of 6.3 percent (DOF 2018a). Lodi had a smaller percentage of single-family homes (66 percent), a smaller number of persons per household (2.90 persons), and a lower vacancy rate (5.4 percent). Single-family homes were the

³ According to the City, the rapid development occurred as a result of an increase in available jobs in the Sacramento region and the land that was made available in Elk Grove for residential development, as well as the annexation of the Laguna West-Lakeside Census Designated Place, which added 25,000 residents (City of Elk Grove 2014).

predominant housing type, comprising approximately 78 percent and 69 percent, respectively, of the total number of housing units in San Joaquin County and Lodi.

Table 3.13-2. Housing Trends and Characteristics, 2000–2018

| Location | Trends | | | Characteristics (2018) | | |
|--------------------|-----------------|---------|---------|------------------------|-------------|-------------------------------|
| | 2000 | 2010 | 2018 | Single Family (%) | Vacancy (%) | Average Persons per Household |
| Sacramento County | 474,814 | 555,932 | 570,035 | 71 | 5.8 | 2.81 |
| Sacramento | 163,957 | 190,911 | 194,537 | 66 | 6.6 | 2.71 |
| Elk Grove | -- ¹ | 50,634 | 54,164 | 90 | 3.6 | 3.28 |
| San Joaquin County | 189,160 | 233,755 | 243,420 | 78 | 6.3 | 3.26 |
| Lodi | 21,381 | 23,792 | 24,210 | 69 | 5.4 | 2.90 |

Sources: California Department of Finance 2012, 2018a

Notes:

¹ Elk Grove was incorporated on June 1, 2000. Therefore, the California Department of Finance does not provide 2000 population estimates for Elk Grove.

Table 3.13-3 presents the projected increase in housing units by 2035 for Sacramento and San Joaquin counties and the cities of Sacramento, Elk Grove, and Lodi. Sacramento County’s total number of housing units is projected to increase to 705,090 in 2035; a 19.2 percent increase between 2018 and 2035 (Sacramento Area Council of Governments [SACOG] 2019). The number of housing units in the city of Sacramento is expected to increase to 260,410 in 2035, with an increase of 25.3 percent over the 17-year period. The number of housing units in Elk Grove is projected to increase 17.5 percent between 2018 and 2035 to 65,660 units. San Joaquin County’s total number of housing units is projected to increase from 314,470 in 2035; a 31.8 percent increase between 2018 and 2035, and the number of housing units in Lodi is project to increase to 30,931; a 22.1 percent over the same time period (Eberhardt School of Business 2016).

Table 3.13-3. Projected Housing Units, 2035

| Location | Projected Housing Units (2035) | Percent Increase from 2018 |
|--------------------|--------------------------------|----------------------------|
| Sacramento County | 705,090 | 19.2 |
| Sacramento | 260,410 | 25.3 |
| Elk Grove | 65,660 | 17.5 |
| San Joaquin County | 314,470 | 31.8 |
| Lodi | 30,931 | 22.1 |

Sources: Eberhardt School of Business 2016; Sacramento Area Council of Governments 2019

3.13.4 Environmental Analysis

3.13.4.1 Methods for Analysis

The induced growth analysis is appropriately focused in the areas served by the proposed project (e.g., the area in which potential train riders live now and would live in the future). Therefore, for the induced population growth analysis of areas proximal to proposed stations, the following

relevant planning documents were reviewed to determine the level of planned growth in these areas and whether such plans already support intensified development near proposed station sites or, alternatively, whether such plans call for preservation of existing uses and intensities:

- *San Joaquin County General Plan* (San Joaquin County 2016);
- *Sacramento County General Plan of 2005-2030* (Sacramento County 2017);
- *Lodi General Plan* (City of Lodi 2016);
- *Sacramento 2035 General Plan* (City of Sacramento 2015a); and
- *Metropolitan Transportation Plan 2016 Regional Transportation Plan/Sustainable Communities Strategy* (SACOG 2016).

Additional background information on population and housing was obtained from DOF, the United States (U.S.) Census Bureau, and the Eberhardt School of Business forecasts. In addition, the status of previously permitted large development projects were reviewed to determine whether the increase in passenger rail service associated with the proposed project would result in substantial amounts of unplanned growth by inducing housing demand beyond current plans for housing.

Population and housing growth is not, in and of itself, an environmental impact. However, there are indirect impacts associated with unplanned population and housing growth or intensified development, such as increased travel demand that requires additional roadways and other transportation infrastructure and the associated air pollutant emissions and traffic noise, and impacts related to public facilities and utilities expansions needed to serve new growth. The potential for project operations to indirectly induce population growth is generally associated with increasing accessibility to new stations.

The analysis assumes that the proposed project could induce substantial amounts of unplanned population growth in three ways: 1) if the proposed project would result in a substantial amount of permanent employment that results in a substantial amount of unplanned growth; 2) if the proposed improvements (e.g., construction of stations, train operations) indirectly facilitate land use changes in the immediate vicinity of station areas that would result in substantial amounts of unplanned growth; or 3) if implementation of the proposed project would substantially increase housing demand beyond planned levels.

Estimates of displaced residents are based on information project ROW requirements as described in Chapter 2, *Project Description*. These parcels were evaluated to determine if any housing would be temporarily or permanently displaced and if replacement housing would be required.

3.13.4.2 Thresholds of Significance

The CEQA Guidelines Appendix G (14 Cal. Code Regs. 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on population and housing. The project would result in a significant impact on population and housing if it would:

- Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

3.13.4.3 Impacts and Mitigation Measures

Impact PH-1: Implementation of the proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly (Less than Significant Impact).

Construction

Construction of the proposed project could have the potential to temporarily induce local population growth through the employment of workers during the construction period. SJRRC proposes to implement the proposed service extension to Natomas no later than 2023. The source of the construction labor force is unknown at this time, but workers would be expected to come from the local labor in nearby communities in Sacramento and San Joaquin counties, such as the cities of Sacramento, Stockton, and Lodi. According to the most current labor data available from the U.S. Census Bureau 2017 American Community Survey, 15,580 residents in Sacramento, 8,033 residents in Stockton, and 3,095 residents in Lodi were employed in the construction industry in 2017 (U.S. Census Bureau 2017). Based on the pool of existing residents who are employed in the construction industry, it is not anticipated that construction of proposed improvements would cause substantial population growth or a substantial increase in housing demand in the region. Furthermore, if construction workers from outside the region were employed during the construction period, the temporary nature of the work suggests that it would be unlikely for non-local workers to permanently relocate; this is typical for employees in the various construction trades. Therefore, this impact would be less than significant.

Operation

As stated previously, population growth is not anticipated to occur in locations where only track improvements are proposed, because such improvements would not provide any direct interface for people to board or alight trains and thereby potentially induce population growth in a particular area. Therefore, track improvements would not result in any growth inducement.

Implementation of the proposed project could have the potential to induce local population growth, particularly, but not exclusively, in the immediate areas around proposed stations because stations would introduce or expand access to transit services, which may induce demand for growth in the immediate proximity to transit stations due to the convenience for both residents and employees; this analysis focuses on the immediate area surrounding proposed stations. In addition, operation of the proposed project could result in regional growth in areas where people could conveniently access the transit stations.

Transit stations are more likely to increase the attractiveness of developing the surrounding area if local land use policies and the character of the surrounding area are conducive to such development. While construction of a new transit station, such as the Lodi Station or Lodi Station

South Alternative, could potentially make surrounding land more attractive to developers, expansion of transit service alone would not induce growth. New stations would provide accessibility, proximity to transit services, and may be an attractive benefit consistent with intensified development. Growth may also occur as a redistribution of planned growth that takes advantage of transit availability in the community. The extent to which a new station may indirectly induce unplanned growth is examined in light of local land use and development policies around the station areas as well as the existing character of the station area.

Stockton to Lodi

The proposed Lodi Station and Lodi Station South Alternative sites are adjacent to the existing UPRR ROW in unincorporated San Joaquin County approximately 3 miles west of the city of Lodi. The Lodi Station site would be on agricultural land currently cultivated with wine grapes; the Lodi Station South Alternative site is adjacent a dairy farm and associated support buildings, with the primary cultivated crop on the project site consisting of corn grown for cattle feed. These sites are surrounded by agricultural lands and rural residential uses.

Commuters from the city of Lodi would access the proposed project at the Lodi Station or Lodi Station South Alternative. The City anticipates full build-out of its General Plan would result in approximately 37,200 dwelling units and approximately 99,500 people (City of Lodi 2010). The City of Lodi has designated an Urban Reserve on the west and east edges of the city, which represents the furthest extent of development anticipated by the City's General Plan Land Use Diagram. These areas represent the maximum land area that may be required over the course of the General Plan planning period to comply with the City's Growth Management Allocation Ordinance.⁴ This Urban Reserve is along the western edge of the city to the elongated Moore Road and along the eastern edge to Curry Avenue (City of Lodi 2010). Because the City of Lodi has anticipated population growth at full build-out of its General Plan, including the Urban Reserve, either of the two proposed stations would serve this planned growth and would not induce new or unplanned growth.

San Joaquin County regulates the levels of building intensity and population density according to the land use designations identified in the County General Plan and the San Joaquin County Development Title (San Joaquin County 2016). The proposed Lodi Station and Lodi Station South Alternative sites and adjacent parcels are designated by the San Joaquin County General Plan as General Agriculture (A/G) and zoned by San Joaquin County as AG-40 (General Agriculture, 40-acre minimum). The A/G land use designation and AG-40 zoning district are intended to preserve agricultural lands for the continuation of commercial agricultural enterprises and generally apply to areas outside areas planned for urban development and (San Joaquin County 2016). In addition, the Lodi Station and Lodi Station South Alternative sites would be in an area where developmental potential is limited by the lack of municipal water and wastewater infrastructure. Because development of the area surrounding the station sites is limited through the county's land use designation, zoning, and infrastructure constraints, the Lodi Station and Lodi Station South Alternative would not induce land use changes that result in new or unplanned growth around the station sites and this impact would be less than significant.

⁴ Under the Growth Management Allocation Ordinance, the maximum number of housing units approved by the City reflects a 2% maximum increase in population annually.

Lodi to Elk Grove

~~The proposed Elk Grove Station, including all variants, would be constructed along the existing UPRR ROW in unincorporated Sacramento County. This station would be located beneath the Cosumnes Boulevard/Morrison Creek overpass on vacant land currently owned by the Sacramento Regional County Sanitation District. The Elk Grove Station would be adjacent to the existing Sacramento Regional Transit (SacRT) Franklin light rail station and would provide a connection between the Franklin light rail station and the proposed project. Existing residential development is north, northeast, and east of the proposed station in the city of Sacramento. There are no additional vacant lands proposed for future development in the vicinity of the Elk Grove Station (City of Sacramento 2015a; Sacramento County 2017). There are no stations proposed in the Lodi to Elk Grove Segment. Therefore, the proposed project Elk Grove Station would not induce new or unplanned growth in this segment around the station site and this impact would be less than significant.~~

Elk Grove to Natomas

Three new rail stations are proposed in areas of Sacramento identified for transit-oriented development: the proposed City College Station, adjacent to the existing SacRT City College light rail station north of Sutterville Road; the proposed Midtown Station, located near Q Street between 19th Street and 20th Street; and the proposed Old North Sacramento Station, located on the west side of Acoma Street just north of El Monte Avenue.⁵ These stations would support the City's General Plan policies that encourage and promote the enhancement of passenger rail service to and through the Sacramento area (City General Plan Policy M 3.2.1 and M 3.2.4) (City of Sacramento 2015a). Both the proposed Midtown Station and Old North Sacramento Station would be along the existing UPRR ROW in urbanized areas of the city and adjacent to residential and commercial development, and the proposed City College Station would provide platform-to-platform transfers to and from the existing SacRT City College Station. Vacant land east of the proposed City College Station is identified by the City of Sacramento General Plan as land that provides opportunities for a Transit Center and is designated for infill development with a mix of residential and employment uses; thus, the City College Station would support the City of Sacramento's goal to locate planned future growth near transit services (City of Sacramento 2015a, 2015b). Therefore, the proposed City College Station, the Midtown Station, and the Old North Sacramento Station would not result in new land uses or cause the redistribution or intensification of planned land uses that could induce unplanned growth around these station sites. Instead, these stations would be considered beneficial and complimentary to land use and future growth and no impact would occur.

The proposed project would support future population and housing growth identified in the 2016 Metropolitan Transportation Plan and the Sustainable Communities Strategy (MTP/SCS). The 2016 MTP/SCS identifies land uses in the vicinity of the City College Station, Midtown Station, and Old North Sacramento Station as Center and Corridor Communities, which typically: 1) are targeted for higher density; 2) are more mixed than other areas; 3) are benefitting or expected to benefit from frequent transit service (either bus or rail); and 4) have pedestrian and bicyclist infrastructure that is more supportive of walking and bicycling (SACOG 2016). In addition, the

areas adjacent to these proposed stations are also in a Transit Priority Area, which is defined as an area of the region within 0.5 mile of a major transit stop (e.g., existing or planned light rail, street car, or train station) or an existing or planned high-quality transit corridor included in the 2016 MTP/SCS. Growth in the Sacramento Transit Priority Areas is fairly balanced between housing and employment growth due in part to the extensive geographic coverage of the Transit Priority Areas, which include regional job centers (e.g., downtown Sacramento and Natomas) as well as residential areas and commercial areas (SACOG 2016).

The proposed Natomas/Sacramento Airport Station would be constructed adjacent to the existing UPRR ROW in unincorporated Sacramento County. The Natomas/Sacramento Airport Station would be constructed along the east side of Blacktop Road just south of West Elkhorn Boulevard. Sacramento County supports and encourages transit-oriented development in appropriate areas throughout the County. This station is adjacent to exiting commercial and industrial development and rural residential land uses. The station site is not identified by the Sacramento County General Plan for transit-oriented development or planned community development (Sacramento County 2017). Rather, the Sacramento County General Plan designates the proposed station site and surrounding parcels for intensive industrial uses, such as research, processing, warehousing, and supporting commercial uses (Sacramento County 2017). Because development of the area surrounding the Natomas/Sacramento Airport Station is limited through the County's land use designations, the Natomas/Sacramento Airport Station would not result in new land uses or cause the redistribution or intensification of planned land uses that could induce unplanned growth around these station sites and this impact would be less than significant.

Impact PH-2: Implementation of the proposed project would not displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere (No Impact).

Implementation of the proposed project would not displace substantial numbers of housing or people necessitating the construction of replacement housing elsewhere. None of the ROW to be acquired for the proposed project current support residential development. Most of the track improvements included in the proposed project would be constructed in existing UPRR ROW, including sidings, curve corrections, and the addition of new track at the proposed new rail stations. Improvements outside the ROW, including construction of new stations, expanded surface parking lots, and track connections, would be in non-residential areas or on currently undeveloped land that lacks residences. In addition, the proposed project does not propose converting established residential areas to a non-residential land use. Therefore, no impact would occur.

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3.14 Public Services

3.14.1 Introduction

This section describes the regulatory and environmental setting for public services, including fire protection, police protection, emergency medical services, schools, libraries, and other public facilities, in the vicinity of the Valley Rail Sacramento Extension Project (proposed project) improvements. It also describes the impacts on public services that could result from implementation of the proposed project, and mitigation measures that would reduce significant impacts, where feasible and appropriate. Cumulative impacts on public services, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, one comment relevant to public services was received:

- Concerns regarding impacts of the now deleted Natomas Maintenance and Layover Facility on a planned high school in Natomas resulting in the elimination of proposed roads and creation of access issues for future students and emergency response vehicles to and from the proposed school.

However, as discussed in Chapter 5, *Alternatives*, the project improvement of concern is no longer under consideration, and this comment therefore no longer applies to the proposed project. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.14.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to public services applicable to the proposed project.

3.14.2.1 Federal

There are no federal regulations related to public services.

3.14.2.2 State

California Department of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) protects the health and safety of workers throughout California by setting and enforcing standards; issuing permits, licenses, certifications, registrations, and approvals; and providing outreach and education. California Code of Regulations (CCR), Title 8, establishes industrial safety standards for construction (Department of Industrial Relations 2019a). Employers are required to have an effective injury and illness prevention plan, which includes training and instruction on safe work practices (Department of Industrial Relations 2019b). Cal/OSHA conducts on-site inspections of construction sites, and has the authority to fine or cite unsafe practices or incomplete Health and Safety Plans to ensure the practice of safe work environments.

California Building Standards Code

The California Building Code (CBC) CCR, Title 24 contains general building design and construction requirements relating to fire and life safety, structural safety, and access compliance. Part 9 of the CBC is the California Fire Code (CFC), which contains regulations consistent with nationally recognized accepted practices for safeguarding, to a reasonable degree, life and property from the following hazards:

- Fire and explosion.
- Hazardous conditions in the use or occupancy of buildings or premises.
- Dangerous conditions arising from the storage, handling, and use of hazardous materials and devices.

The CFC also contains provisions to assist emergency response personnel. These fire-safety–related building standards are referenced in other parts of Title 24. This code is pre-assembled with the International Fire Code with necessary California amendments (Division of the State Architect 2018).

3.14.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJA and SJRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

consistent with the applicable goals, policies, and objectives related to public services identified in Appendix E.

3.14.3 Environmental Setting

This section describes the environmental setting related to public services by type of public service and geographic segment for improvements included in the proposed project. Public services considerations include fire protection, law enforcement, schools, parks, and hospitals. Other public facilities such as post offices and libraries are also described. For the purposes of this analysis, the study area for public services is defined as follows:

- Fire protection, law enforcement, and hospitals within 5 miles of the environmental footprint.
- Schools and other governmental facilities within 0.25 mile of the environmental footprint.
- The environmental footprint of a proposed project improvement for direct impacts on recreational resources.
- Recreational resources within 1,000 feet on either side of the proposed project improvement's environmental footprint for indirect impacts.

3.14.3.1 Fire Protection

Fire departments provide a range of services and programs aimed at protecting lives and property from fire hazards, medical emergencies, exposure to hazardous materials, and other dangerous conditions. Table 3.14-1 identifies the fire departments and stations that are in the project study area. Additionally, the table describes the available equipment and average response times (where available).

Table 3.14-1. Fire Departments within Study Area of the Valley Rail Sacramento Extension Project

| Segment | Jurisdiction | Fire Department |
|-------------------|--------------------|--|
| Stockton to Lodi | City of Stockton | <p>Services: Serving a total population of over 336,000 people over a total area of 91.9 square miles. The Stockton Fire Department consists of six operational divisions: Administration, Operations, Fire Prevention, Training, Communications/Dispatch, and Emergency Medical Services (EMS). Sworn personnel respond from 12 fire stations throughout the city.</p> <p>Stations within the study area: Station 2: 110 West Sonora Street Station 11: 1211 East Swain Road</p> <p>Current staffing level: 181 sworn fire personnel, supported by 24 civilian employees.</p> <p>Average response times: Has a criteria response time of 4 minutes total travel time for risks within 1.5 miles, 90 percent of the time.</p> |
| | City of Lodi | <p>Services: The Lodi Fire Department is one of the County of San Joaquin Fire Districts. Total of 4 fire stations, serving an area of 13.9 square miles. Consists of a hazardous materials (HazMat) response vehicle, 4 fire engines, and a reserve truck. During the 2016 fiscal year, the department responded to 5,814 calls, including 3,837 rescue and emergency medical calls and 205 fire calls.</p> <p>Stations within the study area: Station 3: 2141 South Ham lane</p> <p>Current staffing level: 52.6 personnel.</p> <p>Average response times: In 2006, the most recent year of data availability, the Department met the self-imposed National Fire Protection Association's response time criteria of 6 minutes for 90 percent of all calls.</p> |
| Lodi to Elk Grove | San Joaquin County | <p>Services: Made up of the San Joaquin County Emergency Medical Services Agency (SJCEMSA) and 16 Fire Districts, including Woodbridge, Thornton Fire, and the City of Lodi Fire Districts. SJCEMSA Agency is responsible for the planning, implementation, and evaluation of the EMS system in the County. SJCEMSA monitors and enforces more than 25 contracts and agreements for the provisions of advanced life support (ALS) emergency ambulance services, ALS, and basic life support (BLS) non-emergency ambulance services, ALS and BLS first response services, base hospital medical direction, receiving hospital services, trauma services, specialty care centers, EMS training programs, and other services.</p> <p>Stations within the study area: Woodbridge Station 1: 400 East Augusta Street, Woodbridge City of Lodi Station 3: 2141 South Ham Lane Community of Thornton Station: 25999 Thornton Road</p> <p>Current staffing level: 816 Certified emergency medical technicians.</p> <p>Average response times: 5 minutes in metropolitan/urban areas and 15 minutes in suburban/rural areas.</p> |

| Segment | Jurisdiction | Fire Department |
|----------------------|----------------------|---|
| | City of Elk Grove | <p>Services: The Cosumnes Fire Department provides fire protection services to the City of Elk Grove. The Department has a total of 8 fire stations serving an area of 157 square miles and population of more than 193,000 people. Emergency response is provided by 1 aerial ladder truck company, 7 rescue ambulance units, and 8 ALS ambulances engine companies. The department responded to 18,592 incidents in 2016.</p> <p>Stations within the study area: 10573 East Stockton Boulevard, Elk Grove</p> <p>Current staffing level: 177 personnel.</p> <p>Average response times: The established response time goal for the department is 6 minutes or less for 90 percent of calls in the urbanized areas of the district. The response time goal for rural areas is 12 minutes or less for 90 percent of calls.</p> |
| Elk Grove to Natomas | City of Sacramento | <p>Services: The Sacramento Fire Department is composed of 24 fire stations, serving an area of 146 square miles, including contracted areas. Emergency response is provided by 24 engine companies, 9 truck companies, 15 ALS ambulances, a rescue company, three swift water rescue teams, and two HazMat response teams. The City has not adopted specific, measurable, and outcome-based response time goals. The City’s General Plan states that the City shall strive to maintain emergency response times that provide optimal fire protection and emergency medical services to the community. The Department responds to 80,000 calls each year, and provides service to approximately 480,000 residents and over 20,000 businesses in the City of Sacramento. The Department also is contracted by Fire Protection Districts: Pacific/Fruitridge and Natomas to provide fire protection service to an additional 50,000 residents.</p> <p>Stations within the study area: Station 56: 3720 47th Avenue Station 12: 4500 24th Street Station 2: 1229 I Street Station 14: 1341 North C Street</p> <p>Current staffing level: Daily operating staff is 169, which includes 3 Battalion Chiefs, 34 suppression companies, 15 ALS ambulances, and 1 EMS captain.</p> <p>Average response times: 8 minutes 81 percent of the time for all 911 calls.</p> |
| | County of Sacramento | <p>Services: The Sacramento Metropolitan Fire District (Metro Fire) serves unincorporated Sacramento County. Metro Fire serves a population of over 745,000 in a 359-square-mile service area. Metro Fire is a combination of 16 smaller fire departments that have merged to create this California Special District. The last merger was in December 2000, when American River Fire Department and Sacramento County Fire Protection District merged to form the Sacramento Metropolitan Fire District, pursuant to Government Code Section 56839. Operations include: Fire & Rescue, Emergency Medical, Training & Safety, Special Operations, Homeland Security, Fire Investigation, and Health & Wellness Divisions.</p> <p>Stations within the study area: Rio Linda Station 11: 6609 Rio Linda Boulevard</p> <p>Current staffing level: 192 on-duty personnel.</p> <p>Average response times: No county-wide standard for response times.</p> |

Sources: California Health and Human Services Agency 2018; Cosumnes Fire Department, no date; City of Lodi 2010; City of Lodi 2016; Metro Fire 2012; City of Sacramento 2016, City of Sacramento Fire Department 20164; City of Stockton 2019; City of Stockton 2007; SJCEMSA 2018

3.14.3.2 Law Enforcement

Law enforcement departments have the primary responsibility for protecting life and property from criminal activities. A listing of law enforcement departments and staffing in the study area is provided in Table 3.14-2.

Table 3.14-2. Police Stations within Study Area of the Valley Rail Sacramento Extension Project

| Segment | Jurisdiction | Police Department and Sheriff's Office |
|-------------------|--------------------|---|
| Stockton to Lodi | City of Stockton | <p>Services: The Stockton Police Department serves a population of over 315,592 within the City limits (65 square miles). The current officer-to-citizen ratio is about 1 to 693, with an emergency response time between 3 and 5 minutes depending on time of day, location, and the number of requests for services. Divisions include: Field Operations, Special Operations; Investigations, Technical Services, and Administration Services.</p> <p>Staffing: 400 police officers and 150 civilian personnel.</p> <p>Stations within the study area: Stockton Police Station-Operations: 22 East Market Street Stockton District Police: 1326 North San Joaquin Street</p> |
| | City of Lodi | <p>Services: The Lodi Police Department serves a population of 65,884 within the City limits (13.88 square miles). Divisions include: Field Operations, Investigations, Technical Services (Records, Dispatch, Animal Services), Administrative Services.</p> <p>Staffing: 71 sworn officers.</p> <p>Stations within the study area: Within Beat 1. Police Station: 215 West Elm Street</p> |
| Lodi to Elk Grove | San Joaquin County | <p>Services: The San Joaquin County Sheriff's Office is composed of 6 divisions, including Custody, Investigations, Patrol, Professional Standards, Unified Court Services, and Lathrop Police Services. The Patrol Division contains a Canine (K-9) Unit, Animal Services Division, Special Weapons and Tactics (SWAT), and Off Highway Vehicle Information. The County is divided into eight geographical areas or beats. The study area is located in beat 1.</p> <p>Staffing: 138 deputies.</p> <p>Stations within the study area: Lodi Civil Division Office: 114 North Lee Avenue</p> |
| | City of Elk Grove | <p>Services: The Elk Grove Police Department services include: Field Services Division containing Patrol Teams, a Traffic Bureau, Traffic and Hit-and-Run Investigators, K-9 unit, Community Service Officers, Investigate Services Division, Administrative Services Division, and Support Services Division. The Department responds to approximately 52,000 calls for service each year.</p> <p>Staffing: 146 sworn officers and 108 civilian employees.</p> <p>Stations within the study area: Elk Grove Station: 8400 Laguna Palms Way</p> |

| Segment | Jurisdiction | Police Department and Sheriff's Office |
|----------------------|----------------------|---|
| Elk Grove to Natomas | City of Sacramento | <p>Services: The Sacramento Police Department services include: Patrol Operations, K-9 unit, SWAT, Hostage Negotiations, Investigation Services, Traffic Unit, Major Collision Investigations Unit, Forensics, Evidence and Property Services, and Youth Services. In 2016, the Department responded to approximately 738,231 calls. The Department is divided into four area commands, including Northwest District 1, Central District 3, East District 6, and Southwest District 4.</p> <p>Staffing: 697 sworn officers and 269 civilian employees.</p> <p>Stations within the study area: Kinney Station: 3550 Marysville Boulevard Rooney Station at 5303 Franklin Boulevard</p> |
| | County of Sacramento | <p>Services: The County of Sacramento Sheriff's Department serves unincorporated Sacramento County. Department services include: Field and Investigative Services (Patrol, K-9, Air Operations, Search and Rescue, Volunteer Services), Office of the Sheriff (Special Investigations), Correctional Services, Contract and Regional Services (Traffic Bureau, Security Service, Airport Division), and Support Services (Homeland Security, Professional Standards). The Department is divided into two patrol divisions, the Central and North Divisions, and comprises 6 stations.</p> <p>Staffing: 1,595 sworn deputies, 643 administrative staff.</p> <p>Stations within the study area: Florin Service Center: 7000 65th Street Linda Service Center located at 6730 Front Street in Rio Linda</p> |

Sources: Elk Grove Police Department 2019; Lodi Police 2018; City of Sacramento Police Department 2016; Sacramento County Sheriff's Office 2018; City of Stockton 2007; City of Stockton 2019

3.14.3.3 Schools

There are 13 public and private schools (Kindergarten through Grade 12) in the project study area. Table 3.14-3 identifies these schools.

Table 3.14-3. Schools within Study Area of the Valley Rail Sacramento Extension Project

| Segment | Jurisdiction | School |
|----------------------|---------------------|---|
| Stockton to Lodi | City of Stockton | Cragmart Academy 7273 Murray Drive |
| | | Life Training Academy 7404 Murray Drive |
| | | Acacia Charter 703 East Swain Road |
| | | Delta Bridges Charter 703 East Swain Road |
| | City of Lodi | Turner Academy 18051 North Ray Road |
| Lodi to Elk Grove | San Joaquin County | New Hope Elementary 26675 North Sacramento Boulevard, Thornton |
| Elk Grove to Natomas | City of Sacramento | Eliezer Christian Academy 4311 Attawa Avenue |
| | | C. K. McClatchy High 3066 Freeport Boulevard |
| | | Washington Elementary 520 18th Street |
| | | Luther Burbank High 3500 Florin Road |
| | | Collis P. Huntington Elementary 5921 26th Street |
| | | Edward Kemble Elementary 7495 29th Street |
| | | Cesar Chavez Intermediate 7500 32nd Street |

Sources: California Department of Education 2019a; California Department of Education 2019b; Google Maps 2019

3.14.3.4 Parks

There are 15 public parks in the study area, including city parks, bike trails, hiking trails, and a reserve, These parks are described in more detail in Section 3.15, *Recreation*. Table 3.14-4 identifies these parks.

Table 3.14-4. Public Parks within the Valley Rail Sacramento Extension Project Study Area

| Segment | Jurisdiction | Parks | |
|----------------------|--------------------|---|--|
| Stockton to Lodi | City of Stockton | There are no recreational resources in the study area for the Stockton to Lodi segment. | |
| Lodi to Elk Grove | Sacramento County | Cosumnes River Preserve 9014 Bruceville Road, Elk Grove | |
| | | Willie Caston Park 4325 Caston Park, Sacramento | |
| Elk Grove to Natomas | City of Sacramento | The Walter S. Ueda Parkway 6600 Sorento Road | |
| | | Airport Park 5917 26th Street | |
| | | Grant Park 205 21st Street. | |
| | | Hampton Park 4050 Cuny Avenue | |
| | | Gardenland Park West El Camino Avenue | |
| | | Johnston Park 9925 Ferragamo Way | |
| | | Pollack Ranch Park 3800 Robinridge Way | |
| | | Truitt Bark Park 1818 Q Street | |
| | | Redwood Park 2415 Western Avenue | |
| | | Washington Park 1631 F Street | |
| | | Sacramento Northern Bike Trail 1900 C Street | |
| | | County of Sacramento | American River Parkway 4040 Bradshaw Road |

Sources: California's Protected Areas Database 2019; Google Maps 2019

3.14.3.5 Emergency Medical Services

First responders to emergency and medical incidents typically are fire protection and police enforcement services. A combination of local fire protection services, emergency medical service agencies, and independent ambulance services provide emergency medical services in the study area. There are 15 hospitals that provide emergency medical services in the project study area. Table 3.14-5 identifies the hospitals in the study area.

Table 3.14-5. Emergency Medical Services within the Valley Rail Sacramento Extension Project Study Area

| Segment | Jurisdiction | Hospital |
|----------------------|--------------------|--|
| Stockton to Lodi | City of Stockton | St. Joseph's Medical Center 1800 North California Street |
| | | Dameron Hospital 525 West Acacia Street |
| | City of Lodi | Lodi Memorial Hospital 975 S Fairmont Avenue |
| Lodi to Elk Grove | City of Elk Grove | Sutter Elk Grove Hospital 8170 Laguna Boulevard Suite 113 |
| Elk Grove to Natomas | City of Sacramento | Sacramento Behavioral Health Hospital 1400 Expo Parkway |
| | | Kaiser Foundation Hospital – South Sacramento 6600 Bruceville Road |
| | | University of California Davis Medical Center 2315 Stockton Boulevard |
| | | Sutter Center for Psychiatry 7700 Folsom Boulevard |
| | | Sacramental Behavioral Health Hospital |
| | | Kaiser Foundation Hospital – Sacramento 2025 Morse Avenue |
| | | Sierra Vista Hospital 8001 Bruceville Road |
| | | Methodist Hospital of Sacramento 7500 Hospital Drive |
| | | Shriners Hospitals for Children Northern California 2425 Stockton Boulevard |
| | | Sutter Medical Center-Sacramento 2825 Capitol Avenue |
| | | Mercy General Hospital 4001 J Street |

Sources: Office of Statewide Health Planning and Development 2019; Google Maps 2019

3.14.3.6 Other Governmental Facilities

There are 9 other public facilities in the study area, including post offices, libraries, a Department of Motor Vehicles, and a Chamber of Commerce. Table 3.14-6 identifies these public services.

Table 3.14-6. Other Public Facilities within the Valley Rail Sacramento Extension Project Study Area

| Segment | Jurisdiction | Other |
|----------------------|--------------------|---|
| Stockton to Lodi | | None in study area |
| Lodi to Elk Grove | San Joaquin County | US Postal Service 8494 West Stockton Street |
| Elk Grove to Natomas | City of Sacramento | US Postal Service 2121 Broadway |
| | | Ella K. McClatchy Library 2112 22nd Street |
| | | Public Employment Relations 1031 18th Street |
| | | Sacramento Asian-Pacific Chamber of Commerce 2331 Alhambra Boulevard |
| | | Department of Motor Vehicles Board 1507 21st Street, #330 |
| | | Commission on Teacher Credentialing 1900 Capitol Avenue |
| | | California Department of Public Health 1616 Capitol Avenue |
| | | Sacramento Employment and Training Agency 925 Del Paso Boulevard |

Source: Google Maps 2019

3.14.4 Environmental Analysis

This section describes the potential impacts of the proposed project on public services. This section also describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are provided, where appropriate.

3.14.4.1 Methods for Analysis

Impacts to public services in the study area due to construction and operation of the proposed project were evaluated based on review of available literature and information from each municipality in the project corridor. Construction impacts are those resulting from building and installing infrastructure required for the proposed project. Operational impacts would result from ongoing, routine, and occasional activities associated with the project service.

For both construction and operational-related impacts, significant impacts related to fire protection, law enforcement, other emergency services, schools, and other public facilities may occur if acceptable service ratios and performance objectives are not met, and the resultant increase in staffing and/or equipment requires the construction of new or altered facilities that could cause a significant physical impact on the environment. Not meeting service ratios is

considered a social and/or economic impact; CEQA is concerned with physical impacts on the environment. Therefore, a project may result in an increased demand for public services, but a significant impact under CEQA only occurs if that demand results in the need for new facilities, which then results in an indirect physical impact on the environment that is significant.

If the proposed project significantly increases the population in the surrounding area, it is expected that demand on public services would increase. If demand significantly increases beyond existing public services capacity, response times, service ratios, and performance objectives may not be met. Additionally, interference or impedance of emergency response or access could occur due to delays at existing and new at-grade railroad crossings or due to temporary or permanent road closures. This interference could also negatively affect response times, service ratios, and performance objectives, and result in the demand for new infrastructure or facilities.

To determine impacts associated with construction and operation, a qualitative assessment is provided of whether implementation of the proposed project would result in a demand for public services that would be similar or substantially different from existing conditions.

3.14.4.2 Thresholds of Significance

The State CEQA Guidelines Appendix G (14 CCR 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on public services. The proposed project would result in a significant impact on public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:
 - Fire protection
 - Police protection
 - Schools
 - Parks
 - Other Public Facilities

3.14.4.3 Impacts and Mitigation Measures

Impact PS-1: The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for fire protection or police protection (Less-than-Significant Impact).

Construction

Construction of the proposed project could have an impact on fire protection, law enforcement, and emergency response services in three primary ways.

- Construction activities occurring in roadways and streets could disrupt traffic and interfere with the response times for fire, police, and other emergency responders.
- Increased traffic associated with construction workers, trucks, and equipment could interfere with the response times for fire, police, and other emergency responders.
- Construction workers and areas where construction would occur could require additional fire, police, and other emergency responders' services.

Construction and staging areas would primarily take place in the existing UPRR ROW. However, several project improvements would occur in local roadways and streets that may result in partial road closures in which traffic would be redirected around barricades or detoured, as described in Section 3.16, *Transportation*. These improvements, shown in Table 3.14-1, could potentially disrupt traffic during construction activities, and interfere with fire, emergency response, and police response times. However, construction activities in existing ROW would be temporary, and would occur in phases. Modification of at-grade crossings would last approximately 7 to 15 working days, with an average of 9 working days. Additionally, these improvements would be subject to encroachment and obstruction permits from local jurisdictions, which would include a traffic control plan to address temporary road closures, detour provisions, allowable routes, and alternative access points (as needed) As part of these permit requirements, coordination with local authorities would be required to avoid any conflicts with fire protection, law enforcement, and emergency responders' ability to respond to calls, including identifying alternative routes, detour provisions, and allowable routes during construction activities.

Table 3.14-7. Potentially Affected Public ROW during Construction Activities

| Segment | Street/Roadway | Project Improvement | Summary of Improvements Affecting Streets |
|----------------------|---|--|---|
| Stockton to Lodi | State Route (SR) 12 and North Devries Road | Lodi Station | Improvements including a new signalized station access driveway with right and left turn lanes. New track would include modifications to the existing at-grade crossings at State Route (SR) 12 and North Devries Road to allow for a second set of tracks. |
| | West Harney Lane, North Devries Road, Kingdon Road, and SR 12 | Lodi Station South Alternative | New track would include modifications to the existing at-grade crossings at West Harney Lane, North Devries Road, Kingdon Road, and SR 12 to allow for a second set of tracks. |
| | North New Hope Road | Track upgrades | Including upgrade of the southern switch, signal upgrades, removal of the northern switch, extension of the siding. |
| Lodi to Elk Grove | Core Road | Track upgrades | Including upgrade of the southern switch, signal upgrades, removal of the northern switch, extension of the siding. |
| | Sims Road | North Elk Grove Station (all variants) | New track would include modifications to the existing at-grade crossing at Sims Road. |
| Elk Grove to Natomas | P Street, Q Street | Midtown Sacramento Station | Modifications of the two existing at-grade crossings at P Street and at Q Street; removal of the railroad switch just south of Q Street; and the installation of a new switch north of P Street. |

Increased construction traffic could also interfere with the response times for emergency responders. Additional traffic volumes would be associated with construction workers, trucks, and equipment coming to and from project sites. Additionally, use of the ROW may be necessary during soil off-hauling; deliveries and staging of construction materials; and other construction activities. However, construction traffic impacts from on-street work would be short-term and temporary, and traffic control plans would be implemented to ensure that adequate local emergency access would be maintained throughout the entire construction duration, as described in Section 3.16, *Transportation*.

Lastly, accidents involving construction workers and equipment and an increased potential for crime and vandalism at staging areas could result in increased need for public services. For example, accidental on-site fires from the operation of mechanical equipment and the use of flammable construction materials may impose a demand for local emergency responders. However, the proposed project would comply with Cal/OSHA fire and building code requirements; and construction managers and personnel would be trained in emergency response and fire safety operations, which include the monitoring and management of life safety systems and facilities. Cal/OSHA's Title 8 regulations require an emergency action plan that establishes protocol for any emergency scenarios, and establishes safety measures to prevent and respond to medical emergencies. Additionally, fire suppression equipment (e.g., fire extinguishers) would be maintained on site throughout the construction duration.

The proposed project could also result in a small increase of police protection services. Construction sites can attract theft and vandalism if not properly secured (Berg and Hinze 2005). Security measures such as security fencing, lighting, and locked entry could be used to prevent theft and vandalism. Although the proposed project could increase the number of calls received from the area, the increase in responsibilities would not be substantial in light of the existing demand for police protection services. For these reasons, the construction of the proposed project would have a less-than-significant impact related to the provision of police services, and no mitigation measures would be required.

Operation

Operation of the proposed project has the potential to increase the demand for fire protection, law enforcement, and emergency response services due to the increased number of passengers around proposed stations, and an increase in passenger train service between Stockton and Sacramento. Proposed improvements could impact these public services in several ways, including:

- New passenger train service could disrupt traffic due to additional gate downtime at existing at-grade crossings, which could interfere with response times for fire, police, and other emergency responders.
- Traffic could increase around proposed stations, which could interfere with response times for fire, police, and other emergency responders.
- Proposed stations and new passenger train service could increase population around station areas, resulting in additional demand for fire, police, and emergency responders.

- Accident conditions involving trains could require large-scale, coordinated response from fire, police, and other emergency responders.

The proposed project would increase service between proposed and existing stations in Stockton and Sacramento by seven additional round trips (two San Joaquins and five ACE trains). This service would result in additional gate downtime at existing at-grade railroad crossings, contributing to potential traffic congestion and delay, especially during peak hours. However, typical gate down times for passenger trains are no more than a minute. Although gate-downtime could create traffic backups, wait times are not expected to be substantial. Therefore, service ratios, response times, or other performance objectives are expected to be similar to background levels.

Greater traffic volumes and congestion near proposed stations could also result in increased response times for emergency responders. Despite these potential localized traffic delay impacts, project operations would substantially reduce overall vehicle miles traveled along the project corridor, which would generally reduce congestion, and could result in a net improvement in emergency response times. Traffic impacts related to project operation is described in more detail in Section 3.16, *Transportation*.

Proposed improvements could result in additional demand for public services. In general, project improvements, such as physical changes to existing track infrastructure, including replacing existing tracks or widening bridges, would not be expected to increase the need for public services. These improvements would not require an increase or extension of services because such services are already available in the area. By contrast, proposed stations and passenger train service could contribute to an increase in population, resulting in an increased demand for public services. Nonetheless, the proposed project would not induce growth in the surrounding area, nor would it directly or indirectly foster the construction of additional residential, commercial, or industrial business in the surrounding area. As described in Section 3.13, *Population and Housing*, project improvements would not involve the construction of facilities or transit improvements that would typically attract substantial new development, or result in increases in the intensity of existing uses. Although operation of the proposed project would result in an increase in existing passenger rail service and the extension of passenger rail service to new areas, substantial localized growth is not anticipated.

There could be growth in the number of passengers at the proposed stations, which may result in an additional demand for fire, police, and other emergency responders. Proposed stations would be designed to prevent accidents. For example, station platforms would have safety features and established rules for pedestrians. Safety features include Americans with Disabilities Act (ADA)-compliant truncated dome pads indicating the platform edge, a yellow line delineating safe areas, rails and fences, signage, and audible announcements. Additionally, the proposed project would comply with applicable building and fire code requirements, including fire code regulations per city and county and the CFC, which establishes requirements for fire protection systems, such as providing state-mandated fire alarms, fire extinguishers, using fire-retardant building materials, appropriate building access and egress, and emergency response notification systems to reduce the likelihood of fire hazards. Additionally, the proposed project would comply with the requirements pertaining to the water volume and pressure needed for fire suppression on site. Compliance with all applicable building and fire codes would further reduce the demand for fire department service and oversight.

Increased train operations could increase crime occurring on and off trains, which could affect riders. Further, new parking areas at stations may result in more unattended parked vehicles at parking lots, and potentially an increase in property crime, which could require additional law enforcement services. In regard to the potential for increased crimes at expanded or new parking areas at stations, the design of improvements at stations incorporates features to reduce opportunities for crime, and increased demand for law enforcement would be minimized. These features include providing security lighting in parking areas and around other station facilities; and using crime prevention techniques in the design of new and improved facilities, such as selecting and siting lighting and landscaping to avoid blind spots or areas, and to help identify pathways; installing security cameras; and creating clear, visible pathways and entry points to the stations and parking facilities. These security features in parking lots and at train stations are expected to minimize and deter criminal offenses. Crime rates are not expected to be substantially different from background crime levels.

Although it is not anticipated, an accident involving train(s) could require large-scale, coordinated response from fire, police, and other emergency responders, which the current staffing at local police and fire protection departments may not be able to provide. However, the increase of seven additional round trips (two San Joaquins and five ACE trains) between Stockton and Sacramento is not expected to increase train accidents/incidents from background levels. Additionally, track improvements to existing UPRR track along the Sacramento Subdivision, including track curve reconstruction; existing passing siding track upgrades; new passing siding tracks; and new crossovers, would improve safety conditions even more. For the reasons discussed above, the proposed project would not result in an increase in demand for police protection, fire protection, schools, or other services to an extent that would require new or physically altered fire, police, school, or other public facilities, the construction of which could result in significant environmental impacts. Therefore, impacts would be less than significant.

Impact PS-2: The proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times, or other performance objectives for schools, parks, and other public facilities (Less-than-Significant Impact).

Construction

Construction of the proposed project could attract more construction workers, contractors, engineers, surveyors, and other construction personnel to the vicinity of the project area. The amount of construction workers would vary depending on the season and what work is being done. However, the demand for public services, including schools, hospitals, parks, libraries, post offices, and other public facilities would not change from background levels, because the majority of these workers would likely be residents of Central Valley/Sacramento Valley. Therefore, construction personnel and their families would make up the existing demand for these services. Any construction personnel having to relocate to the vicinity of construction activities could increase enrollment at schools or demand for other public facilities, although this amount is not expected to be substantial or permanent. Furthermore, facilities such as parks, libraries, and post offices are typically used by residents, not workers. In contrast, hospitals and other medical facilities may be used by construction personnel in the case of an accident or medical emergency.

However, these demands would not be substantial, and would be for a temporary period of time. Therefore, the proposed project would not create a demand for public services that would result in the need to construct or alter facilities. Therefore, construction of the proposed project would have no impact on public services.

Operation

As discussed in Impact PS-1 and Section 3.13, *Population and Housing* (in more detail), project improvements would not involve the construction of facilities or transit improvements that would typically attract substantial new development, or create increases in the intensity of existing uses. Although operation of the proposed project would result in an increase in existing passenger rail service and the extension of passenger rail service to new areas, substantial localized growth is not anticipated. Because proposed improvements do not involve the construction of residential units that would generate new students, no impacts to schools are expected. Additionally, other public facilities listed in Table 3.14-6 are not expected to be impacted by the proposed project, because the improvements would not generate substantial population growth or induce population growth around surrounding areas. Furthermore, these types of services are typically used by residents, not commuters. It is expected that the majority of passengers are already residents of Central Valley/Sacramento Valley, and therefore would be part of the existing demand for schools and other public services. Any new growth as the result of the proposed project would not be substantial. Therefore, operation of the proposed project would have a less-than-significant impact on public services.

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3.15 Recreation

3.15.1 Introduction

This section describes the regulatory and environmental setting for recreational resources in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on recreational resources that would result from implementation of the proposed project and the mitigation measures that would reduce significant impacts, where feasible and appropriate.

In this section, the term recreational resources is defined as publicly owned properties used for recreation, including one or more of the following: public parks and open spaces, including greenbelts, pedestrian and bicycle trails, playfields, waterways that support water-oriented recreational activities, and school district play areas available for public use during non-school hours. On-street bicycle routes are considered transportation facilities and are therefore not considered a recreational route. Section 3.16, *Transportation and Traffic*, describes impacts on these facilities. Cumulative impacts on recreational resources, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to recreational resources were received:

- Consider the impacts on the recreational value of the Walter S. Ueda Parkway.
- Questions on specific locations along the route in Sacramento where the rail line would be located to see if any planned open space and/or park land would be impacted.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.15.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to recreational resources and applicable to the proposed project.

3.15.2.1 Federal

National Trails System Act

The National Trails System was created in 1968 by the National Trails System Act (Public Law 90-543). The National Trails System Act authorized a national system of interstate riding and hiking trails to provide additional outdoor recreation opportunities and to promote the preservation of access to outdoor areas and historic resources. The National Trails System includes four classes of trails: National Historic Scenic Trails, National Historic Trails, National Recreation Trails, and connecting or side trails. In support of this legislation, and in order to protect existing trails and provide new trails, the California Department of Parks and Recreation prepared the *California Recreational Trails Plan* as a guide for all state agencies that provide and manage recreational trails, last updated in June 2002.

Portions of two National Trails listed in the plan are in the study area for the proposed project. The Jedediah Smith Memorial Trail, located in the American River Parkway—Discovery Park, is a National Recreation Trail (American Trails 2019). The Pony Express Trail is in midtown Sacramento and would be crossed by project improvements proposed in midtown; however, there is no physical trail at this location, only a historic trail alignment (National Park Service 2019).

National Wild and Scenic Rivers Act

The National Wild and Scenic Rivers Act (Public Law 90-542; 16 United States Code 1271 et seq.) preserves certain designated rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations; it is administered by federal and state agencies. These rivers must possess extraordinary scenic, recreational, fishery, or wildlife values. In the vicinity of the proposed project, the lower American River is a designated wild and scenic river (recreational designation) from Nimbus Dam downstream to the confluence with the Sacramento River (National Wild and Scenic Rivers System 2019). However, the study area (as defined below) does not include this waterway.

3.15.2.2 State

California Public Park Preservation Act

The primary instrument for protecting and preserving parkland in the state is California's Public Park Preservation Act of 1971. Under the California Public Resources Code (PRC) (Sections 5400–5409), a public agency that acquires public parkland for non-park use must either pay compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics. If less than 10 percent of the parkland, but not more than 1 acre is acquired, the operating entity may improve the portion of the parkland and facilities not acquired.

California Recreational Trails Act

The California Recreational Trails Plan is a guide produced by California State Parks for all state agencies and recreation providers that manage trails. Preparation of a recreational trails plan was authorized by the legislature in 1978 as an element of the California Recreational Trails Act (PRC Sections 2070-5077.8). The plan identifies trail corridors that form a statewide trail system that links mountain, valley, and coastal communities to recreational, cultural, and natural resources throughout the state.

Portions of the American Discovery Trail, Pony Express National Historic Trail, and Mokelumne Coast-to-Crest Trail, which are all included in the California Recreational Trails Plan, are in the study area for the proposed project. The American Discovery Trail, a coast-to-coast non-motorized trail, is in the American River Parkway along the Jedediah Smith Memorial Trail and is not a separate trail facility (American Discovery Trail 2019). The Pony Express National Historic Trail is described above. The Mokelumne Coast-to-Crest Trail does not have any existing segments in the study area (Mokelumne Coast-to-Crest Trail 2019).

California Wild and Scenic Rivers Act

Following the passage of the National Wild and Scenic Rivers Act, California’s legislature passed the Wild and Scenic Rivers Act in 1972 (PRC Sections 5093.50–5093.70). Under California law, “certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values will be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state.” The Natural Resources Agency is responsible for coordinating activities of state agencies that may affect the designated rivers. While the lower American River, from Nimbus Dam downstream to the junction with the Sacramento River, is also a State-designated wild and scenic river with a specific designation of “Recreational” (California Legislative Information 2019), this waterway is not in the study area.

3.15.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to recreation identified in Appendix E.

3.15.3 Environmental Setting

This section discusses the environmental setting related to recreational resources by geographic segment for the proposed project. For the purposes of this analysis, the study area for recreational resources is defined as:

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

- The environmental footprint of a proposed project improvement for direct impacts on recreational resources.
- 1,000 feet on either side of a proposed project improvement’s environmental footprint for indirect impacts.

Figures 3.15-1A through 3.15-1C depict the study area for recreational resources in the vicinity of proposed improvements. Recreational resources are generally overseen by the parks and recreation departments of the cities and counties where improvements are proposed. These municipalities generally use planning documents, such as master plans, to guide the acquisition, preservation, improvement, maintenance, and expansion of local parklands and trail networks. Additionally, the general plans of each jurisdiction typically include goals and policies that address recreational resources.

Information presented in this section regarding existing recreational resources was obtained from local and regional parks master plans; local recreation provider webpages; and reviews of aerial maps and geographic information system (GIS) data.

For each segment, the recreational resources in the study area for both direct and indirect effects are listed in a table. Additional descriptive information is provided only for the recreational resources located within the study area for direct impacts.

3.15.3.1 Stockton to Lodi

As shown in Figure 3.15-1A, there are no recreational resources in the study area for the Stockton to Lodi segment.

3.15.3.2 Lodi to Elk Grove

As shown in Figure 3.15-1B, there are two recreational resources in the study area for the Lodi to Elk Grove segment: a river preserve and a city park. Table 3.15-1 describes the size, recreational amenities provided, and distance of the recreational resources from the proposed project. Recreational resources in the study area for direct impacts are further described below.

Table 3.15-1. Lodi to Elk Grove – Parks and Recreation Resources in the Study Area.

| Resource Name | Amenities | Resource Size | Nearest Project Improvement | Approximate Distance from Nearest Improvement (Feet) |
|---|--|---------------|---|--|
| Within Study Area for Direct Impacts | | | | |
| Cosumnes River Preserve | Hiking trails, dock, driving tour, limited-entry waterfowl hunts, visitor center | 45,859 acres | Thornton Siding Upgrade/ Extension – Track Curve Reconstruction | In Project Footprint |
| Within Study Area for Indirect Impacts | | | | |
| Willie Caston Park | Picnic areas, play areas, walking/jogging trail | 6 acres | Track Curve Reconstruction North of Elk Grove Elk Grove Station, including all Variants | 910 |

Source: City of Sacramento 2019h; Cosumnes River Preserve 2019

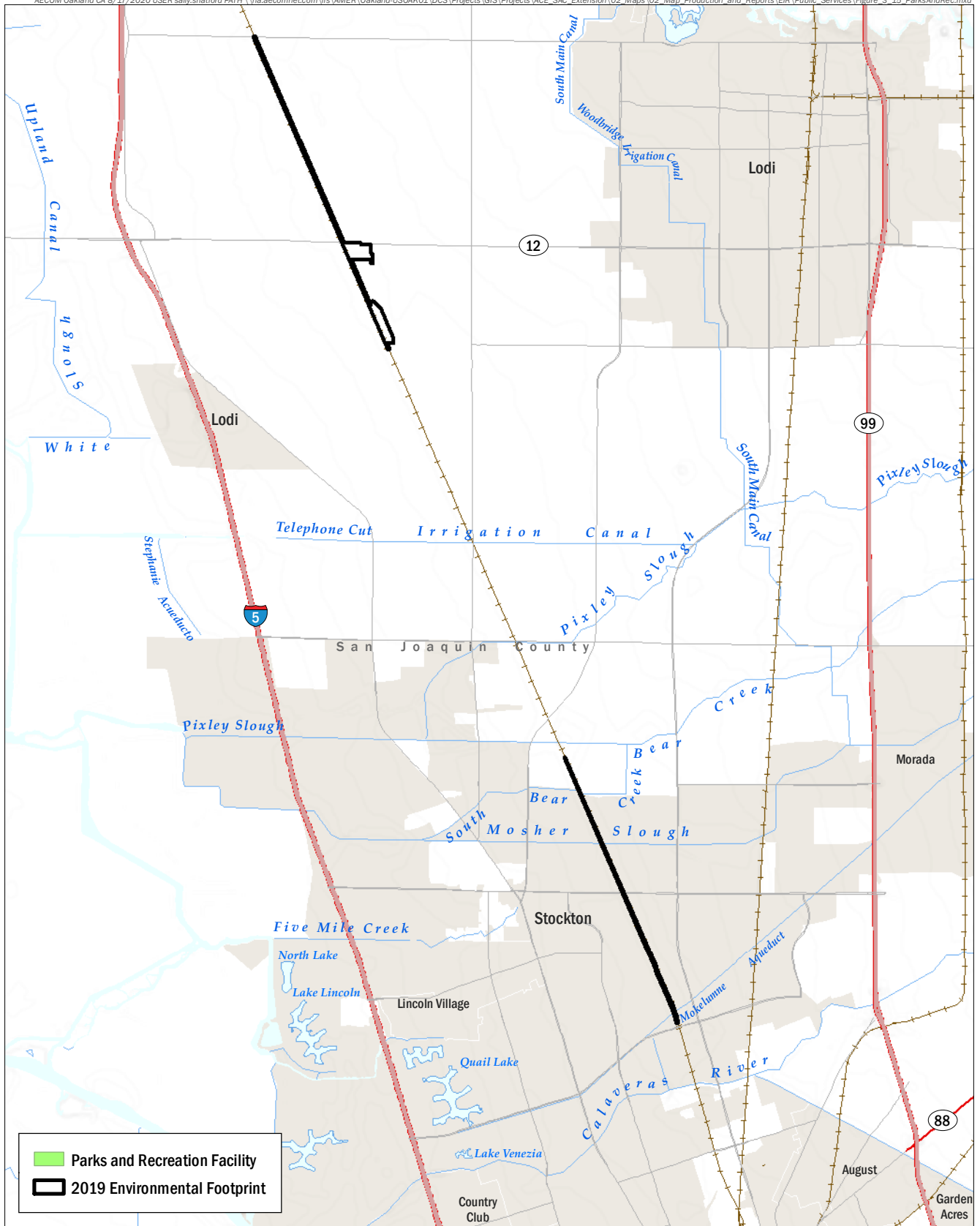


FIGURE 3.15-1A
*Parks and Recreation Facilities within
0.25-miles of Project Footprint – Stockton to Lodi*

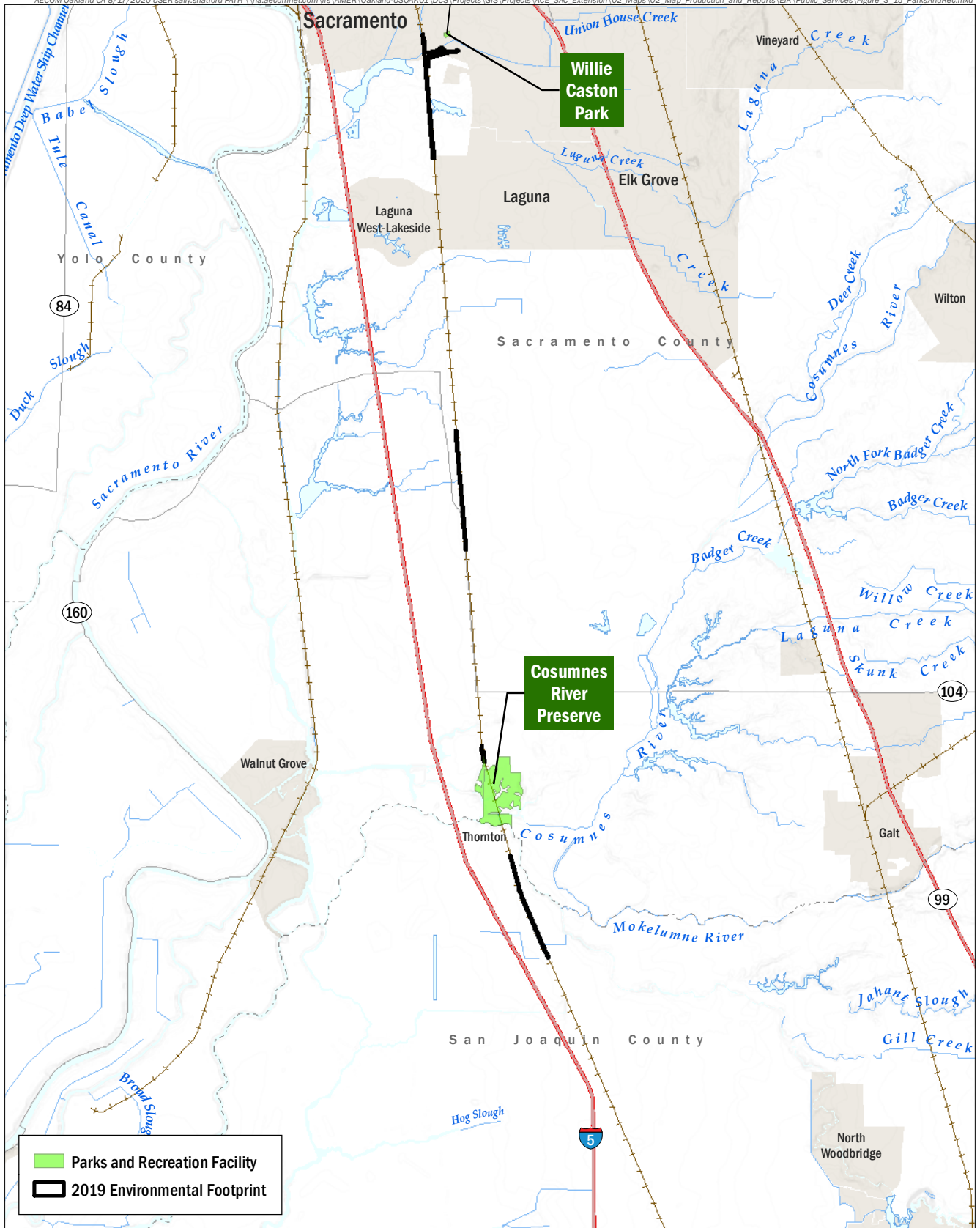


FIGURE 3.15-1B

*Parks and Recreation Facilities within
0.25-miles of Project Footprint – Lodi to Elk Grove*

AECOM

San Joaquin Regional Rail Commission

Note: The North Elk Grove Station, including all access and siding variants, is no longer under consideration. Therefore, the footprint shown above would be reduced to only the portion of the proposed project that includes the Track Curve Reconstruction North of Elk Grove.

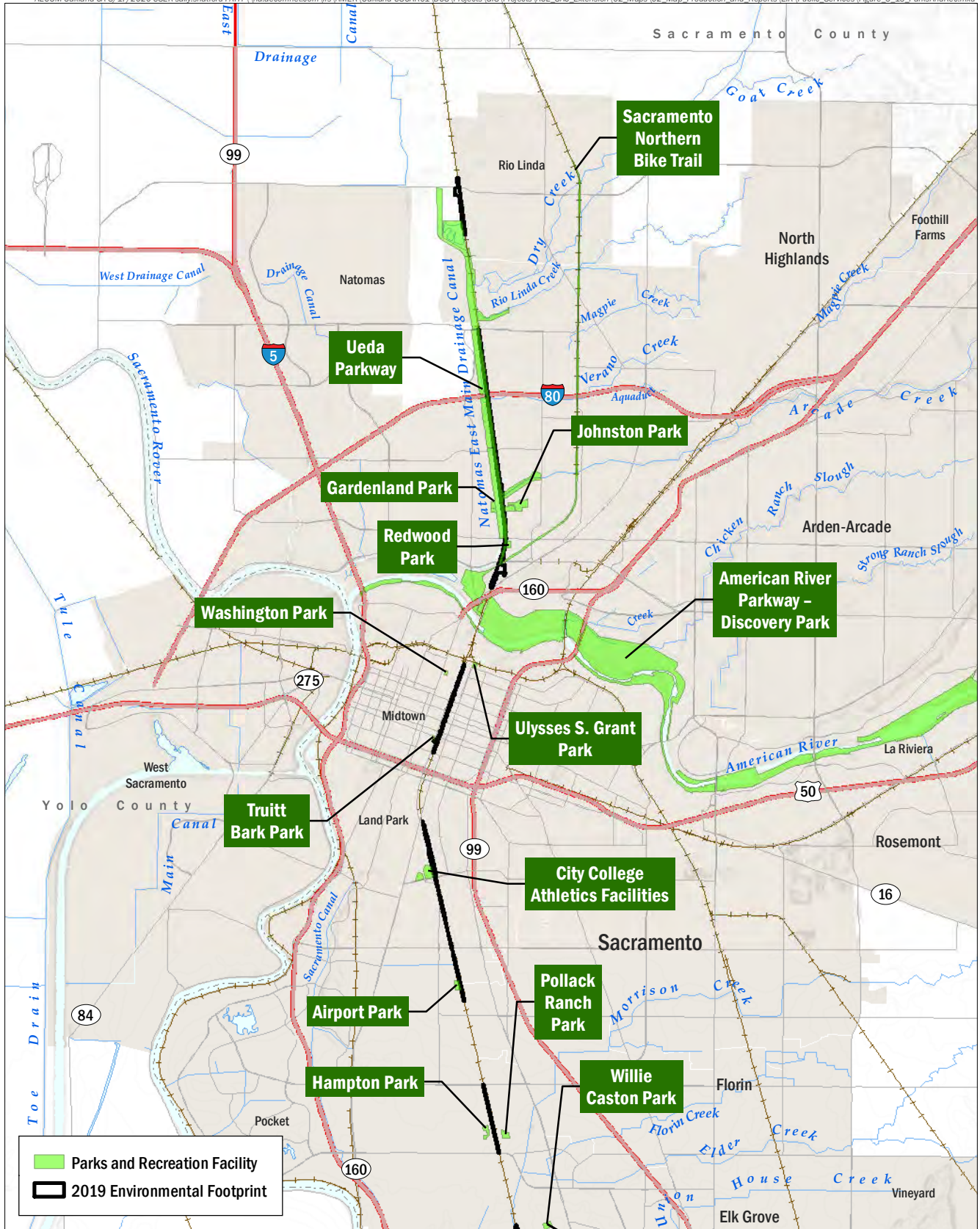


FIGURE 3.15-1C
*Parks and Recreation Facilities within
0.25-miles of Project Footprint – Elk Grove to Natomas*

Cosumnes River Preserve

The Cosumnes River Preserve is in and surrounding the track curve reconstruction area south of Desmond Road. The preserve includes opportunities for hiking, paddling, nature watching, scenic driving, hunting, and fishing (Cosumnes River Preserve 2019). Adjacent to the curve reconstruction area is the Lost Slough Wetlands Walk, a 1-mile universally accessible trail (Cosumnes River Preserve 2019, Cosumnes River Preserve 2008). The portion of Franklin Road adjacent to the curve reconstruction area is also the beginning portion of the Cosumnes River Preserve driving tour (Cosumnes River Preserve undated). There are preserve conservation easement parcels adjacent to the Franklin Road track improvements; however, there is no existing recreational use of these parcels.

3.15.3.3 Elk Grove to Natomas

As shown in Figure 3.15-1C, there are 13 recreational resources in the study area for the Elk Grove to Natomas segment: two trails, eight city parks, a dog park, a riverfront park, and college athletic facilities. Table 3.15-2 describes the size, recreational amenities provided, and distance of the recreational resources from the proposed project. Recreational resources in the study area for direct impacts are further described below.

Sacramento Northern Bike Trail

The Sacramento Northern Bike Trail crosses the northern part of the footprint of the proposed Old North Sacramento Station as it heads northeast of the American River and American River Parkway. This bike trail follows the former ROW of the Sacramento Northern Interurban Railway (TrailLink.com 2019). The trail is 9.8 miles, starting in Sacramento at C Street between 19th Street and 20th Street, and ending in Rio Linda at Rio Linda Boulevard and Elverta Road (TrailLink.com 2019).

Walter S. Ueda Parkway

The Walter S. Ueda Parkway is a 12.5-mile designated pedestrian/bicycle path along levee crowns of the Natomas East Main Drainage Canal (NEMDC)/Steelhead Creek, and levees of Arcade, Dry, and Robla (Rio Linda) Creeks (City of Sacramento 2020). The parkway also includes approximately non-paved trail in the Hansen Ranch area. The trail network links the American River Parkway and the Dry Creek Parkway. The northern trailhead for the parkway is immediately adjacent to and south of West Elkhorn Boulevard, on the east side of the NEMDC/Steelhead Creek levee (in the vicinity of improvements proposed as part of the Natomas/Sacramento Airport Station). From this point, the parkway runs south along the Wolf Ranch Wildlife Sanctuary and continues south along the NEMDC/Steelhead Creek east levee to the intersection with the American River Parkway. The trail also runs east along the levee crowns of Arcade, Dry, and Robla (Rio Linda) creeks (in the vicinity of the proposed Del Paso Siding Upgrade/Extension).

Table 3.15-2. Elk Grove to Natomas – Parks and Recreation Resources in the Study Area.

| Resource Name | Amenities | Resource Size | Nearest Project Improvement | Approximate Distance from Nearest Improvement (Feet) |
|---|---|-----------------|---|--|
| Within Study Area for Direct Impacts | | | | |
| Sacramento Northern Bike Trail | Bicycle trail | 9.8 miles long | Old North Sacramento Station | In Project Footprint |
| Ueda Parkway | Pedestrian and bicycle trail | 12.5 miles long | Old North Sacramento Station, | In Project Footprint |
| Within Study Area for Indirect Impacts | | | | |
| Hampton Park | Basketball court, playground, group picnic area, volleyball courts, soccer field | 4.2 acres | Pollock Siding Upgrade | 330 |
| Pollack Ranch Park | Basketball court, playground, picnic areas, volleyball courts, soccer field | 7.2 acres | Pollock Siding Upgrade | 460 |
| Airport Park | Ball fields, concessions building, restrooms | 13.32 acres | City College Station and Track Improvements | 20 |
| City College Athletics Facilities | Hughes Stadium, Union Stadium, tennis courts | 18.7 acres | City College Station and Track Improvements | 80 |
| Truitt Bark Park | Trees, lighting, "BARK" art, separate fenced areas for large and small dogs | 0.9 acres | Midtown Sacramento Station | 60 |
| Grant Park | Picnic area, softball/soccer field, playground, walkway | 3.1 acres | Midtown Sacramento Station | 580 |
| Washington Park | Play area, picnic area, shade structure | 1.6 acres | Midtown Sacramento Station | 940 |
| American River Parkway – Discovery Park | Jedediah Smith Memorial Trail, Sacramento Northern Bike Trail, archery range, picnic areas, boat ramp, car-top boat launch, restrooms | 302 acres | Old North Sacramento Station | 50 |
| Redwood Park | Ball field | 3.6 acres | Old North Sacramento Station | 100 |
| Johnston Park | Pool, basketball court, play areas, ball fields | 24.8 acres | Old North Sacramento Station | 20 |
| Gardenland Park | Water spray feature, picnic areas, bicycle trail | 5.7 acres | Old North Sacramento Station | 500 |

Sources: City of Sacramento 2019a-f and 2020; Sacramento City College 2019; Sacramento County 2019 and undated, TrailLink.com 2019

3.15.4 Environmental Analysis

This section describes the environmental impacts of the proposed project on recreational resources. It also describes the thresholds used to determine whether an impact would be significant. Measures to mitigate significant impacts are provided, where appropriate.

3.15.4.1 Thresholds of Significance

CEQA Guidelines Appendix G (14 California Code of Regulations, section 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have

significant impacts on recreation. The project would result in a significant impact on recreation if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

3.15.4.2 Impacts and Mitigation Measures

Impact REC-1: The proposed project could increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. However, this potentially significant impact would be reduced to a less than significant level through implementation of Mitigation Measures REC-1.1 and REC-1.2 (Less than Significant Impact with Mitigation).

Construction

Most of the recreational facilities in the project study area are several hundred feet from the UPRR ROW (an existing active railway) and environmental footprint with roads, vegetation, housing, and other development located between the parks, the UPRR ROW, or environmental footprint. These parks include Willie Caston Park, Hampton Park, Pollack Ranch Park, Grant Park, Washington Park, Gardenland Park, and Discovery Park. Existing access to all of these parks would not be affected by construction of the proposed project. Due to the distance of these parks from the environmental footprint, it is unlikely that construction noise or activities would affect these parks. Therefore, construction of the proposed project would likely not result in direct or indirect noise, access, or visual impacts to these parks such that a significant amount of visitation would be displaced to other parks or recreation facilities.

There are a few parks (e.g., Airport Park, Redwood Park, and Johnston Park) that are immediately adjacent to the environmental footprint. Airport and Redwood parks consist of ball field. The recreational facilities at Johnston Park that are closest to the environmental footprint are also ball fields; other facilities at Johnston Park are almost 1,000 feet from the environmental footprint and would therefore not be affected by construction activity. In addition, the athletic facilities at City College (tennis courts and stadium) are located adjacent to the environmental footprint. Given the adjacency of the environmental footprint, construction noise could affect use of the ball field facilities at the three city parks and the athletic facilities at City College. Therefore, construction of the proposed project could displace use from these facilities to other parks/facilities. Recreational use at the city parks and City College facilities mainly consists of organized games and practices; weekday use of these parks and facilities for non-organized events during construction hours is likely low. Therefore, by implementing Mitigation Measure REC-1.1 to avoid construction during organized games/practices, construction of the proposed project would not displace substantial use from Airport, Redwood, and Johnston parks and City College athletic facilities to other parks/facilities. Occasional use of these parks/facilities may be displaced during construction, but the level of use that could be displaced would be minimal and thus would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

The proposed Track Curve Reconstruction South of Desmond Road would occur in the Cosumnes River Preserve. However, all rail construction would occur in the existing UPRR ROW and the area of the Cosumnes River Preserve adjacent to the track curve reconstruction site is not used for recreation. However, the Lost Slough Wetlands Walk is immediately adjacent to the footprint of proposed curve reconstruction improvements and is used for walking/hiking and nature watching. Track Curve Reconstruction South of Desmond Road may result in visual setting degradation, wildlife displacement, and increased noise and dust along this trail, potentially temporarily displacing some users from the Lost Slough Wetlands Walk to other trails farther from the construction area. However, due to the likely low use of the trail on weekdays (when construction would occur), visitor displacement from this trail to a different trail would be minimal. Therefore, temporary displacement of some users would not increase the use of other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Truitt Bark Park is a dog park that is adjacent to the proposed Midtown Station and improvements on 19th Street. Construction activities near the park may result in temporary visual setting degradation and increased noise at the park. The increased noise may adversely affect some visitors and therefore some park visitors may be displaced to other dog parks. The closest dog park is the 2.5-acre Sutter's Landing Park at 28th Street. Due to the large size of this dog park, there would be ample space for any displaced visitors from Truitt Bark Park. Given the existing noise in the area around the Truitt Bark Park from trains and traffic, it is not anticipated that a large number of visitors would be displaced from the Truitt Dog Park due to construction noise or changes in the visual setting. Therefore, any temporary displacement of use of Truitt Bark Park during construction of the project would not be anticipated to result in use of other existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

The Sacramento Northern Bike Trail crosses the northern part of the environmental footprint of the proposed Old North Sacramento station. Construction of the station may result in an increase in dust and noise on the trail. Due to trail users' brief presence in the construction area while on the trail and the vast mileage of trail unaffected by construction, construction-related noise and dust would not be expected to result in substantial displacement of trail use from this trail. However, construction activities could temporarily close the existing at-grade crossing for trail users, resulting in temporary displacement of trail use to other area trails, such as the nearby Jedediah Smith Memorial Trail. Implementation of Mitigation Measure REC-1.2 would ensure continued access to the trail on either side of the railroad during construction and thus reduce the likelihood of use being displaced from the trail.

The Walter S. Ueda Parkway, consisting of the levee, trails, and canal, is adjacent to the environmental footprint north of the proposed Old North Sacramento Station up to Main Avenue. The paved trail along the top of the levee is approximately 400 feet from the western edge of the environmental footprint. Therefore, access to the parkway trail and physical use of the trail itself would not be affected. However, construction-related noise and dust may reduce the quality of the recreation experience for trail users during construction hours, resulting in temporary displacement to other trails. Existing use of the parkway trail is unknown, but likely not so high that temporary displacement during construction of the project near the trail would result in use of

other existing parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Operation

Upon completion of construction, any potentially displaced users of the recreational facilities would be expected to return to their original recreation facility. As discussed in Section 3.13, *Population and Housing*, there is growth anticipated and planned along the project corridor. The presence of the stations and additional rail trips along the extended route would support current local and regional land use development plans and would not induce new unplanned growth along the project corridor or at station sites. Therefore, the proposed project would not lead to increased use of neighborhood and regional parks or other recreational facilities. Thus, operational impacts on recreational resources would be less than significant.

Mitigation Measures. The following mitigation measures would reduce interference with athletic activities at certain locations and maintain access to the Sacramento Northern Bike Trail. Implementation of Mitigation Measures REC-1.1 and REC-1.2 would reduce the project's potential construction-related impacts on recreational resources from displaced recreation use and the resulting increase in use of existing neighborhood and regional parks or other recreational facilities to a less than significant level.

REC-1.1: Coordinate with the officials with jurisdiction over potentially impacted recreational facilities during the construction phase to minimize impacts to organized athletic events/practices.

SJRRC shall coordinate with the officials with jurisdiction over Airport Park, Redwood Park, Johnston Park, and City College athletic facilities to minimize construction-related impacts to organized athletic events/practices at these facilities. Minimization could include advance notification of construction activities and potential rescheduling of construction and/or athletic events/practices at these facilities.

REC-1.2: Coordinate with the City of Sacramento to maintain access for the Sacramento Northern Bike Trail.

If construction activities require the temporary closure of the Sacramento Northern Bike Trail at-grade crossing near the proposed Old North Sacramento Station, SJRRC and/or the construction contractor shall provide a safe detour through or around the construction site to allow continued use of the trail on either side of the railroad. Efforts should be made to avoid long-term construction-related closure of the Sacramento Northern Bike Trail at-grade crossing. However, if this crossing needs to be closed temporarily during construction, a safe detour will be provided to ensure trail users' continued access to the bike trail on both sides of the railroad via other streets or a relocated railroad crossing and trail connection. Adequate advance notification of any construction-related temporary trail closures shall be posted at the trail site, including contact information and additional information about the closure(s). All construction activities potentially impacting the Sacramento Northern Bike Trail shall be coordinated with the City of Sacramento.

Impact REC-2: The proposed project would include a recreational facility but would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. (Less than Significant Impact).

Construction

The proposed project includes one new recreational facility, a bicycle/pedestrian path in Midtown Sacramento. The path would be constructed adjacent to and in the existing UPRR ROW from the proposed Midtown Station north to C Street. The construction of this new bicycling/pedestrian path would be beneficial to recreation because the proposed project would provide additional bicycling and walking facilities that connect the proposed Midtown Station to other popular areas in Sacramento, thus providing new recreation opportunities and access.

Operation

As discussed in Section 3.13, *Population and Housing*, growth is anticipated and planned along the project corridor. The presence of the new stations and additional passenger rail service along the project corridor would support existing local and regional land use development plans and would not induce new unplanned growth along the project corridor or at station sites. Therefore, the proposed project would not require the construction or expansion of recreational resources that might have an adverse physical effect on the environment beyond the bike/pedestrian path included as part of the proposed project. Thus, the impact of the proposed project would be less than significant.

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3.16 Transportation

3.16.1 Introduction

This section describes the regulatory and environmental settings for transportation in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on transportation that would result from implementation of the proposed project and mitigation measures that would reduce significant impacts, where feasible. Cumulative impacts related to transportation, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*. Additional consideration of transportation is presented in Section 3.15, *Recreation*, which describes impacts to pedestrian and bicycle trails.

During the public scoping comment period, the following comments relevant to transportation resources were received:

From the California Department of Transportation

- Request for a detailed multi-modal transportation impact analysis including: trip generation and distribution; a vehicle miles traveled (VMT) analysis; and a traffic operations analysis, including forecasts for 3 analysis years (i.e., existing, project completion year, and cumulative year), as well as a level of service (LOS) and queue analysis for intersections and for freeway interchange and junction facilities.
- Request for additional project description information regarding the proposed Lodi Station South Alternative, including the location of station facilities (e.g., track and platform, pedestrian bridge, parking, and bus bays) and roadway access to/from State Route (SR) 12.
- Request for coordination with local agencies to ensure adequate bus service and secure bike parking at proposed stations.
- Request for analysis of the project's effects on traffic operations on the State Highway System and for coordination with the California Department of Transportation (Caltrans) and submission of an encroachment permit application for any work on State-owned right-of-way (ROW).

From the California High-Speed Rail Authority

- Request for additional coordination with the California High-Speed Rail Authority to ensure project improvements support the State Rail Plan and consider future (Phase 2) high-speed rail (HSR) investments in the Merced–Sacramento corridor.

From the City of Sacramento Department of Public Works

- Request for analysis of intersection queuing in the vicinity of stations and of pedestrian and bicycle impacts.

- Request for analysis of station roadway access options at North Elk Grove Station, including recommendations for either a new signalized intersection along Cosumnes River Boulevard or a new south leg at the existing signalized intersection serving Sac RT's Franklin Station.¹
- Request for analysis of automobile delay during peak and off-peak periods at the Midtown Sacramento Station, under both opening day service and maximum planned service.
- Request for analysis of traffic signal warrants where proposed station access roadways interface with city streets.
- Request for conformance with City standards in the design and construction of project elements, including parking access and driveways and replacement or reconstruction of curb, gutter, and sidewalk fronting the property.
- Request for coordination with the Department of Public Works on repair of any street, sidewalk, or planter; modifications to existing traffic signals or installation of new traffic signals; abandonment of streets; and preparation of a traffic control plan for construction activities that may obstruct vehicular or pedestrian circulation on city streets.

From the City of Elk Grove

- Request for inclusion of Site W5 from the City's Multimodal Facility Feasibility Study (southwest corner of the intersection of Willard Parkway with a future extension of Kammerer Road) in the EIR as a future alternative for the North Elk Grove Station for the purposes of ROW preservation only.²
- Request that the design of North Elk Grove Station consider the Laguna Creek Trail, a planned Class I bikeway.^{3, 4}

From Reclamation District No. 1000

- Request for analysis of impacts due to increased traffic near East Levee Road, including the potential need for improvements and the accommodation of levee access for Reclamation District No. 1000 maintenance and repair activities.
- Request for analysis of impacts to the Walter S. Ueda Parkway as a result of the project.

From members of the public

- *Natomas/Sacramento Airport Station*: Concerns regarding increased traffic under any of the alternatives for the Natomas/Sacramento Airport Station during both construction and operation. Concerns regarding additional traffic along East Levee Road. Request for analysis of impacts due to project-related traffic along West Elkhorn Boulevard and at the

¹ Note that the North Elk Grove Station is no longer under consideration as part to the proposed project.

² Note that the North Elk Grove Station is no longer under consideration as part to the proposed project.

³ Note that the North Elk Grove Station is no longer under consideration as part to the proposed project.

⁴ Bikeways are classified as: Class I—off-street shared-use paths paved bikeways; Class II—a portion of roadway reserved for preferential or exclusive use for bicyclists, indicated by road markings (striping); or Class III—wide travel lanes shared by bicyclists and vehicles.

SR 99 interchange with West Elkhorn Boulevard, and concerns about the potential need for roadway widening along West Elkhorn Boulevard. Request for analysis of traffic circulation impacts in the event that the interim alternative for the Natomas/Sacramento Airport Station is constructed, but is not replaced by one of the “permanent” station alternatives. Request for analysis of future development projects that are not yet built. Request for analysis of impacts under the West Alternative due to the potential loss of (general and emergency) access for the school originally planned at this location, potential elimination of roadway connections between West Elkhorn Boulevard and Del Paso Road, and potential increase in commute trips to other schools (if the East Natomas Educational Complex is not built). Request for more information about station access outside of cars and airport shuttles (e.g., bus service).

- *Midtown Sacramento Station:* Request for analysis of impacts due to project-related traffic along Q Street at the Midtown Sacramento Station, including strategies to address increased traffic near residences, and for requirements that passenger drop-off / pick-up facilities be located on 19th Street, a commercial corridor. Concerns about public safety for passengers walking to transfer between Altamont Corridor Express (ACE) / Amtrak trains and Sacramento Regional Transit (SacRT) light rail trains.
- *North Elk Grove Station:* Request for consideration of a station in Franklin in lieu of the proposed North Elk Grove Station.⁵
- *Lodi Station:* Concerns about capacity and security of parking at the proposed Lodi Station.
- *Other:* Concerns about the overall feasibility and success of the proposed service in attracting commuters, including issues related to public safety, security, travel time, costs (fares), and convenience.

Comments have been addressed where appropriate in this section or in other sections, including Chapter 2, *Project Description*; Section 3.15, *Recreation*; and Chapter 4, *Other CEQA-Required Analysis*. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

It should be noted that several comments received during the comment period did not specifically address transportation resources or the California Environmental Quality Act (CEQA) Appendix G checklist, including (but not limited to) concerns about public security and fares, and recommendations regarding alternative sites for stations. As these comments do not relate to the environmental impacts of the proposed project, they are not discussed further in this section, but may be addressed separately outside of the environmental review process as part of detailed design and subsequent stages of the project.

Similarly, several comments raised issues that will be addressed in detailed design and ongoing coordination with relevant agencies, such as traffic control and queuing storage at intersections and the location of passenger drop-off/pick-up areas. Further response to these comments is not

⁵ Note that the North Elk Grove Station is no longer under consideration as part to the proposed project.

required as part of the environmental review process, but may be addressed in later stages of the project.

Several comments also addressed project alternatives that have since been removed from consideration, including alternatives for the Natomas/Sacramento Airport Station and the Natomas Maintenance and Layover Facility, and an alternative for an interim Natomas/Sacramento Airport Station. As these alternatives are no longer under consideration for the proposed project, these scoping comments are no longer applicable.

3.16.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to transportation and applicable to the proposed project.

In accordance with Senate Bill 743, the California Natural Resources Agency has adopted changes to the CEQA Guidelines that “promote the reduction of greenhouse gas (GHG) emissions, the development of multimodal transportation networks, and a diversity of land uses,” as described under Section 21099(b)(1) of the Public Resources Code. With these changes, VMT has been identified as the most appropriate metric for evaluating a project’s transportation impact, and automobile delay—as measured by LOS or similar metrics—generally no longer constitutes a significant environmental effect under CEQA (Governor’s Office of Planning and Research 2018). Therefore, components of the regulatory setting referring to automobile delay (e.g., level of service) are not applicable to the analysis of the project’s transportation impacts and are not discussed further in this section.⁶

3.16.2.1 Federal

The Federal Railroad Administration (FRA) is responsible for the development and enforcement of regulations governing the safety of freight and passenger rail systems, including the design, operations, and maintenance of railroads. Examples include issuing guidance on compliance with the Americans with Disabilities Act in the design of passenger station platforms and overseeing compliance with the Rail Safety Improvement Act of 2008 in the implementation of Positive Train Control systems. FRA also published a National Rail Plan in 2010 that describes a vision for a nationwide network of passenger and freight rail.

At (highway–rail) grade crossings, the design of traffic control devices for traffic, transit, bicycle, and pedestrian activity is addressed by the Federal Highway Administration, under the Manual on Uniform Traffic Control Devices (MUTCD). Caltrans issues a modified version of the MUTCD for use in California.

3.16.2.2 State

Caltrans is the state agency with primary oversight over state highway, bridge, and rail transportation planning, construction, maintenance, and operation. The 2018 California State Rail

⁶ Project consistency with programs, plans, ordinances, or policies addressing LOS or other similar metrics for automobile delay may be addressed separately through the planning review process. As described in Chapter 2, *Project Description*, it is anticipated that the proposed project would be subject to planning review during permit applications from applicable agencies such as Caltrans or local cities and counties.

Plan establishes a vision of an integrated statewide rail system through “more frequent service, and convenient transfers between rail services and transit” (Caltrans 2018). The goal of this integrated rail plan is to provide a faster, safer, reliable, and more convenient alternative to driving, mitigating traffic congestion, reducing vehicular emissions, and improving quality of life for Californians.

The 2014 edition of the California MUTCD addresses the design of traffic control devices for traffic, transit, bicycle, and pedestrian activity to promote “safer and efficient operation of both rail and highway traffic at highway–rail grade crossings” (Caltrans 2019).

3.16.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements in and outside of the Union Pacific Railroad (UPRR) ROW. The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.⁷ ICCTA broadly preempts state and local regulation of railroads and this preemption extends to the construction and operation of rail lines. As such, activities in the UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW; however, improvements would be subject to regional and local plans and regulations. Though ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that are outside of the UPRR ROW even though SJRRC has not determined that such permits are legally necessary and may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the CEQA Guidelines requires an environmental impact report (EIR) to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.⁸ The proposed project would be generally consistent with the applicable goals, policies, and objectives related to transportation resources identified in Appendix E.

3.16.3 Environmental Setting

This section describes the environmental setting related to transportation by geographic segment for the proposed project. For the purposes of this analysis, the study area for transportation extends beyond the environmental footprint of proposed improvements. The study area includes areas of indirect impacts; regional highways (e.g., SR 99, Interstate 5 [I-5]) and local streets; and other transit, roadway, bicycle, or pedestrian facilities, generally within 1 mile of proposed stations that could be affected by operation of the project or any of its alternatives or variants. As described

⁷ Altamont Corridor Express (ACE) and Amtrak operate in a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

⁸ An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

below, the project extends from Downtown Stockton to Natomas and is divided into three segments, with a total of seven existing and proposed stations.

3.16.3.1 Stockton to Lodi

The Stockton to Lodi segment is located in the northern central portion of San Joaquin County. The segment extends along the UPRR Fresno Subdivision from the Stockton Downtown/ACE Station to the junction with the UPRR Sacramento Subdivision, where it continues along the Sacramento Subdivision to West Turner Road in Lodi. It includes the existing Stockton Downtown/ACE Station and the following proposed components:

- Hammer Lane Siding Upgrade
- Track Curve Reconstruction between East March Lane and East Swain Road
- Lodi Siding Variants
- Lodi Station
- Lodi Station South Alternative

Public Transit

Existing public transportation in Stockton and Lodi is primarily provided by the San Joaquin Regional Transportation District (RTD) and Grapeline.

The Stockton/Downtown ACE Station is located on the eastern periphery of downtown Stockton. Connecting transit service at the station is provided by RTD, which operates a network of local and regional bus routes serving Stockton and surrounding communities in San Joaquin County. The station is served by Route 44 directly (operating along North Aurora Street, with a stop at Channel Street), as well as by many other routes operating on other nearby streets, including East Miner Avenue, East Weber Avenue, and North Stanislaus Street.

RTD operates three routes paralleling the project corridor between Stockton and Lodi:

- “Intercity” Route 23: Seven northbound trips and eight southbound trips every weekday.
- “County Hopper” Route 93: Nine northbound trips and seven southbound trips every weekday.
- “Commuter” Route 123: Three roundtrips each during the morning and afternoon/evening commute periods every weekday.

In Lodi, the City of Lodi operates Grapeline, a network of local bus routes providing service seven days a week. Grapeline operates five regular routes on weekdays and four regular routes on weekends, with a supplementary network of three express routes on weekdays primarily serving local schools. The proposed Lodi Station or Lodi Station South Alternative alternatives would be in rural areas outside of Lodi city limits where there is currently no transit service.

In addition to RTD and Grapeline, Amtrak also provides limited service between Stockton and Lodi as part of its San Joaquin intercity rail service, consisting of four southbound trips and six northbound trips daily via a mix of Amtrak San Joaquins’ trains and connecting Thruway buses.

The Thruway buses operate between Stockton and Sacramento and connect with Amtrak San Joaquins' trains heading to or from the San Francisco Bay Area.

Station Facilities and Access

Stockton Downtown Station

Bicycle and pedestrian access to and from the station is provided by Channel Street and North Aurora Street, which connect directly with East Weber Avenue and East Miner Avenue. There are no designated bikeways serving the station, and bicyclists must share road space with other traffic using existing streets. Most surrounding streets provide sidewalks on both sides, with the exception of North Sacramento Street, which forms the north side of the station's internal roadway loop east of North Aurora Street. Marked crosswalks are provided at only some locations, and usually only across the minor (side) street. Special brick paving and corner bulb-outs are provided at the station "gateway" intersection where Channel Street terminates at the station. Additional corner bulb-outs are provided at intersections along East Weber Avenue, starting at Channel Street and continuing to the west, as well as along North Aurora Street at North Sacramento Street and Channel Street.

The station currently provides a total of approximately 29 parking spaces across two separate surface lots (one along the east side of Channel Street between East Weber Avenue and the station gateway intersection and another along North Sacramento Street at the southeast corner of the North Aurora Street/East Miner Avenue intersection). Lockers are provided for bicycle parking/storage.

Lodi Station

The proposed Lodi Station would be constructed along the south side of SR 12 just east of the existing UPRR alignment. Access to the station would be provided from SR 12 and North Devries Road. As the site is rural in nature, there are no dedicated bikeways or pedestrian facilities (sidewalks and marked crosswalks) serving the site, and bicyclists and pedestrians must share road space with other traffic using existing streets. However, the project would construct access improvements along SR 12 including a new signalized station access driveway with striping for left- and right-turn lanes. The station would also include a surface parking lot providing approximately 280 parking spaces and three bus bays. Access to and from the station platform would be provided by a pedestrian undercrossing with ramps and stairs near the center of the platform (connecting with the parking lot and bus bays) and a separate, at-grade crossing at the north end (connecting with the parking lot and the south side of SR 12).

The Lodi Station South Alternative would be constructed along the north side of West Harney Lane just east of the UPRR alignment. Access to the station would be provided from along West Harney Lane and North Devries Road. Similar to the Lodi Station, there are no dedicated bikeways or pedestrian facilities serving the site due to its rural nature; bicyclists and pedestrians must share road space with other traffic using existing streets. The station would include a surface parking lot providing approximately 240 parking spaces and three bus bays. Access to and from the station platform would be provided by a pedestrian undercrossing with ramps and stairs near the center of the platform (connecting with the parking lot and bus bays) and a separate, at-grade

crossing at the north end (connecting with both the parking lot and the east side of North Devries Road).

3.16.3.2 Lodi to Elk Grove

The Lodi to Elk Grove segment traverses the northern portion of San Joaquin County and central portion of Sacramento County. The segment extends from Turner Road to just north of Cosumnes River Boulevard ~~north of the proposed North Elk Grove Station (including all access and platform variants)~~ along the existing UPRR Sacramento Subdivision. It includes the following project components:

- Thornton Siding Upgrade/Extension
- Track Curve Reconstruction north of North New Hope Road
- Track Curve Reconstruction south of Desmond Road
- Phillips Siding Upgrade/Extension
- ~~Elk Grove Siding Variant~~
- ~~North Elk Grove Station (including all access and platform variants)~~

Public Transit

Transit service in Lodi is provided by RTD and Grapeline as described above for the Stockton to Lodi segment. Under either alternative, the proposed Lodi Station would be in a rural area outside of Lodi city limits where there is currently no transit service.

Transit service in Elk Grove is provided by eTran, which operates a network of local bus routes providing service six days a week (weekdays and Saturdays). eTran operates seven regular routes on weekdays and four regular routes on Saturdays, with a supplementary network of 10 commuter routes during peak periods (most routes serve riders commuting to Sacramento).

South County Link also provides transit service for Galt and other communities in southern Sacramento County with a network of three regional bus routes operating on weekdays. The Highway 99 Express operates hourly service with stops in Lodi, Galt, Elk Grove, and south Sacramento (Cosumnes River College and the Kaiser Permanente South Sacramento Medical Center). The Sacramento Commuter Express connects Galt with Midtown and Downtown Sacramento via five daily roundtrips (two trips each in the morning and afternoon commute periods and one trip in the mid-day period). A separate Delta route operates five daily roundtrips connecting Galt with communities to the west (e.g., Locke, Walnut Grove, Ryde, and Isleton).

In addition to South County Link, Amtrak provides limited service between Lodi and Elk Grove via Amtrak San Joaquin Thruway buses operating between Stockton and Sacramento. Four northbound trips and five southbound trips stop daily in Elk Grove; two northbound trips and three southbound trips also stop in Lodi.

Station Facilities and Access

North Elk Grove Station

The North Elk Grove Station would be constructed just south of the Cosumnes River Boulevard/Morrison Creek viaduct approximately ¾-mile west of the existing SacRT Franklin light rail transit (LRT) station, in unincorporated Sacramento County just outside Sacramento city limits and northwest of Elk Grove. Bicycle and pedestrian access in the vicinity of the proposed station site is currently provided by Cosumnes River Boulevard, which has Class II bikeways (bike lanes) in both directions and a wide sidewalk along the north side of the street. Under both Platform Variant 1 and Platform Variant 2, direct access to the station would be provided by a frontage road to be constructed just south of Cosumnes River Boulevard.

- Under Access Variant 1, the frontage road would tie into Cosumnes River Boulevard at a new signalized intersection approximately midway between the UPRR alignment and the existing signalized intersection serving SacRT's Franklin Station.
- Under Access Variant 2, the frontage road would tie into Cosumnes River Boulevard as a new south leg at the existing signalized intersection serving SacRT's Franklin Station.

The station would include a surface parking lot providing approximately 700 parking spaces and three bus bays. Access to and from the station platform would be provided by a pedestrian overcrossing with stairs and an elevator, connecting with the parking lot and bus bays.

3.16.3.3 Elk Grove to Natomas

The Elk Grove to Natomas segment extends from Cosumnes River Boulevard just north of the North Elk Grove Station to Natomas. Proposed improvements include City College Station; Midtown Sacramento Station; Old North Sacramento Station; the Natomas/Sacramento Airport Station; upgrades to the Pollock Siding (between Meadowview Road and Florin Road) and the South Sacramento Siding (in the vicinity of Sacramento City College) in Sacramento; upgrades to and extension of the Del Paso Siding (between Del Paso Boulevard and just north of Barros Drive in North Sacramento); and new crossover track just south of the proposed City College Station and north of 26th Avenue.

Public Transit

Transit service in Elk Grove is provided primarily by eTran, with some supplementary service by South County Link, as described above for the Lodi to Elk Grove segment.

In the city of Sacramento, transit service is primarily provided by SacRT, which operates a network of bus and light rail lines serving the city and surrounding communities, including Citrus Heights, Arden-Arcade, Rancho Cordova, and Folsom. Transit service at each of the proposed stations is summarized below:

- City College Station: SacRT Blue Line LRT (City College Station) and Route 11 (Natomas / Land Park) bus.
- Midtown Sacramento Station: SacRT Route 62 (Freeport) bus, with nearest stops along 19th Street at Q Street farside (southbound) and along 21st Street at Q Street farside

(northbound); SacRT Route 109 (Hazel Express) and eTran commuter route (Routes 10, 11, 12, 13, 14, 15, 16, 17, and 18) buses, with nearest stops located along P Street at 20th Street farside (westbound) and along Q Street at 19th Street farside (eastbound).

- Old North Sacramento Station: SacRT Blue Line LRT (Globe Station), located along Del Paso Boulevard at Globe Avenue/Acoma Street; SacRT Route 13 (Natomas/Arden) bus, with nearest stops along Arden Way at Colfax Street; SacRT Route 88 (West El Camino) bus, with nearest stops along Grove Street at El Monte Avenue or El Camino Avenue at Colfax Street (inbound to Downtown Sacramento) and along Arden Way at Colfax Street (outbound to Arden/Del Paso Station). Additional SacRT bus service is available at Arden/Del Paso Station, located along Arden Way at Del Paso Boulevard.
- Natomas/Sacramento Airport Station: Existing transit service for the station is limited. North Natomas Jibe operates a small network of four Jibe Express buses providing peak-period, commute direction only service for North Natomas residents working in Downtown Sacramento, including an Eastside route (Route 170) looping through the Village 12 and Natomas Park neighborhoods. SacRT also operates Route 11 (Natomas/Land Park), Route 13 (Natomas/Arden), and Route 113 (North Market Commuter) buses serving the larger North Natomas area and Route 19 (Rio Linda) serving Rio Linda, but the closest stops on these routes are over a mile from the proposed station site. Public transit service at Sacramento International Airport is provided by Yolobus, which operates Route 42A/42B, an intercity loop providing hourly service connecting the airport with Downtown Sacramento, West Sacramento, Davis, and Woodland.

Station Facilities and Access

City College Station

The City College Station would be constructed adjacent to the existing City College Station on SacRT's Blue Line, allowing for platform-to-platform transfers to and from LRT trains. Bicycle and pedestrian access in the vicinity of the proposed station site is primarily provided by the existing street network, including 24th Street, which connects directly to the LRT station. However, most of the surrounding streets do not provide dedicated bikeways, and bicyclists must generally share roadspace with other traffic, although there are short, discontinuous segments of Class II bikeways along several streets such as Sutterville Road and Sacramento City College's main access road from Sutterville Road (north of Sutterville Bypass). East of the station, continuous Class II bikeways area provided along Crocker Drive.

Sidewalks are provided along both sides of most streets in the surrounding area, but may be missing in some sections (e.g., west side of 10th Avenue, west side of 24th Street). ~~Marked~~ eCrosswalks may be unmarked ~~also be missing~~ in some locations (e.g., west leg of the Sutterville Road/10th Avenue intersection). A footbridge traverses the UPRR ROW at 10th Avenue, providing a direct bicycle and pedestrian connection between Sacramento City College, the LRT station, and areas east of the station. Additional bicycle and pedestrian access is provided by a pedestrian path along 24th Street that connects into the north sidewalk of the Sutterville Road overpass over the UPRR ROW, as well as by a network of internal paseos and paths through the Sacramento City College campus.

The LRT station is currently served by a small roadway loop that provides three sawtooth bus bays. No expansion of existing parking or bus facilities is included as part of the proposed City College Station.

Midtown Sacramento Station

The Midtown Sacramento Station would be constructed near Q Street between 19th Street and 20th Street in Sacramento. Bicycle and pedestrian access in the vicinity of the proposed station site is provided primarily by the existing street network. Class II bikeways are provided along 19th Street (southbound only), 20th Street, 21st Street (northbound only), P Street (westbound only), and Q Street (eastbound only). Sidewalks are generally provided along both sides of the street along streets surrounding the station, and most adjacent and nearby intersections have marked crosswalks across all legs, with some exceptions (e.g., west leg at Q Street/20th Street).

No new parking or bus facilities would be constructed as part of the proposed Midtown Sacramento Station, but direct pedestrian access to/from the station platforms would be provided along the south side of P Street and both sides of Q Street, as well as along the east side of 19th Street via an enhanced bicycle and pedestrian connection and plaza beneath the SacRT Gold Line LRT guideway. In addition, the project would include the construction of a bicycle/pedestrian path in the UPRR ROW from the station north to C Street, with pedestrian crossings and active warning devices at cross streets (D Street, E Street, F Street, G Street, H Street, I Street, J Street, K Street, L Street, Capitol Avenue, N Street, O Street, and P Street). The project would also include enhancements to the pedestrian crossing at Q Street with active warning devices.

Old North Sacramento Station

The Old North Sacramento Station would be constructed along the west side of Acoma Street just north of El Monte Avenue in Sacramento. Bicycle access in the vicinity of the proposed station site is provided primarily by Class II bikeways along the Arden Garden Connector/Arden Way and a network of Class I bikeways (recreational shared-use paths,) including the Sacramento Northern Parkway (along the former Sacramento Northern Railway ROW), the American River Parkway/Jedediah Smith Memorial Trail (along the American River), and the Walter S. Ueda Parkway (along Steelhead Creek). Sidewalks are provided along both sides of the Arden Garden Connector/Arden Way, but are missing in many locations along local streets closer to the station (e.g., Acoma Street, Colfax Street) because of the largely industrial nature of the area. Marked crosswalks are generally provided across all roads at major signalized intersections, but may be unmarked missing at some locations (e.g., west leg at Arden Way/Colfax Street). Crosswalks are generally unmarked at other locations, including intersections closer to the station.

Direct access to the station would be provided from two new driveways along Acoma Street, and the station would include a surface parking lot with approximately 250 parking spaces and three bus bays. Access to and from the station platform would be provided by a pedestrian undercrossing and ramps near the center of the southern half of the platform (connecting with the parking lot and bus bays) and a separate, at-grade walkway at the north end of the platform via modifications to the existing Sacramento Northern Parkway (connecting with the parking lot).

Natomas/Sacramento Airport Station

The Natomas/Sacramento Airport Station would be constructed along the east side of Blacktop Road just south of West Elkhorn Boulevard. Access to and from the station would be provided via Blacktop Road. Dedicated bikeways and pedestrian facilities (sidewalks and marked crosswalks) are limited due to the rural/industrial nature of the site. However, some discontinuous segments of sidewalk are provided along portions of Blacktop Road and the south side of West Elkhorn Boulevard. The station would include a surface parking lot providing approximately 250 parking spaces and three bus bays, with shuttle services to and from Sacramento International Airport timed to meet all arriving and departing trains. As the station would include layover tracks south of the platform, a maintenance access road would also be constructed along the west edge of the UPRR ROW, tying into the southeast corner of the parking lot.

3.16.4 Environmental Analysis

This section describes the proposed project's environmental impacts related to transportation. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate significant impacts are provided, where appropriate.

Estimated daily ridership in 2025 at each of the proposed stations is shown in Table 3.16-1. The values presented in Table 3.16-1 represent the sum of boardings and alightings, such that the actual number of unique riders (i.e., individuals) would be half what is shown in most cases, (assuming each passenger passes through the station twice on a given day). The ridership would be spread across five roundtrips for ACE trains and two roundtrips for Amtrak San Joaquins trains.

Table 3.16-1. Ridership Forecasts (2025 Build)

| Station | Daily Ridership (passengers) | | |
|----------------------------|------------------------------|--------------|-------|
| | ACE | San Joaquins | Total |
| Natomas/Sacramento Airport | 810 | 180 | 990 |
| Old North Sacramento | 750 | 270 | 1,020 |
| Midtown Sacramento | 1,450 | 580 | 2,030 |
| City College | 980 | 200 | 1,180 |
| Elk Grove | 960 | 290 | 1,250 |
| Lodi | 200 | 140 | 340 |

Sources: AECOM 2018a, 2018b.

Ridership reflects the sum of boardings and alightings at each station, and is derived from annual ridership forecasts based on approximately 250 days of service for ACE and 365 days of service (with average daily ridership on weekends and holidays assumed to be approximately two-thirds, or 67 percent, of average weekday ridership) for the San Joaquins.

Actual location of a station in Elk Grove to be determined at a later date.

As none of the proposed stations would be permanently staffed, employee trip activity to/from stations is expected to be minimal, and would primarily consist of occasional routine activities such as cleaning and maintenance.

3.16.4.1 Thresholds of Significance

The State CEQA Guidelines Appendix G (14 Cal. Code Regs. 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on transportation resources. The project would result in a significant impact on transportation if it would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

3.16.4.2 Impacts and Mitigation Measures

Impact TRA-1: The proposed project could conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. However, implementation of mitigation measures TRA-1.1, TRA-1.2, and TRA-1.3 would reduce these potentially significant construction-related project impacts to a less than significant level (Less than Significant Impact with Mitigation).

The proposed project, including all project alternatives and variants, would generally enhance the overall circulation system by expanding regional and intercity rail service between Sacramento County and San Joaquin County via a new alignment along the UPRR Sacramento Subdivision. ~~Six~~ Five new stations—Lodi Station, ~~North Elk Grove Station~~, City College Station, Midtown Sacramento Station, Old North Sacramento Station, and Natomas/Sacramento Airport Station—would expand the reach and connectivity of the passenger rail network, including both the ACE and Amtrak’s San Joaquins service.

In particular, the expansion of existing ACE service (along the Stockton–Tracy–Tri-Valley–South Bay corridor) north into northern San Joaquin County and the Sacramento metropolitan area would capture new regional and intercity ridership in markets that are currently not served (or not well-served) by public transit. The extension of Amtrak San Joaquins service into northern Sacramento would provide an improved public transit option for residents commuting from Natomas and surrounding communities, provide an additional public transit option to/from Sacramento International Airport, and expand the catchment of intercity rail service connecting the Sacramento area with the San Joaquin Valley and Southern California.

Most of the proposed stations would include bus bays for connecting bus services, as well as new access roads and/or improvements to adjacent roadway segments, intersections, and bicycle/pedestrian facilities as needed to provide adequate multi-modal access to and from the station. The proposed project also includes a shuttle service connecting the Natomas/Sacramento Airport Station with the Sacramento Airport, with timed connections to all arriving and departing trains.

As discussed under Impact TRA-3, design, construction, and operation of the proposed project would also comply with applicable standards from Caltrans and local city and county agencies (for changes to the roadway network, including freeways, local streets, and grade crossings) and from FRA and/or California Public Utilities Commission (CPUC) (for the project's rail elements).⁹ Design approval for specific project components would be sought from the appropriate agencies as part of detailed design and subsequent stages of the proposed project.⁴⁰

Detailed discussion of potential impacts to specific components of the circulation system is provided below.

Impacts to Transit

Analysis of a project's transportation impacts should consider effects on transit access or operations, but the addition of new transit users is generally not considered an adverse impact, as significance criteria for evaluating a project's transportation impacts must promote GHG emissions reductions and the "development of multimodal transportation networks," as described above. However, increased ridership could result in indirect significant impacts if demand requires new or additional transit infrastructure. (Governor's Office of Planning and Research 2018).

As discussed under Impact TRA-3, the overall increase in train traffic would be marginal, consisting of up to two daily Amtrak San Joaquins roundtrips and up to five daily ACE roundtrips. While City College Station would be the primary transfer connection with the SacRT light rail network, it is likely that at least some passengers changing to/from the Gold Line would prefer to transfer at the Midtown Sacramento Station (via the Gold Line's 23rd Street Station). Given these considerations, it is unlikely that new or additional transit infrastructure would be required beyond what is already proposed by the project. In particular, the proposed project includes a 15-foot-wide, 1,000-foot-long at-grade passenger platform, with an additional 8-foot-wide, 300-foot-long back-side extension for general platform access and for transfers to/from SacRT light rail. Therefore, there would be sufficient queuing and circulation areas to accommodate new ridership and transfer activity generated by the proposed project.

SJJPA and SJRRC will coordinate with SacRT during subsequent stages of the project to ensure that construction and operation of relevant project elements adjacent to SacRT light rail facilities and ROW—such as the back-side platform extension at City College Station—satisfy SacRT design guidelines and specifications and minimize disruptions to light rail operations. Outside of the shuttle service proposed by the project at Natomas/Sacramento Airport Station, SJJPA and SJRRC would also coordinate with SacRT and other local transit agencies to ensure that adequate connecting transit service is provided at stations.

⁹ Conformance with applicable standards may require additional analysis of the project outside of the environmental review process as part of detailed design and coordination with appropriate agencies. In the case of access improvements and modifications to roadways, for example, this may involve analysis of intersection queuing, traffic signal warrants, and other issues related to traffic operations.

⁴⁰ ~~Where variants or alternatives are proposed for specific project components (e.g., North Elk Grove Station platform and access variants), subsequent detailed design and coordination with appropriate agencies would inform the selection of a preferred alternative for eventual construction and operation.~~

Overall, the proposed project would be consistent with the vision of applicable programs, plans, ordinances, and policies such as the 2018 California State Rail Plan. Improvements would support potential future additional investment in California's intercity rail network, such as HSR.

Impacts to Bicycle and Pedestrian Facilities

Access improvements under the proposed project would enhance bicycle and pedestrian safety and access and encourage activate transportation, through construction of new bicycle/pedestrian facilities (e.g., sidewalks, signalized crossings, bicycle/pedestrian paths) and upgrades to existing bicycle/pedestrian facilities. Proposed improvements would be designed to integrate with and enhance existing bicycle and pedestrian connections, and would not negatively affect the safety or quality of these existing facilities. Integration with future planned facilities such as the Laguna Creek Trail would be addressed during detailed design and subsequent stages of the project. The proposed project would also include new or expanded bicycle parking/storage at stations to improve multi-modal access.

Given the estimated ridership summarized in Table 3.16-1, existing bicycle and pedestrian facilities, in combination with the proposed project, would be more than sufficient to safely accommodate bicycle and pedestrian activity at stations.

Impacts Related to VMT

As discussed in more detail under Impact TRA-2, the proposed project would reduce VMT and associated GHG emissions by inducing a mode shift from automobiles to environmentally sustainable public transit, particularly for long-distance commute and intercity trips between Sacramento, San Joaquin County, and beyond.

Impacts to Roadways

The proposed project would likely result in increased traffic levels in the vicinity of station sites, but this would be balanced by reduced traffic levels along roadway routes running parallel to the project alignment. As mentioned above, the proposed project would reduce VMT by inducing a mode shift from automobiles to public transit, which would decrease traffic congestion along parallel roadways such as I-5 and SR 99, benefitting traffic operations and goods movement along these corridors.

No major road closures or detours are anticipated during construction. There may be temporary roadway closures (e.g., overnight or weekend) to accommodate specific activities such as construction of new track at-grade crossings, but these closures would be coordinated with local agencies to minimize disruptions to the circulation system.

Impacts to Freight Rail

The project could result in significant indirect impacts related to air quality, noise, or GHG emissions if project construction or operation disrupts existing freight rail operations such that freight traffic is diverted to other modes (e.g., trucks). However, construction and operation of the project in the ROW owned by UPRR would comply with relevant UPRR guidelines and requirements. Substantial disruptions to freight rail operations are unlikely given the minimal existing and expected future freight train activity along the Sacramento Subdivision. In particular,

a key intention of expanding passenger rail service on the Sacramento Subdivision is to minimize the potential for increased conflicts between freight and passenger trains on the existing Amtrak San Joaquins route along the UPRR Fresno Subdivision, which is more heavily used by freight traffic. Nevertheless, some temporary and minor disruptions could still occur during project construction, such as nighttime track closures/shutdowns, slow zones, and other effects.

Regular coordination meetings between SJJPA/SJRRC and UPRR would take place throughout the entire design and construction stages of the project, and would address construction-related effects on existing freight operations, such as scheduling of construction activities in the ROW. Servicing of local freight customers by UPRR would be given priority, and a memorandum of understanding (MOU) would be in place between SJJPA/SJRRC and UPRR to address project construction activity. The MOU would also include operating protocols, track-sharing arrangements, and other provisions. Rail elements of the proposed project, such as reconstruction of track curves to allow for higher speeds, replacement of existing track, and new or expanded sidings, would also generally benefit freight rail operations and safety.

Conclusion

Given the above considerations, project improvements would generally conform to and support—and not conflict with—programs, plans, ordinances, and policies addressing the circulation system, and the associated impacts of operation of the proposed project related to the regulatory setting would be less than significant. However, in recognition of potential disruptions to the circulation system during construction of the proposed project, the associated impacts of construction have been conservatively deemed potentially significant.

Mitigation Measures: The following mitigation measures would require development of a transportation management plan, a freight rail disruption control plan, and a light rail disruption control plan for project construction to minimize construction-related impacts to transit, roadway, bicycle, and pedestrian facilities and to freight rail and light rail operations. Implementation of mitigation measures TRA-1.1, TRA-1.2, and TRA-1.3 would reduce these potentially significant construction-related project impacts to a less-than-significant level.

TRA-1.1: Transportation Management Plan for project construction.

The San Joaquin Joint Powers Authority (SJJPA) and the San Joaquin Regional Rail Commission (SJRRC) will coordinate with Caltrans and with public works and transportation departments of local jurisdictions to develop a transportation management plan that will mitigate construction impacts to transit, roadway, bicycle, and pedestrian facilities, while allowing for expeditious completion of construction. Measures that will be implemented throughout the course of project construction will include, but not be limited to, the following:

- Limit number of simultaneous street closures and consequent detours of transit and automobile traffic in each immediate vicinity, with closure timeframe limited as much as feasible for each closure, unless alternative routes are available.
- Implement traffic control measures to minimize traffic conflicts for all roadway users (regardless of mode) where lane closures and restricted travel speeds will be required for longer periods.

- Provide advance notice of all construction-related street closures, durations, and detours to local jurisdictions, emergency service providers, and motorists.
- Provide safety measures for motorists, transit vehicles, cyclists, and pedestrians to ensure safe travel through construction zones.
- Limit sidewalk (and pedestrian walkway/path) and bikeway closures to one location in each vicinity at a time, with closure timeframe limited as much as feasible for each closure, unless alternative routes are available.
- Provide designated areas for construction worker parking wherever feasible to minimize use of parking in residential or business areas.

TRA-1.2: Freight rail disruption control plan for project construction.

SJJPA and SJRRC will make efforts to contain and minimize disruption to freight services during project construction, while allowing for expeditious completion of construction. Measures that will be implemented throughout the course of project construction will include, but will not be limited to, the following:

- Limit number of simultaneous track closures in each immediate vicinity, with closure timeframe limited as much as feasible for each closure, unless bypass tracks or alternative routes are available.
- Provide safety measures for freight rail operations through construction zones.
- Require contractors to coordinate with rail dispatch to minimize disruption of rail service in the corridor.
- Where feasible, maintain acceptable service access for freight operations.
- Where one open track cannot be maintained for freight use, limit multi-track closures to one location at a time, as much as feasible.
- Where multi-track closures result in temporary suspension of freight rail service, work with UPRR and freight users to schedule alternative freight service timing to minimize disruption to freight customers. Where such closures will result in substantial diversion to trucks, SJJPA and SJRRC or their construction contractor(s) will coordinate with local jurisdictions and freight carriers to determine preferred truck routes to minimize the effect on the circulation system.
- Provide advance notice of construction-related track closures to all affected parties.
- Coordinate with UPRR in advance and during any potential disruption to freight operations and/or UPRR facilities, and maintain emergency access for UPRR for the duration of construction.

TRA-1.3: Light rail disruption control plan for project construction.

SJJPA and SJRRC will make efforts to contain and minimize disruption to SacRT light rail service during project construction, while allowing for expeditious completion of

construction. Measures that will be implemented throughout the course of project construction will include, but will not be limited to, the following:

- Provide safety measures for LRT operation through construction zones.
- Require contractors to coordinate with SacRT dispatch to minimize disruption of LRT service.
- Where feasible, limit closure of any tracks for construction activities to periods when LRT service is not scheduled or is less frequent (e.g., weekends or weekday evenings).
- Where feasible, maintain acceptable service access for LRT operations.
- Where track closures result in temporary suspension or substantial disruption to LRT service, work with SacRT to provide alternative transit service around the closure area (e.g., increased bus and shuttle service).
- Provide advance notice to transit riders of any temporary suspension of or substantial disruption to LRT service.
- Coordinate with SacRT in advance and during any potential disruption to LRT operations and/or LRT facilities, and maintain emergency access for SacRT for the duration of construction.

Impact TRA-2: Proposed improvements would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) (Less -than significant Impact).

CEQA Guidelines section 15064.3, subdivision (b) specifies applicable criteria for analyzing transportation impacts. Specifically, it states the following:

- Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements.

The proposed project is a transportation project (specifically a transit project), and would reduce VMT by inducing a mode shift from personal (household) automobiles to public transit, including for long-distance commute and intercity trips between Sacramento and the San Joaquin Valley. Based on forecasted ridership between each station pair on the route, the proposed project is expected to result in an annual VMT reduction of approximately 65,204,100 vehicle miles in 2025, including approximately 29,400,000 vehicle miles due to Amtrak San Joaquins service improvements and 35,804,100 vehicle miles due to ACE service improvements.

Therefore, the proposed project would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), and this impact would be less than significant; no mitigation is required.

Impact TRA-3: The proposed project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment) (Less than Significant Impact).

The proposed project (including all proposed variants and alternatives) would involve construction and operation of new and expanded passenger rail service, including replacement of or upgrades to existing track and sidings, construction and operation of new track and sidings, and construction and operation of new passenger stations and ancillary facilities. Proposed improvements would largely be in or adjacent to an existing active rail ROW (the UPRR's Sacramento Subdivision) currently in use by freight trains. While the proposed project would introduce new passenger service along existing UPRR ROW, the overall increase in train traffic would be marginal, consisting of up to two daily Amtrak San Joaquins roundtrips and up to five daily ACE roundtrips.

Where warranted, such as at the Midtown Sacramento Station, the proposed project specifically includes upgrades to existing grade crossings to facilitate train operation, including controlling train and crossing street traffic (including transit, traffic, bicycle, and pedestrian activity) and controlling passenger and freight trains on tracks shared with freight trains. Design, construction, and operation of the proposed project, including track improvements, stations, and other components, would comply with applicable standards from FRA and/or CPUC. Similarly, design, construction, and operation of project access improvements, including new roadways or modifications to existing roadways, would adhere to applicable standards, such as the California MUTCD and local (city and county) design guidelines and specifications.

Design approval for specific project components would be sought from the appropriate agencies as part of detailed design and subsequent stages of the proposed project.

Given these considerations, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses, and this impact would be less than significant; no mitigation is required.

Impact TRA-4: The proposed project would not result in inadequate emergency access (Less than Significant Impact).

The existing roadway network in the study area enables emergency vehicle response. Emergency vehicles often identify and use multiple routes dependent on time of day and traffic conditions. Peak period traffic congestion generally does not cause obstructions for emergency vehicles, which have the right-of-way and often use multi-lane major arterials for access. Emergency vehicles also are permitted to use transit-only lanes or other vehicle-restricted lanes, if necessary.

Near proposed stations, the proposed project would construct new (or modify existing) driveways and intersections to provide vehicle, bicycle, and pedestrian access, and may redistribute and/or increase vehicle, bicycle, and pedestrian activity. These changes may cause some minor effects on emergency vehicle response in some situations; however, emergency vehicles would not be subject to traffic control devices such as stop signs or traffic signals and would be able to bypass other vehicles, which would be required to yield right-of-way per California Vehicle Code section 21806.

At existing at-grade crossings, there may be an occasional increase in response times for some emergency vehicles due to the greater frequency of gate-down events with the project, likely on the order of approximately 1 minute per event for each such instance. However, as discussed under Impact TRA-3, the overall increase in train traffic would be marginal, consisting of up to two daily Amtrak San Joaquins roundtrips and up to five daily ACE roundtrips. In this case, increased response times for emergency vehicles would only occur in instances where emergency vehicles are approaching an at-grade crossing at the same time that a train is occupying or in the vicinity of the crossing.

Furthermore, emergency vehicle response times are a function of travel along the entire route between their origin and destination (e.g., police or fire station to incident location, incident location to medical center). As described under Impact TRA-2, the proposed project would result in a reduction in annual VMT, which would correspond to a general reduction in overall traffic congestion on the roadway network. This broad-based congestion improvement would offset at least some of the localized effects at individual station sites or grade crossings.

As discussed under Impact TRA-3, design, construction, and operation of project elements would comply with applicable standards from Caltrans and local city and county agencies (for changes to the roadway network, including freeways, local streets, and grade crossings) and from FRA and/or CPUC (for the project's rail elements), including provisions for emergency access. As discussed under Impact TRA-1, any temporary roadway closures would be coordinated with local agencies to minimize any disruptions to the circulation system, including to emergency vehicle response.

Therefore, the proposed project would not result in inadequate emergency access. This impact would be less than significant; no mitigation is required.

3.17 Tribal Cultural Resources

3.17.1 Introduction

This section provides an assessment of potential impacts to tribal cultural resources that could result from implementation of the Valley Rail Sacramento Extension Project (proposed project). The analysis in this section is based on the results of a cultural resources technical document prepared by AECOM (2020) (see Appendix D, *Supporting Cultural Resources Information*, and consultation with California Native American Tribes conducted by the San Joaquin Regional Rail Commission (SJRRRC), as required by the California Environmental Quality Act (CEQA), amended by Assembly Bill (AB) 52.

Tribal cultural resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources (CRHR) or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant. A cultural landscape that meets these criteria is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. Historical resources, unique archaeological resources, or non-unique archaeological resources may also be tribal cultural resources if they meet these criteria.

During the public scoping comment period, the following comments relevant to cultural resources were received:

- Consult with California Native American tribes that are traditionally and culturally affiliated with the project area to avoid inadvertent discoveries of Native American human remains.
- Perform an archaeological records search with the California Historical Research Information System.
- Perform a Sacred Lands File search.
- Include provisions for identification and evaluation of inadvertently discovered archaeological resources, disposition of recovered cultural items that are not burial associated, and treatment and disposition of inadvertently discovered Native American human remains.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.17.2 Regulatory Setting

3.17.2.1 Federal

Activities requiring decisions and or approvals from federal agencies would trigger compliance with the following federal laws, which are described in detail in Section 3.5, *Cultural Resources*:

- National Historic Preservation Act, Section 106

- American Indian Religious Freedom Act
- Native American Graves Protection and Repatriation Act
- Archaeological Resources Protection Act

3.17.2.2 State

California Environmental Quality Act

CEQA states that if implementation of a project would result in significant effects on historical and unique archaeological resources, then alternative plans or mitigation measures must be considered. Under CEQA these resources are called “historical resources” whether they are of historic or prehistoric age. According to Public Resources Code (PRC) 5020.1(j), a “historical resource” includes: 1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR (PRC Section 5024.1); 2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and 3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency’s determination is supported by substantial evidence in light of the whole record (14 California Code of Regulations [CCR] Section 15064.5[a]). Generally, resources must be older than 45 years to qualify for listing on the CRHR.

The CRHR is “an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change” (PRC Section 5024.1[a]).

The criteria for CRHR eligibility are based on National Register of Historic Places (NRHP) criteria (PRC Section 5024.1[b]; CCR, Title 14, Section 4850 et seq.). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined eligible for, or listed in, the NRHP.

To be eligible for the CRHR, a prehistoric or historic-era property must be significant at the local, state, and/or federal level under one or more of the following four criteria. The resource:

- Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- Is associated with the lives of persons important in our past;
- Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

An eligible resource for the CRHR must meet one of the criteria of significance described above and retain enough of its historical character or appearance (integrity) to be recognizable as a historical resource, and to convey the reason for its significance.

Additionally, the CRHR consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The CRHR automatically includes the following:

- California properties listed in the NRHP and those formally determined eligible for the NRHP;
- California Registered Historical Landmarks from No. 770 onward; and
- California Points of Historical Interest that have been evaluated by the Office of Historic Preservation and have been recommended to the State Historical Commission for inclusion on the CRHR.

Resources that may be nominated to the CRHR include:

- Historical resources with a significance rating of Category 3 through 5 (properties identified as eligible for listing in the NRHP, the CRHR, and/or a local register);
- Individual historical resources;
- Historical resources contributing to historic districts; and
- Historical resources designated or listed as local landmarks or designated under any local ordinance, such as a historic preservation overlay zone.

Assembly Bill 52

AB 52, approved in September 2014, and effective January 2015, and codified under PRC Section 21080.3.1 and 3.2, establishes a formal consultation process with both federally and non-federally recognized California Native American Tribes to identify potential significant impacts to tribal cultural resources, as defined by the CEQA statute (PRC Section 21074). AB 52 creates a distinct category for tribal cultural resources, requiring a lead agency to not only consider the resource's scientific and historical value, but also whether it is culturally important to a California Native American tribe. AB 52 defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" that are included in or determined to be eligible for inclusion in the CRHR or the local register of historical resources.

AB 52 also sets up an expanded consultation process. Since July 1, 2015, lead agencies are required to provide notice of proposed projects to any tribe traditionally and culturally affiliated with the geographic area. If a tribe requests consultation within 30 days, the consultation process must begin before the lead agency can release a draft environmental document. Consultation with the tribe may include discussion of the type of review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. The consultation process will be deemed concluded when either: a) the parties agree to mitigation measures; or b) any party concludes, after a good faith effort, that an agreement cannot be reached. Any mitigation

measures agreed to by the tribe and lead agency must be recommended for inclusion in the environmental document. If a tribe does not request consultation, or otherwise assist in identifying mitigation measures during the consultation process, a lead agency may still consider mitigation measures if the agency determines that a project will cause a substantial adverse change to a tribal cultural resource.

State Laws Pertaining to Human Remains

Any human remains encountered during ground-disturbing activities are required to be treated in accordance with CCR Section 15064.5(e) (CEQA), PRC Section 5097.98, California Health and Safety Code Section 7050.5. California law protects Native American burials, skeletal remains, and associated grave goods regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Specifically, Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county where the remains are discovered has determined whether or not the remains are subject to the coroner's authority.

If human remains are determined to be of Native American origin, the county coroner must contact the Native American Heritage Commission (NAHC) within 24 hours of this identification. An NAHC representative will then notify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods. In addition, CEQA Guidelines Section 15064.5 specifies the procedures to be followed in case of the discovery of human remains on non-federal land. The disposition of Native American burials is under the jurisdiction of NAHC.

3.17.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the requirements of the Surface Transportation Board.¹ ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements

¹ Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.² The proposed project would be generally consistent with the applicable goals, policies, and objectives related to biological resources identified in Appendix E.

3.17.3 Environmental Setting

This section describes the environmental setting related to cultural resources for the proposed project. For the purposes of this analysis, the CEQA study area for cultural resources is referred to the “study area” for both archaeological resources. The information presented in this section is summarized from cultural resource supporting documentation.

3.17.3.1 Regional Prehistory³

The project area is in the larger Central Valley, encompassing areas in Sacramento and San Joaquin counties. Surrounded by the Sierra Nevada to the east, the Cascade Range to the north, and the Tehachapi Mountains to the south, the Central Valley is divided into two physiographic provinces separated by the Sacramento-San Joaquin River Delta: the Sacramento Valley and the San Joaquin Valley. The vast agricultural region of the Central Valley is drained by the Sacramento River in the north, and the San Joaquin River in the south. This region is warm and well-watered and is one of the most diverse and productive environmental zones in California.

The project footprint skirts the eastern edge of the American Basin in the north, and is near several large canals, creeks, and the American, Cosumnes, and Mokelumne rivers. These watercourses provided plentiful, year-round resources, and the surrounding lands, including those low, rolling hills along the eastern fringe of the American Basin, were ideal locations for prehistoric settlements.

The archaeology of the Central Valley is as varied as the area is extensive, including a full range of hunter-gatherer adaptations from the earliest, technologically conservative, low density colonizers to the most recent, technologically elaborate, and densely packed populations that were present at historic contact. The cultural sequence of the area was established by Fredrickson (1974, as cited in Rosenthal et al. 2007), and then further developed using radiocarbon determinations, adjusted with modern calibration curves by Groza (2002), LaJeunesse and Pryor (1996); Meyer and Rosenthal (1997, as cited in Rosenthal et al. 2007:150), is commonly used to interpret the prehistoric occupation of Central California. The sequence is broken into three broad periods: the Paleo-Indian period (11,550 to 8550 calibrated (cal) before Christ [B.C.]); the three-staged Archaic Period, consisting of the Lower Archaic (8550 to 5550 cal B.C.), Middle Archaic (5550 to 550 cal B.C.), and Upper Archaic (550 cal B.C. to cal 1100 *anno domini* [A.D.]); and the Emergent period (cal A.D. 1100 to 1769).

² An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

³ Portions of this section were excerpted from Rosenthal et al. 2007.

Paleo-Indian (11,550 – 8550 cal B.C.)

The Paleo-Indian period began with the first entry of people into California. The Central Valley area was settled by native Californians as early as 13,500 years ago (Rosenthal et al. 2007:147-164). Human populations during this period were low and probably consisted of small groups moving frequently in order to exploit plant and animal resources. Archaeological deposits associated with this time period were likely affected by periodic episodes of erosion and deposition and have either been destroyed or buried beneath more recent alluvial deposits. This period is evident in the archaeological record from basally thinned and fluted projectile points discovered at surface locations primarily in the southern portion of the Central Valley.

Lower Archaic (8550 – 5550 cal B.C.)

Following the Paleo-Indian Period, the Lower Archaic is characterized by mostly isolated finds, including stemmed points, chipped stone crescents, and other distinctive flaked stone artifacts commonly found along ancient shores (Rosenthal et al. 2007:151). Few sites dating to this time period have been identified in the Central Valley.

Middle Archaic (5550 – 550 cal B.C.)

During the Middle Archaic the climate became warmer and drier (Rosenthal et al. 2007:150), with archaeological sites suggesting a more sedentary lifestyle, as indicated by refined and specialized tool assemblages, a wide range of non-utilitarian artifacts, and abundant trade objects (Moratto 1984). In addition, plant and animal remains were identified in Middle Archaic archaeological sites, indicative of year-round occupation. Exchange of commodities such as obsidian, shell beads, ornaments, and other perishable items was widespread. Evidence indicates there were two distinct settlement-subsistence adaptations operating in central California beginning in the Middle Archaic, one in the foothills and one centering on the valley floor (Rosenthal et al. 2007:153).

Upper Archaic (550 cal B.C. – A.D. 1100)

The beginning of the Upper Archaic Period corresponds roughly with the onset of Late Holocene environmental conditions, marked by an abrupt turn to cooler, wetter, and more stable climate. This period is better represented and understood than previous time periods. Development of new technologies appear, including new types of bone tools and implements, and widespread manufactured goods such as *Haliotis* (abalone) ornaments and ceremonial blades (Rosenthal et al. 2007:156). Polished and ground stone plummets are common in regions surrounding rivers and marshlands of the delta and southern San Joaquin Valley.

Emergent Period (cal A.D. 1000 – Historic)

The stability of the climate established in the Upper Archaic prevailed in the Emergent Period with the exception of several flood and drought events (Rosenthal et al. 2007:157). The archaeological record of this period is the most substantial and comprehensive for any period, and the assemblages and adaptations represented are the most diverse.

The distinctive cultural pattern of the Emergent Period is marked by the appearance of small, arrow-sized projectile points over the dart and atlatl. Increased variation in burial types and furnishings suggest more complex social developments. Other characteristics of the Emergent

~~Period include increasingly varied subsistence practices, a greater distribution of raw obsidian cobbles (as opposed to central biface manufacturing facilities), and a decentralization in the production of shell beads (Rosenthal et al. 2007:158-159).~~

3.17.3.2 Ethnography

~~The project area is located within the ethnographic boundaries of the Valley Nisenan, Plains Miwok, and Northern Valley Yokuts (north to south, respectively). The Nisenan territory extended east from the Sacramento River to the drainages of the Yuba, Bear, and American rivers (Wilson and Towne 1978:387). The term Nisenan, sometimes referred to as the Southern Maidu, were the southern linguistic group of the Maidu tribe, a Penutian linguistic family. Valley villages were built on low, natural rises along streams and rivers or on gentle slopes with a southern exposure. Hunting, gathering, and fishing were year-round activities for the Valley Nisenan. Each village varied in size from a few houses covered in grass and tule mats to 50 houses, with upwards of 500 people (Wilson and Towne 1978:388).~~

~~The Plains Miwok, one of five separate Eastern Miwok linguistic and cultural groups, inhabited the lower reaches of the Mokelumne and Cosumnes rivers and both banks of the Sacramento River from Rio Vista to Freeport (Levy 1978:398). The Plains Miwok, part of the Utian language family, were a number of separate and politically independent nations that happened to share a common language and cultural background. The foremost political unit was the tribelet; in each tribelet were several less-permanently inhabited settlements and a larger number of seasonally occupied camps for hunting, fishing, and gathering (Levy 1978:398).~~

~~The Northern Valley Yokuts territory extended from near where the San Joaquin River makes a big bend northward to a line midway between the Calaveras and Mokelumne rivers (Wallace 1978:462). Villages were typically located along primary water sources, subsisting on hunting waterfowl, fishing, and harvesting acorns, tule root, and seeds (Wallace 1978:464). The principal settlements were built atop low mounds, on or near the banks of large watercourses, for protection against spring floods (Schenck and Dawson 1929:308,404). Each tribe had a headman, and populations averaged around 300 people. Houses were round or oval, with a conically shaped pole frame sunk into the ground and covered with tule mats.~~

~~The Valley Nisenan, Plains Miwok, and Northern Valley Yokuts all suffered great population decline and cultural breakdown with the introduction of Spanish settlers and the establishment of the mission system. The populations of all three cultural groups were nearly decimated due to European-borne diseases and harsh living conditions. Today, descendants of these groups — which include the United Auburn Indian Community, Shingle Springs Band of Miwok Indians, and Lone Band of Miwok Indians— are active in maintaining their traditions and advocating for Native American issues.~~

3.17.4 Environmental Analysis

3.17.4.1 Methods for Analysis

As noted in PRC Section 21084.2, a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. PRC Section 21084.3 states that:

- (a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.
- (b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:
 - 1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
 - 2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - A. Protecting the cultural character and integrity of the resource.
 - B. Protecting the traditional use of the resource.
 - C. Protecting the confidentiality of the resource.
 - 3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
 - 4) Protecting the resource.

Native American Consultation

On November 30, 2017, SJRRC sent letters to the 13 individuals provided by NAHC, including the Lone Band of Miwok Indians and the United Auburn Indian Community (UAIC). Tiger Polk of the California Valley Miwok Tribe telephoned AECOM on December 6, 2017, and stated they were not aware of any “cultural impacts” in the area of the project. He requested that if cultural items were identified during construction, the California Valley Miwok Tribe be contacted so that the items can be removed and repatriated. Two tribes (the UAIC [on January 18, 2018] and the Shingle Springs Band of Miwok Indians (SSBMI) [on December 28, 2017]) requested formal consultation with SJRRC on the proposed project under AB 52. In January 2018, both UAIC and SSBMI were contacted by SJRRC acknowledging their requests for consultation and to inform them of a project delay due to issues with the Lodi and Elk Grove stations.⁴ SJRRC would make contact after the issues were resolved and schedule individual meetings at that time.

In March 2018, as requested and on behalf of SJRRC, AECOM shared the records search findings with the UAIC and the SSBMI tribes. Neither tribe responded after receipt of project materials.

⁴ Note that the North Elk Grove Station is no longer under consideration as part to the proposed project.

On August 15, 2018, AECOM on behalf of SJRRC contacted the IBMI in order to gain more knowledge on Sacred Lands in the project area. A follow-up call by AECOM on August 21, 2018, resulted in a new contact for the IBMI Cultural Committee Chair, Elizabeth Lydell. An email to Ms. Lydell from AECOM resulted in a telephone call on September 7, 2018, from Jereme Dutschke, IBMI Cultural Committee member, requesting more information. AECOM shared project information in October and November 2018, of the entire project area as well as a specific area in Lodi that was surveyed for the project, but has since been dropped. On December 6, 2018, AECOM sent an email to IBMI asking for more information related to the sacred lands identified by the NAHC in the project area. On January 24, 2019, IBMI responded to AECOM via email, concerned about construction near P-39-000193/CA-SJO-57 (which is located near the proposed Thornton Siding Upgrade/Extension, but still outside project activities), as well as P-39-000192/CA-SJO-56, P-39-000194/CA-SJO-58 (also within the proposed Thornton Siding Upgrade/Extension, but well outside project activities) and P-34-000217/CA-SAC-190 (within the Track Curve Reconstruction south of Desmond Road, but well outside project activities). AECOM acknowledged receipt of the email from IBMI, and replied that it would be forwarded to SJRRC, and that when more information about the project was available, it would be forwarded to IBMI.

On September 9, 2019, AECOM sent a letter describing the revised project and maps depicting the project area to the NAHC asking to review their SLF for any Native American cultural resources that might be affected by the proposed project. NAHC replied that a review of the SLF was negative for the updated project area.

On September 25, 2019, AECOM sent a copy of the Notice of Preparation of an EIR to all 10 individuals listed on NAHC's updated 2019 list of Native Americans. AECOM, on behalf of SJRRC, sent specific letters to the three tribes that had originally made contact, two of which had requested formal consultation during the early iteration of the project, asking if they were still interested in consulting on the updated project. SJRRC was contacted by UAIC and SSBMI for continued consultation; no other responses were received.

In November 2019, UAIC requested additional project mapping data, which AECOM provided. UAIC then requested a meeting to discuss the tribe's concerns related to project impacts to archaeological resources, protection measures, and tribal monitoring. AECOM followed up in an email to UAIC to schedule a meeting regarding the project. Although a meeting has yet to be scheduled, consultation between SJRRC and the UAIC is ongoing. UAIC apologized for the delay in their response to the project and requested a copy of the EIR in order to make appropriate recommendations and comment on mitigation measures.

On November 7, 2019, the Shingle Springs Band of Miwok Indians requested formal consultation with SJRRC. On February 10, 2020, SJRRC met with Kara Perry, Site Protection Manager, and James Sarmiento, Executive Director of Cultural Resources, along with project staff from AECOM to discuss the tribe's concerns related to project impacts to archaeological resources, protection measures, and tribal monitoring. The tribe requested pre-construction cultural sensitivity training and an invitation to monitor ground-disturbing construction activities. In addition, the tribe suggested installation of interpretive outreach materials, such as educational panels or displays at the station locations regarding the Native American presence of the area. Mitigation measures were incorporated to address the tribe's concerns. Consultation between SJRRC and the Shingle Springs Band of Miwok Indians is ongoing.

All Native American consultation efforts are documented in AECOM (2020: Appendix ~~CD~~, Supporting Cultural Resources Information).

Records Search Results

A record searches was conducted by staff at the North Central Information Center (NCIC) of the California Historical Resources Information System (CHRIS), California State University, Sacramento, on September 13, 2019 (NCIC File No. SAC-19-181), and the Central California Information Center (CCIC), California State University, Stanislaus (CCIC File No. 11183L). Additional searches of variations of the project area occurred prior at both the NCIC and CCIC. The NCIC and CCIC, affiliates of the California Office of Historic Preservation, are the official state repository of cultural resources records and studies for Sacramento and San Joaquin counties, respectively. Site records and previous studies were accessed for the APE and a 0.5-mile radius on the *Rio Linda, Sacramento East, Florin, Bruceville, Thornton, and Lodi North and Lodi South, California*, USGS (1967, 1968a, 1968b, 1975, 1978, 1980) 7.5-minute topographic quadrangles.

No prehistoric archaeological resources have been previously identified in or adjacent to the study area. The nearest prehistoric archaeological resource to the study area is P-39-000193 (CA-SJO-57) in San Joaquin County, located over 100 feet east of the Thornton Siding Upgrade/Extension, outside of the project footprint and the UPRR ROW.

Aerial photography of the CEQA study area depict the Union House Creek (also known as Beacon Creek), north of the ~~Elk Grove Station~~ Cosumnes River Boulevard, as originally channelized to the north of the existing railroad trestle bridge over the creek (UCSB 1952, 1961)(AECOM 2020: Plate 1). The area was modified after 1961 to its current configuration, and the area east of the existing bridge was also modified to create the existing channel (UCSB 1961, 1971) (see AECOM 2020: Plates 1 and 2). Over the years, the proposed station area was used as pastureland and for agriculture, both north and south of what is now Cosumnes Boulevard, with large swaths of land also used for utility ROW (a utility pole is approximately 80 feet east of the current Laguna Creek railroad bridge) and ranch roads (UCSB 1981). Manholes, pipelines, excavation debris piles are all visible in the area south of Union House Creek (UCSB 1971) (AECOM 2020: Plate 2). Similarly, the existing railroad bridge over Arcade Creek is constructed on a levee that appears to be modified in the early 1970s, likely prior to the replacement of the bridge that preceded the existing bridge (UCSB).

Field Survey Results

All archaeological surveys were conducted by individuals who meet the Secretary of Interior's Professional Qualification Standards (PQS) for Archaeology. AECOM conducted archaeological surveys on multiple field days in late October and early November 2017; July, August, September, and October of 2018; and November and December 2019.

All accessible portions of the CEQA study area were surveyed with transects spaced less than 5 meters apart. Visibility ranged from good to poor (less than 20 percent) depending on the vegetation. Areas within the UPRR ROW were generally good, while overgrown pastureland, agricultural crops, or vineyards growing in the station locations marred visibility.

In addition to previous use of the land as mentioned above, areas that were developed or had some sort of previous ground disturbance included: Lodi Station alternatives ~~Variants~~ (agriculture

and vineyard); ~~Elk Grove Station Variants (agriculture, creek/levee modification, road development/modification, flood control/storm drain/sewer infrastructure)~~; City College Station (railroad infrastructure); Midtown Station (railroad infrastructure); Old North Sacramento (railroad infrastructure, road/trail modification; levee modification); Natomas/Sacramento Airport Station (industrial infrastructure).

No archaeological resources were identified during the field survey.

3.17.4.2 Thresholds of Significance

The CEQA Guidelines Appendix G (14 Cal. Code Regs. 15000 et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on cultural resources and tribal cultural resources. The discussion of impacts on cultural resources is provided in Section 3.5, *Cultural Resources*. An impact would be considered significant if the project would result in a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k); or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

3.17.4.3 Impacts and Mitigation Measures

Impact TRI-1: The proposed project could cause a substantial adverse change in the significance of a tribal cultural resource, as defined in Public Resources Code section 21074, 5020.1(k), or 5024.1(c). However, implementation of Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-3.1 would reduce this potentially-significant impact to a less than significant level (Less than Significant Impact with Mitigation).

As previously described, a tribal cultural resource is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the CRHR, or included in a local register of historical resources, or if SJRRC, acting as the lead agency, supported by substantial evidence, chooses at its discretion to treat the resource as a tribal cultural resource.

Based on the background research, field efforts, and SJRRC's consultation with the Shingle Springs Band of Miwok Indians and the United Auburn Indian Community, no tribal cultural resources were identified in the project area. However, project construction would involve ground-disturbing activities that could result in the discovery or damage of as-yet undiscovered tribal cultural resources, which could be a potentially significant impact.

Mitigation Measures. If tribal cultural resources are identified during the implementation of the project, Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-3.1 would be implemented (see Section 3.5, *Cultural Resources*), depending on their nature. Implementation of Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-3.1, and compliance with existing federal, state, and local laws and regulations, would protect unrecorded tribal cultural resources in the project area. Following implementation of Mitigation Measures CUL-2.1, CUL-2.2, CUL-2.3, and CUL-3.1 potential impacts of project construction activity relating to the disturbance of tribal cultural resources would be reduced to a less than significant level.

CUL-2.1: Worker cultural resources training.

Refer to measure description Section 3.5, *Cultural Resources*.

CUL-2.2: Native American monitoring.

Refer to measure description Section 3.5, *Cultural Resources*.

CUL-2.3: Inadvertent Archaeological Discovery.

Refer to measure description Section 3.5, *Cultural Resources*.

CUL-3.1: Discovery of Previously Unknown Human Remains.

Refer to measure description in Section 3.5, *Cultural Resources*.

3.18 Utilities and Service Systems

3.18.1 Introduction

This section describes the regulatory and environmental setting for utilities and service systems in the vicinity of the Valley Rail Sacramento Extension Project (proposed project). It also describes the impacts on utilities and service systems that would result from implementation of the proposed project and mitigation measures that would reduce significant impacts, where feasible and appropriate.

Additional considerations of utilities and service systems are presented in Section 3.6, *Energy*, which discusses utility infrastructure and impacts related to energy demand, and Section 3.10, *Hydrology and Water Quality*, which describes potential stormwater drainage system impacts. Cumulative impacts on utilities and service systems, in combination with planned, approved, and reasonably foreseeable projects, are discussed in Chapter 4, *Other CEQA-Required Analysis*.

During the public scoping comment period, the following comments relevant to utilities and service systems were received:

- Coordinate with utility providers prior to final design to discuss potential conflicts and issues with nearby utilities.

This section addresses these concerns. The comments received during the scoping period are included in Appendix A, *NOP and Scoping Summary Report*.

3.18.2 Regulatory Setting

This section summarizes federal, state, regional, and local regulations related to utilities and service systems and applicable to the proposed project.

3.18.2.1 Federal

There are no federal regulations related to utilities and service systems relevant to the proposed project.

3.18.2.2 State

Section 3.10, *Hydrology and Water Quality*, presents the California regulations related to stormwater pollution prevention.

California Government Code Section 4216

California Government Code Section 4216 et seq. requires that persons planning to conduct any excavation first contact the regional notification center. Section 4216 includes several related requirements, including requirements for excavations near “high priority utilities,” which include high-pressure natural gas pipelines and other pipelines that are potentially hazardous to workers or the public if damaged or ruptured.¹ Underground Service Alert North (USA North) is the

¹ Consistent with California Government Code Section 4216(e), high priority utilities include natural gas pipelines carrying petroleum with normal operating pressures greater than 415kPA (60 pounds per square inch gauge);

regional notification center for the areas where proposed improvements would be constructed. USA North receives planned excavation reports and transmits the information to all participating members that may have underground facilities at the location of excavation. The USA North members then mark or stake their facility, provide information about the location, or advise the excavator of clearance.

Integrated Waste Management Act

The Integrated Waste Management Act (Assembly Bill 939) mandates a reduction of waste and establishes a framework to implement source reduction, recycling, and composting. The California Department of Resources Recycling and Recovery is responsible for implementation of the Integrated Waste Management Act.

California Green Building Standards

The California Code of Regulations (CCR), Title 24, Part 11, California Green Building Standards (or CALGreen), sets standards for sustainable building design for residential and non-residential buildings in California. The code sets forth sustainable construction practices applicable to planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. Effective January 1, 2014, 2013 CALGreen mandates permitted new residential and non-residential building construction, demolition, and certain additions and alteration projects to recycle and/or salvage for reuse of a minimum 50 percent of the non-hazardous construction and demolition (C&D) debris generated during a project (CALGreen 4.408, 5.408, 301.1.1, and 301.3). Effective January 1, 2017, 2016 CALGreen increased the recycle and/or salvage mandate to 65 percent for new residential and non-residential building construction, demolition, and certain additions and alteration projects (2016 CALGreen 4.408 and 5.408).

Water Efficient Landscape Ordinance

Pursuant to the Water Conservation in Landscaping Act of 2006 (Government Code 65591 et seq.), cities and counties in California are required to adopt a water efficient landscape ordinance. Local ordinances are intended to reduce water use for landscaping and irrigation purposes and encourage the use of recycled and reclaimed water for these purposes. The California Department of Water Resources maintains a model water efficient landscape ordinance (23 CCR 490 23 et seq.), which local jurisdictions can model their ordinances after.

3.18.2.3 Regional and Local

The San Joaquin Joint Powers Authority (SJJPA), a state joint powers agency, and the San Joaquin Regional Rail Commission (SJRRC) propose improvements within and outside of the Union Pacific Railroad (UPRR) right-of-way (ROW). The Interstate Commerce Commission Termination Act (ICCTA) affords railroads engaged in interstate commerce considerable flexibility in making necessary improvements and modifications to rail infrastructure, subject to the

petroleum pipelines; pressurized sewage pipelines; high voltage electric supply lines, conductors, or cables that have a potential to ground of greater than 60 kilovolt; and hazardous materials pipelines that are potentially hazardous to workers or the public if damaged.

requirements of the Surface Transportation Board.² ICCTA broadly preempts state and local regulation of railroads, and this preemption extends to the construction and operation of rail lines. Therefore, activities in existing UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Project improvements proposed outside of the UPRR ROW, however, would be subject to regional and local plans and regulations. Although ICCTA does broadly preempt state and local regulation of railroads, SJJPA and SJRRC intend to obtain local agency permits for construction of facilities that fall outside of the UPRR ROW, even though SJRRC has not determined that such permits are legally necessary, and such permits may not be required.

Appendix E, *Regional Plans and Local General Plans*, provides a list of applicable goals, policies, and objectives from regional and local plans of the jurisdictions in which project improvements are proposed. Section 15125(d) of the California Environmental Quality Act (CEQA) Guidelines requires an EIR to discuss “any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans.” These plans were considered during preparation of this analysis, and reviewed to assess whether the proposed project would be consistent with the plans of relevant jurisdictions.³ The proposed project would be generally consistent with the applicable goals, policies, and objectives related to utilities and service systems identified in Appendix E.

3.18.3 Environmental Setting

This section describes the environmental setting related to utilities and service systems by geographic segment for proposed improvements. The study area for direct impacts on utilities and service systems is the environmental footprint for project improvements. Utilities and service systems in the environmental footprint could be affected by physical changes via structural development and/or infrastructure installation associated with proposed improvements. The study area for indirect impacts includes the service areas of utilities and service system providers that would serve the proposed project. Sacramento Municipal Utility District (SMUD) provides electric service to the majority of Sacramento County (SMUD 2019). Pacific Gas & Electric (PG&E) provides electric service to San Joaquin County and natural gas service to both Sacramento and San Joaquin County (PG&E 2019); therefore, electric and natural gas utilities are not described for each geographic segment.

This section begins with an overview of utilities and service system providers in the study area, followed by a description of existing water, wastewater, stormwater, and solid waste utilities in each geographic segment.

3.18.3.1 Overview of Utilities and Service System Providers

Utilities and service systems in the study area addressed in this analysis include water supply, wastewater, stormwater, telecommunications, and solid waste. Utility providers that would be directly affected by the proposed project include providers that maintain utilities infrastructure, including water lines, irrigation canals, water supply canals, wastewater lines, storm drains, and

² Altamont Corridor Express (ACE) and Amtrak operate within a ROW and on tracks owned by UPRR, which operates interstate freight rail service in the same ROW and on the same tracks.

³ An inconsistency with regional or local plans is not necessarily considered a significant impact under CEQA, unless it is related to a physical impact on the environment that is significant in its own right.

telecommunications lines in the footprints of proposed improvements. Solid waste facilities, including landfills and recycling centers, are large operations that would not be displaced or otherwise directly affected by the proposed improvements. Utility providers that would provide utility service to project improvements include water, wastewater, stormwater, and solid waste service providers. AT&T and Sprint provide telecommunication facilities in the environmental footprint. Refer to Chapter 2, *Project Description*, for a list of utilities in the environmental footprint, including the telecommunication facilities in each segment

3.18.3.2 Stockton to Lodi

The study area includes the service areas of utility providers that serve Lodi. The majority of the proposed track improvements in the Stockton to Lodi Segment would be outside urban service areas and would not require utility service. Although the proposed Lodi Station and Lodi Station South Alternative would be outside the city limits of Lodi, it is assumed because of the proposed stations proximity to Lodi, the station would seek to connect to Lodi’s utilities.

Water

The City of Lodi Water Utility is the sole water provider for Lodi. The City of Lodi Water Utility’s service area covers roughly 12 square miles and spans the city’s boundaries. All of Lodi’s potable water is currently received from groundwater sources. According to the 2015 Urban Water Management Plan, the water supplies available during multiple-dry water years are assumed to be no different than supplies available during single-dry water years (City of Lodi 2016). Table 3.18-1 summarizes water supply and demand for the city of Lodi.

Table 3.18-1. Stockton to Lodi Segment—Water Supply and Demand (in acre-feet/year)

| Jurisdiction | 2015 | | 2020 | | 2025 | |
|--------------|--------|--------|--------|--------|--------|--------|
| | Supply | Demand | Supply | Demand | Supply | Demand |
| City of Lodi | 28,816 | 19,129 | 27,480 | 19,930 | 27,759 | 20,720 |

Source: City of Lodi 2016.

Wastewater

Table 3.18-2 summarizes local wastewater treatment facilities for the city of Lodi. The City of Lodi operates wastewater infrastructure typically consisting of pipelines, lift stations, and pump stations that convey municipal wastewater to the treatment facilities. The facility listed in Table 3.18-2 operates in conformance with the National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirements of the Central Valley Regional Water Quality Control Board (CVRWQCB) (CVRWQCB 2013).

Table 3.18-2. Stockton to Lodi Segment—Wastewater Treatment Facilities

| Facility | Owner | Jurisdiction in the Study Area Served | Existing Flows (MGD) | Permitted Capacity (MGD) |
|---|--------------|---------------------------------------|----------------------|--------------------------|
| White Slough Water Pollution Control Facility | City of Lodi | City of Lodi | 5.5 | 8.5 |

Source: CVRWQCB 2013

MGD = million gallons per day.

The permitted capacity of the facilities is based on the average dry weather flow.

Stormwater

Stormwater facilities must be sufficient to convey runoff in a safe, cost-effective manner and prevent flooding on adjacent properties. The City of Lodi is a permittee under the NPDES Phase II Small Municipal Separate Storm Sewer System (MS4) permit. Regulation of water quality through the NPDES program is discussed in more detail in Section 3.10, *Hydrology and Water Quality*.

The City of Lodi operates its own municipal storm drain systems. Facilities typically consist of storm drain inlets and catchment facilities in developed areas, which drain to pipeline systems, pump stations, and detention basins. Stormwater that is not stored in detention basins is discharged into a local waterbody. The majority of Lodi stormwater discharges to the Woodbridge Irrigation District Canal (City of Lodi 2012).

Solid Waste

The City of Lodi has an agreement with Waste Management for solid waste collection, transportation, disposal, and collection of recyclable materials (City of Lodi 2019). The majority of the waste generated in the city is taken to the North County Recycling Center and Sanitary Landfill (NCRC&SL). The NCRC&SL encompasses 320 acres and has a permitted quantity of 1,200 tons. The estimated closure year for this landfill is 2046 (San Joaquin County 2019). The NCRC&SL has a remaining capacity of 35,400,000 cubic yards (Cal Recycle 2019a).

3.18.3.3 Lodi to Elk Grove

This portion of the study area includes the service areas of utility providers that serve the city of Sacramento. The majority of the track improvements in the Lodi to Elk Grove segment would be outside urban service areas and would not require utility service. ~~Although the proposed Elk Grove Station would be outside the city limits of Sacramento, it is assumed because of the proposed stations proximity to Sacramento, the station would seek to connect to Sacramento's utilities.~~

Water

The City of Sacramento's water is supplied by a combination of surface and groundwater sources. The City has multiple surface water entitlements allowing diversion of water from the Sacramento and American rivers. According to the 2015 Urban Water Management Plan, water demand is not anticipated to exceed the City's water supplies between 2020 and 2040 in all water year types (i.e., normal, single dry year, multiple dry years) (City of Sacramento 2016). A water surplus is projected in all water year types (City of Sacramento 2016).

The Rio Linda/Elverta Community Water District (RLECWD) provides water to a portion of north Sacramento County. RLECWD maintains a groundwater pumping station to supply its customers and does not currently use surface water on a regular basis (RLECWD 2016). According to the 2015 Urban Water Management Plan, RLECWD will pump sufficiently during all water types (normal, single dry year, multiple dry years) to meet sufficient demand (RLECWD 2016). Table 3.18-3 summarizes water demand in the Lodi to Elk Grove segment.

Table 3.18-3. Lodi to Elk Grove Segment—Water Supply and Demand (in acre-feet/year)

| Jurisdiction | 2015 | | 2020 | | 2025 | |
|-------------------------|---------|---------|---------|---------|---------|---------|
| | Supply | Demand | Supply | Demand | Supply | Demand |
| City of Sacramento | 290,800 | 172,589 | 275,917 | 123,229 | 288,288 | 130,548 |
| North Sacramento County | 2,109 | 2,109 | 4,846 | 4,846 | 5,681 | 5,681 |

Sources: City of Sacramento 2011, 2016; RLECWD 2016
Data provided is for retail water.

Wastewater

Table 3.18-4 summarizes local wastewater treatment facilities for Sacramento. The City of Sacramento operates wastewater infrastructure typically consisting of pipelines, lift stations, and pump stations that convey municipal wastewater to the treatment facilities. Sacramento Area Sewer District (SASD) provides wastewater services in portions of the cities of Elk Grove and Sacramento as well as in unincorporated Sacramento County (SASD 2016). The facility listed in Table 3.18-4 operates in conformance with the NPDES and Waste Discharge Requirements of the CVRWQCB (CVRWQCB 2016). The City of Sacramento provides wastewater service to areas of the city not served by SASD. The City of Sacramento wastewater system consists of combined sewer pipes (conveys wastewater and storm drain runoff in a single pipe) and separated sewer pipes (wastewater only). The combined sewer system serves many of the older parts of Sacramento, while the separated sewer system serves the newer sections of the city. The sewage collected in the wastewater system pipes travel through a series of pumps to the Sacramento Regional Wastewater treatment plant (City of Sacramento 2020).

Table 3.18-4. Lodi to Elk Grove Segment—Wastewater Treatment Facilities

| Facility | Owner | Jurisdiction in the Study Area Served | Existing Flows (MGD) | Permitted Capacity (MGD) |
|---|---|---|----------------------|--------------------------|
| Sacramento Regional Wastewater Treatment Plant | Sacramento Regional County Sanitation District | City of Sacramento <u>City of Elk Grove</u> <u>Unincorporated Sacramento County</u> | 119 | 181 |
| <u>City of Sacramento Department of Utilities</u> | <u>City of Sacramento Department of Utilities</u> | | | |

Source California Regional Water Quality Control Board Central Valley Region, 2016.

MGD= million gallons per day.

The permitted capacity of the facilities is based on the average dry weather flow.

Stormwater

The City of Sacramento operates its own municipal storm drain systems. Facilities typically consist of storm drain inlets and catchment facilities in developed areas, which drain to pipeline systems, pump stations, and detention basins. Stormwater that is not stored in detention basins is discharged into a local waterbody.

Sacramento County operates and maintains the drainage and flood control system consisting of approximately 1,440 miles of storm drain pipe, 400 miles of creeks and open channels, 33 pump stations, and 18 detention basins. The Sacramento County Department of Water Resources is responsible for drainage and flood control in unincorporated Sacramento County (Sacramento County 2019).

Solid Waste

The City of Sacramento provides solid waste collection and disposal services for residential properties. Commercial solid waste services in the city of Sacramento and Sacramento County are provided by a number of commercial waste collection providers regulated by the Sacramento Regional Solid Waste Authority (Sacramento County 2019). Solid waste collected from the south region of the city is transported to the Sacramento Recycling and Transfer Station, and solid waste collected in the north region is transported to the Sacramento County North Area Recovery Station. Solid waste is collected from both facilities and transported to the Sacramento County Kiefer Landfill. The Sacramento County Kiefer Landfill is permitted for 10,815 tons per day and has a remaining capacity 112,900,000 cubic yards; the landfill is projected to be in operation until 2064 (Cal Recycle 2019b).

3.18.3.4 Elk Grove to Natomas

The study area includes the service areas of utility providers that serve the city of Sacramento. Portions of track improvements in the Elk Grove to Natomas Segment would be outside of urban service areas and would not require utility service.

Although the proposed Natomas/Sacramento Airport Station would be constructed outside of the city limits of Sacramento, it is assumed that because of the proposed station's proximity to Sacramento, connection to Sacramento utilities would be desired. A detailed description of utility providers for the city and county of Sacramento are described above.

3.18.4 Environmental Analysis

This section describes the environmental impacts of the proposed project on utilities and service systems. It describes the methods used to evaluate the impacts and the thresholds used to determine whether an impact would be significant. Measures to mitigate (i.e., avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts are provided, where appropriate.

Methods for Analysis

Direct impacts on utilities and service systems could occur if the proposed project results in disruption or damage to utilities infrastructure during ground-disturbing activities. To determine the potential for direct impacts on utilities and service systems, all underground and aboveground utilities would be properly identified with utility providers before construction activities commence.

Indirect impacts on utilities and service systems would occur if the proposed project induced unplanned growth that in turn resulted in demand for utilities that exceeded the planned supply of the appropriate service provider, resulting in the need for new entitlements or the construction of new utilities infrastructure. Construction demand is assumed to conform to industry standards. While construction of the proposed project would require water and would generate solid waste,

contractors would be responsible for transporting water and solid waste to and from the construction sites.

Operational demand is dependent upon station use, passenger use, and landscaping. This demand is compared to the planned supply (i.e., capacity) of the utility providers that serve the geographic area where construction or operation of project improvements would occur. New or altered connections to utilities—and the resulting increase in demand for service—would occur primarily at proposed stations. With the exception of the Lodi Station and Lodi Station South Alternative, new stations would include storm drain facilities and receive solid waste collection service. The Lodi Station and the Lodi Station South Alternative would include separate stormwater basins.

3.18.4.1 Thresholds of Significance

The CEQA Guidelines Appendix G (14 CCR 15000, et seq.) has identified significance criteria to be considered for determining whether a project could have significant impacts on utilities and service systems. The project would result in a significant impact on utilities and service systems if it would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments.
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
- Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.18.4.2 Impacts and Mitigation Measures

Impact UT-1: The proposed project could require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities. However, implementation of Mitigation Measure UT-1.1 would reduce this potentially significant impact to a less than significant level (Less than Significant Impact with Mitigation).

Construction

Construction of the proposed project may affect existing overhead and underground utilities. Construction of new tracks or upgrades to existing track would involve grading for the track subgrade with graders and excavators and the placement of subballast and ballast. Track construction could conflict with existing utility lines. Construction activities associated with station

platforms and parking lots would involve rough grading. Grading may disturb underground utilities. As described in Chapter 2, *Project Description*, construction of the proposed project would require the relocation of existing utilities. Other utilities in the environmental footprint would be protected in-place. It is possible that relocation or accidental disruption during construction could disrupt utility service or damage utilities, resulting in a potentially significant impact on utilities infrastructure.

Water and Wastewater

Local water providers have available capacity to serve the temporary, incremental demands associated with construction of the proposed project. Therefore, construction of the proposed project would not result in relocation or construction of new or expanded water facilities. As stated below, it is expected that local water providers would have sufficient water supplies available to serve construction in normal, dry, and multiple dry years. See impacts UT-2 and UT-3 for more information regarding water and waste water impacts.

Stormwater Drainage

Construction of the proposed project would result in grading, trenching, and other ground disturbance that could temporarily change drainage patterns in the vicinity of the environmental footprint. Construction staging could temporarily increase the impervious surface area in staging areas, resulting in increased stormwater runoff. Nonetheless, SJRRC would implement a stormwater pollution prevention plan (SWPPP) as required by the NPDES program administered by the CVRWQCB. The SWPPP would prevent ponding and ensure that stormwater runoff during construction would be controlled and would not require construction or expansion of new water treatment facilities.

Other Utilities

The electric power required for construction would be minimal and would not be expected to require the construction of new or expanded electric power facilities. Natural gas is not expected to be used in construction and no new telecommunications facilities would be required for construction activities.

Operation

As described in Section 3.13, *Population and Housing*, construction of the proposed project would not directly or indirectly result in construction of new homes or other residential units, new jobs, or otherwise induce growth that would increase the population in the surrounding cities and communities.

Water and Wastewater

Operation of the proposed project would result in increased use of water and generation of wastewater on trains, and landscaping water use at stations. Proposed stations would not include restrooms. The City of Lodi and City of Sacramento are expected to have capacity for additional wastewater due to the minimal increase anticipated from the proposed stations. Therefore, the project would not result in or construction of new or expanded water or wastewater treatment

facilities. See impacts UT-2 and UT-3 for more information regarding water and waste water impacts.

Stormwater Drainage

Typically, railroad tracks permit water to percolate through to the ground. As such, improvements to existing track and the addition of new tracks would not result in the creation of substantial new areas of impervious surface, and increases in stormwater runoff would be minimal. Installation of stormwater drainage or retention infrastructure would not be required along the tracks.

The construction of other project improvements (such as station platforms, parking lots, and access roads) would result in new paved areas that could potentially change drainage patterns and result in increased stormwater runoff due to the addition of impervious surfaces. Stormwater infrastructure would be installed or reconfigured as necessary to serve these new and/or modified impervious surfaces. Such infrastructure would connect to the local storm drain system in areas with existing storm drain facilities. The Lodi Station and Lodi Station South Alternative would include development of new stormwater drainage basins that would not connect to local storm drainage facilities.

Where construction of stormwater facilities or expansion of existing storm drains would be required, the design of these facilities would comply with the local jurisdiction's storm design standards and post-construction stormwater control requirements. Design of stormwater facilities consistent with municipal requirements would ensure that stormwater generated by the proposed project is managed to meet the performance requirements. Where installation of these features would result in potentially significant environmental impacts in the project footprint as identified in relevant sections of this EIR, mitigation measures are identified to ensure those impacts are reduced to less than significant levels. Physical effects associated with operations of the proposed stormwater infrastructure would be less than significant with incorporation of mitigation measures identified in this EIR.

See Section 3.10, *Hydrology and Water Quality*, for more information regarding stormwater impacts and facilities.

Other Utilities

Electric power for project improvements is assumed to be provided by SMUD or PG&E as the project area is in PG&E and SMUD's electric service area. It is assumed that SMUD and PG&E's existing electric power facilities would be able to accommodate the slight increase in electricity demand from the new stations as the utility generates power from various sources and provides connections to the larger power grid. SJRRC would continue to evaluate electrical demand with SMUD and PG&E as part of overall coordination activities between SJRRC and SMUD/PG&E. Although local connections to electric transmission facilities may be necessary, the amount of electricity needed for project improvements is not anticipated to result in the need for new or expanded electric power facilities, and thus impacts from operation of the proposed project would be less than significant.

The project area is in PG&E's natural gas service area. The use of natural gas for the proposed project is not anticipated; therefore, new or expanded natural gas facilities would not be required, and thus impacts from operation of the proposed project would be less than significant.

New telecommunications facilities owned and operated by SJRRC or train operators would be required for safety and communication with trains and operations and are included as part of the proposed project. These facilities would generally be located in the existing UPRR ROW and away from known sensitive areas to avoid impacts on cultural and biological resources and known hazardous materials. Because the new telecommunications facilities would be owned and operated by SJRRC or train operator for train usage only, operation of the proposed project would not require construction or expansion of other private or public telecommunications facilities. Therefore, impacts from operation of the proposed project would be less than significant.

Mitigation Measure. Mitigation Measure UT-1.1 would require SJRRC to coordinate with utility providers to address the potential for utility disruption and minimize service interruptions. SJRRC would work with utility owners during final engineering design and construction to relocate utilities or protect them in-place. SJRRC would assist utility owners in preparing communications materials to inform end users of planned service interruptions. With implementation of Mitigation Measure UT-1.1, impacts to utilities would be less than significant.

UT-1.1: Implement a Utility Relocation Plan.

SJRRC will coordinate with all utility providers during final design and construction stages to identify utilities potentially impacted by the proposed project, including existing and planned utilities. A utility relocation plan will be developed and implemented to minimize service interruption and safely relocate, repair, or replace affected utilities. SJRRC will assist utility owners in developing a communications plan to inform end users of potential planned service interruptions.

Impact UT-2: The proposed project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years (Less than Significant Impact).

and

Impact UT-3: The proposed project would not result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments (Less than Significant Impact).

Construction

During construction of the proposed project, construction contractors would provide portable toilets at construction sites. The wastewater from these facilities would be hauled off site and dumped at a wastewater treatment facility. This source of wastewater would be temporary during construction and would not necessitate the relocation or construction of new wastewater treatment facilities. Additionally, the City of Lodi and City of Sacramento are expected to have capacity for additional wastewater generated during construction. The small amount of wastewater created during construction (from portable restroom facilities) could be accommodated by wastewater treatment facilities in the project area; wastewater treatment providers in the project area would be expected to determine that they have adequate capacity. Therefore, the impact on public water or wastewater services and facilities during construction of the proposed project would be less than significant.

Construction of the proposed project, including the new stations and track sidings, would require water use for concrete work, earthwork compaction, dust control, and irrigation. The construction contractor would haul water to the construction site via truck. In urban areas, contractors could fill their water trucks from local hydrants. The exact source of the water used during construction at different locations is unknown at this time. The temporary increases in demand for water during construction would be necessary for concrete work, earthwork compaction, dust control, and temporary irrigation of reseeded areas and the associated generation of wastewater. However, water use during construction would be temporary and would not place a long-term demand on local service providers.

Operation

As stated above, operation of the proposed project would result in increased use of water and generation of wastewater on trains and landscaping water use at stations. Proposed stations would not include restrooms.

Water and wastewater treatment facilities are sized to serve the municipal connections throughout their service areas. Utilities providers take into account residents and employees in a given service area when determining facility capacity. Because the proposed project is expected to serve regional commuters, boarding or exiting passengers on ACE's or San Joaquin's trains would be either residents or employees in a given service area. Therefore, each passenger's water use and wastewater generation would be taken into account in water and wastewater facility planning efforts in both the service area where the passenger resides, as well as the given service area where the passenger works. Because per capita water use and wastewater generation at stations would be accounted for at a passenger's residence or workplace, there would be no net increase in the demand for water or wastewater treatment in a given service area. Increases that would not already be accounted for would result from a small number of passengers. No unusual quantity or type of wastewater would be generated by project operations. Project operations would not require expansion of the existing water or wastewater infrastructure that would serve the proposed stations.

As described in Section 3.13, *Population and Housing*, project improvements would not involve the construction of facilities or transit improvements that would typically attract substantial new development or increases in the intensity that would typically attract substantial new development or increases in the intensity of existing uses. Thus, the resultant water and wastewater generation is expected to be minor in those segments where improvements are proposed; expansion or construction for new water and wastewater infrastructure would not be anticipated.

Increased water use for landscaping and maintenance at proposed stations would be served by recycled water systems, as required by the municipalities pursuant to statewide Green Building Standards and water efficient landscape ordinances. Therefore, landscaping and maintenance would not substantially increase water demand at new stations.

Water use and wastewater generation would occur only at stations. There would be no water use or wastewater generation that could affect water or wastewater systems or wastewater treatment standards where these facilities do not exist or are not proposed.

As the wastewater and water providers in the project area that may serve the proposed project currently have capacity for existing and future demand, water and wastewater generation from

operation of the project would not result in relocation or construction of new or expanded water or wastewater treatment facilities; the wastewater treatment provider that serves or may serve the proposed project would be expected to make a determination that they have adequate capacity to serve the projected demand in addition to the providers existing commitments. As stated above, local water providers would have sufficient water supplies available to serve the proposed project and reasonably foreseeable future development during normal, dry, and multiple dry years. Therefore, impacts would be less than significant.

Impact UT-4: The proposed project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals (Less than Significant Impact).

and

Impact UT-5: The proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste (Less than Significant Impact).

Construction

During construction activities, typical C&D waste would be generated. Activities such as ground clearing, ROW work, and station construction would generate gravel, concrete, rubble, fill, and different types of building materials. State and local standards, including CALGreen, require that contractors divert C&D waste from landfills by reusing or recycling C&D materials. Materials that cannot be reused onsite would be conveyed to a solid waste facility that is permitted to accept C&D waste. C&D waste from each segment would likely be hauled to the nearest facility. As described above, the solid waste facilities in the vicinity of the proposed project have capacity remaining (or a throughput) that would accommodate the temporary demand for waste disposal generated by the construction of the proposed project. These facilities include the NCRC&SL and Sacramento County Kiefer Landfill. Compliance with CALGreen requirements would assist in the attainment of solid waste reduction goals. Therefore, solid waste generated by construction of the proposed project would not be in excess of state or local standards or the capacity of local infrastructure and would not violate statutes and regulations related to solid waste. Thus, construction of the proposed project would have a less than significant impact related to solid waste.

Operation

The proposed project would result in new facilities, including stations, that would produce solid waste. In addition to the stations, solid waste could occasionally be generated as part of routine track maintenance and would be diverted as required by the appropriate federal, state, and local regulatory guidance.

Solid waste generated by operation of the proposed project could be accommodated with the existing capacity of local landfills—the NCRC&SL and Sacramento County Kiefer Landfill—both have available capacity as described above. The amount of solid waste that the project improvements would generate would be a small percentage of the remaining capacity of local landfill facilities. The proposed project would result in an increased number of stations where solid waste would be disposed. The additional round-trips per day included in the proposed project

would result in an increase in the number of passengers boarding and exiting at existing ACE and Amtrak stations. The increase in passengers would result in a marginal increase in solid waste disposal at the station. Similar to San Joaquin trains, ACE trains generated approximately 0.5 ton of waste per station per month in 2015 (San Joaquin Regional Rail Commission 2018).

Existing ACE ridership is approximately one-half that projected for the proposed project. Therefore, a conservative estimate of passenger waste generated by the proposed project would be approximately 1 ton of waste per station per month, or 6 tons of waste per month for the proposed and existing stations. This is the equivalent to a maximum daily rate of 0.2 ton, which is far below the maximum permitted quantity at the landfills described above.

Material reuse and recycling would be implemented as standard practice at the stations in compliance with the Integrated Waste Management Act, thereby reducing waste being transferred to landfills. Solid waste generated by operation of the proposed project would not be in excess of state or local standards or the capacity of local infrastructure and would not violate statutes and regulations related to solid waste. Thus, impacts related to solid waste would be less than significant.

4. Other CEQA Required Analysis

4.1 Introduction

In addition to requiring that an Environmental Impact Report (EIR) evaluate the impacts of a proposed project on environmental resources, the California Environmental Quality Act (CEQA) also requires that an EIR include a discussion of the following items:

- An assessment of the contribution of the proposed project to the cumulative impacts on the same environmental resources (CEQA Guidelines Section 15130(a));
- A disclosure of significant and unavoidable impacts of a proposed project (CEQA Guidelines Section 15126.2(c));
- Address “Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project, Should it be Implemented” (CEQA Guidelines (Section 15126(d)); and
- Discuss the ways in which a proposed project could foster economic or population growth (CEQA Guidelines Section 15126.2(e)).

These topics are discussed in this chapter.

4.2 Cumulative Impacts

The CEQA Guidelines define a cumulative impact as two or more individual impacts that, when considered together, are considerable; or that compound or increase other significant environmental impacts. The incremental impact of a project may be considerable when viewed in the context of other closely related past, present, and reasonably foreseeable probable future projects. Reasonably foreseeable future projects are defined as projects that have been adopted or have otherwise demonstrated likelihood to occur based on documentation from project sponsors. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over a period of time (CEQA Guidelines Section 15355).

The cumulative analysis is intended to identify impacts of the proposed project that may be minor when viewed in isolation, but which contribute to a larger impact when combined with similar impacts from past, present, and anticipated future projects. CEQA Guidelines Section 15130(b) indicates that an adequate discussion of potential cumulative effects requires consideration of either a list-based approach or a projection-based approach. This EIR uses a combination of a project-based/plan-based approach and a list-based approach to determine whether significant cumulative impacts would occur.

The focus of the cumulative analysis is to identify the Valley Rail Sacramento Extension Project’s (proposed project’s) contribution to significant cumulative impacts, and to determine whether that contribution would be considerable. The cumulative analysis focuses on the proposed project’s potential contribution to the cumulative impact, rather than a detailed description of the cumulative impact itself.

Under CEQA, the San Joaquin Regional Rail Commission (SJRRRC) is not responsible for mitigating the overall cumulative impact. SJRRRC is only responsible for identifying and implementing potentially feasible mitigation to address the proposed project's considerable contributions to identified significant cumulative impacts. Therefore, the obligation to assess mitigation is limited to the fair-share portion of a significant cumulative impact that is due to the proposed project's considerable contribution. Other cumulative projects have a similar obligation for their contributions to significant cumulative impacts.

4.2.1 Approach and Methodology

Section 15130(b) of the CEQA Guidelines states that the discussion of cumulative impacts should include the following information.

- Either (1) a list of past, present, and probable future projects producing related or cumulative impacts, or (2) a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, that described or evaluated conditions contributing to a cumulative impact.
- A description of the geographic scope of the area affected by the cumulative impact.
- A summary of expected environmental effects to be produced by these projects.
- Reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

This EIR uses a hybrid approach, consisting of a combination of the list-based and projection-based (plan-based) approaches, to best identify cumulative impacts. Table 4-1 summarizes the methodology used for each cumulative subject analysis as well as the geographic area of analysis.

- **Projection Approach:** This approach discloses regional cumulative impacts related to air quality, GHG emissions, population and housing, public services, recreation, transportation, and utilities and service systems.
- **List Approach:** The proposed project and specific projects in or adjacent to the project corridor were examined for the potential to result in cumulatively significant localized impacts. This analysis considers transportation projects proposed for the project corridor, as well as directly adjacent planned land development projects. The cumulative analysis uses this approach to identify localized impacts related to aesthetics, agricultural resources, air quality, biological resources, cultural resources, energy resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, public services, recreation, transportation, and utilities and service systems.

Table 4-1. Summary of Cumulative Impact Methodology

| Resource Issue | Cumulative Method | Geographic Area of Impact |
|---------------------------------|--|---|
| Aesthetics | List | project corridor and vicinity |
| Ag and Forestry Resources | List | project corridor and vicinity |
| Air Quality | Projections (criteria pollutants) List (toxic air contaminants) | Criteria pollutants: San Joaquin and Sacramento Valley Air Basins Toxic air contaminants: Project corridor and immediate vicinity |
| Biological Resources | List | Terrestrial species: Project corridor and immediate vicinity Aquatic species: Project corridor and downstream waterbodies |
| Cultural Resources | List | Project corridor and vicinity |
| Energy Resources | List | Service areas of the energy providers to the project corridor |
| Geology and Soils | List | Project corridor and adjacent |
| Greenhouse Gas Emissions | Projection | GHG emissions: regional and global |
| Hazards and Hazardous Materials | List | Project corridor and vicinity |
| Hydrology and Water Quality | List | Project corridor and downstream waterbodies |
| Land Use and Planning | List | Project corridor and adjacent |
| Noise and Vibration | List | Project corridor and adjacent |
| Population and Housing | Projection | San Joaquin and Sacramento counties |
| Public Services | List (construction) Projection (operation) | Jurisdictions along project corridor |
| Recreation | List (construction) Projection (operation) | Project corridor and vicinity |
| Transportation | List (construction) Projection (operation) | Construction disruption: project corridor and immediate vicinity Bicycle and pedestrian facilities: project corridor, roadways crossing the ACE Extension corridor, and roadways near stations Regional traffic and transit systems: San Joaquin Valley and Sacramento Valley |
| Utilities and Services Systems | List (construction) Projection (operation) | Jurisdictions along the project corridor |

4.2.2 Projections/Regional Growth Characteristics

To estimate overall growth, the cumulative analysis uses multiple land use and population growth projection sources for the jurisdictions that the proposed project has the potential to affect (Table 4-2). In 25 years (2010-2035), the growth in San Joaquin and Sacramento counties is projected to increase by 38.2 and 30.3 percent, respectively. Total housing is projected to increase by 34.5 and 26.8 percent for San Joaquin and Sacramento counties, respectively.

Therefore, population growth is projected to increase at a greater rate than total housing between 2010 and 2035.

Table 4-2. Existing and Projected Population and Housing Unit Growth in the Counties of the Proposed Project Corridor

| County | Total Population Projections | | | Total Housing | | |
|-------------|------------------------------|-----------|-----------------------------|---------------|---------|-----------------------------|
| | 2010 | 2035 | 2010 to 2035 Difference (%) | 2010 | 2035 | 2010 to 2035 Difference (%) |
| San Joaquin | 685,306 | 947,017 | 38.2 | 233,755 | 314,470 | 34.5 |
| Sacramento | 1,418,788 | 1,848,985 | 30.3 | 555,932 | 705,090 | 26.8 |

Sources: California Department of Finance 2012; Eberhardt School of Business 2016; Sacramento Area Council of Governments 2019

4.2.3 Projects Considered

This analysis considers three types of cumulative projects: rail projects planned within the project corridor, other regional transportation improvements, and land development adjacent to the project corridor. A list of reasonably foreseeable projects from counties and cities is provided for land development along the project corridor. The geographic study areas considered for cumulative impact analyses vary by individual resource and can include different scales of impact (such as for criteria pollutants or GHG emissions). The resource-specific study area is noted in Table 4-1.

Table 4-3 shows planned transportation projects that overlap the proposed project or are in the general vicinity of the project. Transportation projects include rail and highway/roadway improvement projects. Table 4-4 shows land use development projects planned 0.25 mile or less from the project corridor. These projects include the development of housing units, a community center, office building, and hotel.

Table 4-3. Transportation Projects within the Project Corridor Considered in the Cumulative Analysis

| Project Name | Description | Estimated Construction Schedule | Location | Location Relative to Project | Potential Conflict |
|---|---|--|------------|------------------------------------|--------------------|
| Various Areas in California | | | | | |
| California High Speed Rail (Merced to Sacramento Section) | High speed rail service between Merced and Sacramento Alignment (Phase 2) | Unknown | California | Overlaps in Sacramento | None |
| Amtrak San Joaquins Corridor Service | Operational changes, including initiating morning express service | N/A, no additional improvements to the San Joaquins service are currently proposed | California | Overlaps in Stockton to Sacramento | None |

| Project Name | Description | Estimated Construction Schedule | Location | Location Relative to Project | Potential Conflict |
|--|---|--|--|--|--------------------|
| Stockton to Lodi | | | | | |
| ACE Extension Lathrop to Ceres/Merced | Expansion of ACE service to Ceres with stations in downtown Manteca, Ripon, Modesto, and Ceres (Phase I); and to Merced with stations in Turlock, Livingston or Atwater, and Merced (Phase II). | Construction on Phase I as soon as 2020. Phase II construction schedule unknown. | Stockton, California | Overlaps with the project corridor in Stockton | None |
| Lodi to Elk Grove | | | | | |
| Capital South East Connector | First phase includes construction of four continuous lanes from Interstate 5 (I-5) and State Route (SR) 99 in Elk Grove to the new Silva Valley interchange at Highway 50 in El Dorado Hills. | Construction date unknown | 34-mile expressway between I-5 and Highway 50 in Unincorporated Sacramento County | Crosses Project Corridor approximately 0.75 mile north of the proposed project | None |
| Elk Grove to Natomas | | | | | |
| Sacramento Regional Transit District's Green Line to the Airport project | Extension of light rail approximately 13 miles north from downtown Sacramento to the River District, Natomas, and Sacramento International Airport. | Construction targeting 2022 | Downtown Sacramento to Sacramento International Airport | Runs parallel to project in Downtown Sacramento, approximately 1 mile to the west. | None |
| Meadowview Road/24th Street Streetscape | Improve pedestrian and cyclist safety along the corridor and provide access to the Meadowview LRT Station. | Construction planned in Spring 2020 | Two miles of Meadowview Road and one mile of 24th Street | Adjacent to proposed project to the west | None |
| Bell Avenue Complete Project Rehabilitation Project | 2.8 miles of pavement rehabilitation, sidewalk construction, minor widening, signal modifications, and new signing and striping. | Construction projected in 2019 | Bell Avenue from Bollenbacher Avenue to Astoria Street | 0.25 mile west | None |
| North 16th Street Streetscape | Roadway Improvements to accommodate on-street parking | Construction start date unknown | 16th Street and North 16th Street corridor between H Street and Richards Boulevard | 0.25 mile west | None |

Sources: California High-Speed Rail Authority 2019; Capital Southeast Connector JPA 2017; City of Sacramento 2018

Table 4-4. Land Use Development Projects within the Project Corridor, Considered in the Cumulative Analysis

| Project Name | Description | Estimated Construction Schedule | Location | Location Relative to Proposed Project | Potential Conflict |
|-----------------------------------|---|--|-------------------------------------|--|--------------------|
| Stockton to Lodi | | | | | |
| Affordable housing | 72-unit multi-family affordable housing project | Pending planning approval | 6303 and 6304 Danny Drive, Stockton | Adjacent to eastern side of proposed project | None |
| Lodi to Elk Grove | | | | | |
| Elk Grove Muslim Community Center | Community Center | Pending planning approval | 3155 Dwight Road, Elk Grove | 0.25 mile west | None |
| Apartment complex | 113-unit apartment complex on an approximately 3.79-acre parcel | Pending planning approval | 8009 Franklin Boulevard, Sacramento | 0.25 mile east | None |
| Elk Grove to Natomas | | | | | |
| Myers Office Building | Single-story office building 14,182 square feet | Site plan approved. Construction schedule unknown. | 45 Morrison Avenue | 0.17 mile east | None |
| 17 Central | Eight-story mixed-use building with 1,608-square-foot ground-floor commercial space and 111 residential units | Site plan approved. Construction schedule unknown. | 1631 K Street | 0.21 mile west | None |
| S Street Apartments | Two-story 4-unit apartment building approximately 3807 square feet | Site plan approved. Construction schedule unknown. | 1716 S Street | 0.16 mile west | None |
| Crocker Village Court Lots | 83 single-unit dwellings. | Under Construction | 3680 Crocker Drive | Adjacent to eastern side of proposed project | None |
| Press Building | Four floors of apartments and ground-floor retail above an existing, subterranean single-story parking garage | Under Construction | 1714 21st Street | 0.06 mile east | None |

| Project Name | Description | Estimated Construction Schedule | Location | Location Relative to Proposed Project | Potential Conflict |
|-----------------------|--|--|------------------|---------------------------------------|--------------------|
| 19J | 11-story mixed-use building with 175 units and approximately 6,600-square-foot ground floor retail space | Under Construction | 1827 J Street | 0.05 mile west | None |
| Pascu Metal Buildings | Three commercial buildings totaling approximately 15,000 square feet | Site plan approved. Construction schedule unknown. | 5401 24th Street | 0.13 mile west | None |
| Woodspring Suites | Four-story, 48,480-square-foot hotel | Site plan approved. Construction schedule unknown. | 3845 Rosin Court | 0.25 mile west | None |
| Morey Morrison 141 | 136 new single-unit dwellings. | Pending planning approval | 51 Morey Avenue | | None |

Sources: City of Sacramento 2019; City of Stockton 2019.

4.2.4 Aesthetics

The geographic context for the analysis of potential contributions to cumulative impacts on aesthetics consists of the areas adjacent to, within, and in the vicinity of the project corridor. Land use changes associated with the cumulative condition have the potential to affect aesthetic resources in several ways. These impacts would result from construction activities; development of roadways, parking areas, buildings, bridges, and pedestrian overcrossings that could alter the study area's visual character; and the introduction of new light sources. These changes are evaluated below in the cumulative analysis. Because the proposed project would not be in the viewshed of any state or locally designated scenic highway, there would be no impact. Therefore, there is no potential for the proposed project to contribute to cumulative impacts from degradation of scenic quality associated with elements of a designated scenic highway, and this topic is not evaluated further in this cumulative aesthetics analysis.

Impact C-AE-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on aesthetics (construction: less-than-considerable contribution with mitigation; operation: less-than-considerable contribution with mitigation).

Construction

Scenic Vistas and Degradation of Visual Character or Quality

Construction activities associated with all of the cumulative projects listed in Tables 4-3 and 4-4 have the potential to substantially degrade the existing visual character or quality of each individual project site, and thereby also affect the viewshed of the surrounding area, including

scenic vistas, during construction activities. However, visual changes resulting from introducing construction activities and equipment into the viewsheds of all user groups would be temporary, occurring only for short periods of time during the construction process of each project. Furthermore, construction of proposed project improvements would not occur in the viewshed of any designated scenic vistas. Therefore, visual changes resulting from introducing construction activities and equipment into the viewsheds of all user groups would not result in significant impacts, and no cumulative impact would occur.

Nighttime Light and Glare

Construction activities associated with all of the cumulative projects listed in Tables 4-3 and 4-4 could also create new sources of substantial nighttime lighting during construction that would create a new source of nighttime glare, and would adversely affect nighttime views. High-intensity nighttime lighting in close proximity to existing residences where there is no existing visual screening would result in nighttime glare, and could result in sleep disruption. Therefore, the cumulative projects could result in significant visual impacts from new sources of temporary nighttime lighting during construction.

As described in Section 3.1, *Aesthetics*, construction activities associated with the proposed project could degrade the existing visual character or quality of the proposed project footprint, and could create a new source of substantial nighttime lighting that would create a new source of nighttime glare, and would adversely affect nighttime views. Project-related construction activities would introduce heavy equipment and associated vehicles such as dozers, graders, scrapers, and trucks into the viewshed. Depending on location, viewers could see staging areas, worker parking, and equipment and materials storage areas, which would add industrial-looking elements into viewsheds.

However, visual changes resulting from introducing construction activities and equipment into the viewsheds of all user groups would be temporary, occurring only for short periods of time as construction proceeds along the project footprint in a linear fashion. Construction activities would occur primarily during the daytime hours. However, nighttime lighting during the project's construction phase may be required in areas where track improvements are proposed. High-intensity nighttime lighting in close proximity to existing residences where there is no existing visual screening would result in nighttime glare, and could result in sleep disruption. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact from new sources of construction-related nighttime lighting. However, implementation of Mitigation Measure AE-4.1 would reduce this impact to a less-than-significant level because visual barriers would be installed between construction activities and sensitive receptors where no existing visual screening is present during times when construction-related nighttime lighting is required. Therefore, the proposed project's contribution to cumulative aesthetics impacts as a result of construction would be a less-than-considerable contribution with mitigation.

Operation

Scenic Vistas

The cumulative projects listed in Tables 4-3 and 4-4 have the potential to degrade the elements of scenic vistas, resulting from development of roadways, parking areas, buildings, bridges, and pedestrian overcrossings. Therefore, the cumulative projects could result in significant visual impacts to scenic vistas.

There are no designated scenic vistas in the vicinity of the proposed project. Although some of the proposed project improvements would occur in rural areas of the northern San Joaquin and southern Sacramento Valleys where the scenic quality is high, the viewshed in these areas includes the existing Union Pacific Railroad (UPRR) embankment, tracks, and associated equipment such as signals and signage. Furthermore, although the visual quality is high in these areas, the existing visual character is typical of rural agricultural land in the Central Valley, and does not represent examples of an outstanding scenic vista that would qualify for official designation. Therefore, the proposed project would have a less-than-significant impact in and of itself, and would not contribute to any cumulatively significant impacts from degradation of the existing visual quality of a scenic vista.

Degradation of Visual Character or Quality

In the developed, urbanized areas of Stockton, Elk Grove, and Sacramento, the regional transportation and rail improvements listed in Table 4-3 would occur in transit priority areas, where residential and commercial development are designed to be in close proximity to transportation corridors to promote Smart Growth goals, reduce vehicle miles traveled (VMT), and reduce the emission of greenhouse gases (GHGs). Furthermore, these urbanized areas already contain existing rail and transportation facilities, along with all types of buildings, and the visual appearance of the cumulative projects would be similar in nature to the existing development. However, the regional transportation and rail improvements listed in Table 4-3 would also occur in rural, agricultural areas of the Sacramento and San Joaquin valleys. Furthermore, some of the cumulative development projects listed in Tables 4-3 and 4-4 may occur in outlying areas along the urban fringe, adjacent to agricultural land or open space. These areas are generally considered to be of higher visual quality, with expansive views of flat agricultural land and open space flanked by either the Sierra Nevada or the Coast Ranges in the distance. Therefore, all of the cumulative projects listed in Tables 4-3 and 4-4 could result in a significant aesthetic impact due to the installation of features incompatible with the existing visual character of the area. Furthermore, development in rural or urban fringe areas could be inconsistent with existing zoning or policies governing scenic quality. Therefore, the cumulative projects could result in a significant impact from degradation of visual character or quality, or conflicts with zoning or policies governing scenic quality.

In the developed, urbanized areas of Stockton, Elk Grove, and Sacramento, the proposed project improvements would occur in transit priority areas, where residential and commercial development are designed to be in close proximity to transportation corridors to promote Smart Growth goals, reduce VMT, and reduce the emission of GHGs. However, portions of the proposed project would also be located in rural, agricultural areas of the Sacramento and San Joaquin Valleys and in outlying areas along the urban fringe, adjacent to agricultural land or open space

where the visual quality is high. Track improvements and facilities such as new bridges would be visible to recreationists from several trails in natural areas such as the Cosumnes River Preserve, Wolf Creek Wildlife Sanctuary, Sacramento Northern Bike Trail, and the Walter S. Ueda Parkway, and would be inconsistent with the existing visual character. The proposed Lodi Station and the Lodi Station South Alternative would be constructed in rural areas that are designated and zoned for agricultural uses, and would be visible to nearby motorists and private residents. Proposed project features would be incompatible with both the existing visual character and the existing zoning of the Lodi Station and the Lodi Station South Alternative areas.

The proposed railroad bridge that would span Arcade Creek would also be in an area of high visual quality and sensitivity because of the Walter S. Ueda Parkway Trail. Therefore, the proposed project would result in a significant impact from degradation of the existing visual character and quality. Implementation of Mitigation Measures AE-3.1, AE-3.2, and AE-3.3 would reduce proposed project impacts associated with degradation of visual character and quality because trees would be planted in the station parking lots to soften the views, and provide a blending effect with the surrounding landscape; pedestrian overcrossings would blend with and complement the surrounding landscape; darker fencing would improve visibility through the barrier compared with standard gray metal surfaces; appropriately colored overhead light standards and pedestrian shelters would recede into the view; and bridges and above-grade crossings would employ the use of colored concrete to better match the existing landscape. Therefore, the proposed project would not contribute to a cumulatively significant impact from degradation of visual character.

Nighttime Light and Glare

Operation of all of the cumulative projects listed in Tables 4-3 and 4-4 would result in an increase in nighttime light, glare, and skyglow effects. The cumulative transportation projects would result in an increase in train and vehicular headlights, along with new signal lights and at-grade rail crossing lights. The cumulative building projects would result in a substantial increase in new nighttime lighting for roadways, parking lots, and buildings that would increase nighttime light, glare, and skyglow effects. Therefore, the cumulative projects would result in a significant impact from creation of new sources of substantial nighttime light and glare effects.

The proposed project would require nighttime safety lighting at at-grade train crossings, and the proposed additional service would result in a minor increase in the operation of the train headlights at night. The new parking garages, parking lots, access roads, pedestrian overcrossings, and platform lighting associated with the proposed project would require nighttime lighting that could result in light spillover, which causes glare and obscures views of the night sky, as well introducing a potential source of sleep disruption for nearby residents. Furthermore, daytime glare could be caused by the use of reflective surfaces such as shiny coatings on the tops of pedestrian shelters at the new stations.

However, as described in Chapter 2, *Project Description*, the proposed project would incorporate a variety of measures as part of the project to minimize the creation of new sources of light and glare. For example, all artificial outdoor lighting would be limited to safety and security requirements, designed using Illuminating Engineering Society's design guidelines, and in compliance with International Dark-Sky Association approved fixtures. All lighting would be designed to have minimum impact on the surrounding environment, and would use downcast,

cut-off type fixtures that direct the light only towards objects requiring illumination. Shielding would be used, where needed, to ensure light pollution is minimized. Lights would be installed at the lowest allowable height and cast low-angle illumination, while minimizing incidental light spill onto adjacent properties, open spaces, or backscatter into the nighttime sky. The lowest allowable illuminance level would be used for all lighted areas, and the amount of nighttime lights needed to light an area would be minimized to the highest degree possible. Light fixtures would have non-glare finishes that would not cause reflective daytime glare. Lighting would be designed for energy efficiency, and have daylight sensors or be timed with an on/off program. Parking lot lighting would be designed to meet safety requirements, but would use locational motion-activated sensing to reduce the amount of time that lights are operating. Furthermore, anti-reflective coatings would be used on structures such as the roofs of pedestrian shelters at new stations to reduce daytime glare.

Operation of the proposed project facilities would result in a less-than-significant impact related to nighttime light, glare, and skyglow effects in and of itself. Therefore, the proposed project would not contribute to a cumulatively significant impact from nighttime light, glare, and skyglow effects.

4.2.5 Agriculture

Project improvements in Sacramento County and the City of Sacramento would occur either within the existing UPRR right-of-way (ROW), or directly adjacent to the existing UPRR ROW. Improvements in the existing UPRR ROW would have no impact on agricultural land uses because lands in the ROW are not used for agricultural production, designated Important Farmland, or under Williamson Act contracts. In addition, improvements outside of the ROW in unincorporated Sacramento County and the City of Sacramento would occur in areas not used for agricultural purposes, nor on lands that are designated as Important Farmland or under Williamson Act contracts. Therefore, there would be no contribution to any cumulative impact on agricultural resources in unincorporated Sacramento County and the City of Sacramento.

However, the Lodi Station and Lodi Station South Alternative sites in San Joaquin County would occur in areas used for agriculture purposes (i.e., orchard, row, and field crops), and in and adjacent to areas designated as Important Farmland or under Williamson Act contracts. Therefore, the geographic context for cumulative agricultural resources impacts consists of the areas adjacent to and in the vicinity of the proposed project and San Joaquin County as a whole. Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4.

Impact C-AG-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on agriculture (construction: less-than-considerable contribution; operation: significant and unavoidable).

Past, present, and future projects throughout the region have, and will continue to convert, existing agricultural land to other uses—predominantly urban use. The Department of Conservation (DOC) estimated that San Joaquin County included 765,013 acres of agricultural land in 2006, of which 615,075 acres (82.6 percent) were classified as Important Farmland, and 129,760 acres (17.4 percent) were classified as Grazing Land (DOC 2016a). Overall, the total acreage of Important Farmland increased by approximately 7.5 percent over the 10-year period between 2006 and 2016, while the total acreage of agricultural land decreased by 0.9 percent. A

similar trend continued between 2008 and 2016, with the percent of Important Farmland increasing, and the overall amount of agricultural land decreasing.

DOC field reports for San Joaquin County identify the factors contributing to past changes in agricultural land uses. According to the most recent 2016 Field Report, conversion of irrigated Important Farmland (i.e., Prime Farmland, Farmland of Statewide Importance, or Unique Farmland) to Other Land resulted from land that was left idle for three or more update cycles; the construction of rural residences and commercial uses; and conversions to non-irrigated grain crops (DOC 2016b). Conversions of Important Farmland to Urban Land resulted mainly from development of new homes near the city of Manteca and the Legacy Fields sports complex north of the city of Tracy (DOC 2016b).

Future urban development projects identified in county and city general plans, as well as local and regional transportation projects in San Joaquin County and throughout the Sacramento Valley, would contribute to the cumulative loss of agricultural resources, including Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. The continued conversion of farmland in the region is a significant cumulative impact.

Construction

Construction of the Lodi Station or the Lodi Station South Alternative could temporarily convert Important Farmland to nonagricultural uses where construction access, material laydown, and staging areas are situated on Important Farmland. In addition, preconstruction and construction activities that occur on active farmland (i.e., land currently being prepared or used for agricultural production) could temporarily disrupt existing agricultural operations, remove land from agricultural production, and result in a temporary loss in agricultural productivity.

Mitigation Measure AG-1.1 would reduce impacts from temporary use of Important Farmland during construction to a less-than-significant level by requiring any Important Farmland temporarily used for construction access, mobilization, material laydown, and staging to be returned to a condition equal to the pre-construction condition. The required restoration plan and SJRRC's oversight, ensuring that the restoration plan is properly implemented, would maintain Important Farmland in equal quantities to those at the beginning of construction. Therefore, the proposed project's contribution to cumulative impacts on agricultural resources as a result of construction would be less-than-considerable contribution with mitigation.

Operation

Permanent conversion of Important Farmland to nonagricultural uses would occur where the proposed project improvements intersect Important Farmland; or more specifically, where the direct impact area is situated on Important Farmland. Based on analysis of the San Joaquin County Important Farmland map (DOC 2016c), construction of the Lodi Station would directly and permanently convert approximately 10.9 acres of Prime Farmland, and construction of the Lodi Station South Alternative would directly and permanently convert 3.3 acres of Prime Farmland and 7.2 acres of Unique Farmland (Table 3.2-2 in Section 3.2). These conversions would contribute to the incremental decline of Important Farmland in the county, region, and state, and result in the irreversible conversion of this agricultural land. Permanent conversion would account for less than 1 percent of this total in San Joaquin County. The total conversion of Important Farmland would be small in the context of the county's entire agricultural land base, and would

not cause a substantial reduction in the county's total agricultural production. Implementation of Mitigation Measure AG-2.1 would reduce impacts from permanent conversion of Important Farmland to a less-than-significant level by requiring purchase of agricultural conservation easements at a ratio of 1:1 for direct use of Important Farmland. This mitigation measure would be effective in minimizing the overall permanent conversion of Important Farmland to a nonagricultural use because it would preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, and in the same agricultural regions where the impacts would occur. Therefore, the proposed project's contribution to cumulative impacts on the permanent conversion of Important Farmland would be less-than-considerable contribution with mitigation.

Continued urbanization of the region in accordance with applicable land use plans would continue to convert agricultural and open space land to urban uses with residential and commercial buildings and associated roadways and other infrastructure. These projects could conflict with agricultural zoning, or require rezoning of agricultural lands. The Lodi Station and Lodi Station South Alternative sites are zoned AG-40.¹ Construction of either of the proposed stations would conflict with existing agricultural zoning by converting land zoned for agricultural uses to transit uses. Mitigation Measure AG-2.1 (described above) would reduce impacts from permanent conversion of agricultural land by requiring purchase of agricultural conservation easements, some of which could be zoned AG-40. However, conversion of agricultural land zoned for the continuation of agricultural uses to transit uses would occur. There is no additional feasible mitigation available that would reduce impacts associated with conflict with existing zoning for agricultural uses to a less-than-significant level. Therefore, the contribution to cumulative impacts associated with conflicts with an agricultural zoning would be considerable, and the impact would be cumulatively significant and unavoidable.

The Lodi Station site is under an active Williamson Act contract. Approximately 13 acres of the 26-acre parcel would be acquired for construction of the Lodi Station, and the remainder of the Lodi Station parcel would be ineligible for continued inclusion in the County's Williamson Act program. The loss of Important Farmland due to the Lodi Station is captured above in the discussion of permanent conversion of Important Farmland, and there would be no additional loss of farmland acreage beyond the acres described above. As discussed below, no additional loss of farmland acreage would occur due to remaindering the rest of the Williamson Act protected area. Therefore, the contribution to cumulative impacts associated with conflicts with an existing Williamson Act contract would be less than considerable.

SJRRC would acquire only the portion of the Lodi Station parcel or Lodi Station South Alternative parcel required for the passenger platforms, parking lots, and bus drop-off and pickup areas. The remainder of these parcels would be of sufficient size for the continuation of agricultural operations, and the parcels would not be fragmented or irregularly shaped to such a degree that continuing agricultural land uses would be difficult or infeasible. In addition, no access restrictions would occur. Therefore, Lodi Station and Lodi Station South Alternative would make no considerable cumulative contribution in the creation of unviable remnant farmland parcels.

¹ The AG-40 zoning designation is established to preserve agricultural lands for the continuation of commercial agricultural enterprises. This zoning designation was adopted for the purpose of avoiding a physical environmental effect.

There are no cumulative projects in the vicinity of dairy operations northeast of the Lodi Station South Alternative. Therefore, there is no cumulative impact associated with alteration of animal health or behavior from increased exposure to noise and vibration.

4.2.6 Air Quality

Because of the nonattainment status relative to the federal and state ozone standards, the geographic scope of the area for the proposed project's cumulative impact analysis includes the areas in the San Joaquin Valley Air Basin (SJVAB) and Sacramento Federal Nonattainment Area (SFNA) for ozone. The SJVAB is made up of eight counties in California's Central Valley: San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and the western half of Kern. The SFNA includes Sacramento and Yolo counties, parts of Solano and Sutter counties, and Placer and El Dorado counties (except the Lake Tahoe Air Basin).

As discussed in Section 3.3, Air Quality, the proposed project would be consistent with regional air quality plans, and would only result in routine construction and operational odors, which are already present in the project area because it is an existing UPRR ROW with freight activity. Therefore, these issues are not the focus of this cumulative analysis, which focuses on criteria air pollutants and toxic air contaminants (TACs). As shown in Table 4-1, the air quality analysis relies on the projection approach for criteria air pollutants, rather than on a list of individual projects, but the TAC analysis considers a list of projects qualitatively. Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4.

Impact C-AQS-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on air quality (construction: less-than-considerable contribution with mitigation; operation: less than considerable).

The SJVAB and SFNA are in nonattainment for ozone and particulate matter (PM). Ongoing development and operation of new land uses would generate additional emissions of ozone precursors (reactive organic gases [ROG] and nitrogen oxide [NO_x]) and PM, which may adversely affect the ability of each region to achieve attainment with the applicable air quality standards, representing a significant cumulative impact.

As discussed in Section 3.3, *Air Quality*, regional air quality plans have been prepared to identify strategies to achieve attainment of the ambient air quality standards. New development in the SJVAB and SFNA that would result in greater air pollutant emissions than assumed in regional air quality plans could contribute to cumulative air quality impacts. General plans throughout the region are used as the basis of assumptions in regional air quality planning, so air pollutant emissions are accounted for in growth projections that form the basis for attainment plans.

During construction, all cumulative projects would emit criteria pollutants and TACs from use of construction equipment and vehicles. Although construction activities would be temporary, the emissions of these pollutants and contaminants from concurrent or nearby construction of cumulative projects could result in a significant cumulative air quality impact. Operation of cumulative rail projects such as the Amtrak San Joaquin Corridor Service, Capital South East Connector, and Sacramento Regional Transit District's Green Line to the Airport Project, as well as from freight rail, would result in criteria pollutants and TACs from diesel engine use. However, these cumulative rail projects provide alternatives to vehicular travel, and freight rail provides an

alternative to trucking, thereby usually resulting in a net reduction in criteria pollutant emissions relative to vehicular travel or trucking. Cumulative other regional transportation projects would result in an increase in mobile-source criteria air pollutant emissions if such projects result in induced traffic. Operation of cumulative land development projects would increase criteria air pollutant emissions from increased vehicular travel, as well as building energy consumption, area sources, waste generation, water and waste treatment, and other sources. The emission of criteria air pollutant emissions constitutes a significant cumulative impact.

Construction

Criteria Air Pollutants

San Joaquin Valley Air Pollution Control District (SJVAPCD) and Sacramento Metropolitan Air Quality Management District (SMAQMD) have established project-level thresholds to identify projects that may contribute to violations of the ambient air quality standards (see Section 3.3, Table 3.3-4). The proposed project has the potential to conflict with or obstruct implementation of the applicable air quality plan because construction emissions would exceed SJVAPCD's maximum daily and annual NO_x threshold, and SMAQMD's maximum daily NO_x, particulate matter 10 microns in diameter or less (PM₁₀), and particulate matter 402.5 microns in diameter or less (PM_{2.5}) thresholds. However, implementation of Mitigation Measures AQ-2.1 through AQ-2.4 would reduce potential construction-related NO_x, PM₁₀ and PM_{2.5} emissions below applicable thresholds for each air district, and ensure compliance with the SJVAPCD and SMAQMD requirements for implementation of fugitive dust management measures at construction sites. Therefore, the proposed project's contribution to cumulative impacts on air quality during construction would be less than considerable with proposed project mitigation.

Toxic Air Contaminants

Construction of other rail improvements and other cumulative projects along the proposed project corridor could emit TACs (in the form of diesel particulate matter [DPM]) from the use of construction equipment and vehicles, which would affect the health of sensitive receptors along the corridor. Health risk is a function of the concentration of contaminants in the environment, and the duration of exposure to those contaminants. Concentrations of mobile-source DPM emissions are typically reduced by approximately 60 percent at a distance of around 300 feet (100 meters) (Zhu and Hinds 2002).

Although not a cumulative project within the radius of influence for this analysis, as a point of comparison, the project-level environmental document for the Merced to Fresno High-Speed Rail (HSR) section (California High-Speed Rail Authority 2012) concluded that construction TAC pollutants would not be significant for alignment construction, but could be significant for certain sensitive receptors close to a station or concrete batch plant. These impacts were found to be reduced to a less-than-significant level with mitigation. A similar conclusion is likely for the construction of other HRS segments in the Central Valley, and that interface with the proposed project, including the California HSR Merced to Sacramento section. Although the construction date is unknown for this project, the TAC emissions could have a potential significant cumulative impact on the health of sensitive receptors in the area of Sacramento in which the project alignments are near one-another. Similarly, construction activities associated with other development and transportation projects listed in Table 4-3, and in proximity to the construction

activities associated with the proposed project, would generate TAC emissions from the use of heavy equipment and diesel vehicles on site during construction; this could have a potential significant cumulative impact on the health of sensitive receptors that are also near the proposed project construction activities.

As described in Section 3.3, Air Quality, although there are residences within 50 feet of specific project improvements, construction activities would be dispersed throughout the entirety of the project sites, which ranges from 2 to 16 acres in size for the proposed Midtown Sacramento, and Lodi (or Lodi Station South Alternative) stations, and North Elk Grove stations and alternatives, and is linear along rail improvement locations, so a portion of construction activities would take place farther than 300 feet from the nearest residences. In addition, as described in Impact AQ-2, PM₁₀ emissions (which represent the maximum of potential DPM emissions) during construction would not exceed the SJVAPCD or SMAQMD threshold of significance for the construction of any individual project improvement (See Section 3.3, *Air Quality*, Tables 3.3-6 and 3.3-7). In addition, implementation of Mitigation Measures AQ-2.1 and AQ-2.2 would reduce project-generated exhaust emissions of DPM from construction-related activities, correlating to a reduction in potential exposure of sensitive receptors to TAC emissions during construction. Therefore As detailed in Impact AQ-3, per the findings of the Health Risk Assessment, with implementation of Mitigation Measures AQ-2.1 and AQ-2.2 as required to reduce emissions below the respective air district recommend mass emissions thresholds of significance for Impact AQ-2, construction of proposed project improvements would not have a significant impact related to DPM construction emissions. In addition, construction of proposed project improvements would pursue all feasible mitigation to reduce DPM emissions. For example, use of Tier 4 engines pursuant to Mitigation Measure AQ-2.1 and AQ-2.2 would reduce PM emissions by more than 50 percent. Therefore, the proposed project's contribution to cumulative impacts on air quality related to DPM emissions from construction would be less than considerable.

Operation

Criteria Air Pollutants

Operation of the proposed project would result in a net regional reduction of criteria air pollutants due to a transportation mode shift of rail passengers from use of personal automobiles to use of the proposed rail transit service. This would be a regional air quality benefit for both the SJVAPCD and SMAQMD. The proposed project's contribution to cumulative impacts on air quality related to criteria pollutants in the SJVAB and SFNA for operations would be less than considerable (beneficial).

Toxic Air Contaminants

Operation of the proposed project would increase DPM emissions from the operation of diesel-powered rail services along the proposed alignment between Stockton and Natomas, but would not increase DPM emissions above SJVAPCD thresholds.

As described in Section 3.3, Air Quality, locomotive operational emissions, which are inclusive of in-transit and idling activities along the alignment, would not exceed SJVAPCD- or SMAQMD-recommended thresholds of significance. These thresholds were developed to reduce emissions in the respective air districts to levels that will not interfere with the region's ability to attain the health-based National Ambient Air Quality Standards and California Ambient Air Quality

Standards, and thereby, protect public health in the overall region. In addition, based on the project-specific Health Risk Assessment, as detailed in the discussion of Impact AQ-3 and provided in detail in Appendix B-2, it was determined that long-term operational emissions a exposure to TACs at surrounding land uses from the proposed Project would be less than significant.

During operation of cumulative regional projects (transportation and non-transportation), there may be an increase in DPM emissions from diesel-powered trucks in such projects, resulting in induced truck traffic. For example, the Capital South East Connector project would result in additional truck traffic along the proposed Connector alignment. However, the Connector alignment is perpendicular to and would only cross the proposed project alignment at one location; operations associated with the proposed project are limited to 14 locomotive operational trips passing through this location per day. In addition, cumulative commercial or residential land use projects would not result in substantial increased DPM emissions because most residential and commercial traffic is currently associated with gasoline vehicles, which do not result in substantial TAC/DPM emissions. A minor level of traffic from commercial and residential development may result in increased diesel-powered trucks for delivery tips. However, due to state and federal regulations, emissions associated with diesel-powered vehicles have and continue to decline substantially over time, which will reduce present and future DPM emissions associated with trucking.

During operation of other cumulative rail projects, including future operational changes to the existing Amtrak San Joaquin Corridor service, expansion of ACE services under the ACE Extension Lathrop to Ceres/Merced project, and extension of the Sacramento Regional Transit District's Green Line to the Sacramento Airport, there could be increased DPM emissions from diesel-based rail services. However, expanded rail service is planned to displace on-road vehicle miles traveled and associated motor vehicle emissions to which the receptors in proximity of the major regional roadways would otherwise be exposed. In addition, the proposed project improvements would be in alignment with the SJCOG Regional Transit Plan/Sustainable Communities Strategy and SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy for long-term planning efforts to improve air quality associated with mobile-source emissions in the region. Accordingly, the proposed project's contribution to cumulative impacts on air quality related to DPM from increased rail service during operation would be beneficial, and less than considerable.

4.2.7 Biological Resources

The geographic context for cumulative biological resources impacts consists of the areas adjacent to and in the vicinity of the proposed project. The biological study area includes the project impact areas plus a 500-foot buffer. For aquatic species, the geographic context also includes the creeks and drainages crossed by the proposed project and downstream. Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4.

Impact C-BIO-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on biological resources (less-than-considerable contribution with mitigation).

Construction

Construction of the California High Speed Rail and Amtrak San Joaquin Corridor Service improvements would include activities that overlap or intersect the project corridor. Other cumulative transportation projects in the vicinity include the Capital South East Connector, Sacramento Regional Transit District's Green Line to the Airport, Meadowview Road/24th Street Streetscape, Bell Avenue Complete Project Rehabilitation, and the North 16th Street Streetscape. Cumulative development projects adjacent to the project corridor include a multi-family affordable housing project in Stockton and the Crocker Village Court Lots in south Sacramento. The Crocker Village Court lots development project is in a previously disturbed rail yard, and construction is currently under way; therefore, any potential effects on biological resources in this area have already been evaluated and mitigated. The construction activities associated with the other cumulative transportation and development projects identified above could result in the loss of biological resources due to land disturbance activities, such as excavating, grading, and vegetation and/or tree removal where sensitive biological resources are present. Furthermore, aquatic habitat could be degraded by an increase in erosion and sedimentation during construction. However, in most cases, the cumulative transportation and development projects identified above are in developed or otherwise highly disturbed areas, and mitigation would be able to reduce impacts to a less-than-significant level.

The project corridor is primarily in an existing UPRR ROW that passes through urban and suburban areas. Most of the project improvements would be in the existing UPRR ROW, roadway ROW, or urbanized areas. Biologically sensitive areas for project improvements are limited to waterways such as Mosher Slough, Laguna Creek, Union House Creek, Arcade Creek, and the Natomas East Main Drainage Canal; and various other ditches and drainages where aquatic, wetland, riparian, and woodland land covers are present.

Permanent structures included in the proposed project, such as new bridges over waterways, would have significant impacts on aquatic habitat and sensitive aquatic species due to changes to channel morphology, hydraulics, and shading where the California High Speed Rail (Merced to Sacramento Alignment) would also be located. Specifically, the proposed project entails new railroad bridges adjacent to existing railroad bridges in the Stockton to Sacramento alignment, crossing Mosher Slough, Laguna Creek, Union House Creek, Arden Creek, and the Natomas East Main Drainage Canal. However, implementation of Mitigation Measures BIO-1.8, BIO-1.9, BIO-1.10, HYD-1.1, HYD-1.2, and HAZ-2.3 would avoid and minimize potential project impacts on aquatic habitat, including compensation for impacts on riparian habitat and wetlands; and require special procedures for in-water work during bridge construction to avoid direct impacts on special-status species and allow migration of anadromous fish. Therefore, the proposed project's contribution to cumulative impacts on sensitive aquatic resources as a result of construction would be less than significant with mitigation.

One of the objectives of the habitat conservation plans (HCPs) in the project corridor (i.e., the San Joaquin Multi-Species Conservation Plan [SJMSCP] and the South Sacramento Habitat Conservation Plan [SSHCP]) is to lessen or avoid both site-specific and cumulative impacts to

species by replacing project-by-project reviews with long-term conservation strategies, and accounting for the cumulative loss of habitat and open space in the HCP areas (County of San Joaquin 2000; County of Sacramento et al. 2018). The project corridor and other cumulative transportation and development projects are covered activities where they occur in the HCP plan areas and outside of the UPRR ROW. Therefore, the proposed project is designed to be consistent with the prescriptions of the SJMSCP and SSHCP.

As described in Section 3.4, Biological Resources, construction in the project corridor could have significant impacts on special-status plant, wildlife, and fish species; wetlands/other aquatic resources; riparian habitat; and trees. However, Mitigation Measures BIO-1.1 through BIO-1.5, HYD-1.1, HYD-1.2, AQ-2.3, and HAZ-2.3 for special-status plant species; BIO-1.6 through BIO-1.13 for special-status wildlife species; BIO-2.1, BIO-2.2, and BIO-2.3 for riparian habitat and sensitive natural communities; BIO-3.1 and BIO-3.2 for wetlands and other aquatic resources; BIO-1.1, BIO-1.2, BIO-1.4, BIO-1.9, BIO-1.14 and BIO-2.3 for species movement and nursery sites; and BIO-5.1 and BIO-5.2 for conflicts with local policies and ordinances are identified to reduce construction impacts to less-than-significant levels. Generally, because construction in the project corridor would not occur in pristine areas, but rather in a developed rail corridor or highly urbanized or otherwise disturbed areas, impacts would be to remnant biological resources. With mitigation, the proposed project's residual construction impacts would be limited in scale and extent. Therefore, the proposed project's contribution to cumulative impacts on biological resources as a result of construction would be less-than-considerable contribution with mitigation.

Operation

Where proposed stations would be located on existing vacant sites, there could be increases in the stormwater runoff that may degrade water quality in surface waters downstream of the project corridor, which could affect aquatic species. Similarly, cumulative projects on vacant sites adjacent to the project corridor, such as streetscapes and development projects, would also increase stormwater runoff, contributing to the degradation of water quality in nearby surface waters. However, compliance with existing water quality regulations and permits would require stormwater runoff treatment for all substantial new projects. Compliance with these existing regulations and permit requirements would ensure each cumulative project's contribution to stormwater runoff impacts would be less than significant.

Increased train operations in the project corridor could result in increased noise effects on wildlife and more train strikes on wildlife, particularly in the portions of the project corridor where other cumulative rail projects would be located, specifically in the Stockton to Sacramento segments where the Amtrak San Joaquin Corridor service upgrades and California High Speed Rail alignment area are proposed. Noise from cumulative rail projects and freight is expected to increase in the existing UPRR ROW where these cumulative rail projects would operate. However, the majority of the UPRR ROW in the project corridor segments are urbanized, with limited biological resources in and adjacent to the existing UPRR ROW, and the proposed project's contribution to cumulative impacts on wildlife in these segments would be less than significant. For the remainder of the project corridor, operational conditions along the existing UPRR ROW are not expected to be significantly different from existing conditions with respect to special-status wildlife species.

4.2.8 Cultural Resources

The geographic context for the analysis of potential contributions to cumulative impacts on architectural historical resources includes the area in and adjacent to the proposed project, and the parcels surrounding and intersected by project improvements. The CEQA study area for the proposed project includes a historic landscape district, three contributors to that district, and one property that are considered historical resources under CEQA because they are eligible for national, California, or local registers. Table 3.5-3 in Section 3.5, Cultural Resources, lists the five built-environment historical resources in the proposed project study area.

Cumulative projects in the geographic area for cultural resources include all projects listed in Tables 4-3 and 4-4, which display all projects that are in or adjacent to proposed project components and features. The cumulative analysis for cultural resources relies on a list approach.

Impact C-CUL-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on cultural resources (construction: less-than-considerable contribution with mitigation; operation: less-than-considerable contribution with mitigation).

Construction

Construction of cumulative rail transportation projects, including California High Speed Rail, Amtrak San Joaquin Corridor Service improvements, and the Capital South East Connector would include activities that overlap or intersect the project corridor. Construction activities associated with these cumulative projects could impact archaeological, tribal cultural resources, or human remains in or adjacent to the project corridor. Implementation of Mitigation Measures CUL-2.1, CUL-2.2, and CUL-2.3 would reduce cultural and tribal cultural resources impacts to less-than-significant levels, and the proposed project would not result in a significant cumulative impact on cultural or tribal cultural resources.

As described in Section 3.5, *Cultural Resources*, construction of project improvements could disturb human remains, including those interred outside of formal cemeteries. Although the proposed improvements would primarily be located in disturbed areas where there have been multiple previous episodes of excavation and construction, previous disturbance does not preclude the potential to affect archaeological deposits; therefore, there remains areas of heightened cultural sensitivity. However, implementation of Mitigation Measure CUL-3.1, which requires the lead agency to comply with state laws relating to Native American remains, would reduce potential impacts on human remains to a less-than-significant level. Therefore, the proposed project's contribution to cumulative impacts on human remains as a result of construction would be less than considerable.

Construction of other cumulative projects, including road, other transportation improvements, and land development projects, could also affect built-environment historical resources outside the project footprint and its immediate vicinity. Because these impacts would be site-specific and would not overlap geographically with the proposed project improvements, they would not interact with project elements, and are not discussed further in this analysis.

Operation

For the most part, cumulative projects would not require further ground disturbance or disturbance to historical resources after construction. As discussed in Section 3.5, *Cultural Resources*, project impacts are primarily limited to permanent impacts from the construction of proposed improvements, as opposed to their operations, and the proposed project would have no impact on cultural or tribal cultural resources during operations. Therefore, there would be no cumulative impacts to cultural or tribal cultural resource, and operation of the proposed project would make no contribution to any cumulative impact on cultural or tribal cultural resources.

4.2.9 Energy

The geographic context for the analysis of potential contributions to cumulative impacts on energy resources is the service areas of the energy providers that would serve proposed project improvements during construction and operation. Cumulative projects in this geographic context include all projects (transportation and land use projects) listed in Tables 4-3 and 4-4. As shown, the cumulative analysis for energy resources relies on a list approach.

Impact C-ENG-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on energy resources (construction: less-than-considerable contribution; operation: less-than-considerable contribution).

Construction

During the construction of cumulative projects, there could be a temporary distributed increased demand for energy resources across San Joaquin and Sacramento counties. However, these regions already accommodate substantial construction projects, and the overall level of construction, considered on a regional scale, is not expected to substantially change with the cumulative projects compared with existing conditions. Therefore, the overall change in demand in energy resources is not expected to affect local or regional energy supplies, or require additional capacity during peak and base period demands for electricity to meet that increased demand.

As described in Section 3.6, *Energy*, construction of the proposed project would consume energy to transport construction materials, operate and maintain construction equipment, and transport construction workers to and from work sites. Large equipment used for construction would be powered with diesel fuel. Diesel fuel for construction could be obtained from the Chevron Richmond Refinery and other refineries in the region as determined by the construction contractors. The demand for diesel fuel for construction of the proposed project would be a small percentage of the production capacity of the Chevron Richmond Refinery and others that could meet the construction energy needs. Overall, energy consumption would involve mostly diesel fuel for construction equipment and transport, with negligible quantities of electricity required. Therefore, the proposed project's contribution to cumulative impacts on energy resources as a result of construction would be less than considerable.

Operation

Operation of cumulative projects could increase the demands for energy resources. Transportation Projects within the Project Corridor that were considered in the Cumulative Analysis are shown in Table 4-3. Similarly, land use projects listed in Table 4-4 could increase the demands for electricity and other energy resources. The cumulative demand for energy resources could result in the need for additional infrastructure, including electricity generation plants and transmission facilities, as well as additional natural gas supply and transmission. Depending on where the new infrastructure is required, this could result in significant impacts on the environment during the construction of such new facilities.

As described in Section 3.6, *Energy*, operation of the proposed project improvements would result in additional stations along the extension in San Joaquin and Sacramento counties, all of which would result in an increase in energy consumption. Operation of the proposed project would result in new stations along the extension alignment, which would result in an increase in energy consumption. Lighting, mechanical systems, and maintenance activities at new stations would result in increased demand for electricity from regional and local providers. Energy consumption associated with project operations would also result in increases in locomotive fuel consumption and vehicle shuttle/bus bridge fuel consumption. Energy consumption associated with the operation of the proposed project trains would be diesel fuel. Overall, energy consumption at new stations would represent a negligible amount of the electricity demanded each month in the service areas of electricity providers. Therefore, the proposed project's contribution to cumulative impacts on energy resources as a result of operations would be less than considerable. .

Further, commuter rail travel per passenger-mile is less energy-intensive than travel by car, personal truck, and transit buses per passenger-mile. Operation of the proposed project would result in a net energy savings. With implementation of the proposed project, additional travelers could choose to ride ACE or San Joaquin trains instead of an alternative form of transportation. Therefore, despite potential increased energy demand as a result of additional train operations and round-trips, implementation of the proposed project could reduce automobile VMT, and consequently reduce energy consumption per passenger-mile. This change in energy consumption due to the proposed project would be an overall environmental benefit (less-than-considerable contribution).

4.2.10 Geology and Soils

Impacts related to geology and soils are typically site-specific, and depend on the local geologic and soil condition. The geographic context for the analysis of potential cumulative impacts on geology and soil resources includes areas in and adjacent to the proposed project. Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4, which display all projects that are located in or adjacent to project components and features. The cumulative analysis for geology and soils is based on a list approach.

The cumulative analysis for paleontological resources is based on a regional approach that includes rock formations throughout the Central Valley. However, the potential for unique paleontological resources to occur is site-specific, and depends on the following factors: (1) the type of rock formations that are present both on and underneath the ground surface; (2) the type and amount of ground disturbance; and (3) the depth of ground-disturbing activities. The projects

considered in this cumulative analysis are listed in Tables 4-3 and 4-4, which display all projects that are located in or adjacent to project components and features.

Impact C-GEO-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on geology and soils. (construction: less-than-considerable contribution with mitigation; operation: less-than-significant contribution).

Construction

Construction of cumulative projects would not exacerbate the potential for rupture of a known earthquake fault; strong seismic ground shaking; or seismic-related ground failure that could result in loss, injury, or death. Seismic-related ground failure is a function of the location of the epicenter, the size of the event, and the underlying soils. Cumulative projects are not in a seismically active region. However, cumulative projects do have the potential to increase soil erosion with actions such as grading, excavating, trenching drilling, and clearing of vegetation.

The proposed project would implement Mitigation Measures GEO-2.1: Implementation of Best Management Practices (BMPs) to Reduce Soil Erosion. BMPs would include the use of gravel bags, straw rolls, and geotextiles to prevent erosion caused by water runoff. Additionally, dust control measures, such as misted water, silt fences, and polymer additives, would control loss of topsoil cause by wind. Furthermore, loss of topsoil during construction activities would be prevented by standard measures required as part of the National Pollutant Discharge Elimination System (NPDES). All cumulative projects that disturb 1 acre or more must comply with the NPDES Construction General Permit, which requires substantive controls to prevent project erosion. Furthermore, cumulative projects have less potential for soil erosion, because they would generally be located on relatively flat land with little to no slopes. Therefore, impacts from the proposed project, in combination with cumulative projects, would have a less-than-considerable contribution.

Operation

Operation of cumulative projects would not exacerbate the potential for rupture of a known earthquake fault; strong seismic ground shaking; or seismic-related ground failure that could result in loss, injury, or death. Seismic-related ground failure is a function of the location of the epicenter, the size of the event, and the underlying soils. Cumulative projects are not located in a designated Alquist-Priolo Earthquake Zone or in a seismically active region. Additionally, cumulative projects are unlikely to be sited in areas with known geologic or soils hazards, such as liquefaction and landslides. Any projects or portions of projects sited on expansive and/or corrosive soils would be subject to the California Building Standards Code, along with local codes and design standards, all of which are specifically designed to reduce site-specific geologic, seismic, and soils hazards. Cumulative projects could be sited on land prone to subsidence and settlement. For the proposed project, a geotechnical report would be completed to identify site-specific areas and magnitudes where subsidence and settlement could occur. Appropriate building techniques will be identified and used to prevent damage to foundations related to settlement and subsidence. Therefore, there would be no cumulative seismic, geologic, or soil hazard impacts during the operation of cumulative projects.

Impact C-Geo-2: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on paleontological resources.

Construction

Fossilized remains of vertebrate animals have been recovered throughout the Central Valley in a variety of rock formations, including the Pleistocene-age Modesto, Riverbank, and Turlock Lake Formations. These formations are widespread throughout the Central Valley and may occur on the ground surface and/or at shallow–moderate depths beneath the ground surface (depending on location). Therefore, any or all of the projects considered in this cumulative analysis and listed in Tables 4-3 and 4-4 could be, and likely are, located in paleontologically sensitive rock formations. Because all the projects listed in Tables 4-3 and 4-4 would require earthwork, including grading and excavation activities, they all have the potential to encounter and potentially damage or destroy unique paleontological resources during project-related construction activities. Therefore, the cumulative projects could result in significant impacts to unique paleontological resources during construction.

As described in Section 3.7, *Geology and Soils*, the proposed project requires grading and excavation activities in the Modesto and Riverbank Formations, which are considered paleontologically sensitive. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact. However, implementation of Mitigation Measure GEO-6.1 would require construction worker personnel training related to the nature and types of fossils that could be encountered, and the notification procedures to be followed if fossils were encountered, including the requirement to cease work within 50 feet of any fossil find. Mitigation Measure GEO-6.1 also requires periodic monitoring during construction; evaluation of any fossil resources by a qualified paleontologist; and as appropriate, preparing and implementing a recovery plan. Therefore, the proposed project's contribution to cumulative construction impacts on unique paleontological resources would be less-than-considerable contribution with mitigation.

Operation

Operation of the cumulative projects and the proposed project would not require grading or subsurface excavation. Therefore, there is no potential that unique paleontological resources would be damaged or destroyed during operational activities, and there would be no cumulative impact on paleontological resources from operational activities.

4.2.11 Greenhouse Gas Emissions

Emissions of GHGs have the potential to adversely affect the environment because such emissions contribute cumulatively to global climate change. It is unlikely that a single project would contribute significantly to climate change, but cumulative emissions from many projects could affect global GHG concentrations and the climate system, which is considered a significant cumulative effect.

During construction, all cumulative projects would emit GHGs from construction equipment and vehicles. Although construction activities are temporary, the lifespan of the most-emitted GHG, carbon dioxide, can be up to 100 years, and many of the other GHGs can last for decades. Operation of cumulative rail projects, such as Amtrak San Joaquin Corridor Service, Capital South

East Connector, and Sacramento Regional Transit District's Green Line to the Airport Project, as well as from freight rail, would result in GHG emissions. However, these cumulative rail projects provide alternatives to vehicular travel, and freight rail provides an alternative to trucking therefore usually resulting in a net reduction in GHG emissions relative to vehicular travel or trucking. Cumulative other regional transportation projects would increase vehicular GHG emissions if such projects result in induced traffic. If these cumulative projects result in a net decrease in VMT (e.g., through improvements to access or safety associated with alternative modes of transportation, such as the Meadowview Road/24th Street Streetscape project or the Bell Avenue Complete Project Rehabilitation project), they would reduce GHG emissions. Operation of cumulative land development projects would increase GHG pollutant emissions from increased vehicular travel, as well as building energy consumption, waste generation, water and wastewater treatment, and other sources. The emission of GHGs constitutes a significant cumulative impact.

Impact C-GHG-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in cumulatively considerable GHG emissions (construction: less-than-significant contribution with mitigation; operation: less-than-significant contribution).

Construction

As described in Section 3.8, *Greenhouse Gas Emissions*, construction of the proposed project could create GHG impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, truck hauling trips, and locomotive trips. Although SJVAPCD has not set a recommended threshold for construction-period emissions, the SMAQMD-recommended threshold is 1,100 metric tons of CO₂ equivalents per year (MT CO₂e/year). Although construction-related emissions of GHGs would exceed this threshold, when amortized over a 25-year project lifetime, construction-related emissions would not exceed the SMAQMD-recommended threshold. To conservatively ensure that the project implements all feasible measures to minimize such emissions, Mitigation Measure GHG-1.1 would be required to minimize potential construction-related GHG emissions. Mitigation Measure GHG-1.1 would reduce potential GHG emissions from off-road and on-road construction vehicles by improving fuel efficiency from construction equipment. In addition, as described in greater detail below, short-term generation of GHG emissions from construction activities would be offset by long-term operational net reduction in GHG emissions.

Operation

Over time, local, state, and federal plans are seeking to dramatically reduce GHG emissions. As described in Section 3.8, *Greenhouse Gas Emissions*, operation of the proposed project would result in a net GHG reduction due to changes in regional traffic and diverted private automobile trips to mass transit (see Table 3.8-2 in Section 3.8, *Greenhouse Gas Emissions*). GHG emission reductions achieved through operation of the proposed project would offset the temporary construction emissions within the first year of operation. Emission savings achieved thereafter would contribute to a regional reduction in GHG emissions. This reduction would be an environmental benefit, and would assist the State in meeting larger statewide GHG reduction goals outlined under Assembly Bill 32, Senate Bill 32, and California Executive Order S-03-05.

Construction and operation of the proposed project would result in a net regional reduction of GHG emissions, which would be an environmental benefit; therefore, contribution of the proposed project to cumulative GHG emissions would be less than considerable (beneficial).

4.2.12 Hazards and Hazardous Materials

Hazardous materials impacts are typically site-specific, and depend on underlying soil and groundwater conditions. The geographic context for potential cumulative impacts related to hazardous materials includes the project area and adjacent parcels.

Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4 that are in or adjacent to proposed project components and features. The cumulative analysis for Hazardous Materials relies on a list-based approach.

As discussed in Section 3.9, *Hazards and Hazardous Materials*, the proposed project would have no impacts related to airport or wildfire hazards. Because there would be no impact from construction or operation of the project relating to such hazards, there is no potential for the proposed project to contribute to any cumulative airport or wildfire impacts. These impacts will not be discussed further in this section. This section therefore focuses on cumulative impacts relating to hazardous materials and emergency response/evacuation.

Impact C-HAZ-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact from hazardous materials (construction: less-than-significant contribution; operation: less-than-significant contribution).

Construction

During construction of cumulative projects, people could be exposed to a risk to human health and spillage of hazardous materials such as gasoline, oil paint, and solvents. Water quality contamination could occur from accidental spillage of hazardous materials and mixture of contaminated water with non-contaminated water. Excavation activities could expose construction crew members to contaminated soils and groundwater that could pose a risk to health and safety. Some of the cumulative projects are proposed in areas with known existing contamination. Several examples are described below (not a comprehensive list of sites with known contamination):

- S Street Apartments project is within 0.25 mile of the Alta Plating and Chemical Corp Department of Toxic Substances Control (DTSC) cleanup site, and the S Street Redevelopment Project Regional Water Quality Control Board (RWQCB) cleanup program site.
- Crocker Village Court Lots project is on the site of UPRR, Curtis Park DTSC, and RWQCB cleanup sites.
- Press Building project is within 0.25 mile of the Phillips 66/Chevron Fueling Station RWQCB leaking underground storage tank cleanup site.
- Woodspring Suites project site is immediately adjacent to the I-80 corridor, and could contain aurally deposited lead in shallow soils.

- California High Speed Rail (Merced to Sacramento Section) overlaps parts of the project corridor, and would encounter the same sources of contamination as the project.

These are only a few known examples; other present and foreseeable projects may also encounter contamination issues. Although multiple cumulative projects will handle petroleum and hazardous materials and are likely to encounter existing soil and groundwater contamination present in and adjacent to the project corridor, all of the cumulative projects would be required to adhere to the applicable local, State, and federal laws and regulations pertaining to use, transport, and disposal of hazardous materials, and would be under the oversight of the appropriate regulatory agencies enforcing them. The existing regulatory requirements place strict controls on how such materials are handled, and how contamination is to be addressed, based on general screening levels and site-specific cleanup targets that are formulated by oversight agencies to be protective of human health and the environment. Adherence to such regulations would mean that any cumulative impact related to hazardous materials would be less than significant.

There would be no significant cumulative impact related to hazardous materials.

Operations

Release of and exposure to hazardous materials during operation of cumulative projects could result in a cumulative significant impact. Operation of the proposed project and other cumulative projects would involve handling of hazardous materials, including diesel fuel, pesticides, and various maintenance materials and cleaning fluids.

Operation of the other cumulative projects would also involve the use and handling of petroleum, fuels, and other hazardous materials including during maintenance. The use and handling of such materials is highly regulated by local, state, and federal requirements that are applicable universally. Therefore, routine operation and maintenance of the cumulative projects is not likely to have a significant cumulative impact from the release of or exposure to hazardous materials. There is always the possibility of an unforeseen accident involving petroleum or other hazardous materials, but local, state, and federal regulations also specify operating procedures to minimize the potential for such accidents and remedial response necessary in the event of such accidents or spills to contain and clean up hazardous material releases.

There would be no significant cumulative impact related to hazardous materials.

C-HAZ-2: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in significant cumulative impacts on emergency response or evacuation capacity.

Construction

During cumulative project construction, there may be temporary obstruction of access and egress from construction sites and on adjacent roads due to construction. Such obstruction would affect the ability of emergency responders to timely reach their destinations, and impede the ability to evacuate constrained areas in the event of an emergency. Where one or more cumulative projects would be in construction at the same time in the same area, there could be significant cumulative impacts on emergency response or evacuation capacity.

As discussed in Section 3.9, *Hazards and Hazardous Materials*, impacts of the proposed project on emergency access during construction would be less than significant, because impacts would be temporary, and would be further reduced through development and implementation of a transportation management plan for project construction. As described in Section 3.16, *Transportation*, the transportation management plan for construction would limit the number of simultaneous street closures and consequent detours in each immediate vicinity, and provide advance notice to emergency service providers. SJRRC would coordinate with local public works departments, local emergency providers, and the California Department of Transportation (Caltrans) in the development of the transportation management plan to specifically address emergency response concerns. Potential issues associated with multiple projects in construction at the same time would also be addressed through development of the transportation management plan. Therefore, the proposed project's contribution to a potential cumulative impact related to emergency response or evacuation would be less than considerable.

Operation

As discussed in Section 3.9, *Hazards and Hazardous Materials*, operation of the proposed project would result in more frequent gate-down events at at-grade crossings, and would increase peak-period traffic congestion near proposed stations, which are anticipated to cause less-than-significant impacts on emergency response and evacuations. However, other cumulative projects could also result in more frequent gate-down events, and increased congestion would could cause a cumulative impact.

Many of the cumulative land use projects identified in Tables 4-3 and 4-4 could increase peak-hour traffic congestion at or near proposed stations; however, this increased congestion is not anticipated to cause delays to emergency vehicle response times. Emergency vehicles often identify and use multiple routes depending on time of day and traffic conditions. Peak-period traffic congestion generally does not result in delay for emergency vehicles, which have the right-of-way and often use multi-lane major arterials for access. Emergency vehicles also are permitted to use transit-only lanes or other vehicle-restricted lanes, if necessary. Therefore, the proposed project's contribution to a potential cumulative impact related to emergency response or evacuation would be less than considerable.

4.2.13 Hydrology and Water Quality

The cumulative analysis considers erosion, stormwater runoff, and water quality, groundwater recharge, changes to drainage patterns, and flooding.

Impact C-HYD-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on hydrology and water quality (construction: less-than-considerable contribution with mitigation; operation: less-than-considerable contribution with mitigation).

Construction

Water Quality and Erosion

Earthmoving activities associated with all of the cumulative projects listed in Tables 4-3 and 4-4 have the potential to increase erosion, and for accidental spills of hazardous materials. During

winter storm events, disturbed soils and hazardous materials could be transported to downstream receiving waterbodies, resulting in degradation of water quality from sedimentation and materials such as fuels, lubricants, and paints. Therefore, the cumulative projects could result in significant erosion-related water quality impacts during construction.

As described in Section 3.10, *Hydrology and Water Quality*, the proposed project also has the potential to degrade water quality from transport of disturbed soils and materials such as fuels, lubricants, and paints into downstream waterbodies. Furthermore, the proposed project would also involve direct, in-water work for bridges and culverts in a variety of locations. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact. However, projects that disturb 1 acre or more of soil, which includes all of the cumulative projects listed in Tables 4-3 and 4-4, along with the proposed project, are required to comply with the requirements of the State Water Resources Control Board's (State Water Board's) NPDES Construction General Permit, which requires preparation of an SWPPP and implementation of BMPs that are specifically designed to protect water quality. Additionally, implementation of Mitigation Measures HAZ-2.3, HYD-1.1, and HYD-1.2 would require preparation of a construction risk management plan (CRMP) outlining appropriate containment procedures for handling and disposal of any encountered contaminated soil and groundwater, and incorporates limitations for use and handling near creeks, surface waters, or other aquatic habitats based on the findings of an ecological risk assessment; procedures for the construction of proposed project improvements entailing the discharge of groundwater or dewatering effluent; and procedures for construction of proposed project improvements adjacent to, within, or crossing surface waters. (Additional actions that would also prevent degradation of water quality for in-water work, such as a Clean Water Act Section 401 Water Quality Certification, are discussed in Section 3.4, *Biological Resources*.) Therefore, the proposed project's contribution to cumulative construction impacts on water quality from erosion would be less-than-considerable contribution with mitigation.

Water Quality and Flooding

The cumulative rail and regional transportation projects listed in Tables 4-3 and 4-4 would require construction activities in 100-year or 200-year floodplains. In addition, construction activities associated with the cumulative projects may be required in or across other small urban or rural streams that could flood during winter storm events, even if those small streams are not designated as 100- or 200-year floodplains. If storm-related flooding of construction areas occurs, stockpiles of construction materials could be inundated, and carried into on-site or off-site waterbodies, which could result in pollution of surface waters. Therefore, the cumulative projects could result in significant flood-related water quality impacts during construction.

As described in Section 3.10, *Hydrology and Water Quality*, the proposed project would require construction activities in 100- and 200-year floodplains, and construction would be required in and across other small urban or rural streams that could flood during winter storm events. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact. However, implementation of Mitigation Measure HYD-4.1 would prevent the storage of stockpiled construction materials, such as soil, fuels, and lubricants, in flood zones during the winter months when storms may occur. Therefore, the proposed project's contribution to cumulative construction impacts on water quality from flooding would be less-than-considerable contribution with mitigation.

Operation

Water Quality and Stormwater Runoff

Operation of all of the cumulative projects listed in Tables 4-3 and 4-4 could degrade water quality due to an increase in impervious surfaces (which would increase the amount of stormwater runoff) and handling of hazardous materials (which could contaminate the stormwater runoff). Increases in stormwater runoff could cause downstream erosion and sedimentation, and increase turbidity in receiving waters, depending on waterway conditions. Contaminated stormwater runoff would result in increased pollutant loading due to contact with petroleum and other contaminants deposited on impervious surfaces. In addition, cumulative rail and other regional transportation projects would increase the potential for leakage of diesel, oil, and grease, and for accidental spills of herbicides, that could further degrade surface water quality. Therefore, the cumulative projects could result in significant water quality impacts during operation.

As described in Section 3.10, *Hydrology and Water Quality*, operation of the proposed project improvements could result in increased pollutants involving petroleum products (e.g., oil, grease, and diesel), metals, and herbicides. Proposed project improvements would also increase the amount of impervious surface areas to accommodate vehicle parking, and fueling activities, and these impervious surfaces would contribute pollutants to stormwater runoff. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact. However, under typical operating conditions, the amount of pollutants released by modern trains is minimal (i.e., only minor drips) because trains undergo regular inspections and maintenance to prevent and fix leaks. Furthermore, the storage, use, and disposal of herbicides are heavily regulated at the federal, state, and local level; these regulations are specifically designed to reduce the potential for adverse human health or environmental effects. Furthermore, design of stormwater control systems in compliance with existing regulations (e.g., the State Water Board's NPDES Construction General Permit; Caltrans' NPDES permit; requirements for Small Municipal Separate Storm Sewer System [MS4] Permits; and Industrial General Permits) would ensure that stormwater runoff from the proposed project would not cause erosion and sedimentation in receiving waters, and that runoff from impervious surface areas would be managed and treated to remove contaminants. All of the cumulative projects listed in Tables 4-3 and 4-4 would also be required to comply with applicable NPDES/MS4 permits during operation. Additionally, implementation of Mitigation Measure HAZ-2.3 would require preparation of a CRMP outlining appropriate containment procedures for handling and disposal of any encountered contaminated soil and groundwater, and incorporates limitations for use and handling near creeks, surface waters, or other aquatic habitats based on the findings of an ecological risk assessment. Therefore, the proposed project's contribution to cumulative operational impacts on water quality and stormwater runoff would be less-than-considerable contribution with mitigation.

Groundwater Recharge

All of the cumulative projects listed in Tables 4-3 and 4-4 would involve the creation of new impervious surfaces that could impede groundwater recharge because stormwater would run off of the impervious surfaces, rather than infiltrating the ground surface and recharging aquifers. Stormwater runoff would be conveyed either to local surface drainage ways, where it would percolate through the ground back into the groundwater aquifer, or would be conveyed via

underground pipelines to larger streams and rivers. Surface water in streams and rivers is a major source of groundwater recharge in San Joaquin and Sacramento counties. Therefore, although new impervious surfaces would impede on-site groundwater recharge, the stormwater runoff would ultimately still contribute to groundwater recharge via percolation from local and regional creeks, streams, and rivers. Furthermore, all of the cumulative projects would be required to implement Low Impact Development (LID) features as part of state and local MS4 permits, such as on-site vegetated swales, permeable pavement, and soil amendments, which are designed to infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. The transportation-related cumulative projects listed in Table 4-3 do not require substantial water supplies. The development-related cumulative projects listed in Table 4-4 are expected to rely primarily on surface water supplied by local agencies. Finally, compliance with the Sustainable Groundwater Management Act requires adoption of a Groundwater Sustainability Plan by 2022 by the local groundwater sustainability agency; these plans are required to incorporate future projected growth, and to provide for sustainable management of groundwater supplies. Nevertheless, the cumulative projects listed in Tables 4-3 and 4-4 could result in a significant cumulative impact related to the need for additional groundwater; particularly the cumulative development projects, which would all require substantial additional potable water supply for daily residential use.

As discussed in Section 3.10, *Hydrology and Water Quality*, new station boarding platforms, parking lots, parking structures, roadways, and bridges associated with the proposed project would result in small amounts of new impervious surfaces. However, the proposed project is required to comply with state and local MS4 permits that require implementation of LID features, which would help to convey a portion of the on-site stormwater runoff back into the groundwater aquifer on the project site. As noted above, the stormwater runoff that is conveyed off site would ultimately still contribute to groundwater recharge via percolation from local or regional creeks, streams, and rivers; and water supply during the project's operational phase is only required for restrooms and drinking fountains, along with train washing at the OMF. Therefore, the proposed project's groundwater impacts would be small in scope and are considered less than significant, and the proposed project's contribution to cumulative impacts on groundwater recharge would be less than considerable.

Exceedance of Stormwater Drainage Systems

All of the cumulative projects listed in Tables 4-3 and 4-4 would alter existing drainage patterns and increase the amount of impervious surfaces. As a result, increased stormwater runoff would occur, which could exceed the capacity of stormwater drainage systems. Local planning requirements would require most, if not all, of the cumulative projects listed in Tables 4-3 and 4-4 to prepare an analysis of individual project impacts on existing drainage systems. In addition, compliance with regional and countywide stormwater regulations (e.g., requirements for MS4 Permits and Industrial General Permits) would address substantial sources of increased stormwater runoff associated with cumulative projects, and require such projects to provide features for retention of water on site, and treatment of stormwater runoff. In addition, projects that would result in an increase in the need for off-site stormwater conveyance or treatment would be required to pay a fair-share contribution towards the new local and/or regional infrastructure. Because most of the cumulative projects are still in the planning phase, the necessary hydrologic and hydraulic studies that would determine the timing, rate, amount of stormwater runoff, and the

on-site and/or off-site facilities necessary to convey and treat the runoff have not been prepared. Therefore, the cumulative projects could result in significant impacts from exceedance of stormwater drainage systems, which in turn could result in cumulatively significant degradation of water quality.

As discussed in Section 3.10, *Hydrology and Water Quality*, railway improvements for the proposed project would alter drainage patterns by altering or creating trackside ditches and drainage systems. Other proposed project improvements such as new station boarding platforms, parking lots, parking structures, roadways, bridges, and OMF facilities would also create new impervious surfaces and stormwater drainage systems, which would alter drainage patterns and create new sources of runoff. If stormwater control systems are not appropriately designed for these improvements, stormwater runoff could exceed the capacity of stormwater drainage systems and result in degradation of water quality. Therefore, the proposed project, in combination with the cumulative projects, could result in a significant cumulative impact. However, compliance with existing regulations, including post-construction requirements of the State Water Board's NPDES Construction General Permit and hydromodification management requirements of applicable MS4 permits, would minimize stormwater runoff. Additionally, implementation of Mitigation Measure HYD-3.1 would require detailed hydraulic evaluations to ensure that new and/or modified stormwater infrastructure would be appropriately designed, and that runoff from proposed project improvements would not exceed the capacity of storm drainage systems and result in water quality degradation. Therefore, the proposed project's contribution to cumulative operational impacts on exceedance of stormwater drainage systems and water quality would be less-than-considerable contribution with mitigation.

Flooding

The cumulative rail and regional transportation projects listed in Tables 4-3 and 4-4 would entail operation in 100-year or 200-year floodplains. In addition, the California High Speed Rail Project could also require operation within the boundaries of the Legal Delta, and both the California High Speed Rail Project and the Greenline Downtown to the Airport Project would encroach on levees and floodways under the jurisdiction of the Central Valley Flood Protection Board (CVFPB) and other agencies such as the Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers (USACE), California Department of Water Resources (DWR), and local reclamation districts. Delta Plan Policy RR P3 (23 California Code of Regulations Section 5014) prohibits construction of an encroachment in a floodway unless it can be demonstrated by appropriate analysis that the encroachment will not unduly impede the free flow of water in the floodway or jeopardize public safety. Operation of the cumulative projects may also be required in or across other small urban or rural streams that could flood during winter storm events, even if those small streams are not designated as 100- or 200-year floodplains. Finally, operation of the cumulative projects could exceed the capacity of existing drainage systems to the extent that on-site or off-site flooding may occur. However, the cumulative projects must comply with regulatory controls administered by federal, state, and local agencies related to construction and operation of projects in and through levees (e.g., FEMA, USACE, CVFPB, DWR), which are designed to ensure that the integrity of flood protection levees are maintained. Furthermore, the cumulative projects are also subject to post-construction requirements of the State Water Board's NPDES Construction General Permit and hydromodification management requirements of applicable MS4 permits, which are designed to reduce runoff, and thereby limit the potential for flooding created by

stormwater runoff. Because most of the cumulative projects are still in the planning phase, the necessary hydrologic and hydraulic studies that would inform the appropriate design and sizing of facilities in floodplains, and the necessary storm drainage infrastructure, have not been prepared. Therefore, the cumulative projects could result in significant operational impacts from flooding related to storm drainage infrastructure, and impeding or redirecting flood flows.

As discussed in Section 3.10, *Hydrology and Water Quality*, proposed project facilities would increase the rate and amount of stormwater runoff from alteration of drainage patterns and creation of impervious surfaces, which could result in flooding. Proposed project facilities would also be located in 100- and 200-year floodplains, and would require crossing over small urban or rural streams, and portions of the project would be constructed in the Legal Delta (particularly adjacent to the Cosumnes River at Thornton). Therefore, proposed project facilities, in combination with the cumulative projects, could result in a cumulatively significant impact from increased flooding due to increased stormwater runoff; impeding flood flows, and thereby increasing upstream or downstream flooding, and potentially reducing the effectiveness of flood improvements included in the Central Valley Flood Protection Plan. Because the proposed project is in the very early planning stage, the necessary hydrologic and hydraulic studies that would inform the appropriate design and sizing of facilities in floodplains and across water courses have not been prepared. Compliance with existing regulations, including post-construction requirements of the State Water Board's NPDES Construction General Permit and hydromodification management requirements of applicable MS4 permits, would minimize the potential for flooding from stormwater runoff. Additionally, implementation of Mitigation Measure HYD-3.1 would require detailed hydraulic evaluations to ensure that new and/or modified stormwater infrastructure would be appropriately designed, and that runoff from proposed project improvements would not exceed the capacity of storm drainage systems and result in flooding. Implementation of Mitigation Measure HYD-6.1 would require site-specific detailed hydrologic and hydraulic studies for proposed project improvements that are proposed in the 100- and 200-year floodplains. The results of these studies would be used to inform the design of proposed project facilities, so that they are specifically designed to pass 100- and 200-year flows without impedance, as required by local flood protection agencies such as Reclamation District (RD) 1000, as well as FEMA, DWR, USACE, and CVFBP standards, so that upstream, on-site, and downstream flooding would not occur. Mitigation Measure HYD-6.1 also requires the Commission to consult with RD 1000, DWR, and CVFBP regarding project-related work that is proposed within floodplains, to ensure that project facilities are designed so they will not interfere with flood protection efforts. Finally, Mitigation Measure HYD-6.1 requires the Commission to obtain all necessary permits, consult with any necessary agencies with levee jurisdiction, and perform work in accordance with the terms of the permits, which would contain measures to protect public safety and water quality, as issued by the applicable regulatory agency. Therefore, the proposed project's contribution to cumulative operational impacts related to flooding would be less-than-considerable contribution with mitigation.

4.2.14 Land Use and Planning

The geographic context for potential cumulative impacts on land use includes the areas adjacent to, and in the vicinity of, the proposed project corridor. Cumulative projects in this geographic context include the projects listed in Tables 4-3 and 4-4. The cumulative analysis for Land Use and Planning relies on a list-based approach.

As described in Section 3.11, *Land Use and Planning*, activities in the UPRR ROW are exempt from local building and zoning codes and other land use ordinances. Therefore, proposed project components in the existing UPRR ROW are not subject to local or regional plans or regulations, and no land use impacts are expected in the existing UPRR ROW. Consequently, the cumulative land use and planning analysis focuses on locations where proposed project improvements would occur outside the existing UPRR ROW.

Impact C-LU-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on land use and planning (construction: less-than-considerable contribution; operation: less-than-considerable contribution).

Construction

Community Division

Construction of cumulative projects could result in cumulative community division impacts because of temporary disruptions to and access to existing land uses. Most cumulative projects would either occur in or adjacent to existing railroad or roadway ROWs, on vacant lands, or on lands with existing uses that would be displaced with the construction of the new use. Therefore, none of the above-listed cumulative projects, in combination with proposed project, is expected to result in a significant cumulative impact.

As described in Section 3.11, *Lane Use and Planning*, detours or impeded access due to construction of proposed project elements would be temporary, lasting several days at a location, and would not result in a permanent impediment to circulation or access to common uses that define an established community. In addition, Mitigation Measure TRA-1.1, described in Section 3.16, *Transportation*, requires the preparation and adoption of a construction road traffic control plan for the proposed project, and would include strategies to reduce impacts from street or lane closures and detours; maintain local circulation and traffic flow and limit pedestrian and bicycle transit access closures; and ensure that potential impacts would be less than significant. Construction activities that could disrupt and interfere with uses that contribute to community cohesion and identity would be temporary, and not result in a permanent change. Therefore, in combination with the above-listed cumulative projects, the proposed project's contribution to cumulative impacts on land use related to community cohesion and identity during construction would be less than considerable.

Operation

Community Division

The majority of proposed project improvements would occur in or alongside existing UPRR ROW, and would occur for the most part on an existing railroad corridor. These existing transportation corridors already function as a physical barrier, and operation of the proposed project in these corridors would not result in new barriers in existing communities. Proposed project elements that are outside these corridors involve new parking areas, extended station platforms, and track layover facilities. These elements, which are directly adjacent to the UPRR ROW, would not alter or impede connectivity and access in the communities where they are proposed; sever existing roads or crossings; or displace community uses. Therefore, the proposed project's potential

contribution to cumulative impacts related to community division during operation would be less than considerable.

Land Use Plan and Policy Consistency

The proposed project would generally be consistent with regional and local plans and policies. However, project elements associated with the Lodi Station and Lodi Station South Alternative outside of the existing UPRR ROW would be inconsistent with policies to restrict development outside city boundaries to preserve agricultural resources. However, there are no cumulative projects in the vicinity of the Lodi Station and Lodi Station South Alternative that would result in a significant cumulative impact.

In addition, the Natomas/Sacramento Airport Station would be inconsistent with policies in the *City of Sacramento 2035 General Plan* regarding interim zoning consistency. The cumulative project nearest the Natomas/Sacramento Airport Station would be the Sacramento Regional Transit District's Green Line to the Airport project. However, the Sacramento Regional Transit District's Green Line to the Airport project was found to have a beneficial effect with respect to land use. Therefore, there would be no land use consistent impact as a result of this cumulative project. Therefore, the proposed project's contribution to cumulative impacts related to land use plan and policy inconsistencies would be less than considerable.

4.2.15 Noise and Vibration

For noise, the long-term impact analysis is already cumulative in nature because it considers the existing noise levels when determining the noise impact threshold for each receiver. This approach takes into account the noise from existing surrounding facilities, such as highways or local streets. The development of future projects, including future transportation facilities or services independent of the proposed project, would have the potential to alter cumulative noise levels. Most transportation projects in the general vicinity of the proposed project are far enough away from the proposed project that there would be no cumulative effect. The primary transportation project that might have the potential to increase cumulative noise levels would be the California HSR project. However, because there are no project details at this time, including location and operations, it would be impossible to determine any cumulative effect.

Impact C-NOI-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on noise (construction: considerable and unavoidable; operation: less-than-considerable contribution with mitigation).

As discussed in Section 3.12, *Noise and Vibration*, construction of the proposed project would have potentially significant noise and vibration impacts during construction. Mitigation Measures NOI-1.1 and NOI-4.1 would require development and implementation of a noise control plan and vibration control plan, respectively, to reduce potential construction noise and vibration impacts, but would not necessarily reduce all noise impacts at all times during construction to a less-than-significant level; particularly with the likelihood of substantial nighttime construction expected with the proposed project. Because there will be other cumulative projects simultaneously under construction adjacent to the corridor, the construction of the proposed project could result in a cumulatively considerable contribution to cumulative construction noise impacts. With mitigation, the proposed project's contribution to cumulative construction vibration impacts would be less

than cumulatively considerable. In regard to construction noise, even with mitigation, the proposed project's contribution to cumulative impacts related to noise during construction would be considerable and unavoidable.

As described in Section 3.12, *Noise and Vibration*, the proposed project would result in operational vibration impacts at one location due to the operation of the proposed crossover track south of the City College Station. Implementation of Mitigation Measure NOI-3.1, requiring a detailed vibration analysis, would reduce impacts to less-than-significant levels. Therefore, the proposed project's contribution to cumulative vibration impacts would be less than cumulatively considerable.

As further described in Section 3.12, *Noise and Vibration*, the proposed project would result in moderate yet less-than-significant operational noise impacts at seven locations along the project corridor. However, none of these locations are proximate to the cumulative projects listed in Tables 4-3 or 4-4. Therefore, the proposed project's contribution to cumulative operational noise impacts would be less than cumulatively considerable.

4.2.16 Population and Housing

The geographic context for the analysis of construction-related cumulative impacts on population and housing is the two counties (i.e., Sacramento and San Joaquin counties) where construction of the proposed project improvements and cumulative projects would occur (Tables 4-3 and 4-4). The geographic context for the analysis of cumulative impacts from operations on population and housing comprises the communities where new stations are proposed, because municipalities supporting proposed project stations are the locations in which existing and new riders would access the proposed project, and take advantage of the increase in operations.

The cumulative growth projections summarized in Table 3.13-1 (see Section 3.13, *Population and Housing*) were considered for analysis of cumulative impacts on population and housing. As shown in Table 4-1, the cumulative analysis for population and housing relies on a projection approach.

Impact C-PH-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on population and housing (construction: less-than-considerable contribution; operation: less-than-considerable contribution).

Construction

Construction of transportation and development projects considered in this cumulative analysis would have the potential to temporarily induce local population growth through the employment of workers during the construction period. Although many of these projects could bring temporary workers to the area, most of these projects would likely be constructed at various intervals, thereby reducing the potential overlap of project construction with construction of the proposed project. However, the Sacramento Regional Transit District's Green Line to the Airport project is targeted for construction in 2022, which could result in the simultaneous construction of the Green Line to the Airport project and the proposed project.

The source of the construction labor force is unknown at this time, but workers required for construction of the proposed project improvements and cumulative projects would be expected to come from the local labor pool in nearby communities in Sacramento and San Joaquin counties. According to the most current labor data available from the U.S. Census Bureau 2017 American Community Survey, 48,367 residents in Sacramento County and 24,738 residents in San Joaquin County were employed in the construction industry in 2017 (U.S. Census Bureau 2017).

Based on the pool of existing residents who are employed in the construction industry in Sacramento and San Joaquin counties, it is not anticipated that construction of the proposed project improvements, in combination with cumulative projects, would cause substantial population growth or a substantial increase in housing demand in the region. Furthermore, if construction workers from outside the region were employed during the construction period, the temporary nature of the work suggests that it would be unlikely that non-local workers would permanently relocate; this is typical for employees in the various construction trades. Therefore, in combination with the cumulative projects, the proposed project's contribution to cumulative impacts on population and housing during construction would be less than considerable.

Operation

In general, a project may foster spatial, economic, or population growth in a geographic area if it removes obstacles to population growth (e.g., the establishment or expansion of an essential public service or the extension of a roadway to an area). Included in this definition are the cumulative rail and other regional transportation projects such as the Capital South East Connector, which could facilitate travel between I-5 and Highway 50 in unincorporated Sacramento County, as well as Sacramento Regional Transit District's Green Line to the Airport project, which would extend light rail approximately 13 miles north from downtown Sacramento to the River District, the Natomas communities, and Sacramento International Airport.

New stations would provide accessibility, proximity to transit services, and may be an attractive benefit consistent with intensified development. Growth may also occur as a redistribution of planned growth that takes advantage of transit availability in the community. As discussed in Section 3.13, *Population and Housing*, new stations would not result in the intensification of land uses or induce new or unplanned growth around the station sites. The Lodi Station and Lodi Station South Alternative sites would be in an area where development of the area surrounding the station sites is limited through the County's land use designation, and zoning and infrastructure constraints. ~~There are no vacant lands proposed for future development in the vicinity of the North Elk Grove Station.~~ The City College Station, the Midtown Sacramento Station, and the Old North Sacramento Station would support the City's General Plan policies that encourage and promote the enhancement of passenger rail service to and through the Sacramento area, and are complementary to land use and future growth identified in the City's General Plan. Development of the area surrounding the Natomas/Sacramento Airport Station is limited through the County's land use designations; the Natomas/Sacramento Airport Station would not result in new land uses or cause the redistribution or intensification of planned land uses that could induce unplanned growth around this station site. Therefore, in combination with the cumulative projects, the proposed project's contribution to cumulative impacts on population and housing during operation would be less than considerable.

4.2.17 Public Services

The geographic context for cumulative construction impacts on public services is the project corridor and vicinity. The geographic context for cumulative operation-related public services impacts includes the service area of the public service providers to the project corridor. For construction impacts on public services, cumulative projects included in this geographic area are all projects listed in Tables 4-3 and 4-4. The cumulative analysis for public services relies on both a projection approach (for operations) and on a list approach (for construction disruption), based on the projects listed in Tables 4-3 and 4-4.

Public services include fire protection, police protection, emergency medical services, schools, libraries, and other public facilities. For construction, the cumulative analysis addresses the potential for temporary public service demands. For operations, the analysis addresses the potential for service ratio and response time increases for fire protection, emergency responders, and law enforcement, as well as the potential need for new or physically altered fire protection, law enforcement, schools, or other public facilities.

Impact C-PS-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on public services (construction: less-than-considerable contribution; operation: less-than-considerable contribution).

Construction

During the construction of the proposed project, in combination with cumulative projects, there could be an increased demand for public services distributed throughout the surrounding area. However, this demand would be short-term and temporary. The amount of construction workers would vary depending on the season and what work is being done. The demand for public services is not expected to change from background levels, because the majority of these workers would likely be residents of Central Valley/Sacramento Valley. Therefore, construction personnel and their families would make up the existing demand for these services. Any construction personnel having to relocate to the vicinity of construction activities could increase demand for public services, although this amount is not expected to be substantial or permanent. Additionally, construction of cumulative projects is not expected to occur all at once.

Construction activities occurring in roadways could also disrupt traffic and interfere with the response times of fire, police, and other emergency responders. Construction of the proposed project would primarily occur in UPRR ROW. However, as identified in Table 3.14-7 (see Section 3.14, *Public Services*), some roadways could potentially be impacted during construction activities. These impacts could affect emergency vehicle response times due to increased traffic congestion. Nonetheless, coordination with local authorities would be required to avoid any conflicts with fire protection, law enforcement, and emergency responders' ability to respond to calls, including identifying alternative routes, detour provisions, and allowable routes during construction activities. Additionally, traffic control plans would be required for affected roadway. Therefore, impacts from the proposed project, in combination with cumulative projects, would have a less-than-considerable contribution.

Operation

During the operation of the proposed project, in combination with cumulative projects, there could be an increased demand for public services distributed throughout the surrounding area. Land-use projects such as the development of housing, commercial, and mixed-uses could result in permanent growth to the area. However, the proposed project, along with other rail projects, would not induce growth in the surrounding area, nor would these projects directly or indirectly foster the construction of additional residential, commercial, or industrial businesses in the surrounding area. The proposed project and other rail projects (including Amtrak San Joaquin Corridor Service, Sacramento Regional Transit District's Green Line to the Airport project, and California High Speed Rail) could increase the number of passengers at existing and proposed stations, which may result in an additional demand for fire, police, and other emergency responders. Although operation of the proposed project and other rail projects may result in an increase in existing passenger rail service and the extension of passenger rail service to new areas, substantial localized growth is not anticipated. Therefore, there would be no impacts on schools, post offices, libraries, parks, and other public facilities. Cumulative rail projects could result in traffic delays that could affect emergency vehicles response times. However, typical gate-down times for passenger trains are no more than a minute. Therefore, they are not expected to have substantial impacts.

Therefore, the proposed project, in combination with cumulative projects, is not expected to result in the need for new or physically altered public facilities, or result in any significant cumulative impacts associated with operation of new public facilities.

4.2.18 Recreation

The geographic context for the analysis of potential cumulative impacts on recreation consists of the areas in and adjacent to the proposed project corridor (within 1,000 feet of the project's environmental footprint). Increased demand for or degradation of recreational facilities requiring the construction or expansion of recreational facilities that would have an adverse effect on the environment would result in a significant cumulative impact. Cumulative projects included in this geographic area are all projects listed in Tables 4-3 and 4-4. For analysis of recreation demand, cumulative growth in proposed project corridor was also considered. As shown in Table 4-1, the cumulative analysis for recreation relies on a list approach (for construction) and on a projection approach (for operation).

Impact C-REC-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on recreation (construction: less-than-considerable contribution with mitigation; operation: less-than-considerable contribution).

Construction

Construction of cumulative transportation and land use development projects would generally not be anticipated to result in impacts to the specific recreational resources discussed in Section 3.15, *Recreation*; that is, recreational resources in or up to 1,000 feet from the proposed project's environmental footprint. Due to the location of the cumulative projects, most would not be near any of the recreational resources that could potentially be affected by the proposed project, and

therefore result in construction-related cumulative impacts to recreation. However, three developments would be within 1,000 feet of recreational resources that could also be affected by construction of the proposed project: Crocker Village Court Lots, the Press Building, and Woodspring Suites. These three developments would be 500 feet or more from City College athletic facilities, Truitt Bark Park, and the Walter S. Ueda Parkway, respectively. At these distances, and with intervening development, it is unlikely that construction noise or activities related to development of the cumulative projects would affect these recreational resources. Therefore, construction of the cumulative projects would not likely result in direct or indirect noise, access, or visual impacts to these recreational facilities to the extent that a significant amount of visitation would be displaced to other parks or recreational facilities. Given the adjacency of the proposed project, construction noise could affect use of the athletic facilities at City College. Therefore, construction of the proposed project could displace use from these facilities to other facilities. However, by implementing Mitigation Measure REC-1 to avoid construction during organized games/practices, construction of the proposed project would not displace substantial use from City College athletic facilities to other facilities. Occasional use of these facilities may be displaced during construction, but the level of use that could be displaced would be minimal, and would not increase the use of existing neighborhood and regional parks or other recreational facilities to the extent that substantial physical deterioration of the facility would occur, or be accelerated. Therefore, the construction-related cumulative impact to recreation would be less than significant.

Operation

As discussed in Section 3.13, *Population and Housing*, growth is anticipated and planned along the project corridor. The presence of the new stations and additional passenger rail service along the project corridor would support existing local and regional land use development plans, and would not induce new unplanned growth along the project corridor or at station sites. Therefore, the proposed project would not lead to an increase in use of neighborhood and regional parks or other recreational facilities, or require the construction or expansion of recreational resources that might have an adverse physical effect on the environment beyond the bike/pedestrian path included as part of the proposed project. Because growth is planned for along the project corridor by relevant cities and counties, it is assumed that any increase in demand for recreational facilities resulting from such growth would be accommodated by existing recreational facilities, or addressed via development fees if existing facilities would not be able to accommodate projected increased recreational facility demand. Therefore, the operations-related cumulative impact to recreation would be less than significant.

4.2.19 Transportation

The geographic context for the analysis of cumulative impacts on transportation varies by subject area. For construction impacts, the geographical area is the project corridor and vicinity. For operations impacts, the geographic focus of the analysis is the transportation network at and near grade crossings and proposed passenger stations.

The cumulative analysis for transportation primarily relies on a list approach, and considers the cumulative projects summarized in Tables 4-3 and 4-4. The analysis of cumulative impacts due to project construction, for example, considers the subset of those cumulative projects in Tables 4-3 and 4-4 in the geographic context for construction impacts (i.e., the project corridor

and vicinity). However, a projection-based approach is applied for some components of the analysis of cumulative impacts due to project operation. In these particular cases, the analysis relies on travel demand and ridership forecasting models to characterize and quantify specific effects of the project (e.g., reductions in annual VMT).

Impact C-TRA-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on transportation (construction: less-than-considerable contribution with mitigation; operation: less-than-considerable contribution).

Construction

During construction, cumulative projects could disrupt transit, roadway, bicycle, or pedestrian facilities, which could conflict with programs, plans, ordinances, or policies addressing the circulation system; substantially increase hazards; and/or result in inadequate emergency access. In general, potential effects would be more substantial for transportation projects, which may require substantial, if temporary, changes to the circulation system to accommodate construction activities. However, land use development and other non-transportation cumulative projects could also result in some effects in cases where such projects similarly propose substantial changes to the circulation system to facilitate construction (e.g., roadway closures, transit stop relocations, etc.).

Considering the project in conjunction with these cumulative projects, potential effects on transportation may be amplified where construction activities are concentrated in close proximity, or when they take place concurrently. Standard construction practices and regulations require construction contractors to work with relevant parties (e.g., public works departments, transportation agencies, transit service providers) to coordinate construction activities, and identify, avoid, and minimize disruptions to the circulation system. Despite these requirements, however, it is possible that cumulative construction effects could reach the level of a significant impact.

As discussed in Section 3.16, *Transportation*, the impacts of project construction on transportation were conservatively deemed significant, in recognition of potential disruptions during project construction to the circulation system, to Sacramento Regional Transit light rail operations, and to freight rail operations along UPRR-owned ROW. Therefore, the project's contribution to the aforementioned significant cumulative construction impact would be considerable.

Mitigation Measure TRA-1.1, Mitigation Measure TRA-1.2, and Mitigation Measure TRA-1.3, as described in Section 3.16, *Transportation*, involve measures to be implemented by SJJPA/SJRRC to mitigate project-specific construction impacts to less-than-significant levels. Although these mitigation measures would not be sufficient to reduce the aforementioned significant cumulative construction impact to less-than-significant, they would reduce the project's contribution to the impact to less than considerable.

Operation

Regulatory Setting Impacts

The project, in combination with other cumulative projects, would result in physical changes to transit, roadway, bicycle, and pedestrian facilities, and would likely result in other indirect effects on the circulation system, such as increasing demand for these facilities. However, the project and other cumulative transportation projects would generally improve or enhance the quality of these facilities. Active transportation, for example, would generally improve through the ongoing implementation of bicycle and pedestrian plans, enhancing the geographical extent, safety, and attractiveness of bicycle and pedestrian facilities, even if increased automobile traffic or other cumulative effects may increase potential sources of conflict for bicyclists and pedestrians.

For other components of the circulation system, however, it cannot be determined with reasonable certainty whether or not general conformance with applicable programs, plans, ordinances, or policies would be achievable. The ability to improve transit service and facilities, for example, is often restricted by the availability of funding, and it is possible that land use development in the cumulative timeframe may generate additional ridership that would require substantive physical improvements that are not foreseeable at this time, or that may not be implemented in time to ensure that transit continues to function in accordance with applicable programs, plans, ordinances, or policies. Likewise, it is not certain whether goals and objectives from the regulatory setting related to VMT reduction are fully achievable. Given this uncertainty, cumulative impacts related to the regulatory setting are conservatively deemed significant.

As described in Section 3.16, *Transportation*, however, project operation, on its own, would generally conform to these programs, plans, ordinances, and policies. The project, including all alternatives and variants, would provide substantive benefits in expanding the geographic reach and connectivity of the transit network, and would result in substantive mode shifts and reductions in VMT. The project would also benefit freight rail through grade crossing safety upgrades and reduced congestion on major highway corridors (I-5 and SR 99). Given these considerations, the project would not represent a considerable contribution to the significant cumulative impact identified above.

VMT Impacts

As described in Section 3.16, *Transportation*, the proposed project is expected to result in an annual VMT reduction of approximately 65.2 million vehicle-miles in 2025. This annual VMT reduction would continue to grow in subsequent years, in conjunction with ridership growth on the new and expanded service under the proposed project, as well as synergistic effects with other planned improvements to the transportation system. By 2055, the annual VMT reduction would reach approximately 144.3 million vehicle-miles, including approximately 102.8 million vehicle-miles attributable to ACE, and 41.5 million vehicle-miles attributable to the San Joaquins. Because the proposed project would still result in a reduction in VMT, the project would not represent a considerable contribution to any cumulative VMT impact.

Hazard Impacts

The design and function of each cumulative project and its interface with the circulation system would be governed by applicable standards from Caltrans and local city and county agencies.

Cumulative land use development, for example, would be subject to applicable site access and design standards, including on-site transit, roadway, bicycle, and pedestrian facilities, and any interface with corresponding off-site components of the circulation system. In addition, some transportation-related cumulative projects may specifically include components to address deficiencies in the existing circulation system, or would otherwise reduce or eliminate hazards. The project, for example, would include upgrades at selected grade crossings that that would generally improve safety at these locations. Given these considerations, cumulative impacts related to transportation hazards would be less than significant.

Emergency Access Impacts

Physical changes and other effects on the circulation system due to cumulative projects—including increased demand on transit, roadway, bicycle, and pedestrian facilities—could affect emergency access. Changes to the roadway network, for example, may affect the preferred routes that emergency vehicles choose to take, while increased automobile traffic and other activity may result in a slight increase in response times for emergency vehicles. It is unlikely, however, that these changes would rise to the level of a significant impact by precluding emergency access to, from, or through specific areas or by substantially increasing travel times for emergency vehicles.

As mentioned in Section 3.16, *Transportation*, emergency vehicles are permitted to use transit-only lanes or other vehicle-restricted lanes and are generally not subject to traffic control devices, and would therefore be able to bypass other vehicles, including any localized traffic congestion. California Vehicle Code Section 21806 also requires that other vehicles yield right-of-way to emergency vehicles. Given these considerations, cumulative impacts related to emergency access would be less than significant.

4.2.20 Utilities and Service Systems

The geographic context for cumulative construction impacts on utilities and service systems is the proposed project corridor and vicinity. The geographic context for the cumulative analysis of operation-related utilities and service systems impacts includes the service area of the utilities and service systems providers to the proposed project corridor and project components.

For construction disruption to utilities and service systems, cumulative projects included in this geographic area are all projects listed in Tables 4-3 and 4-4, which display all projects that are in or adjacent to proposed project components and features. For operational impacts on utilities and service systems, cumulative growth projections in this geographic context are summarized in Tables 4-3 and 4-4. The cumulative analysis for utilities and service systems relies on both a projection approach (for operations) and on a list approach (for construction disruption).

For construction, the analysis focuses on the potential for utility disruption, temporary utility and service system demands, and impacts on landfill capacity. For operations, the analysis focuses on utility and service system demands (relative to the potential need for new utility infrastructure) and impacts on landfill capacity.

Impact C-UT-1: Implementation of the proposed project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative

impact on utilities and service systems (construction: less-than-significant contribution with mitigation; operation: less-than-considerable contribution).

Construction

Disruption of Utilities

Construction activities associated with cumulative projects, such as California High Speed Rail and Sacramento Regional Transit District's Green Line to the Airport project, could disrupt utility service systems in a planned or unplanned manner. Standard construction practices and regulations require construction contractors to identify and avoid unplanned disruptions to utilities, and to work with utility owners to coordinate construction to avoid damage and utility outages. However, it is possible that relocation or accidental disruption during construction could disrupt utility service or damage utility lines. Mitigation Measure UT-1: Implement a Utility Relocation Plan, would be implemented to avoid adverse effects of relocation utilities. Therefore, the proposed project's contribution to cumulative construction impacts related to disruption of utilities would be less-than-considerable contribution with mitigation.

Demand for Utilities Infrastructure

Construction of cumulative projects would result in increased demand for utilities. As described in Section 3.18, *Utilities and Service Systems*, construction of the proposed project would result in minimal water demand, generate minimal wastewater, and stormwater runoff generation would be managed through compliance with the SWPPP as required by the NPDES program. Water use and generated wastewater would be temporary, and would not place a long-term demand on local service providers. In addition, local water providers and wastewater treatment plants would have available capacity to serve the temporary, incremental demands associated with construction of the proposed project. The electric power required for construction would be minimal, and would not be expected to require the construction of new or expanded facilities. The SWPPP would prevent ponding, and ensure that stormwater runoff during construction would be controlled and would not require the construction of, or expansion of new water treatment facilities. Therefore, the proposed project is not expected to substantially contribute to cumulative impacts related to demand for utilities infrastructure, and cumulative impacts would be less than considerable.

Landfill Capacity

Construction activities of cumulative projects would generate typical construction and demolition waste, such as concrete, rubble, fill, and different types of building materials. State and local regulation, including CALGreen (Part 11 of Title 24 efficiency standards, Section 5.408) requires that 65 percent of C&D waste generated during construction would need to be recycled or diverted from the waste stream. Materials that cannot be reused on site would be conveyed to a solid waste facility that is permitted to accept C&D waste. Regional solid waste facilities, including the North County Recycling Center and Sanitary Landfill and Sacramento County Kiefer Landfill, accept C&D materials and have sufficient remaining capacity (or throughput) that would accommodate the demand for waste disposal. Compliance with CALGreen requirements would also assist in the attainment of solid waste reduction goals. Therefore, the proposed project's

contribution to cumulative construction impacts related to landfill capacity would be less than considerable.

Operation

Demand of Utilities

Cumulative growth could increase demand for additional utility infrastructure, including water supply, wastewater, stormwater facilities, or other utilities. The operation of cumulative projects would result in increased water demands, wastewater generation, and energy demands.

As described in Section 3.18, *Utilities and Service Systems*, water demand and wastewater generation would likely come from trains and landscaping water use at stations. Increased water use for landscaping and maintenance at proposed stations would be served by recycled water systems, as required by the municipalities pursuant to statewide Green Building Standards and water-efficient landscape ordinances. Therefore, landscaping and maintenance would not substantially increase water demand at new stations. Additionally, proposed stations would not include restrooms, because the proposed project is expected to serve regional commuters boarding, or exiting passengers on ACE or San Joaquin trains would be either residents or employees in a given service area. The local water providers and wastewater treatment facilities are expected to have capacity to serve the incremental demands associated with water and wastewater needs.

Project improvements would result in new paved areas that could potentially change drainage patterns, and result in increased stormwater runoff due to the addition of impervious surfaces. Stormwater infrastructure would be installed or reconfigured as necessary to serve these new and/or modified impervious surfaces. The Lodi Station and Lodi Station South Alternative would include development of new stormwater drainage basins that would not connect to local storm drainage facilities. The stormwater drainage facilities design would require complying with state and local requirements for storm drain design, including introduction of post-construction stormwater controls into site design. Therefore, operation of the proposed project would not result in the need for the construction of new or expanded stormwater drainage facilities.

Electric power for the proposed project is assumed to be provided by SMUD or PG&E, because the project area is in PG&E and SMUD's electric service area. It is assumed that SMUD and PG&E's existing electric power facilities would be able to accommodate the slight increase in electricity demand from the proposed project, because the utility generates power from various sources and provides connections to the larger power grid. Therefore, operation of the proposed project would not result in the need for the construction of new or expanded electrical or natural gas facilities.

As discussed above, the proposed project's contribution to cumulative operation impacts related to utility infrastructure demands would be considered less than considerable.

Landfill Capacity

The operation of cumulative projects would generate additional solid waste going to landfills in the region. Solid waste of cumulative transportation projects would have a limited increase in the demand for landfill capacity, because solid waste generated is generally limited to new stations

and occasionally routine track maintenance. Additionally, operation of cumulative land use projects would contribute to solid waste at landfills. As described in Section 3.18, *Utilities and Service Systems*, the solid waste generated by the proposed project would be far below the remaining capacity of local landfill facilities. Solid waste facilities that serve the new stations would have capacity to accommodate projected increases in solid waste disposal, and the additional solid waste generated by operations would be within capacity of local landfills. Additionally, material reuse and recycling would be implemented as standard practice at the stations in compliance with the Integrated Waste Management Act, thereby reducing waste being transferred to landfills. Therefore, the proposed project's contribution to cumulative impacts related to landfill capacity during operations would be less than considerable.

4.3 Significant and Unavoidable Environmental Impacts

Section 15126.2(c) of the CEQA Guidelines requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. The environmental effects of the proposed project on various aspects of the environment are discussed in detail in Chapter 3, *Environmental Impact Analysis*, of this EIR. Project-specific and cumulative impacts that cannot be avoided if the project is approved as proposed include:

- Construction
 - **Noise/Vibration:** The operation of certain construction equipment and construction activities could generate noise exposure in excess of FTA thresholds. Nighttime construction near residential uses would have larger impacts than daytime construction, and would result in a potentially significant impact.

Although the measures specified in Mitigation Measure NOI-1.1 (see Section 3.12, *Noise and Vibration*) would generally reduce the construction noise levels, the measures would not necessarily guarantee that sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit during the day, or the 70 dBA limit at night. In addition, given the active railroad, it is probable that construction near some residential areas would have to be conducted at night to avoid disruption of freight and passenger rail operations, and to complete construction on schedule. Furthermore, a temporary sound wall may be effective in certain locations; but in many cases, the nature of the construction work makes use of such sound walls infeasible.

Construction-related noise would be short-term, and would cease after the construction is completed. Still, even with mitigation, the impact of temporary construction-related noise on nearby noise-sensitive receptors would remain a significant and unavoidable impact, particularly where heavy construction would occur immediately adjacent to residences, and where construction would occur at night near residences.

- Operation
 - **Agriculture:** Construction of the Lodi Station would directly and permanently convert approximately 10.9 acres of Prime Farmland, and construction of the Lodi Station South Alternative would directly and permanently convert 3.3 acres of Prime Farmland

and 7.2 acres of Unique Farmland. These conversions would contribute to the incremental decline of Important Farmland in the county, region, and state, and result in the irreversible conversion of this agricultural land. A permanent conversion from would account for less than 1 percent of this total in San Joaquin County.

4.4 Significant and Irreversible Environmental Changes

CEQA Guidelines (Section 15126[c]) require that an EIR address “Significant Irreversible Environmental Changes Which Would be Involved in the Proposed Project, Should it be Implemented.”

During the construction of the proposed project, the use of materials such as steel and copper and fossil fuels would be required. The source metals used, unless they come from recycled materials, would represent an irreversible use of resources. Fossil fuels used during construction would also represent an irreversible use of oil and natural gas. Section 3.6, *Energy*, summarizes estimated fuel consumption from the construction of the proposed project.

Operation of the proposed project would require diesel fuel for propelling the trains, fuel for vehicle shuttle/bus bridge operations, and electrical use at new stations. However, the proposed project would also result in a reduction in vehicle fuel use due to the displacement of VMT. As shown in Section 3.6, *Energy*, the reduction in VMT and the related decrease in fuel consumption would offset the operational energy demands of the proposed project, resulting in a net energy savings relative to no-project conditions. The continued diesel use for project operations would be a continuance of non-renewable fossil fuel usage. To the extent that electricity supplying the proposed project comes from non-renewable sources (natural gas, coal, nuclear), it would represent an irreversible use of those resources; however, due to the offset of vehicle fuel use, the project would have a net reduction in the irreversible use of fossil fuels.

Permanent visual alterations would result from new stations, operating facilities, and associated railroad features such as new railroad bridges, at-grade crossings, and retaining walls. Additionally, trees and mature vegetation would be removed and pruned. Some trees and vegetation would not be replaced on site, resulting in a physical and aesthetic permanent change in certain locations. As documented in Section 3.1, *Aesthetics*, these physical changes would alter views from residential viewers, roadway travelers, and recreationists; and would also result in a new source of lighting in various locations along the proposed project.

4.5 Growth-Inducing Impacts of the Proposed Project

CEQA Guidelines Section 15126.2(d) of the CEQA Guidelines requires that an EIR discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typical growth-inducing factors might be the extension of urban services or transportation infrastructure to a previously unserved or underserved area, or the removal of major barriers to development. This section evaluates the project’s potential to create such growth inducements. Not all aspects of growth inducement are negative; rather, negative impacts associated with growth inducement occur only where the projected growth would cause adverse environmental impacts.

Growth-inducing impacts fall into two general categories: direct or indirect. Direct growth-inducing impacts are generally associated with providing urban services to an undeveloped area. Indirect (secondary) growth-inducing impacts consist of growth induced in the region by additional demands for housing, goods, and services associated with population increase caused by or attracted to a new project.

Growth inducement would occur if the amount of population or employment growth projected to take place as a result of the proposed project would exceed planned levels. Increased development and growth in an area are dependent on a variety of factors, including employment and other opportunities; availability of developable land; and availability of infrastructure, water, and power resources.

A growth inducement analysis was conducted for the proposed project, as described in Section 3.13, *Population and Housing*. The analysis determined that new stations would not result in the intensification of land uses or induce new or unplanned growth around the station sites. Implementation of the proposed project would not induce substantial unplanned population growth in an area, either directly or indirectly. Growth is not anticipated to occur where track improvements are made. Proposed project improvements, particularly at existing and new stations, may induce population growth if the improvements result in land use changes that would support intensified development. However, where new stations are proposed, local growth and development policies generally support the establishment of these stations; therefore, the population growth that may result in the vicinity of proposed stations is already planned in various planning document policies. These policies call for land use intensification and uses that are supportive of transit in the areas where new stations are proposed, and would suggest that induced growth from a new station would not be substantial or unplanned. These proposed stations are considered beneficial and complementary to land use and future growth plans.

5. Alternatives

5.1 Introduction

The California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) requires that an environmental impact report (EIR) describe a range of reasonable alternatives to a project, or the location of a project, that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, a range of potentially feasible alternatives, governed by the “rule of reason,” must be considered. This is intended to foster informed decision making and public participation (CEQA Guidelines Section 15126.6[f]).

As required by CEQA, this chapter describes the No Project Alternative and compares its impacts with those of the proposed project. This chapter also discusses other alternatives considered but dismissed from further evaluation.

Key provisions of the CEQA Guidelines Section 15126.6 pertaining to the analysis of alternatives to a project are summarized below.

- The discussion of alternatives will focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if those alternatives would impede, to some degree, the attainment of the project objectives or be more costly.
- The No Project Alternative will be evaluated along with its impacts. The No Project analysis will discuss the existing conditions at the time the Notice of Preparation was published (September 2019) as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason;” therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. Alternatives will be limited to those that would avoid or substantially lessen any of the significant effects of the project.
- An EIR need not consider an alternative with effects that cannot be reasonably ascertained, when implementation is remote and speculative, and if its selection would not achieve the basic project objectives.
- The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives, as described in CEQA Guidelines Section 15126.6(f)(1), are “site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent).”

Alternatives were identified throughout the design process, as well as in response to input from the public, agencies, and stakeholders during scoping. Appendix A, *Scoping Report*, contains the scoping report that describes the scoping process, including the notification and scoping activities undertaken.

As explained in Section 5.2, *Alternatives Screening Process*, alternatives that were determined to not meet all or most of the project's goals and objectives, to not be feasible, and/or to not avoid or substantially reduce one or more significant impacts of the proposed project, were dismissed from further analysis.

5.2 Alternatives Screening Process

In accordance with Section 15126.6(b) of the CEQA Guidelines, this discussion of alternatives focuses on alternatives to a project (or its location) that are capable of avoiding or substantially lessening the significant impacts of a project, even if the alternatives would impede to some degree the attainment of the project objectives or would be more costly. The project team considered suggested alternatives mentioned during the scoping period and also identified additional alternatives for consideration.

This section describes the screening process used to consider the various alternatives to the proposed project. Potential alternatives to the project were identified and evaluated as to whether they would meet most of the project objectives, whether they would be feasible, and whether they would avoid or substantially lower one or more significant impacts of the proposed project.

Section 5.3, *Description of Alternatives*, describes the various alternatives that were considered by the project team and the results of the screening process. Some of these considered alternatives are included in Chapter 2, *Project Description*, and are analyzed at an equal level of detail as the proposed project in Chapter 3, *Environmental Impact Analysis*. The No Project Alternative is analyzed at a lesser level of detail, as allowed under CEQA, and is described and reviewed below in Section 5.4, *Analysis of Alternatives*. Some alternatives were considered but dismissed from further analysis because they did not meet most of the project objectives, were not feasible, or did not avoid or substantially lower one or more significant impacts of the proposed project.

The project objectives and significant impacts of the proposed project are identified below to aid the reader.

5.2.1 Project Objectives

Chapter 1, *Introduction*, outlines the following goals and objectives for the proposed project:

- **Enhance intercity and commuter rail service** in and out of the Central Valley, by increasing train ridership, reducing traffic congestion, and increasing safety and reliable transportation choices.
- **Improve connectivity**, including providing key connections and future feeder service to the California High Speed Rail System.
- **Improve regional air quality** by reducing auto vehicle miles traveled (VMT) and greenhouse gas (GHG) emissions.

- Improve access to economic opportunities and affordable housing to disadvantaged communities.
- **Transit-Oriented Development (TOD)** opportunities and sustainability by improving or constructing rail stations.

A more detailed discussion of each of these goals and objectives is provided in Chapter 1, *Introduction*.

5.2.2 Summary of Significant Impacts of the Project

The analysis of environmental impacts contained in Chapter 3, *Environmental Impact Analysis*, identified the following significant and unavoidable impacts of the project:

- Zoning conflicts due to loss of agricultural lands associated with the proposed Lodi Station and Lodi Station South Alternative.
- Temporary noise impacts associated with construction of the proposed project.

All other project impacts were found to be less than significant, or could be reduced to a less-than-significant level through the implementation of recommended mitigation measures.

5.3 Description of Alternatives

5.3.1 Alternatives Considered at Same Level as Proposed Project

As discussed above, the project team considered the suggested alternatives that were submitted during the scoping period. Alternatives determined to be infeasible, to not avoid or substantially reduce one or more significant impacts of the proposed project, or to not meet all or most of the project's purpose and need were dismissed from further analysis.

The following alternatives/variants were analyzed at the same level of detail as the proposed project. The description of these alternatives/variants is included in Chapter 2, *Project Description*, and the analysis of the potential environmental impacts of these alternatives/variants is discussed in Chapter 3, *Environmental Impact Analysis*.

Based on the screening process results, this EIR includes a full analysis of the following alternatives/variants:¹

- Lodi Station South Alternative
- ~~North Elk Grove Station Platform Location Variant 1 with Access Variant 1 (P1/A1)~~
- ~~North Elk Grove Station Platform Location Variant 1 with Access Variant 2 (P1/A2)~~
- ~~North Elk Grove Station Platform Location Variant 2 with Access Variant 1 (P2/A1)~~
- ~~North Elk Grove Station Platform Location Variant 2 with Access Variant 2 (P2/A2)~~

¹ The ~~Elk Grove Siding Variants~~ and the Lodi Siding Variants are associated with their respective station alternative/variants and are not discussed separately.

5.3.2 Alternatives Considered at Lesser Level than Proposed Project

The CEQA Guidelines require the proposed project to analyze the No Project Alternative and, if applicable, the proposed project should analyze an alternative location. CEQA Guidelines Section 15126.6 states that an EIR is not required to consider alternatives that are infeasible. The following may be taken into consideration when assessing the feasibility of alternatives: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can attain site control. CEQA Guidelines Section 15126.6(f)(2) states that only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered. In addition to significant and unavoidable construction noise impacts, significant and unavoidable impacts were determined at the Lodi Station and Lodi Station South Alternative.

Alternative locations for the Lodi Station and Lodi Station South Alternative were considered in areas that would not contribute to the significant impacts related to the irreversible conversion of farmlands. However, the areas closest to the Union Pacific Railroad (UPRR) Sacramento Subdivision that would not result in similar agricultural impacts would not be located within a reasonable distance to serve the ridership population in/near the City of Lodi.² Proposed alternative locations would also not meet the project's goals and objectives to improve connectivity in the Central Valley. Additionally, alternative locations that could avoid or lessen agricultural impacts could conceivably result in additional significant impacts beyond those determined for the Lodi Station and Lodi Station South Alternative as analyzed throughout Chapter 3, *Environmental Impact Analysis*. As such, there are no viable alternative locations for the Lodi Station and Lodi Station South Alternative that would be within a reasonable distance to the City of Lodi and meet the project's goals and objectives. Therefore, there are no feasible alternative locations for the Lodi Station and Lodi Station South Alternative, and the alternative that would avoid or substantially lessen any significant impacts would be the No Project Alternative, or deletion of the Lodi Station or Lodi Station South Alternative from the proposed project.

The significant and unavoidable construction noise impacts would be temporary and occur only intermittently during the construction phase of the proposed project.

For the reasons described above, the No Project Alternative is the only feasible alternative available to lessen the significant and avoidable impacts of the proposed project, and is the only alternative considered at a lesser level of detail than the proposed project.

A full description of the No Project Alternative and analysis of its potential environmental impacts is given in Section 5.4, *Analysis of Alternatives*, below.

5.3.3 Alternatives Considered but Dismissed

Section 15126.6(c) of the CEQA Guidelines requires EIRs to identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the lead agency's determination. Section 15126.6(c)

² A *subdivision* is a portion of railroad or railway that operates under a single timetable (authority for train movement in the area).

provides that among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

During project development and the environmental review process, the following alternatives were considered, but ultimately dismissed from further analysis for the reasons outlined below.

5.3.3.1 Alternative Railroad Alignment

The San Joaquin Regional Rail Commission (SJRRC) considered use of the UPRR Fresno Subdivision (located approximately parallel to, but east of the Sacramento Subdivision) as an alternative alignment to provide the project upgrade to ACE and San Joaquins services. This alternative was dismissed from further consideration due to the following reasons:

- Opportunities for increased passenger rail service on the Fresno Subdivision, where UPRR operates its mainline service, are limited due to a lack of additional capacity. In addition, UPRR does not support additional passenger service along the Fresno Subdivision and would likely not grant trackage rights.
- Construction of a new track outside the existing UPRR right-of-way (ROW) along the Fresno Subdivision to accommodate the proposed project would potentially result in increased environmental impacts and costs, and would not enable a phased implementation program to provide additional, near-term service to and from Sacramento.
- The Fresno Subdivision does not extend north beyond downtown Sacramento and would therefore not facilitate the extension of ACE or San Joaquins service to the Natomas area or provide the opportunity for a convenient shuttle connection to the Sacramento International Airport.

Use of the Sacramento Subdivision (as included in the proposed project) would have the following additional benefits not available from the Fresno Subdivision:

- Unlike the Fresno Subdivision, there is excess capacity on the Sacramento Subdivision and UPRR is willing to work with SJJPA and the state to enable passenger service on that line;
- better access to the state capitol and surrounding businesses (via the proposed Midtown Station);
- easy access to existing SacRT Light Rail Stations at three stations, including ~~the Franklin Station via the proposed North Elk Grove Station~~, the 16th Street Station via the proposed Midtown Sacramento Station, City College Station with direct platform-to-platform connectivity, and the Globe Avenue Station with the proposed Old North Sacramento Station; and
- a connection to Sacramento International Airport via shuttles from the proposed Natomas/Sacramento Airport Station.

5.3.3.2 Alternative Improvement Locations

During the design process, several alternative locations were considered for various project improvements, but were ultimately dismissed. These alternatives and the reasons they were dismissed are discussed below.

Elk Grove Station Alternatives

A number of location alternatives were considered during the planning process for the Elk Grove Station, including alternatives evaluated in the City of Elk Grove's Multimodal Facility Feasibility Study (City of Elk Grove, 2018a). These alternatives are described below.

- **Bilby Road/Willard Parkway (W1) alternative.** This alternative considered track improvements and a new platform on a 12-acre site of three parcels north of Bilby Road and bordered by UPRR ROW to the west and Willard Parkway to the east. Site access for vehicles would be provided via a driveway connecting to the intersection of Willard Parkway and Matina Drive. This alternative was dismissed due to a lack of support from adjacent neighborhoods.
- **Elk Grove Boulevard/Franklin Boulevard (W2) alternative.** This alternative considered track improvements and a new platform on a site located within the Stone Lakes National Wildlife Refuge bounded by UPRR ROW to the west, Franklin Boulevard to the east, and Elk Grove Boulevard to the north. Site access for vehicles would be provided via a driveway connecting to the intersection of Franklin Boulevard and Blossom Ridge Drive. This alternative was dismissed due to its location within the Stone Lakes National Wildlife Refuge and a lack of support from adjacent neighborhoods.
- **Laguna Boulevard/Dwight Road (W3).** This alternative considered track improvements and a new platform on a combination of three parcels bounded by UPRR ROW to the east, Laguna Boulevard to the south, and Dwight Road to the west. Site access for vehicles would be provided via a driveway along Dwight Road. This alternative was dismissed due to difficulties in the procurement process for self-storage type facilities and a lack of support from adjacent neighborhoods.
- **Dwight Boulevard (W4) alternative.** This alternative considered track improvements and a new platform on Dwight Road on a site bounded by UPRR ROW to the east, Dwight Road to the west, and the Elk Grove city limit to the north. This alternative was dismissed due to site specific complexities related to parcel ownership, as well as a lack of support from adjacent neighborhoods.
- **Willard Parkway/Kammerer Road (planned) (W5).** This alternative considered track improvements and a new platform in the southern portion of Elk Grove, south of Hood Franklin Road. Site access for vehicles would be provided via a driveway connecting to the future Willard Parkway extension. This alternative was dismissed due to its remote location, lack of community support, and potential impacts to important agricultural lands.
- **Franklin Boulevard/Bilby Road.** This alternative considered track improvements and a new platform in the southern portion of Elk Grove, south of Bilby Road and east of Franklin Boulevard. Site access would be provided via a new eastern leg of Hood Franklin Road

and from Bilby Road. This alternative was dismissed due to its remote location and lack of community support.

- **Sims Road.** This alternative considered track improvements and a new platform along Sims Road on Sacramento Regional Sanitation Bufferlands property. Access was proposed from Sims Road. This alternative was dismissed due to opposition from the Sacramento Regional Sanitation District and lack of community support.
- **North Elk Grove Station.** This alternative considered construction of a new station (with variants) to be constructed on a 32-acre site beneath the Cosumnes Boulevard/Morrison Creek Viaduct near the existing SacRT Franklin LRT Station in Sacramento. This alternative was dismissed following circulation of the Draft EIR due to opposition from the Sacramento Regional Sanitation District and lack of community support.

Lodi Station Location Alternatives

Various location alternatives were considered during the planning process for the Lodi Station, including a location to the west of the existing UPRR ROW, just north of West Kingdon Road. This western alternative was ultimately found by the design team to be less suitable than the two Lodi alternatives considered in the EIR based on its proximity to Turner Elementary and the longer travel distance to the station from Central Lodi. In addition, any alternative Lodi Station location would not avoid the significant and unavoidable loss of agricultural land as the majority of parcels bordering the UPRR ROW and suitable for a station in the vicinity of Lodi are agricultural land.

Natomas/Sacramento Airport Station west of Levee Road

This alternative considered the development of a station on a 47-acre site south of West Elkhorn Boulevard, west of Levee Road, and just east of the Natomas residential development. In response to community input and concern during the public scoping period, this station was dismissed from further consideration.

Natomas/Sacramento Airport Interim Station

This alternative considered the development of an interim station on a 20-acre site south of Cement Way and east of Sorento Road. In response to potential right-of-way impacts to local businesses, as well as community input and concern raised during the public scoping period, this station was dismissed from further consideration.

5.3.3.3 No Lodi Station Alternative

The only potentially significant and unavoidable operational impacts of the proposed project relate to the loss of agricultural land from construction of the Lodi Station (or Lodi Station South Alternative).

Due to the nature of land uses along the rail corridor in the vicinity of Lodi, the significant and unavoidable impact to agriculture is anticipated to occur under both Lodi Station alternatives described in Chapter 2, *Project Description*, as well as any other potential station locations in this vicinity. One alternative to avoid this significant impact would therefore be to not construct any station in the vicinity of Lodi. While such an alternative would avoid the potentially significant impact associated with loss of agricultural land, no viable station site has been identified within a

reasonable distance to serve the population in or near the City of Lodi that would avoid or reduce impacts to agricultural land. Therefore, this alternative was dismissed as it was determined that a Lodi Station is necessary to meet the proposed project's goals to improve connectivity in the Central Valley and serve the target ridership in and near the City of Lodi.

5.4 Analysis of Alternatives

5.4.1 No Project Alternative

Section 15126.6(e) of the State CEQA Guidelines requires the analysis of a No Project Alternative. The No Project Alternative analysis must discuss the existing conditions as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved. Section 15126.6(e)(3)(B) of the State CEQA Guidelines states the following:

"If the project is ... a development project on an identifiable property, the "no project" alternative is the circumstance under which the project does not proceed. Here the discussion would compare the environmental effects of the property remaining in its existing state against environmental effects that would occur if the project were approved. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this "no project" consequence should be discussed. In certain instances, the "no project" alternative means "no build," wherein the existing environmental setting is maintained. However, where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment."

The No Project Alternative is neither required nor expected to meet the goals of the proposed project or avoid or reduce any of the significant impacts associated with the proposed project.

5.4.1.1 No Project Alternative Description

Under the No Project Alternative, none of the Valley Rail Sacramento Extension Project improvements (or their alternatives/variants) would be constructed and there would be no improvements to the existing UPRR Sacramento Subdivision. There would be no extension of Amtrak San Joaquins or ACE operations to serve the project area.

Under the No Project Alternative, the San Joaquins service would continue to operate over the BNSF Stockton Subdivision, with trains stopping at the existing Amtrak stations along the subdivision before terminating at either Fresno or Bakersfield. There would be no adjustments to the schedules of the Amtrak services or Amtrak Thruway Bus services.

Under the No Project Alternative, ACE services would continue between the San Jose Diridon and Stockton Downtown/ACE stations as they are currently occurring, as well as to the proposed Ceres Station, including in the ACE Extension Lathrop to Ceres/Merced project.³

³ On August 2, 2018, the SJRRC Board certified the Environmental Impact Report (EIR) and approved the ACE Extension Lathrop to Ceres/Merced project. Operation of Phase I of the ACE Extension Lathrop to Ceres/Merced project (which includes the Ceres Station) is anticipated to begin between 2020 and 2023.

5.4.1.2 Environmental Impacts of No Project Alternative

Aesthetics

Under the No Project Alternative, there would be no construction or improvements to existing rail facilities and therefore no changes to the physical environment. There would be no impact on aesthetics.

Agriculture and Forestry

Under the No Project Alternative, there would be no land acquisition or construction of project improvements, and therefore no conversion of agricultural or forestry land uses to other land uses. There would be no impact on agriculture and forestry.

Air Quality

Under the No Project Alternative, there would be no construction activities, and therefore no construction-related dust generation or TAC emissions from construction equipment. As described in Section 3.3, *Air Quality*, construction emissions of the proposed project would be mitigated to a less-than-significant level with identified mitigation.

There would also be no expansion of the existing ACE and San Joaquins passenger rail operations, which means that the associated net reductions in emissions for most pollutants anticipated for the proposed project (described in Section 3.3, *Air Quality*) would not occur under the No Project Alternative. This would be a less-than-significant impact of the No Project Alternative. However, the No Project Alternative would still provide marginal improvements in comparison with existing conditions because of anticipated natural locomotive fleet turnover to more fuel-efficient Tier 4 engines, and due to reductions in on-road vehicle emissions associated with continuing engine advancements and more stringent air quality standards.

Biological Resources

Under the No Project Alternative, there would be no construction and therefore no disturbance of habitat areas. Because there would be no construction activities or operational changes in the project area, there would be no impacts on special status species in the vicinity of the project area. There would be no impact on biological resources.

Cultural Resources

Under the No Project Alternative, there would be no construction activities or ground disturbance. Therefore, there would be no potential to disturb known or unknown archaeological or historic resources. There would be no impact on cultural resources.

Energy

Under the No Project Alternative, there would be no construction activities, and therefore there would be no energy consumption from the use of gasoline or diesel fuels by construction equipment and vehicles. There would be no new facilities such as passenger stations and therefore no energy consumption associated with electrical or natural gas use within such facilities. However, there would also be no expansion of the existing ACE and San Joaquins

passenger rail operations, which means that the displacement of passenger vehicle miles (i.e., the shift of travelers from automobiles to passenger rail transit that would have resulted in reduced automobile VMT and thus reductions in personal [household] automobile fuel consumption) that would occur under the proposed project (described in Section 3.6, *Energy*) would not occur under the No Project Alternative.

For the proposed project's operation, the resulting reduction in VMT and the related decrease in vehicle fuel consumption would offset the operational energy demands of the proposed project, resulting in a net energy savings relative to no project conditions. However, while this would be a less-than-significant impact of the No Project Alternative, there would still be marginal improvements in energy consumption over time under the No Project Alternative compared to existing conditions due to anticipated natural locomotive fleet turnover to more fuel-efficient Tier 4 engines, and due to reductions in on-road vehicle fuel consumption associated with continuing engine advancements and more stringent fuel efficiency standards.

Geology and Soils

Under the No Project Alternative, there would be no construction of improvements to existing rail facilities or the construction of passenger rail improvements, and therefore no potential for the exacerbation of geological hazards such as seismic shaking, liquefaction, or landslides, and no potential for impacts related to soil instability or geotechnical concerns. There would be no impacts on geology and soils.

Greenhouse Gas Emissions

Under the No Project Alternative, there would be no construction activities, and therefore there would be no greenhouse gas emissions generated by construction equipment and vehicles. There would be no expansion of the existing ACE and San Joaquin's passenger rail operations, which means that the displacement of passenger vehicle miles (i.e., the shift of travelers from automobiles to passenger rail transit would result in reduced personal [household] automobile VMT and thus reductions in associated greenhouse gas emissions) as would occur under the proposed project (described in Section 3.8, *Greenhouse Gas Emissions*) would not occur under the No Project Alternative. However, there would still be reductions in greenhouse gas emissions over time under the No Project Alternative compared to existing conditions due to anticipated natural locomotive fleet turnover to more fuel-efficient Tier 4 engines, and due to reductions in on-road vehicle emissions associated with continuing engine advancements and more stringent fuel efficiency and emissions standards; impacts of the No Project Alternative would be less than significant.

Hazards and Hazardous Materials

Under the No Project Alternative, there would be no construction of new improvements or improvements to existing rail facilities, and therefore no potential for disturbance of existing contaminated soil or groundwater or hazardous building materials, and no potential for spills of hazardous construction materials. There would be no changes to operations within the existing rail corridors, and therefore no changes to the use, storage, transportation, or disposal of hazardous materials. There would be no impacts on hazards or hazardous materials.

Hydrology and Water Quality

Under the No Project Alternative, there would be no construction of new improvements or improvements to existing rail facilities, and therefore no potential for stormwater discharges or changes to drainage patterns. There would be no construction within flood zones. There would be no impacts on hydrology and water quality.

Land Use and Planning

Under the No Project Alternative, there would be no land acquisition, construction activities, or operational changes in the project area. Therefore, land uses in the project area would not be altered. Therefore, the No Project Alternative would have no impacts on land use and planning.

Mineral Resources

Under the No Project Alternative, there would be no construction activities or acquisition of land, and therefore no impacts on nearby mineral resources.

Noise and Vibration

Under the No Project Alternative, there would be no construction activities or operational changes in the project area. Therefore, no new temporary or permanent sources of noise or vibration would be generated. There would be no impacts associated with noise and vibration.

Population and Housing

Under the No Project Alternative, there would be no land acquisition, construction activities, or operational changes in the project area. Therefore, demand for housing in the project area would not be altered. The positive impacts of the proposed project on supporting the development of housing within transit-oriented development areas would not occur under the No Project Alternative.

Public Services

Under the No Project Alternative, there would be no construction activities or operational changes in the project area. Therefore, there would be no changes to demand for public services such as fire, police, schools, parks, or other public facilities. There would be no effect on response times for such service providers. There would be no impacts on public services.

Recreation

Under the No Project Alternative, there would be no temporary or permanent impacts to recreational resources. There would be no construction activities or operational changes in the project area. Therefore, no recreational facilities would be impacted. There would be no impacts on recreational resources.

Transportation

Under the No Project Alternative, there would be no construction activities, and therefore there would be no construction-related traffic, disruption to existing rail or roadway operations, or other

associated temporary impacts to the transportation network. There would be no expansion of the existing ACE and San Joaquins passenger rail operations, which means that the displacement of passenger vehicle miles (i.e., the shift of travelers from automobiles to passenger rail transit, which would result in reduced automobile VMT and decreased congestion on I-5 and SR 99, benefiting traffic operations and good movement along these corridors) as would occur under the proposed project (described in Section 3.16, *Transportation*) would not occur under the No Project Alternative. This would be a less-than-significant impact of the No Project Alternative.

Tribal Cultural Resources

Under the No Project Alternative, there would be no construction activities or operational changes in the project area. Therefore, there would be no potential for disturbing tribal cultural resources. There would be no impacts on tribal cultural resources.

Utilities and Service Systems

Under the No Project Alternative, there would be no construction activities or operational changes in the project area. Therefore, there would be no changes to the demand for utilities or other services to serve such development, and no impacts associated with the provision of utilities. There would be no impacts on utilities and service systems.

Wildfire

Under the No Project Alternative, there would be no construction activities and no operational changes in the project area. Therefore, there would be no potential for exacerbating the risk of wildfire in the project area. There would be no impacts associated with the risk of wildfire.

5.4.2 Comparison of Alternatives Analyzed

Table 5-1, below, compares the environmental impacts of the No Project Alternative to the proposed project for all subject areas analyzed in this document.

Table 5-2, below, compares the key permanent environmental impact differences between the different improvement alternatives that were analyzed in Chapter 3 of this document, including the proposed Lodi Station vs. the Lodi Station South Alternative ~~and the four platform/access variants for the North Elk Grove Station.~~

Table 5-1. Proposed Project vs. No Project Alternative Level of Impacts

| Environmental Resource Area | Level of Impact of Proposed Project¹ | Level of Impact of No Project Alternative |
|------------------------------------|--|--|
| Aesthetics | LTS/M | NI |
| Agricultural Resources | SU | NI |
| Biological Resources | LTS/M | NI |
| Cultural Resources | LTS/M | NI |
| Energy | LTS | LTS |
| Geology and Soils | LTS/M | NI |
| Hazardous Materials | LTS/M | NI |
| Hydrology and Water Quality | LTS/M | NI |
| Land Use and Planning | LTS | NI |
| Noise and Vibration | SU Construction | NI |
| Population and Housing | LTS | NI |
| Public Services | LTS | NI |
| Recreation | LTS/M | NI |
| Transportation | LTS/M | LTS |
| Tribal Cultural Resources | LTS/M | NI |
| Utilities and Service Systems | LTS/M | NI |

Notes:

¹ Based on a threshold of the most significant level of impact for each resource area.

NI = No Impact; LTS = Less-than-Significant Impact; LTS/M = Less-than-Significant Impact with Mitigation; SU = Significant and Unavoidable Impact

Table 5-2. Project Alternatives Level of Impacts¹

| Environmental Resource Area | Proposed Improvements | | | | | |
|-------------------------------|--|--|--|--|--|--|
| | Lodi Station (Includes Lodi Siding Variant 1) | Lodi Station South Alternative (Includes Lodi Siding Variant 2) | North Elk Grove Station Variant P1/A1 (Includes Elk Grove Siding Variant 1) | North Elk Grove Station Variant P1/A2 (Includes Elk Grove Siding Variant 1) | North Elk Grove Station Variant P2/A1 (Includes Elk Grove Siding Variant 2) | North Elk Grove Station Variant P2/A2 (Includes Elk Grove Siding Variant 2) |
| Aesthetics | LTS/M | LTS/M- | LTS/M | LTS/M | LTS/M | LTS/M |
| Agricultural Resources | SU | SU- | NI | NI | NI | NI |
| Air Quality | LTS/M | LTS/M+ | LTS/M | LTS/M+ | LTS/M | LTS/M+ |
| Biological Resources | LTS/M | LTS/M | LTS/M- | LTS/M- | LTS/M+ | LTS/M+ |
| Cultural Resources | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Energy | LTS | LTS | LTS | LTS | LTS | LTS |
| Geology and Soils | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Greenhouse Gas Emissions | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Hazardous Materials | LTS/M | LTS/M- | LTS/M | LTS/M | LTS/M | LTS/M |
| Hydrology and Water Quality | LTS/M | LTS/M+ | LTS/M | LTS/M | LTS/M | LTS/M |
| Land Use and Planning | LTS | LTS | LTS | LTS | LTS | LTS |
| Noise and Vibration | SU (Construction) LTS/M (Operation) | SU (Construction) LTS/M (Operation) | SU (Construction) LTS/M (Operation) | SU (Construction) LTS/M (Operation) | SU (Construction) LTS/M (Operation) | SU (Construction) LTS/M (Operation) |
| Population and Housing | LTS | LTS | LTS | LTS | LTS | LTS |
| Public Services | LTS | LTS | LTS | LTS | LTS | LTS |
| Recreation | LTS | LTS | LTS/M | LTS/M | LTS/M | LTS/M |
| Transportation | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Tribal Cultural Resources | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Utilities and Service Systems | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M | LTS/M |
| Wildfire | NI | NI | NI | NI | NI | NI |

Notes:

¹ Based on a threshold of the most significant level of impact for each resource area.

NI = No Impact; LTS = Less Than Significant; LTS/M = Less Than Significant with Mitigation; SU = Significant and Unavoidable Impact

- indicates that an alternative improvement has lesser impacts than the proposed project improvement, but still within the same overall impact category.

+ indicates that an alternative improvement has greater impacts than the proposed project improvement, but still within the same overall impact category.

5.5 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives. The environmentally superior alternative is not the No Project Alternative. Any of the alternatives/variants included in the proposed project would result in environmental benefits, such as reducing vehicle trips on freeways and reducing regional air pollutants and GHG emissions, that would not be realized under the No Project Alternative.

The environmentally superior alternative is identified as a combination of the different alternatives/variants by segment for the proposed project as shown in Table 5-2. Specifically, the environmentally superior alternative includes the following:

- Lodi Station South Alternative due to slightly reduced impacts to aesthetics, agricultural resources, and hazardous materials.
- ~~North Elk Grove Station Variant P1/A1 or North Elk Grove Station Variant P1/A2 due to slightly reduced construction air quality impacts and reduced biological impacts associated with the omission of a new railroad bridge over Beacon Creek.~~

CEQA does not require a lead agency to select the environmentally superior alternative as its proposed project. Implementing the project (or an alternative) would have adverse environmental impacts regardless of which alternative is selected. The different alternatives/variants identified in Table 5-2 together constitute the environmentally superior alternative. The proposed project would provide the benefits of reducing VMT and associated regional traffic, air quality emissions, and GHG emissions, as well as increasing ridership.

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6 Public and Agency Involvement

6.1 Scoping Noticing and Meetings

On September 13, 2019, the San Joaquin Regional Rail Commission (SJRRRC) posted a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Valley Rail Sacramento Extension Project (proposed project) to the California State Clearinghouse. This initiated the public scoping period. SJRRRC posted the NOP to the county clerks/recorders offices in San Joaquin County and Sacramento County; to the Sacramento Bee, Lodi News-Sentinel, and Stockton Record; and to the project pages on the websites of Altamont Corridor Express (ACE) and San Joaquin Joint Powers Authority (SJJPA). SJRRRC also mailed the NOP to elected officials and planning departments at cities and counties along the project corridor; federal, state and regional resource and transportation agencies; and emailed a summary of the NOP to a list of 176 email subscribers and stakeholders.

SJRRRC held a total of four scoping meetings to obtain feedback from agencies, jurisdictions, and interested members of the public on the scope and potential environmental impacts of the proposed project. Information regarding scoping meetings was included in the NOP sent to the groups of stakeholders listed above. Meetings were held on September 30, 2019 in Lodi, on October 1, 2019 in Natomas, and on October 2, 2019 in Sacramento. Due to community input and request, SJRRRC and SJJPA held an additional public meeting on November 13, 2019 at The Club at Natomas Park and extended the scoping period through November 30, 2019.

Appendix A, *NOP and Scoping Summary Report*, provides a copy of the NOP; a summary of scoping comments received, arranged by topic; copies of all public comments received during the public scoping period; and copies of the newspaper advertisements.

6.2 Consultation and Coordination

Project development and preliminary planning for the proposed project began in 2016. Since its inception, SJRRRC and SJJPA have consulted regularly with project stakeholders along the project alignment to coordinate potential project improvements. SJRRRC and SJJPA have held meetings with local agencies, cities, and counties along the project alignment; potentially affected property owners; neighborhood organizations; elected officials; resource agencies; and other project stakeholders to identify potential alternatives to be considered for the proposed project.

A comprehensive stakeholder database has been maintained and updated continuously throughout the planning process. The database contains email and physical mailing addresses of local agencies, cities, and counties; resource agencies; local community organizations; parties who were consulted with throughout the planning process; parties who attended public meetings; and parties who sent communications to the project inbox.

In addition, project information has been regularly updated on both the SJRRRC and SJJPA websites, at https://acerail.com/valley_rail/ and <https://sjjpa.com/valley-rail/>, respectively. These websites contain information about the Valley Rail program, announcements related to the proposed project, information on how to provide comments and how to sign up for the email list, and other informational materials.

6.2.1 Local Agency, Community and Stakeholder Meetings

Numerous meetings and presentations were conducted with local agencies, community organizations, and stakeholders since the start of the planning process in 2016 and during the development of the proposed project. This includes meetings with cities and counties along the project corridor; elected officials; other transportation agencies; and local businesses and organizations, such as chambers of commerce, political organizations, and community groups.

Refinements to the project alignment and station options have been developed through communication with stakeholders, local governments, and the public. Additional meetings with local elected officials, city and county staff, leaders, businesses, organizations, agencies, and the public were conducted to disseminate information and receive input on the planning process.

6.2.2 Resource Agency Meetings

SJRRC will consult with federal and state resource agencies as the proposed project progresses through environmental review. Chapter 2, *Project Description*, includes a list of resource agency permits and approvals that could be required for the proposed project. SJRRC will consult with these agencies regarding the proposed project's potential impacts on resources of concern.

6.2.3 List of Stakeholder Meetings

A complete list of consultation and coordination meetings held with key stakeholders throughout the planning process for the proposed project is included below.

| Date | Meeting |
|------------|--|
| 9/21/2016 | Pat Hume, Elk Grove City Council District 2 |
| 9/21/2016 | City of Elk Grove |
| 12/1/2016 | Sacramento Regional Transit District |
| 12/7/2016 | Sacramento Metropolitan Chamber of Commerce |
| 12/7/2016 | Downtown Sacramento Partnership |
| 12/7/2016 | Patrick Kennedy, Sacramento County Board of Supervisors District 2 |
| 12/13/2016 | SKK Developments |
| 12/13/2016 | Midtown Business Association |
| 12/15/2016 | California State Senator Richard Pan |
| 12/18/2016 | Capitol Area Development Authority |
| 12/20/2016 | Steve Hansen, Sacramento City Council District 4 |
| 12/20/2016 | California State Assembly member Kevin McCarty |
| 12/20/2016 | Capitol Area Development Authority |
| 1/4/2017 | Greater Sacramento Economic Council |
| 1/9/2017 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 1/25/2017 | Office of U.S. Congresswoman Doris Matsui |
| 1/25/2017 | Don Nottoli, Sacramento County Board of Supervisors District 5 |
| 2/1/2017 | California State Assembly member Jim Cooper |
| 2/1/2017 | California State Assembly member Joaquin Arambula |

| Date | Meeting |
|-----------|--|
| 2/2/2017 | Sacramento Rail Working Group |
| 2/21/2017 | Steve Hansen, Sacramento City Council District 4 |
| 2/21/2017 | Jay Schenirer, Sacramento City Council District 5 |
| 2/21/2017 | California State Assembly member Ken Cooley |
| 2/23/2017 | Sacramento Rail Working Group |
| 2/24/2017 | Central Valley Rail Working Group |
| 3/22/2017 | Transportation California |
| 3/28/2017 | California State Assembly member Heath Flora |
| 3/29/2017 | Caltrans |
| 4/4/2017 | Office of Sacramento Mayor Darrell Steinberg |
| 4/4/2017 | Jeff Harris, Sacramento City Council District 3 |
| 4/4/2017 | Pat Hume, Elk Grove City Council District 2 |
| 4/5/2017 | Allen Warren, Sacramento City Council District 2 |
| 4/18/2017 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 4/19/2017 | Steve Hansen, Sacramento City Council District 4 |
| 5/9/2017 | Steve Hansen, Sacramento City Council District 4 |
| 5/15/2017 | John Buckland, Yuba City Council |
| 5/15/2017 | Yuba-Sutter Transit |
| 5/16/2017 | Office of Steve Hansen, Sacramento City Council District 4 |
| 5/16/2017 | Don Nottoli, Sacramento County Board of Supervisors District 5 |
| 5/17/2017 | Valley Vision |
| 5/18/2017 | Sacramento Rail Working Group |
| 5/24/2017 | Office of Steve Hansen, Sacramento City Council District 4 |
| 5/26/2017 | Midtown Business Association |
| 5/30/2017 | Dan Flores, Sutter County Board of Supervisors |
| 5/30/2017 | Ricky Samayoa, Mayor of Marysville |
| 6/1/2017 | Capitol Area Development Authority |
| 6/1/2017 | Michael Rios |
| 6/15/2017 | SKK Developments |
| 6/15/2017 | Midtown Association |
| 6/22/2017 | Caltrans |
| 6/23/2017 | Central Valley Rail Working Group |
| 7/10/2017 | Office of Steve Hansen, Sacramento City Council District 4 |
| 7/11/2017 | Downtown Sacramento Partnership |
| 7/11/2017 | Office of Angelique Ashby, Sacramento City Council District 1 |
| 7/11/2017 | California State Senator Richard Pan |
| 7/11/2017 | California State Assembly member Kevin McCarty |
| 7/12/2017 | Office of California State Assembly member Heath Flora |
| 7/13/2017 | Sacramento Metropolitan Chamber of Commerce |
| 7/13/2017 | Office of U.S. Congresswoman Doris Matsui |

| Date | Meeting |
|------------|--|
| 7/13/2017 | California State Assembly member Jim Cooper |
| 7/14/2017 | Sacramento Metropolitan Chamber of Commerce |
| 7/14/2017 | Sutter County |
| 7/14/2017 | Yuba-Sutter Transit |
| 7/17/2017 | Sacramento Regional Transit District |
| 7/19/2017 | City of Sacramento Department of Public Works |
| 7/19/2017 | City of Sacramento Department of Public Works |
| 7/19/2017 | Yuba-Sutter Transit |
| 7/19/2017 | Ricky Samayoa, Mayor of Marysville |
| 7/19/2017 | Sutter County |
| 7/20/2017 | Office of Sacramento Mayor Darrell Steinberg |
| 7/20/2017 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 7/20/2017 | Don Nottoli, Sacramento County Board of Supervisors District 5 |
| 7/21/2017 | Office of California State Assembly member Joaquin Arambula |
| 7/26/2017 | Sutter County |
| 7/26/2017 | Office of California State Assembly member Kevin McCarty |
| 7/26/2017 | Office of California State Assembly member Jim Cooper |
| 7/27/2017 | Capitol Area Development Authority |
| 7/27/2017 | Sacramento Metropolitan Chamber of Commerce |
| 8/1/2017 | Sacramento County Airport System |
| 8/20/2017 | Steve Hansen, Sacramento City Council District 4 |
| 8/24/2017 | Environmental Council of Sacramento (ECOS) |
| 8/29/2017 | WALKS Sacramento |
| 8/30/2017 | City of Sacramento Public Works |
| 8/31/2017 | Sacramento Hispanic Chamber |
| 9/5/2017 | UC Davis - Center for Regional Change |
| 9/7/2017 | Environmental Council of Sacramento (ECOS) |
| 9/12/2017 | Los Rios Community College District |
| 9/19/2017 | Breathe California - Sacramento Region |
| 9/19/2017 | Sacramento Area Bicycle Advocates |
| 9/25/2017 | Steve Hansen, Sacramento City Council District 4 |
| 11/28/2017 | City of Sacramento |
| 11/29/2017 | Elk Grove Chamber of Commerce |
| 12/5/2017 | Office of California State Assembly member Jim Cooper |
| 12/5/2017 | Steve Hansen, Sacramento City Council District 4 |
| 12/6/2017 | Mark Crews, Vice Mayor of Galt |
| 12/7/2017 | Patrick Kennedy, Sacramento County Board of Supervisors District 2 |
| 12/7/2017 | Valley Vision |
| 12/7/2017 | Sacramento Regional Transit District |
| 12/7/2017 | Sue Frost, Sacramento County Board of Supervisors District 4 |

| Date | Meeting |
|------------|--|
| 12/7/2017 | Midtown Business Association |
| 12/7/2017 | City of Sacramento |
| 12/8/2017 | Capitol Area Development Authority |
| 12/11/2017 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 12/12/2017 | Office of Sacramento Mayor Darrell Steinberg |
| 12/12/2017 | Sacramento Latino Community Roundtable |
| 12/12/2017 | Downtown Sacramento Partnership |
| 12/13/2017 | California State Senator Richard Pan |
| 12/13/2017 | California Asian Chamber of Commerce |
| 12/14/2017 | City of Sacramento |
| 12/18/2017 | Office of California State Senator Andy Vidak |
| 6/27/2018 | Midtown Association, Sacramento Regional Transit District, and Del Paso Boulevard Association |
| 8/6/2018 | 20 PQR Homeowners Association |
| 8/15/2018 | Steve Hansen, Sacramento City Council District 4 |
| 8/24/2018 | Regional Sanitation District |
| 2/12/2019 | Angelique Ashby, Sacramento City Council District 1 |
| 2/14/2019 | Steve Hansen, Sacramento City Council District 4 |
| 2/14/2019 | Sue Frost, Sacramento County Board of Supervisors District 4 |
| 2/14/2019 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 2/21/2019 | Don Nottoli, Sacramento County Board of Supervisors District 5 |
| 2/28/2019 | Pat Hume, Elk Grove City Council District 2 |
| 3/7/2019 | Larry Carr, Sacramento City Council District 8 |
| 3/7/2019 | Rick Jennings, Sacramento City Council District 7 |
| 4/8/2019 | Sue Frost, Sacramento County Board of Supervisors District 4 |
| 4/16/2019 | Angelique Ashby, Sacramento City Council District 1 |
| 4/16/2019 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 4/17/2019 | Jay Schenirer, Sacramento City Council District 5 |
| 6/26/2019 | Steve Letterly, Grandpark Landowners' Group |
| 7/29/2019 | Darren Suen, Elk Grove City Council District 1 |
| 10/29/2019 | Local Government Commission |
| 10/30/2019 | North Natomas Community Coalition |
| 11/7/2019 | Midtown Association |
| 11/13/2019 | North Natomas Community Coalition |
| 11/20/2019 | Sue Frost, Sacramento County Board of Supervisors District 4 |
| 11/21/2019 | Office of California State Assembly member Kevin McCarty, Mayor Pro Term Angelique Ashby, 20PQR Homeowners Association |
| 12/11/2019 | North Natomas Community Coalition |
| 12/16/2019 | ADESA Brasher's |
| 2/10/2020 | Phil Serna, Sacramento County Board of Supervisors District 1 |
| 4/17/2020 | Staff for Asm. Kevin McCarty – Derek Matthews, Christine Miyashiro |

| Date | Meeting |
|------------------|---|
| <u>4/23/2020</u> | <u>Draft EIR Virtual Open House (North Natomas)</u> |
| <u>4/28/2020</u> | <u>Draft EIR Virtual Open House (Midtown)</u> |
| <u>5/6/2020</u> | <u>Midtown Association</u> |
| <u>5/7/2020</u> | <u>SMART Community Group</u> |
| <u>5/7/2020</u> | <u>20 PQR Homeowners Association</u> |
| <u>5/11/2020</u> | <u>Midtown Association</u> |
| <u>5/11/2020</u> | <u>Draft EIR Virtual Open House (Elk Grove)</u> |

6.3 Notification and Circulation of the Draft EIR

CEQA requires the lead agency (SJRRC) to prepare an EIR to provide public agencies and the general public with detailed information about the effect that a proposed project is likely to have on the environment; list ways in which the significant effects of such a project might be minimized; and indicate potential alternatives to the project. The EIR is intended to provide independent judgment regarding the potential impacts of a proposed project, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts. The Draft EIR is then circulated and comments are requested from responsible agencies trustee agencies with resources affected by the project, and other state, federal, or local agencies that have jurisdiction over the project or resources that may be affected by the project; cities and counties that border on a city or county where the project is located; and interested agencies and individuals. The purposes of public and agency review of a Draft EIR include sharing expertise, disclosing agency analyses, checking accuracy, detecting omissions, discovering public concerns, and soliciting counterproposals.

~~This~~ The Draft EIR ~~has been~~ was released for a 45-day public review period beginning March 30, 2020. However, in response to requests from reviewers, the comment period was extended to June 5, 2020. The public ~~will be~~ was advised of the availability of ~~this~~ the Draft EIR through legal notices placed in local newspapers, sent by email and direct mailing, posted on ACE and San Joaquins trains and at ACE and San Joaquins stations, and announced through the project webpages and Facebook page.

A Notice of Availability (NOA) ~~will be~~ was posted with the California State Clearinghouse and at county clerks/recorders offices for San Joaquin and Sacramento counties. In addition, the NOA ~~will be~~ was published in the following newspapers:

- Sacramento Bee
- Lodi News-Sentinel
- Stockton Record

~~Printed copies of the Draft EIR will be distributed to the following locations for public viewing:~~

- ~~SJRRC and SJPA offices, 949 East Channel Street, Stockton~~
- ~~Gesar Chavez Central Library, 605 N El Dorado Street, Stockton~~

- ~~Lodi Public Library, 201 West Locust Street, Lodi~~
- ~~Elk Grove Library, 8900 Elk Grove Boulevard, Elk Grove~~
- ~~Sacramento Public Library Martin Luther King Jr. Branch, 7340 24th Street Bypass, Sacramento~~
- ~~Sacramento Central Library, 828 I Street, Sacramento~~
- ~~South Natomas Library, 2901 Truxel Road, Sacramento~~
- ~~North Natomas Library, 4660 Via Ingoglia, Sacramento~~

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

~~Virtual open houses will be were conducted during the Draft EIR public review period on April 23, 2020, April 28, 2020, and May 11, 2020. in Elk Grove, Midtown Sacramento, and North Natomas. Information regarding locations, dates, and times of open houses can be found on the project websites at <https://acerail.com/valley-rail/> or <https://sjipa.com/valley-rail/>. Written comments on the Draft EIR can be submitted during the open houses, or by mail or email. Information for submitting comments by mail and email are presented below:~~

- ~~**Mail:** San Joaquin Regional Rail Commission
Attn: Sacramento Extension Draft EIR
949 East Channel Street
Stockton, CA 95202~~
- ~~**Email:** ace.sacramentoextension@gmail.com~~

~~Comments on this Draft EIR must be received by SJRRC no later than 5:00 p.m. on the last day of the Draft EIR public review period, May 15, 2020.~~

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7. List of Preparers

7.1 Introduction

The California Environmental Quality Act lead agency for this environmental impact report (EIR) is the San Joaquin Regional Rail Commission. This EIR was prepared for the San Joaquin Regional Rail Commission by the following entities: AECOM provided engineering, graphics, geographic information systems and environmental resource sections listed below. Cross-Spectrum Acoustics provided noise analysis. Pennino Management Group provided technical advice concerning this EIR.

This chapter lists the primary individuals who prepared the report.

7.2 Lead Agency

San Joaquin Regional Rail Commission

Executive Director: Stacey Mortensen

Director of Capital Projects: Kevin Sheridan

7.3 Consultant Team

7.3.1 AECOM

7.3.1.1 Engineering

| | |
|------------------------|------------------------|
| Project Manager | Diane Cowin |
| Deputy Project Manager | Ryan Park, P.E, P.T.P. |
| Project Engineer | Daniel Hartman, P.E. |
| Track Engineer | Angela Shields |

7.3.1.2 Environmental

| | |
|------------------------------|--|
| Senior Environmental Planner | Michael Kay |
| Environmental Planner | Melissa Gjerde |
| Environmental Planner | Charlotte Hummer |
| Aesthetics | Wendy Copeland |
| Agricultural/Forestry | Jenifer King |
| Air Quality | Suzanne McFerran, |
| Biological Resources | Jasmine Wurlitzer, Jody Fessler, Linda Robb, Vanessa Tucker, <u>Susan Sanders</u> |

| | |
|-------------------------------|--|
| Cultural Resources | Heather Miller, Chandra Miller, Karin G. Beck |
| Energy | Issa Mahmodi |
| Geology and Soils | Stephanie Osby |
| Greenhouse Gas | Suzanne McFerran |
| Hazards/Hazardous Materials | Emma Rawnsley, Wendy Copeland |
| <u>Health Risk Assessment</u> | <u>Mary Kaplan, Suzanne McFerran, Christopher Warren</u> |
| Hydrology and Water Quality | Wendy Copeland |
| Land Use/Planning | Emily Biro |
| Paleontological Resources | Wendy Copeland |
| Population and Housing | Jenifer King |
| Public Services | Stephanie Osby |
| Recreation | Anne Ferguson |
| Transportation/Traffic | Anthony Mangonon, Nichole Seow, Haider Talib |
| Tribal Cultural Resources | Karin G. Beck |
| Utilities and Service Systems | Emily Biro |
| Alternatives | Emily Biro, Emma Rawnsley |
| GIS Specialists | Lisa Clement, Sayaka Araki, Sally Shatford, Alex Remar |
| Technical Editors | Pamela Cory, Virginia Kean, Kris Toth, Kelsey Tranel |
| Document Projection | Deborah Jew |

7.3.2 Cross Spectrum Associates

Completed the Noise and Vibration Section of this EIR.

| | |
|----------------|---------------|
| Vice President | Lance Meister |
| Associate | Joelle Suits |

7.3.3 Pennino Management Group

Provided technical advice concerning this EIR.

| | |
|-----------|---------------|
| President | Bryan Pennino |
|-----------|---------------|

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