Executive Summary

This executive summary presents the key findings of this environmental impact report (EIR) for the San Joaquin Regional Rail Commission's (SJRRC) Altamont Corridor Express (ACE) Ceres–Merced Extension Project (Project). SJRRC proposes to expand service to additional cities in Stanislaus and Merced Counties. This section summarizes the background, need for the Project, Project objectives, description, costs, environmental impacts and mitigation, alternatives, areas of controversy, and areas to be resolved associated with the Project.

The Proposed Project is the extension of ACE service from Ceres to Merced and includes the development of the following facilities.

- The Ceres to Merced Extension Alignment, which consists of upgrades to track, new track, and bridges within the Union Pacific Railroad (UPRR) Fresno Subdivision between Ceres and Merced.[1]
- New Turlock, Livingston, and Merced Stations, which are located along the Ceres to Merced Extension Alignment.
- The Merced Layover & Maintenance Facility, which is located in north Merced to support extension operations.

In addition, the SJRRC has identified the Atwater Station Alternative as an alternative to the Livingston Station. Only one station would be implemented in either Livingston or Atwater. This EIR analyzes both stations at an equal level of detail. The final decision as to whether to adopt the Proposed Project and/or an alternative will be made after completion of the final EIR for this Project.

ES.1 Project Background

SJRRC is the designated owner, operator, and policy-making body for the ACE service that presently connects the northern San Joaquin County, the Tri-Valley, and the Silicon Valley by providing weekday train service from Stockton to San Jose.

SJRRC manages and operates the ACE service, which provides commuter rail service between San Jose and Stockton. The existing 86-mile ACE service corridor passes through Santa Clara, Alameda, and San Joaquin Counties, with 10 stations along the route. At the western end of the ACE corridor, ACE operates on an approximately 4-mile segment of track between San Jose and Santa Clara, which is owned and operated by the Peninsula Corridor Joint Powers Board (PCJPB). North of the Santa Clara Station to Stockton, ACE operates on approximately 82 miles of track owned by UPRR. ACE operates on portions of UPRR's Coast, Niles, Oakland, and Fresno subdivisions.

As part of Senate Bill (SB) 132, passed in April 2017, SJRRC was awarded $400 million for the ACE service expansion to Ceres/Merced, including associated system improvements. SJRRC prepared the *ACE Extension Lathrop to Ceres/Merced EIR* (Prior EIR) in 2017–2018. The Prior EIR analyzed the Phase I extension of ACE service from Lathrop to Ceres at a project-level detail and the Phase II

[1] A *subdivision* is a portion of railroad or railway that operates under a single timetable (authority for train movement in the area).

extension from Ceres to Merced at a programmatic-level of detail. The Prior EIR was certified and Phase I of the Project was approved by the SJRRC Board of Commissioners on August 3, 2018. The extension from Lathrop to Ceres is currently in the final engineering design and permitting phase and is anticipated to start construction in fall of 2021.

The ACE Ceres–Merced Extension Project, for which this EIR is being prepared, is Phase II of the Project that was analyzed in the Prior EIR. This EIR is being prepared by the SJRRC and will analyze the potential environmental impacts from expanding ACE service between Ceres and Merced at a project level of detail. Where appropriate, this EIR will incorporates analysis from the Prior EIR that is still current.

ES.2 Need for the Project

Since its inception, SJRRC has primarily operated ACE as a weekday commuter rail service between Stockton and San Jose. ACE service began in October 1998 with two westbound morning trains from Stockton to San Jose and two eastbound afternoon trains from San Jose to Stockton on weekdays. In November 2009, a third roundtrip for ACE passengers was added, providing a third westbound morning train and a third eastbound afternoon train on weekdays. A fourth weekday roundtrip train, providing an additional westbound morning train and eastbound afternoon train, was added in September 2012. ACE provided Saturday service under a pilot program, which began on September 7, 2019; however, this service was suspended on March 21, 2020 in response to the Novel Coronavirus (COVID-19) pandemic. ACE trains consist of one diesel locomotive and five to seven bi-level passenger coaches and operate at a top speed of 79 miles per hour (mph).

Due to the current circumstances associated with the COVID-19 pandemic, ACE service was reduced. During the COVID-19 pandemic, ACE has been operating two westbound trains in the morning from Stockton to San Jose and two eastbound trains in the afternoon from San Jose to Stockton. It is anticipated that ACE service will be restored to its pre-COVID-19 levels once the pandemic is over.

The need for the ACE Ceres–Merced Extension is driven by the following considerations.

- Transportation demand driven by the economic relationships between the Bay Area, and the Sacramento area and northern San Joaquin Valley counties.
- Roadway congestion along primary routes from the northern San Joaquin Valley to the Bay Area, and the Sacramento area and limited roadway expansion options.
- Air quality issues in the northern San Joaquin Valley, the Bay Area, and the Sacramento area, and the related imperative to reduce greenhouse gas (GHG) emissions in California and globally.

Each factor contributing to the need for the ACE Ceres–Merced Extension is discussed in detail in the following sections.

ES.2.1 Transportation Demand

ES.2.1.1 Existing Altamont Corridor Express Service Area

The analysis of transportation demand for the Project was completed using the best available data and forecasts from prior to the COVID-19 health emergency. The exact long-term impact of COVID-19 on transportation patterns and travel demand is not known and cannot be estimated without

engaging in speculation. California Environmental Quality Act (CEQA) guidelines specifically prohibit the use of speculation in CEQA analyses. While the specific scale and duration of COVID-19 effects on transportation patterns and travel demand are not known at this time, it is logical to consider that travel demand will return to the northern San Joaquin Valley and San Francisco Bay Area in time, although it is possible that the exact timing and rate of population and economic growth may be slower than estimated prior to the COVID-19 health emergency. If that occurs, it is still expected that travel demands between the northern San Joaquin Valley and the Bay Area will increase over time and thus there will be increase pressures on overcapacity roadways and demand for alternatives such as the Project. The forecasts for future year ridership may ultimately occur a few years later than estimated, but the demand is still expected to be realized in time.

Between 1990 and 2013, the number of people commuting from the northern San Joaquin Valley to the Bay Area more than doubled, growing from 32,000 to nearly 65,000 commuters (Bay Area Council Economic Institute 2016). Since then, the number of people commuting from the northern San Joaquin Valley to the Bay Area has grown to 86,445 in 2017 and 93,398 in 2018 (Bay Area Council Economic Institute 2017 and 2018). In 2015, approximately 1.33 million annual riders traveled on ACE. The annual ridership (calculated between July 2018 and June 2019), prior to the COVID-19 pandemic, was calculated to be 1.50 million riders (San Joaquin Regional Rail Commission 2020a).

Due to this great demand between northern San Joaquin Valley and the Bay Area, road congestion along the I-205 and I-580 corridors resulted in substantial travel delays prior to the COVID-19 health emergency (see discussion of COVID-19 health emergency on estimates of future demand above). ACE service provides a critical alternative to travel between northern San Joaquin Valley and the Bay Area.

The need for ACE passenger rail service stems from the social and economic ties that bind together the San Joaquin Valley and the Bay Area (specifically the Tri-Valley and the Silicon Valley/South Bay regions). To-date, the most characteristic ACE trips are journeys to and from employment areas in the Bay Area during peak commute times, from riders' places of residence in the San Joaquin Valley or the Tri-Valley to riders' places of work in the Tri-Valley or Silicon Valley/South Bay.

Table ES-1 summarizes the anticipated increases in population and employment growth in the counties within the existing ACE corridor. Population growth in Santa Clara, Alameda, and San Joaquin Counties was projected to grow at a generally steady rate from 2020 to 2030, with San Joaquin County experiencing the greatest population growth among the three counties. Employment growth within the three counties was anticipated to be the highest from 2020 to 2025, with San Joaquin County also experiencing the greatest employment growth among the three counties during this time. San Joaquin County will also continue to have the greatest discrepancy in the ratio of employment opportunities to population (jobs/person ratio) compared to Santa Clara and Alameda Counties. The jobs/person ratio for Santa Clara and Alameda Counties remains stable at 1:1.6 and 1:1.3 jobs/person respectively, from 2020 to 2035. San Joaquin County has a greater discrepancy in the jobs/person ratio than in the Bay Area counties, with 1:2.9 jobs/person in 2020 and 1:2.8 jobs/person in 2025 and 2030. Although San Joaquin County was projected to have the greatest employment growth of the three counties from 2020 to 2025 and from 2025 to 2030, this would not substantially reduce the discrepancy in the county's jobs/person ratio. The primary drivers of these imbalances are the relative robust economy in the Bay Area (Santa Clara and Alameda Counties) combined with dramatic increases in housing prices compared to historically lower employment opportunities and lower housing prices in San Joaquin County. These population and employment

projections support the general characteristics of current ACE trips and contribute to the need for future increased ACE service from San Joaquin County.

Table ES-1. Projected Population and Employment Growth in the Existing ACE Service Areas

Counties	2020	2025	2030	% Change 2020–2025	% Change 2025–2030
Population					
Santa Clara County	1,967,585	2,023,194	2,094,936	2.8	3.6
Alameda County	1,685,886	1,756,709	1,832,576	4.2	4.3
San Joaquin County	782,545	832,480	879,055	6.4	5.6
Employment					
Santa Clara County	1,200,520	1,268,920	1,337,320	5.7	5.4
Alameda County	1,269,560	1,339,260	1,408,960	5.5	5.2
San Joaquin County	274,100	293,100	312,100	6.9	6.5

Source: California Department of Finance 2020; California Employment Development Department 2019a, 2019b, 2019c.

Note: 2020, 2025, and 2030 employment figures are based upon a linear interpolation of 2016 and 2026 employment estimates from the California Employment Development Department (California Employment Development Department 2019a, 2019b, 2019c).

ES.2.1.2 Extended Altamont Corridor Express Service Area

SJRRC proposes to extend ACE service from Ceres to Turlock, Livingston or Atwater, and Merced. As described in the 2013 San Joaquin Council of Governments' *Interregional Multi-Modal Commute Trip Planning Study*, a large number of employed residents of San Joaquin, Stanislaus, and Merced Counties work outside the region or in a county other than their county of residence (San Joaquin Council of Governments 2013). Since the three-county region in the San Joaquin Valley has fewer jobs than workers, this imbalance leads to significant proportions of the workforce commuting out of the three-county region for work. Residents of the three-county region who work outside the county in which they reside travel mostly to the Bay Area (approximately 14 percent of all employed residents in the region) or commute within the three-county region but to a different county from their county of residence (approximately 9 percent of all employed residents in the region) (San Joaquin Council of Governments 2013). Given these travel characteristics, there is an existing and growing demand for transit services between the Bay Area and the San Joaquin Valley.

Table ES-2 summarizes the anticipated increases in population and employment in Stanislaus and Merced Counties, where the Project would be located. As shown, the anticipated populations in Stanislaus, and Merced Counties are significantly greater than the number of jobs offered in the respective counties for 2020, 2025, and 2030. This population and employment growth pattern are likely to increase the existing trend for commutes from the three-county region to the Bay Area and commutes within the three-county region.

These population and employment growth patterns contribute to the need for future increased ACE service from Stanislaus and Merced Counties.

Table ES-2. Projected Population and Employment Growth in the Extended ACE Service Areas

Counties	2020	2025	2030	% Change 2020–2025	% Change 2025–2030
Population					
Stanislaus County	562,303	584,055	606,900	3.9	3.9
Merced County	287,420	307,981	329,635	7.2	7.0
Employment					
Stanislaus County	213,460	220,240	231,540	3.2	5.1
Merced County	90,100	92,500	96,500	2.7	4.3

Source: California Department of Finance 2020; California Employment Development Department 2019d and 2019e.

Note: 2020, 2025, and 2030 employment figures are based upon a linear interpolation of 2016 and 2026 employment estimates from the California Employment Development Department (California Employment Development Department 2019d and 2019e).

This Project will allow ACE riders to travel from Merced to Sacramento. ACE service to Sacramento currently does not exist but is planned and has been environmentally cleared under CEQA as a part of the Valley Rail Sacramento Extension Project. As described in the Final EIR for the Valley Rail Sacramento Extension Project, there is a need to increase service between the San Joaquin Valley and Sacramento due to the region's unbalanced ratio of housing and jobs, which will continue to diverge, with even more people moving out of the Sacramento to find affordable housing in the San Joaquin Valley (San Joaquin Regional Rail Commission 2020b).

ES.2.2 Roadway Congestion

The predominant mode of personal travel where the existing and extended ACE corridor are located is the automobile. In addition, many of the roadway corridors are influenced by truck traffic between the Central Valley, Bay Area, and the Sacramento area, particularly Interstate (I-) 205 and I-580. Economic growth and the corresponding demand for transportation services in Santa Clara, Alameda, San Joaquin, Stanislaus, and Merced Counties have exceeded the region's ability to provide the needed roadway capacity. The existing and extended ACE corridor provides transportation services in the vicinity of the following freeway segments.

- State Route (SR) 99 and I-5 from Merced to Stockton and Sacramento
- SR 152 from I-5 near Los Banos to US 101 in Gilroy and then north to San Jose
- SR 140 from SR 99 in Merced to I-5 west of Gustine
- SR 132 from SR 99 in Modesto to I-5 and I-580
- SR 120 from SR 99 to I-5
- I-5 from Stockton to Lathrop and points south
- I-205 from Lathrop to the San Joaquin County line
- I-580 from San Joaquin County line to Pleasanton
- SR 84 from Livermore to Fremont

- I-680 from Pleasanton to San Jose
- I-880 from Fremont to San Jose

The rapid increase in travel demand between the San Joaquin Valley, the Tri-Valley, the Silicon Valley/South Bay, and the Sacramento area coupled with the growth in population in the surrounding areas, has placed increasing pressures on the highways serving the region. Santa Clara and Alameda are the first and second most congested counties within the nine-county Bay Area (California Department of Transportation 2020).

The congestion experienced on the freeway segments in the Bay Area carry over onto freeway segments in the San Joaquin Valley. As it connects with I-580 near the Alameda–San Joaquin County line, I-205 serves as a major interregional connector for moving people and goods between the northern San Joaquin Valley and the Bay Area. The commute pattern on I-205 is unidirectional, with San Joaquin Valley residents commuting to jobs in the Bay Area during the morning period and returning in the afternoon period. Congestion on I-205 correlates with this travel pattern, which stems from the growing jobs and housing imbalance within the San Joaquin Valley. In the future, this commute pattern from the San Joaquin Valley to the Bay Area is expected to continue and become even more pronounced. With this pattern, congestion and bottlenecking on I-205 is anticipated to worsen. In the northern San Joaquin Valley, congestion locations occur most frequently in urban areas where the annual average daily traffic tends to be higher, exit and entry ramps or interchanges are more frequent, and the risk of crashes is more prominent. Congestion on SR 99 primarily occurs near urban centers, such as Stockton, Modesto, and Merced (Fresno Council of Governments 2017).

Congestion on freeway corridors in the vicinity of ACE are anticipated to increase to the point at which travel peak periods would spread into midday and to later in the evening, even if planned roadway improvements take place. Bottlenecks would continue to constrain movement through the corridor. As shown in Table ES-1, job growth in the Bay Area was expected to increase between 5 and 6 percent between 2020 and 2025 and between 2025 and 2030. As shown in Tables ES-1 and ES-2, population growth and job growth are expected to increase in both the Bay Area and the San Joaquin Valley. The resultant new transportation demand will lead to high levels of congestion that will take a toll on economic development by constraining goods and people movement.

As one example, between 2013 and 2040, peak hour traffic was projected to increase as follows on routes of regional significance in the Tri-Valley and adjacent areas (DKS Associates 2017).

- I-680 south of SR 84 (Sunol Grade)—52 percent increase in peak hour traffic
- I-580 east of Tassajara Road—35 percent
- I-580 east of Vasco Road—59 percent
- I-680 overall in Tri-Valley
    - 2013—a.m. peak average speeds of 56 mph (northbound) to 57 mph (southbound) and p.m. peak average speeds of 45 mph (northbound) to 58 mph (southbound)
    - 2040—a.m. peak average speeds of 46 mph (northbound) to 52 mph (southbound) and p.m. peak average speeds of 40 mph (southbound) to 46 mph (northbound)
- I-580 overall in Tri-Valley
    - 2013—a.m. peak average speeds of 35 mph (westbound) to 62 mph (eastbound) and p.m. peak average speeds of 49 mph (eastbound) to 59 mph (westbound)

- 2040—a.m. peak average speeds of 26 mph (westbound) to 51 mph (eastbound) and p.m. peak average speeds of 35 mph (eastbound) to 48 mph (westbound)

Similar increases in congestion are expected for I-880, SR 84, I-205, and SR 99.

Opportunities to improve highway capacity are constrained by a number of factors, including funding availability, the need for extensive and costly right-of-way acquisitions, and potential environmental impacts, such as displacement of residences and businesses, and impacts on natural resources and redesign of local roadways beyond the interchanges. For these reasons, substantial capacity improvements to I-880, I-680, SR 84, I-580, I-205, SR 120, I-5, and SR 99 cannot be relied upon to fully address long-term travel demands in the corridor. In this environment, ACE provides an essential and viable transportation alternative to costly highway capacity expansion. By reducing trip times and increasing transit ridership, the ACE Ceres–Merced Extension Project would help to ease congestion on the Bay Area and San Joaquin Valley freeways.

This Project will allow ACE riders to travel from Merced to Sacramento. The benefits associated with relieving traffic congestion for travelers in the San Joaquin Valley to the Sacramento area has been identified previously in the Final EIR for the Valley Rail Sacramento Extension Project (San Joaquin Regional Rail Commission 2020b). The ACE Ceres–Merced Extension Project would contribute to the overall benefit of relieving traffic congestion along I-5 and SR-99.

ES.2.3 Air Quality and Greenhouse Gas Emissions

High rates of automobile ownership and increasing vehicle miles traveled (VMT) have contributed to air quality problems throughout California. Pollutants of concern include nitrogen oxides and reactive organic gases, which are precursors of ozone (also referred to as *smog*); sulfur dioxides; carbon monoxide; and particulate matter. GHGs (including carbon dioxide, nitrous oxide, methane, and other gases) are now a focus of environmental planning in California because of their role in global climate change. Motor vehicles are substantial contributors to the production of all of these pollutants.

The existing ACE corridor and the proposed extension of ACE service to Merced includes portions of two air basins: the San Francisco Bay Area Air Basin (SFBAAB), for which air quality conditions are regulated by the Bay Area Air Quality Management District (BAAQMD), and the San Joaquin Valley Air Basin (SJVAB), for which air quality conditions are regulated by the San Joaquin Valley Air Pollution Control District (SJVAPCD). While the air quality has improved in recent years, largely in response to technological improvements in motor vehicles and fuels, both air basins face substantial challenges to meet air quality standards.

The SFBAAB is designated a marginal nonattainment area for the 8-hour federal standard for ozone, a moderate nonattainment area for the federal PM2.5 (particulate matter smaller than 2.5 microns in diameter) standard, and a maintenance area for the federal carbon monoxide standard. With respect to the California standards, the SFBAAB is currently a serious nonattainment area for the 1-hour ozone standard and a nonattainment area for the 8-hour ozone, PM2.5, and PM10 (particulate matter smaller than 10 microns in diameter) standards.

The San Joaquin Valley has more challenging air quality issues than the SFBAAB. The SJVAB is designated an extreme nonattainment area for the 8-hour federal standard for ozone and a nonattainment area for the federal PM2.5 standard. With respect to California standards, the SJVAB

is currently a severe nonattainment area for the 1-hour ozone standard and a nonattainment area for the 8-hour ozone, PM2.5, and PM10 standards.

Section 3.3, *Air Quality*, provides a summary of data collected at the air quality monitoring stations nearest to the ACE corridor and a discussion of the total number of days that state and federal ambient air quality standards were exceeded.

Because transportation is the major contributor to ozone precursors, increasing auto travel threatens the area's improvement in air quality. Growing traffic generation and congestion will add to the potential problems because of increased emissions due to increased number of vehicles operating and also due to this increased traffic being subjected to increased frequency of stop-and-go traffic. Shifting commuters and other travelers to higher occupancy modes is highly desirable as a means to partially offset the effects on air quality produced by the growth in auto travel. Expanded ACE service offers the greatest potential for increased high-occupancy travel from the San Joaquin Valley to the Bay Area and the Sacramento area, including in areas with the most severe air quality problems in the corridor. Compared to the conditions without the Project, by 2040, the ACE Ceres-Merced Extension would result in reduction in emissions of up to 0.2 tons per year of ozone precursors and 9.6 tons per year of PM10 in the BAAQMD and up to 6.9 tons per year of PM10 in the SJVAPCD as a result of extended ACE service (see Section 3.3, *Air Quality*). The ACE Ceres-Merced Extension would also result in reductions to air pollutants in the Sacramento area.

The transportation sector is the largest source of GHG emissions in California and in most communities along the existing and extended ACE corridor (California Air Resources Board 2018). The Stanislaus Council of Governments and the Merced County Association of Governments have both adopted Regional Transportation Plans (RTP)/ Sustainable Community Strategies (SCS) to reduce GHG emissions. California has ambitious goals to reduce GHG emissions throughout the state, including Assembly Bill (AB) 32 and Senate Bill (SB) 32, which outline the state's GHG reduction goals of achieving 1990 emissions levels by 2020 and a level 40 percent below 1990 emissions levels by 2030 (see Section 3.8, *Greenhouse Gas Emission*). By reducing vehicle travel on regional roadways, the ACE Ceres–Merced Extension would also help communities along the existing ACE corridor; along the extended ACE corridor Merced to Ceres, Ceres to Lathrop, and Lathrop to Sacramento; and California as a whole to meet their goals for GHG reductions. Compared to the conditions without the Project, operations of the ACE Ceres–Merced Extension would result in a reduction of approximately 4,082 metric tons of carbon dioxide equivalent of GHG emissions by 2040 (see Section 3.8, *Greenhouse Gas Emissions*).

ES.3 Project Objectives

The primary objectives of the ACE Ceres–Merced Extension Project is to enhance commuter rail and intercity service and transit connections in the San Joaquin Valley; reduce traffic congestion, improve regional air quality, and reduce GHG emissions; and to promote local and regional land use and transportation sustainability goals. Each of these objectives is discussed in detail in this section.

- **Enhance commuter rail and intercity service and transit connections in the San Joaquin Valley.** Project improvements would support enhanced commuter rail and intercity passenger rail and transit access and connectivity, as well as provide additional surface passenger transportation capacity in the San Joaquin Valley. The ACE Ceres–Merced Extension Project would extend the reach of the existing commuter and intercity rail transportation network of

the San Joaquin Valley. The Project would provide additional service to areas currently lacking access to passenger rail transportation as well as supplementing rail service to other areas. The Project would support transit-oriented development near proposed station locations. The Project would also provide an opportunity to connect with the future California High-Speed Rail System, which would integrate ACE service into a unified northern California rail network. These commuter and intercity rail connections are expected to stimulate additional ACE ridership.

- **Reduce traffic congestion, improve regional air quality, and reduce greenhouse gas emissions.** An expanded and improved ACE system would provide a transportation alternative to automobile use, which would alleviate traffic congestion on corridor highway segments (along SR 99, I-205, I-580, I-680, I-5, and I-880) and result in air quality benefits and a reduction in GHG emissions. In addition, by maximizing connections with other transit services within the San Joaquin Valley, the Project would contribute to indirect benefits related to alleviating congestion and improving regional air quality. Reductions in air pollutant emissions represent long-term health benefits for ACE riders, and for residents and employees along the ACE corridor. In addition, reduction of GHG emissions would help California to meet its goals under Assembly Bill 32, the 2006 Global Warming Solutions Act (as amended by Senate Bill 32), as well as other state GHG emission reduction goals.
- **Promote local and regional land use and transportation sustainability goals.** Metropolitan areas are implementing strategies to encourage more efficient use of land resources, improve mobility, and provide alternative transportation facilities and services in order to lower GHG emissions and to maintain air quality standards. One statewide strategy adopted in the California State Implementation Plan is the development of multi-use transportation corridors, including the addition of more transit and the expansion of rail modal options. This Project would further improve regional air quality and reduce GHG emissions, beyond reducing VMT from automobiles, by supporting regional land use and transportation planning goals under the Sustainable Communities and Climate Protection Act of 2008 (also known as SB 375) and other local, regional, and state sustainability initiatives. ACE is evaluating potential new ACE stations between Ceres and Merced. The new transit stations could act as a catalyst for smart growth in communities by revitalizing city core areas and addressing traffic congestion issues in the cities of the northern San Joaquin Valley.

ES.4 Project Description

SJRRC is proposing to expand ACE service to Ceres and to Merced. Figure ES-1 depicts the location of the Project. The analysis in this EIR would allow subsequent implementation of individual facilities, and prioritization and phasing of facilities. Infrastructure improvements and passenger service can be increased in a phased approach over time. Thus, the development of physical improvements and implementation of ACE service could be phased in over time, as follows.

- Initial improvements: Construction of stations, parking, and key track/infrastructure improvements and commencement of initial service (one or more trains).
- Interim improvements: Construction of additional track improvements, such as the additional new mainline track, at specific areas of train congestion, and possibly additional parking improvements necessary because of increased ridership, which would allow further expansion of service beyond the initial service or expansion.

- Full build: Completion of all proposed improvements and implementation of the full service plans.

ES.4.1 Overview of the Project

ES.4.1.1 Proposed Project

The Proposed Project is the extension of ACE service from Ceres to Merced, and includes the following facilities.

- The Ceres to Merced Extension Alignment, which consists of upgrades to track, new track, and bridges within the UPRR Fresno Subdivision between Ceres and Merced (see Figure ES-1).
- New Turlock, Livingston, and Merced Stations, which are located along the Ceres to Merced Extension Alignment (see Figures ES-2, ES-3, and ES-4).
- The Merced Layover & Maintenance Facility, which is located in north Merced to support extension operations (see Figure ES-5).

Detailed descriptions of the Proposed Project are presented in Chapter 2, *Project Description*.

ES.4.1.2 Alternatives Analyzed

This EIR analyzes one alternative to the proposed Livingston Station (the Atwater Station Alternative), one alternative to the Merced Station (the Merced Station Alternative), and one alternative to the Merced Layover & Maintenance Facility (the Merced Layover Facility Alternative).

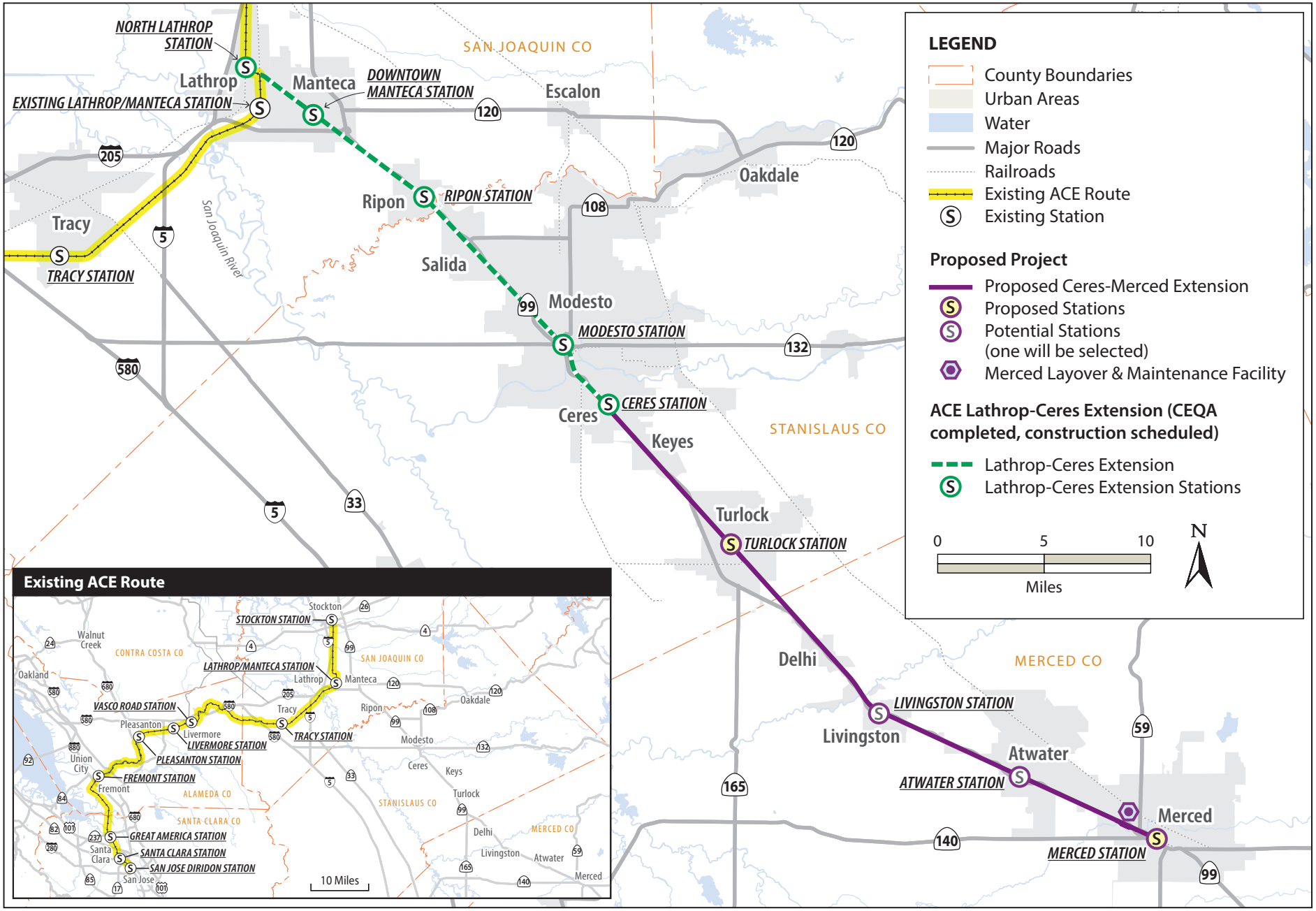
- The Atwater Station Alternative (see Figure ES-6) is analyzed at an equal level of detail as the Proposed Project and a detailed description of this alternative is presented in Chapter 2, *Project Description*.
- The Merced Station Alternative and the Merced Layover Facility Alternative are analyzed at a lesser level of detail in Chapter 5, *Alternatives.*

A summary of why the SJRRC is proposing the facilities identified as a part of the Proposed Project and not the alternatives is included below.

Livingston Station versus Atwater Station Alternative

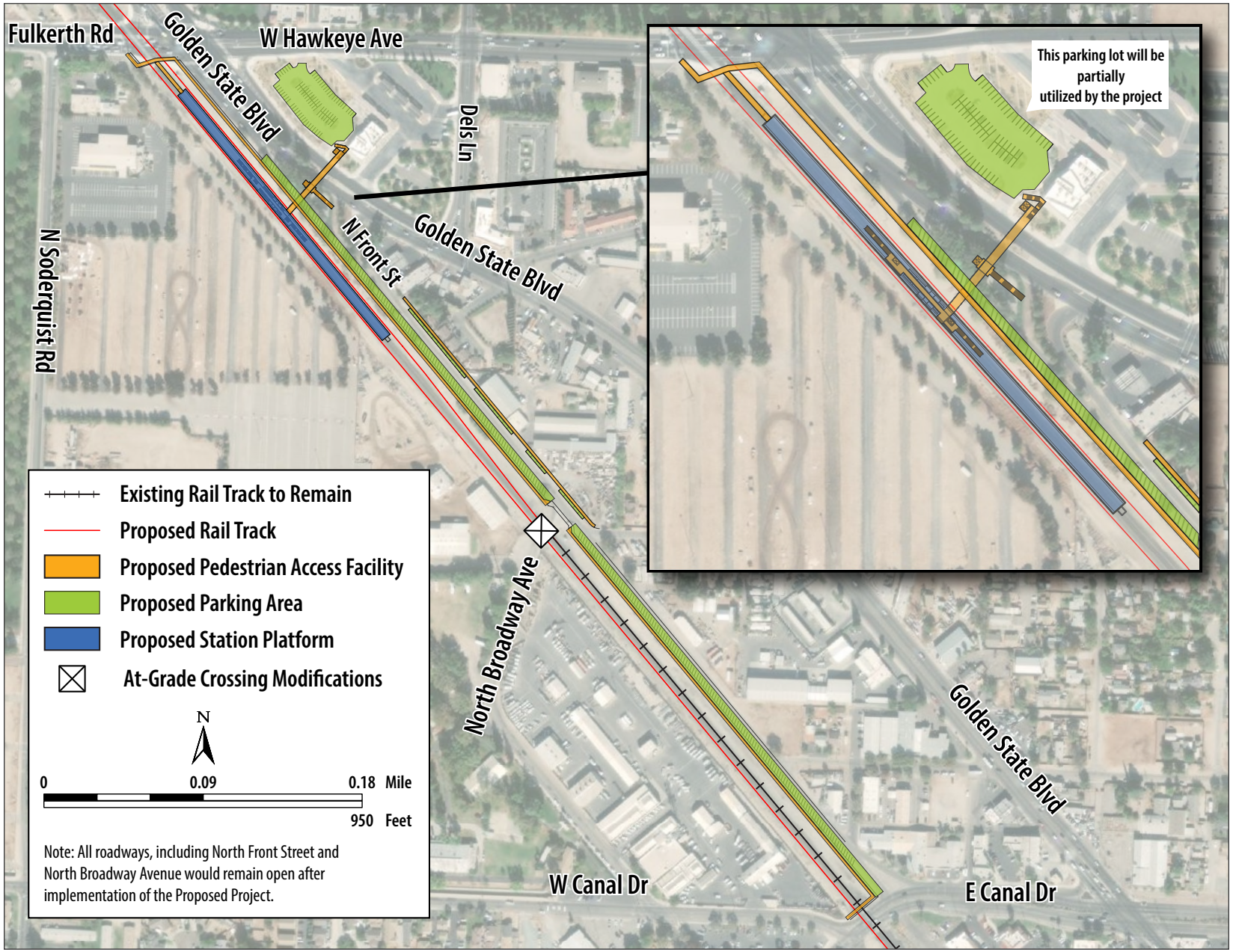
As shown in the environmental resource sections in Chapter 3, there are no substantial differences in environmental impacts between the proposed Livingston Station and the Atwater Station Alternative. SJRRC has included the Livingston Station and not the Atwater Station Alternative as part of the Proposed Project due to the reasons identified below and summarized in Table ES-3.

- *Spacing between stations.* The Livingston Station would be 14 miles from the Merced Station and 11 miles from the Turlock Station, which allows better freight operations than the Atwater Station Alternative. The Atwater Station Alternative is located only 7 miles from the Merced Station, which could create more freight bottlenecks.
- *Parking accessibility.* With the Livingston Station, ACE riders would be able to access the station platform from one contiguous lot and would not need to cross a roadway to access the station. The Atwater Station Alternative would require two parking lots, with one adjacent to the station and another across the street.



ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-1
Project Location
ACE Ceres-Merced Extension Project



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ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-2
Turlock Station
ACE Ceres-Merced Extension Project

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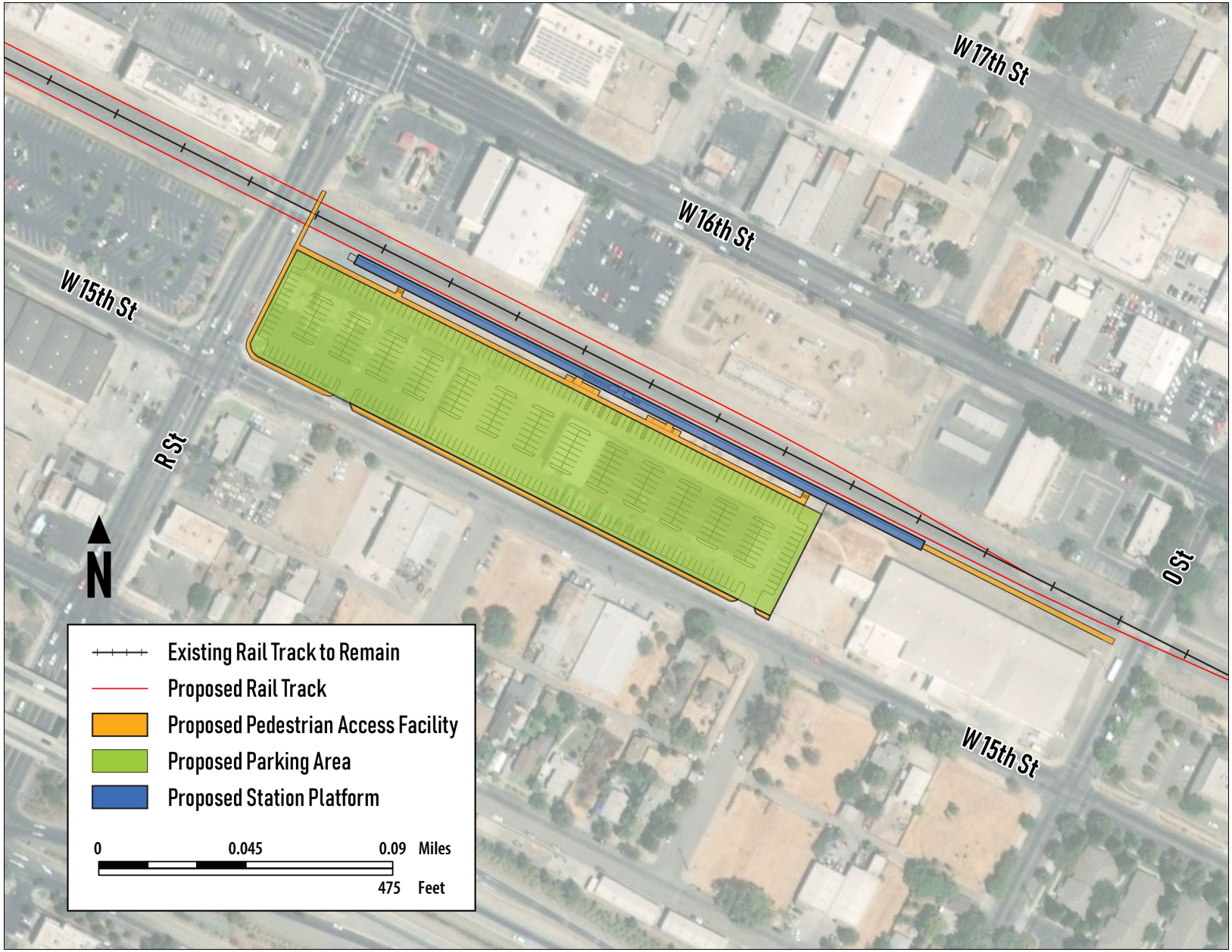
ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-3
Livingston Station
ACE Ceres-Merced Extension Project



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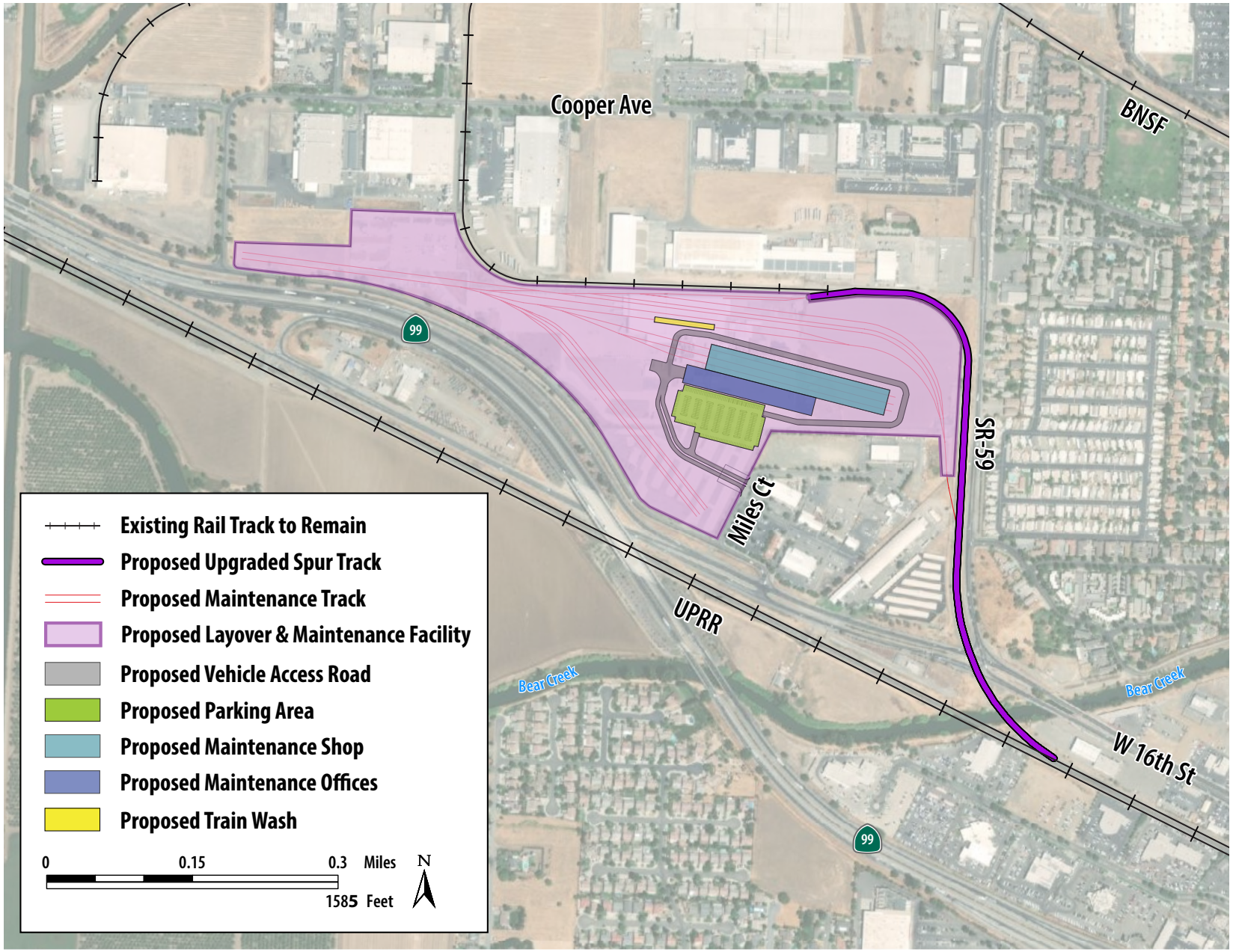
ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-4
Merced Station
ACE Ceres-Merced Extension Project



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ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-5
Merced Layover & Maintenance Facility
ACE Ceres-Merced Extension Project

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ACE
ALTAMONT CORRIDOR EXPRESS

Figure ES-6
Atwater Station Alternative
ACE Ceres-Merced Extension Project

- *Number of Parcels.* The Livingston Station would require the acquisition of one parcel and one area that is Caltrans excess right-of-way (ROW). The Atwater Station Alternative would require the acquisition of ten parcels (see Tables 2-11 and 2-12 in Chapter 2).
- *Demolition and Business Impacts.* The Livingston Station would require the demolition of only one existing building and the potential relocation of any associated active business operations. The Atwater Station Alternative would require the demolition of four existing buildings and the potential relocation of any associated active business operations.
- *Cost.* The cost associated with the Livingston Station, as shown in Table ES-3, is expected to be $6.4 million less than the Atwater Station Alternative.

Table ES-3. Comparison of Proposed Livingston Station and Atwater Station Alternative

Criteria	Proposed Livingston Station	Atwater Station Alternative
Station Spacing	Merced to Livingston = 14 miles Livingston to Turlock = 11 miles	Merced to Atwater = 7 miles Atwater to Turlock = 18 miles
Parking Accessibility	One contiguous lot adjacent to station, no need to cross a roadway.	Approximately one third of parking spaces are located across Atwater Boulevard from the station, requiring passengers to cross Atwater Boulevard to access the station.
Number of Parcels	One parcel that would need to be acquired and one area that is Caltrans excess ROW.	Ten parcels that would need to be acquired.
Demolition and Business Impacts	Demolition of one building and potential relocation of any associated active business operations.	Demolition of four buildings and potential relocation of any associated active business operations.
Cost	$21,126,387	$27,558,046

Merced Station versus Merced Station Alternative

The Merced Station Alternative analyzed in this EIR is located in the currently adopted location of the future California High-Speed Rail (HSR) station in Merced; however, this location is not preferred by the City of Merced. SJRRC is proposing to locate the ACE Merced Station in the location preferred by the City of the Merced. The City of Merced prefers a more northerly location for both the ACE station and the HSR station for the following reasons (City of Merced pers. comm.):

- It would have greater transit-oriented development potential.
- It would extend the revitalization of downtown Merced to the northwest providing a catalyst for further economic development.
- It would be adjacent to the City's existing transit center.
- It would avoid relocation of the City's central Fire Department and Station.
- It would avoid disruption to historic buildings in the downtown.
- It would avoid disruption to the City's recent investments in G Street, which is the primary emergency route to Dignity Health.,

- It would not require the roadway crossing relocations that are needed for the more southerly HSR station location.

Merced Layover & Maintenance Facility versus Merced Layover Facility Alternative

The Merced Layover Facility Alternative analyzed in this EIR was previously identified in the Prior EIR. As explained in Chapter 5, *Alternatives,* the Merced Layover & Maintenance Facility is proposed by the SJRRC instead of the location considered in the Prior EIR because it is more consistent with land use planning (located in an industrial park instead of on farmland) and would have lower impacts on prime farmland, biological resources, and visual aesthetics.

ES.4.2 Operation and Maintenance

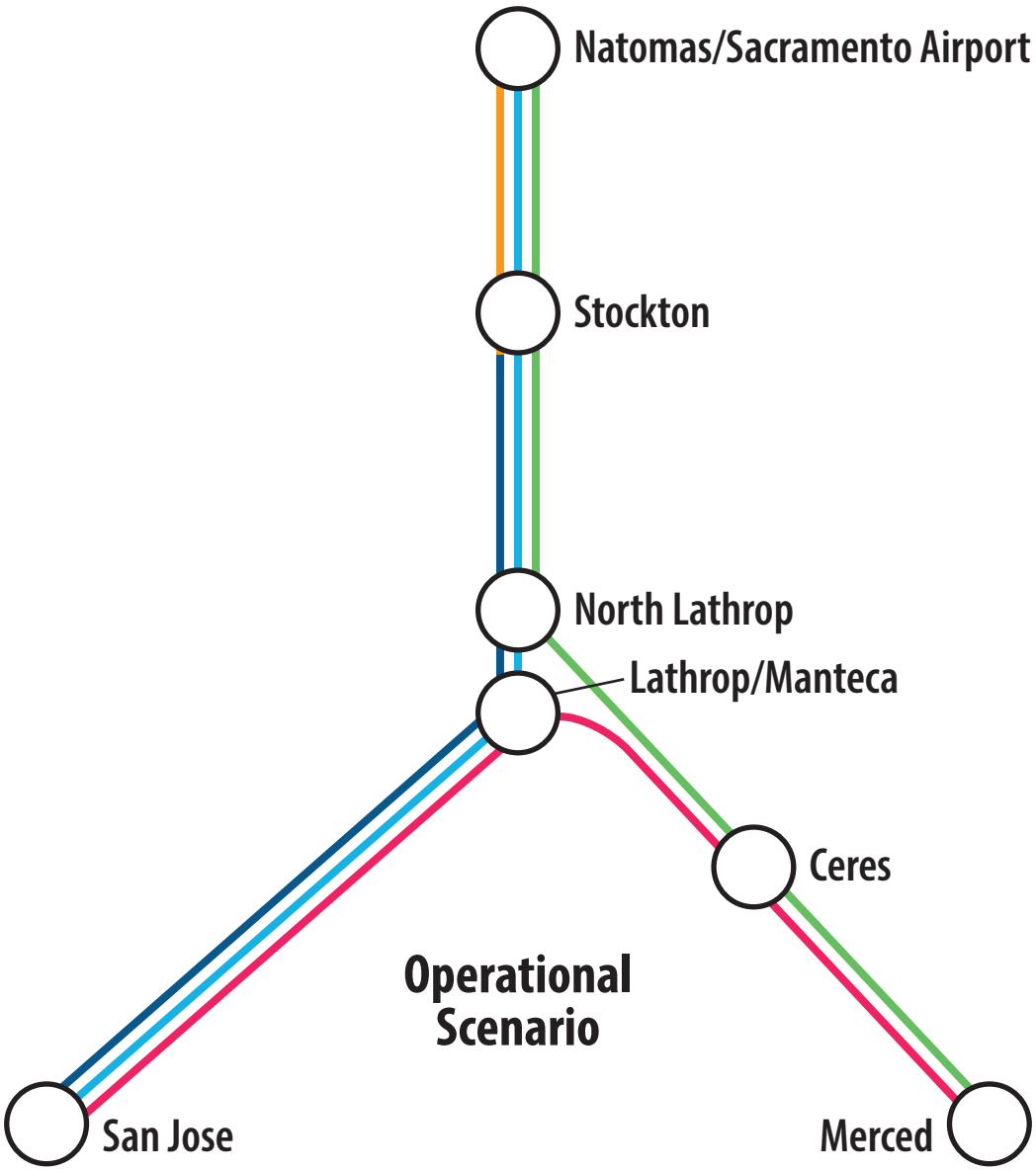
ES.4.2.1 Conceptual Service Plan

Upon implementation of full operations for the Project, ACE train service associated with the Project would consist of the following service configuration (see Figure ES-7), which would be limited to weekdays:

- In the morning, three northbound trains would run from Merced Station to the Natomas/ Sacramento Airport Station (included within the approved Valley Rail Sacramento Extension Project). Passengers boarding in Merced and Stanislaus Counties and Southern San Joaquin County would either stay on the train in the direction of Sacramento or transfer onto the three westbound trains in the direction of San Jose at the North Lathrop Station (timed transfers). One westbound train would run from Merced Station to San Jose Diridon Station directly.
- In the evening, three southbound trains would run from Natomas/Sacramento Airport Station to Merced Station. ACE passengers returning from the Bay Area would transfer at the North Lathrop Station (timed transfers) onto the three Sacramento to Merced trains. One eastbound/southbound train would run from San Jose Diridon Station to Merced Station directly.

In addition, with operation of the Project fully implemented plus the operation of the approved Valley Rail Sacramento Extension Project and the Extension from Ceres to Lathrop, the entire ACE service would include (see Figure ES-7) the following trains.

- One train in the morning and one train in the evening between the Merced Station and San Jose Diridon Station.
- Two trains in the morning and two trains in the evening between the Stockton Station and San Jose Diridon Station.
- One train in the morning and one train in the evening between Natomas/ Sacramento Airport Station and San Jose Diridon Station.
- Three trains in the morning and three train in the evening between the Merced Station and Natomas/Sacramento Airport Station.
- One train in the morning and one train in the evening between the Natomas/ Sacramento Airport Station and Stockton Station.



Legend

- Merced—San Jose (1 round trip; leaving Merced in the AM & returning in the PM)
- Natomas/Sacramento Airport—Stockton (1 round trip; leaving Natomas/Sacramento Airport in the AM & returning in the PM)
- Merced—Natomas/Sacramento Airport (3 round trips; leaving Merced in the AM & returning in the PM)
- Stockton—San Jose (2 round trips; leaving Stockton in the AM & returning in the PM)
- Natomas/Sacramento Airport—San Jose (1 round trip; leaving Natomas/Sacramento Airport in the AM & returning in the PM)

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ACE ALTAMONT CORRIDOR EXPRESS

Figure ES-7
Conceptual Service Plan
ACE Ceres-Merced Extension Project

ES.4.2.2 Shuttle Service

ACE currently provides shuttle services at the Great America and Pleasanton Stations. In 2030, the No Project Conditions is anticipated to require 164 daily shuttle trips provided by the existing routes at the Great America Station. To support the increased ridership system wide with the Project, an additional 3 daily shuttle trips provided by the existing routes are required at the Great America Station, beyond the 2030 No Project Conditions. In 2040, the No Project Conditions is anticipated to require 197 daily shuttle trips provided by the existing routes at the Great America Station. To support the increased ridership system-wide with operation of the Project, an additional 11 daily shuttle trips provided by the existing routes are required at the Great America Station, beyond the 2040 No Project Conditions.

At the Pleasanton Station, in 2030, the No Project Conditions is anticipated to require 23 daily shuttle trips provided by the existing routes at the Pleasanton Station. To support the increased ridership system-wide with operation of the Project, one additional daily shuttle trip provided by the existing route is required at the Pleasanton Station, beyond the 2030 No Project Conditions. In 2040, the No Project Conditions is anticipated to require 26 daily shuttle trips provided by the existing routes at the Pleasanton Station. No additional daily shuttles at the Pleasanton Station would be required in 2040.

In addition, the Prior EIR identified a bus service that would consist of four buses in the morning that would shuttle passengers from Merced to Ceres and four buses in the evening that would meet passengers disembarking eastbound San Jose to Stockton trains and provide bus services to Merced. With the Project, these bus trips would be discontinued.

ES.4.2.3 Ridership

Implementation of the Project is anticipated to result in increased ridership by 2030. Table ES-4 summarizes the projected annual ridership for the entire ACE system without the Project, the forested annual ridership for the entire ACE system with the Project, and the net new annual ridership due to this Project. Ridership for the Project is presented in more detail in Appendix D, *ACE Ceres–Merced Extension Ridership, Revenue, and Benefits Report*.

Table ES-4. System Ridership with Operations of the Project

		Proposed Project (with Livingston Station)[b]		Atwater Station Alternative[b]	
Year	**No Project Conditions[a]**	**Forecasted Annual Riders**	**Net New Annual Riders**	**Forecasted Annual Riders**	**Net New Annual Riders**
2030[c]	3,735,500	4,176,800	441,300	4,180,900	445,400
2040[c]	4,797,100	5,364,100	567,000	5,367,500	570,400

Source: Appendix D, *ACE Extension Ridership, Revenue, and Benefits Report*.

Notes:

[a] The No Project conditions include ACE service, with the addition of the approved Sacramento Extension and Ceres Extension. Service includes the following: two direct trains between Stockton and San Jose; one direct train between Ceres and San Jose with connecting bus service between Ceres and Merced; one direct train between Natomas and San Jose; one direct train between Natomas and Stockton; three trains between Ceres and Natomas via the Natomas Extension with connecting bus service between Ceres and Merced, these three trains also connect at North Lathrop to other inbound ACE trains with service to San Jose; and four buses between Ceres and

Merced, connecting to the trains at Ceres.

[b] The scenario for the Proposed Project with the Livingston Station or the Atwater Station Alterative consists of converting the Ceres–Merced bus connection under the No Project conditions to rail.

[c] For the 2040 scenario, ACE service is the same as the ACE service used in 2030 scenario.

ES.4.2.4 Energy Consumption

The primary sources of energy used to operate ACE trains and at maintenance and station facilities are diesel fuel and electricity. Existing diesel fuel consumption is approximately 455,000 gallons per year (based on 2017 figures). Operations at the existing stations and maintenance facility required approximately 2,353,000 kilowatt hours (kWh) of electricity in 2016.

With operation of the Project, ACE diesel trains would require approximately 124,953 additional gallons of fuel per year. By 2025 when an initial service between Ceres and Merced is expected to commence, all ACE trains are expected to use renewable diesel. Electrical use at new stations and facilities with operation of the Project would require approximately additional 1,026,516 kWh of electricity per year. Section 3.6, *Energy*, provides a detailed analysis of energy demand associated with operation of the Project.

ES.4.2.5 Maintenance Activities

Track Maintenance

SJRRC does not own the tracks on which ACE operates; instead, SJRRC has entered into trackage rights agreements with host railroads (both PCJPB and UPRR) to operate on portions of their respective tracks. Maintenance-of-way (MOW) is the responsibility of the host railroad. In general, MOW is the ongoing maintenance of track (e.g., tie replacement, switch greasing, ballast recontouring), track structures, bridges, drainage features, signal apparatus and other signal infrastructure. Maintenance activities are both ongoing responses to daily issues and planned preventive maintenance. Maintenance of bridges would include routine removal of woody debris, sediment, and other materials that accumulate near the piers of the bridges. Host railroads would have other maintenance activities that are required, specific to the features located in the corridor.

PCJPB maintenance activities also include tree pruning and removal in areas where trees would pose a maintenance or safety concern. UPRR maintenance activities include annual vegetation trimming and herbicide application. With operation of ACE from Ceres to Merced, PCJPB and UPRR would continue to conduct maintenance activities associated with the rail corridor in accordance with their current practices.

Station Maintenance

ACE stations, served solely by ACE, are maintained by SJRRC even though the land may be owned by the local jurisdiction. The Fremont, Great America, Santa Clara, and San Jose Diridon Stations are maintained by other transit entities. SJRRC's Facility Department is responsible for maintenance and cleanup of stations from Pleasanton to Stockton. Maintenance crews are located at the ACE Rail Maintenance Facility in Stockton and are dispatched as needed from Stockton to the various stations. Typical maintenance activities include trash pickup, landscaping, painting, minor concrete work, and light bulb replacement. Contractors are hired for more extensive maintenance activities, such as major concrete work, platform extension, and paving. Certain stations have specific

agreements with the local jurisdictions regarding maintenance activities that would be the responsibility of the local jurisdiction.

SJRRC would own and maintain the station platforms at all new stations. Maintenance of parking at new stations would vary depending on the nature of ownership of the underlying land and future agreements between SJRRC and local jurisdictions.

Fleet Maintenance

SJRRC's existing fleet maintenance activities for ACE are conducted at the ACE Rail Maintenance Facility located at 1020 East Alpine Avenue in Stockton, approximately 1.5 miles north of the Stockton Station. Regular train maintenance consists of daily inspections of equipment (as required by the Federal Railroad Administration), cleaning, and servicing activities such as fueling, filling of sand boxes, emptying of toilet tanks, and replenishing of fluids, supplies, and consumables (including trail crew supplies). Train washing can occur up to several times per week, or as required for any special event trains. Preventive and periodic maintenance, including light and heavy repairs of passenger coaches and locomotives, are conducted as needed. With operation of ACE from Ceres to Merced, heavy maintenance activities would continue at the ACE Rail Maintenance Facility. The Merced Layover & Maintenance Facility would support train layovers, storage, light maintenance, and daily servicing. For heavy maintenance and repairs, trains would be cycled back to the ACE Rail Maintenance Facility.

ES.4.3 Construction Schedule and Durations

SJRRC proposes to initiate service along the Ceres to Merced Extension by 2025. Table ES-5 identifies the duration for construction of each proposed or alternative facility. The construction durations presented are not sequential; construction could occur simultaneously at several locations. The durations noted below are for actual construction activity. These facilities would require permitting, contractor selection, and final design prior to construction and, thus, the total duration could be longer than the construction durations noted in the table.

Table ES-5. Construction Durations

Proposed and Alternative Facilities	Construction Duration (months)
Ceres to Merced Extension Alignment	36
Merced Layover & Maintenance Facility	24
Turlock Station	14
Livingston Station	12
Merced Station	10
Atwater Station Alternative	12

ES.4.4 Right-of-Way and Easement Needs

Approximately 13 parcels outside the UPRR ROW could be affected by the Proposed Project. With the Atwater Station Alternative, approximately 22 parcels outside the UPRR ROW could be affected.

Portions of these public and private parcels may be acquired or require easements for track ROW or rail support facilities.

ES.4.5 Costs and Revenues

ES.4.5.1 Capital Costs

With the Livingston Station, capital costs associated with the Project could cost approximately $481 million for infrastructure improvements, depending on coordination with the host railroad (UPRR). With the Atwater Station Alternative, capital costs associated with the Project could cost approximately $488 million for infrastructure improvements, depending on coordination with the host railroad (UPRR). The extension of service to Merced does not necessarily require the full build of the Project in order to extend service. Train service could be initially expanded or extended with station, parking and key track/infrastructure improvements, be expanded over time with additional improvements, and then be expanded fully with the full build suite of improvements.

As shown in Table ES-6, capital costs associated with the construction of the Project differ slightly, depending on whether the Livingston Station or Atwater Station Alternative is implemented. Capital costs associated with the Project are presented in more detail in Appendix E, *ACE Ceres–Merced Extension Opinion of Probable Cost Report.*

Table ES-6. Construction Cost Estimates for the Project (2021 dollars)

Proposed or Alternative Facility	Construction Cost
Ceres to Merced Extension Alignment	$346,410,846
Merced Maintenance & Layover Facility	$73,495,973
Turlock Station	$26,023,143
Livingston Station	$21,126,387
Atwater Station Alternative	$27,558,046
Merced Station	$14,434,294
Proposed Project (i.e., with Livingston Station)	**$481,490,463**
Project with Atwater Station Alternative	**$487,922,302**

Source: Appendix E, *ACE Ceres–Merced Extension Opinion of Probable Cost Report*

ES.4.5.2 Operating and Maintenance Costs and Revenues

As shown in Table ES-7, existing annual operations and maintenance costs are estimated at approximately $24.5 million (this estimate is in 2021 dollars). Under the No Project Conditions, annual operations and maintenance costs are estimated at approximately $43.1 million in 2021 dollars. With operation of service between Ceres and Merced, annual operations and maintenance costs are estimated at approximately $50.2 million in 2021 dollars.

Table ES-7. Summary of Annual Projected Operations & Maintenance Cost (2021 dollars in millions)

	Existing Cost	No Project Conditions Cost[a]	Project Cost
Total	$24.5	$43.1	$50.2

a. The No Project Conditions include ACE service, with the addition of the approved Sacramento Extension and Ceres Extension. Service includes the following: two direct trains between Stockton and San Jose; one direct train between Ceres and San Jose with connecting bus service between Ceres and Merced; one direct train between Natomas and San Jose; one direct train between Natomas and Stockton; three trains between Ceres and Natomas via the Natomas Extension with connecting bus service between Ceres and Merced, these three trains also connect at North Lathrop to other inbound ACE trains with service to San Jose; and four buses between Ceres and Merced, connecting to the trains at Ceres.

As shown in Table ES-8, anticipated revenue associated with the No Project Conditions in 2030 and 2040 would be approximately $24.5 million and $31.6 million, respectively. Anticipated revenue associated with operation of the Project would be approximately $27.0 million in 2030 and approximately $34.8 million in 2040. Operations and maintenance costs and revenues are presented in more detail in Appendix F, *ACE Ceres–Merced Extension Operating and Maintenance Cost Technical Memorandum.*

Table ES-8. ACE System Revenue

	Annual Fare Revenue				
Ridership Scenarios	**2016 [a]**	**2030 [b]**	**% Increase from 2016**	**2040 [b]**	**% Increase from 2016**
No Project Conditions	$8,135,417	$24,511,200	201%	$31,632,200	289%
Operation of Proposed Project (with Livingston Station)	--	$27,033,900	232%	$34,872,300	329%
Operation of Project (with Atwater Station Alternative)	--	$27,041,500	232%	$34,872,800	329%

a. The annual fare revenue was identified in Table 2-11 from the Prior EIR (San Joaquin Regional Rail Commission 2018).

b. The 2030 and 2040 annual fare revenues for the No Project Conditions and the Project are identified in Appendix D, *ACE Ceres–Merced Extension Ridership, Revenue, and Benefits Report*.

ES.5 Summary of Environmental Impacts and Mitigation

The potential impacts of the Project are presented in Chapter 3, *Environmental Impact Analysis*, and cumulative impacts are presented in Chapter 4, *Other CEQA-Required Analysis*, and are summarized in Table ES-9.[2] Table ES-9 is included at the end of this Executive Summary. Mitigation measures were also identified, where available and feasible, for significant impacts identified in this EIR. These mitigation measures are also listed in Table ES-9. Please note that in Tables ES-8, the term "significant" refers to the level of impact and the term "considerable" refers to the Project's contribution to a cumulative impact.

[2] The cumulative impacts analysis takes into account the Proposed Project in consideration with the cumulative projects and projections.

This EIR analyzes the construction impacts, operational impacts, and cumulative impacts for each separate subject area. The following summary describes the key conclusions in this EIR. This list is not a comprehensive list of impact conclusions; for a comprehensive review, please refer to Table ES-9, Chapter 3, and Chapter 4.

- Summary of construction-period impacts
- *Aesthetics:* The Project would temporarily change aesthetic conditions adjacent to nearby viewers, including residential areas. Mitigation measures requiring the installation of visual barriers, limiting construction activities near residential uses to daytime hours, minimizing fugitive light from construction activities, and implementing fugitive dust measures per San Joaquin Valley Air Pollution Control District regulations would minimize the duration and extent of these temporary impacts and impacts would be less than significant after mitigation.
- *Agricultural Resources:* The majority of the Project is located within or adjacent to the existing UPRR ROW, which passes through urbanized or otherwise disturbed areas with limited agricultural resources. Portions of the Project are located in areas identified for current agricultural uses, which would result in the conversions of farmlands to nonagricultural uses. The Project would impact Important Farmlands; however, the Project would not impact lands under Williamson Act contract or other agricultural lands protection mechanism. Mitigation measures would be required to restore farmlands used temporarily during construction, compensatory mitigation for permanent impacts, relocation of irrigation facilities, and coordination with utility providers. Nonetheless, the conversion of Important Farmland to non-agricultural uses due to the Project would be a significant and unavoidable impact.
- *Air Quality*: Construction of the Project would result in the emission of criteria pollutants due to the use of heavy-duty construction equipment, worker vehicle trips, truck hauling trips, and locomotive trips. In addition, fugitive emissions would result from site grading and asphalt paving. Mitigation measures requiring implementation of advanced emission controls for off-road equipment and locomotives, as well as mitigation requiring placing the emergency generator at least 1,000 feet from sensitive receptors would reduce impacts regarding criteria pollutants and toxic air contaminants to less-than-significant levels.
- *Biological Resources*: The majority of the Project would be located within or adjacent to the existing UPRR ROW, which passes through urbanized or otherwise disturbed areas with limited potential to support biological resources. Portions of the Project are located in small pockets of area that support natural land cover and with suitable habitat characteristics. Construction of the Project in these natural land cover areas would affect special-status plant, wildlife, and fish species; wetlands and other aquatic resources; sensitive natural communities; migration corridors; and trees. Implementation of mitigation measures would reduce impacts on these biological resources to a less-than-significant level.
- *Cultural Resources and Tribal Cultural Resources*: Construction of the Project would have a less-than-significant impact on built environment historical resources. Construction impacts on archaeological resources, human remains, and tribal cultural resources would be reduced to a less-than-significant level with mitigation requiring cultural resources awareness training, monitoring, establishing protocols in the event of discovery, archaeological testing, implementation of avoidance and protection measures, compliance with regulations regarding Native American remains, and implementation of procedures in case of inadvertent tribal cultural resources discoveries.

- *Energy:* Construction of the Project would require substantial energy input, primarily in the form of fuel for construction equipment and construction worker trips. However, the energy expenditure associated with construction would be temporary and limited to the duration of the construction period. Energy use benefits achieved through operations would substantially offset the short-term construction energy consumption.
- *Geology and Soils*: Construction of the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving geologic hazards and these impacts would be less than significant. Construction impacts on paleontological resources would be reduced to less-than-significant levels with mitigation requiring protocols in the event resources are encountered.
- *Greenhouse Gas Emissions*: Construction of the Project would result in GHG emissions. However, these construction-period emissions are one-time and short-term emissions, which would be more than offset by the substantial net operational GHG reduction associated with the Project due to the reduction of automobile emissions with increased ACE ridership.
- *Hazardous Materials*: Portions of the Project are located on or in close proximity to areas with hazardous materials contamination due to prior land use activities. Project mitigation measures would control potential exposure of workers and the public to contamination where encountered, and would also minimize potential spills of hazardous materials during construction.
- *Hydrology and Water Quality*: Construction of the Project could result in temporary degradation of water quality, particularly involved with construction for new bridges; discharge of dewatering effluent; or improper management of soils, fill, and hazardous materials. Construction impacts on hydrology and water quality would be reduced to less-than-significant levels with identified construction controls and mitigation measures identified to avoid work adjacent to or within surface waters, limit dewatering discharge, and properly handle construction materials.
- *Land Use and Planning:* Construction of the Project would have a less than significant impact in regard to impeding access to local businesses and community services and facilities in construction areas and interfering with the routine activities and interactions that contribute to established communities.
- *Noise and Vibration:* Construction of the Project would require construction activities in the daytime, and possibly nighttime. Although mitigation in the form of implementing best practices to minimize construction noise would reduce impacts in many locations, this mitigation might not always reduce impacts during nighttime construction to a less-than-significant level. Construction period noise impacts would remain significant and unavoidable. For construction-period vibration impacts, best practices to minimize construction vibration would minimize impacts to a less-than-significant level.
- *Population and Housing*: Construction of the Project would not result in substantial changes in population. In addition, construction of the Project would not displace existing housing units or residential uses.
- *Public Services*: Temporary interference to emergency response during construction of the Project would be reduced to less-than-significant levels with mitigation that requires coordination with local roadway agencies and emergency service providers.

- *Recreation*: Temporary disruption to recreation resulting from construction of the Project would be reduced to less-than-significant levels with mitigation measures minimizing construction-period visual and noise impacts; mitigation requiring coordination with Merced County and California Department of Parks and Recreation; and with compliance with San Joaquin Valley Air Pollution Control District regulations requiring fugitive dust controls on users of nearby recreational resources.
- *Safety and Security:* Temporary interference with an adopted emergency response plan or emergency evacuation plan during construction of the Project would be reduced to less-than-significant levels through mitigation that requires coordination with local roadway agencies and emergency service providers.
- *Transportation*: Construction of the Project could result in temporary disruptions to freight service and emergency access during construction. Mitigation would include coordination with local roadway agencies and freight rail service operators to minimize disruption. In addition, mitigation would include a construction road traffic control plan to minimize impacts to emergency access. Impacts would be reduced to less-than-significant levels with mitigation.
- *Utilities and Service Systems*: The Project would require relocation of certain utilities during construction activities. As mitigation, SJRRC would coordinate with all utility owners to conduct relocation activities in a way that minimizes potential disruption and impacts would be reduced to less-than-significant levels.
- Summary of operational impacts
- *Aesthetics*: The Project would change local visual character through addition of the new stations and track alignments within and outside the existing UPRR ROW. These visual changes from the Project are a result of the introduction of new features such as parking lots, pedestrian bridges, utility lines, railroad bridges, and vegetation removal that would alter the existing visual landscape. In addition, new stations and the Merced Layover & Maintenance Facility would introduce new sources of light or glare that could adversely affect views. Implementation of measures requiring the application of and replacement of landscaping, aesthetic design and surface treatments to bridges and fences, undergrounding new utilities, and minimum light standards would reduce impacts to less than significant levels.
- *Agricultural Resources:* Project operations would have limited impacts on agricultural resources, except on confined animal facilities as related to operational passenger rail noise. Expected noise levels at nearby confined animal facilities due to Project operations would be less than threshold levels and impacts would be less than significant.
- *Air Quality*: Project operations would create air quality impacts through extended ACE rail service and increased shuttle/bus bridge activity. However, Project operations would also improve existing passenger rail opportunities, which would reduce single-occupancy VMT in the transportation network. Overall, the Project would not generate emissions in excess of BAAQMD or SJVAPCD's thresholds. Moreover, several pollutants would be reduced relative to the No Project Conditions. This would be a regional air quality benefit in BAAQMD for all criteria pollutants and SJVAPCD for carbon monoxide and particulate matter, and a less-than-significant impact in SJVAPCD for reactive organic gases and nitrogen oxides for Project operations.
- *Biological Resources*: The Project would have limited impacts on biological resources except on nesting birds, bats, and other special-status species during vegetation trimming or clearing for

maintenance. These impacts would be less than significant with mitigation to control the timing of maintenance activities.

- *Cultural Resources and Tribal Cultural Resources*: The Project would have no significant impacts on cultural resources and tribal cultural resources during operations.
- *Energy:* Project operations would result in a net energy savings due to the reduction of automobile VMT and consequently reduce energy consumption per passenger mile. Energy use benefits achieved through Project operations would substantially offset the short-term construction energy and would be a beneficial impact.
- *Geology and Soils*: Project operations would not expose people or structures to significant impacts related to geologic hazards or affect paleontological resources.
- *Greenhouse Gas Emissions*: Project operations would result in a net GHG reduction from changes in regional traffic and diverted private automobile trips to public transit. Net emission reductions will decline as a function of time because the vehicles that will be removed from the road will be progressively cleaner due to engine improvements and vehicle modernization. GHG benefits achieved through operation of the Project would offset construction emissions and would be a beneficial impact.
- *Hazardous Material*s: Portions of the Project are located on or in close proximity to areas with hazardous materials contamination due to prior land use activities. Project mitigation measures would control potential exposure of workers and the public to contamination where encountered during maintenance activities and impacts would be reduced to less-than-significant levels.
- *Hydrology and Water Quality*: Portions of the Project would be located within a mapped 100-year flood hazard zone, but mitigation requiring detailed hydraulic evaluations and modifications to designs within drainage courses and flood zone areas would reduce impacts to a less-than-significant level. Increases in impervious spaces and alterations to drainage patterns would occur with implementation of the Project, but runoff impacts would be controlled through compliance with stormwater regulation requirements and mitigation requiring detailed hydraulic evaluations and modifications to designs for stormwater controls to prevent flooding would reduce impacts to a less-than-significant level.
- *Land Use and Planning:* The Project would establish new stations in areas supported by the general plans of the municipalities in which new stations would be located. The majority of the Project would be located within the existing UPRR ROW where no land use designation is identified and where local cities and counties do not have jurisdiction. Several Project facilities, specifically new stations and the Merced Layover & Maintenance Facility, are located wholly or partially outside the existing UPRR ROW where land use designations are identified by the local jurisdiction. Construction of the Merced Layover & Maintenance Facility could conflict with local land use plans and policies for the purposes of avoiding or mitigating an environmental effect. However, the Merced Layover & Maintenance Facility would not preclude the development of other allowable uses or significantly change the land use pattern envisioned for these area. Implementation of mitigation measures to protect agricultural and biological resources would reduce impacts on these resources and inconsistencies of the Project with policies to preserve agricultural or biological resources would be less than significant.

- *Noise and Vibration*: The Project would have less-than-significant impacts on noise during operation. Operational vibration impacts would be less than significant after implementation of mitigation requiring special trackwork on a portion of the Ceres to Merced Extension Alignment.
- *Population and Housing*: New stations established along the Project corridor are supported by the general plans of the municipalities in which new stations would be located. As such, the population growth that may result in the station vicinity is already planned for and the Project would have less-than-significant impacts on population and housing during operations.
- *Public Services*: The Project would have less-than-significant impacts on public services during operation.
- *Recreation:* The Project would have a less than significant impact on recreational resources during operations.
- *Safety and Security:* The Project would have less than significant impacts on increasing hazards to workers, passenger, or adjacent human and environmental receptors along the Project corridor during operation.
- *Transportation*: Overall, the Project would have a beneficial impact on transportation from the reduction of VMT. The Project would have less than significant impacts on transportation during operation of the Project.
- *Utilities and Service Systems*: The Project would have less-than-significant impacts on utilities and service systems during operation.
- Summary of cumulative impacts
- *Aesthetics*: The Project's contributions to cumulative impacts related to aesthetics can be reduced to less than considerable levels with Project mitigation measures.
- *Agricultural Resources:* The Project's contributions to cumulative impacts related to permanent impacts on Important Farmland would be considered considerable even with Project mitigation.
- *Air Quality*: The Project would improve air quality in some respects; where the Project would increase criteria pollutant emissions or toxic air contaminants, these emissions would not contribute adversely to cumulative air quality impacts (after implementation of Project mitigation).
- *Biological Resources*: The Project's contributions to cumulative impacts related to biological resources can be reduced to less than considerable levels with Project mitigation measures.
- *Cultural Resources and Tribal Cultural Resources*: The Project's contributions to cumulative impacts related to cultural resources and tribal cultural resources can be reduced to less than considerable levels with Project mitigation measures.
- *Energy:* The Project would not contribute considerably to any cumulative impacts related to energy resources.
- *Geology and Soils*: The Project's contributions to cumulative impacts related to geology and soils can be reduced to less than considerable levels with Project mitigation measures.
- *Greenhouse Gas Emissions*: The Project would reduce GHG emissions and thus would not contribute to cumulative impacts related to GHG emissions.

- *Hazards and Hazardous Materials:* The Project's contributions to cumulative impacts related to hazardous materials can be reduced to less than considerable levels with Project mitigation measures.
- *Hydrology and Water Quality*: The Project's contributions to cumulative impacts related to hydrology and water quality can be reduced to less than considerable levels with Project mitigation measures.
- *Land Use and Planning:* The Project's contributions to cumulative impacts related to land use and planning can be reduced to less than considerable levels with Project mitigation measures (apart from the separately disclosed considerable contribution to agricultural land conversion under Impact C-AG-1).
- *Noise and Vibration*: Because the Project could result in a significant and unavoidable noise impact during construction (even after implementation of Project mitigation) and because there could be other cumulative projects simultaneously under construction, the Project would result in a cumulatively considerable contribution to noise impacts during construction. The Project's contributions to cumulative impacts related to operational noise impacts would be less than considerable. The Project's contributions to cumulative impacts related to vibration impacts (during both construction and operations of the Project) can be reduced to less than considerable levels with Project mitigation measures.
- *Population and Housing*: The Project would not contribute considerably to any cumulative impacts related to population and housing.
- *Public Services*: The Project would not contribute considerably to any cumulative impacts related to public services.
- *Recreation*: The Project's contributions to cumulative impacts related to recreation can be reduced to less than considerable levels with Project mitigation measures.
- *Safety and Security*: The Project's contributions to cumulative impacts related to safety and security can be reduced to less than considerable levels with Project mitigation measures.
- *Transportation*: The Project's contributions to cumulative impacts related to transportation can be reduced to less than considerable levels with Project mitigation measures.
- *Utilities and Service Systems*: The Project would not contribute considerably to any cumulative impacts related to utilities and service systems.

ES.6 Alternatives Screening Process and Other Alternatives Considered and Dismissed

SJRRC considered a wide range of alternatives before selecting the alternatives to be analyzed in this EIR. SJRRC conducted meetings with local agencies, communities, stakeholders, organizations, working groups, and resource agencies (Chapter 6, *Public Agency Involvement*) to formulate the initial set of alternatives. Alternatives were also identified through input from the public, agencies, and stakeholders during scoping. Appendix A, *ACE Ceres–Merced Extension Scoping Memorandum,* provides the scoping memorandum summarizing the written and oral comments received during the scoping process.

Alternatives were screened based on the following criteria.

- **Tier 1**—does the alternative meet most of the Proposed Project's basic objectives?
- **Tier 2**—is the alternative technically, logistically, and financially feasible?
- **Tier 3**—would the alternative avoid or substantially lessen one or more significant impacts of the Proposed Project?

Alternatives determined not to meet most of the Proposed Project's basic objectives, to Proposed Project Extension, were dismissed from further analysis in this EIR. All of the alternatives considered, but dismissed from analysis, are discussed in Chapter 5, *Alternatives*, along with the rationale for their dismissal.

The Atwater Station Alternative, which was analyzed in an equal level of detail as the Proposed Project in this EIR (Chapter 2, 3, and 4) were determined to meet the Proposed Project's basic objectives and to be feasible. Its environmental impacts are disclosed in Chapter 3 and Chapter 4. In addition, the No Project Alternative and two additional alternatives (Merced Layover Facility Alternative and Merced Station Alternative) are analyzed at a lesser level of detail in Chapter 5.

ES.7 Comparison of Alternatives and the Environmentally Superior Alternative

The State CEQA Guidelines require a comparison of alternatives analyzed in an EIR and identification of an "environmentally superior alternative." CEQA Guidelines Section 15126.6(e)(2) require an EIR to identify an "environmentally superior alternative" from among the alternatives considered to the Proposed Project. The guidelines also state 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. As such, from a technical CEQA perspective, an EIR cannot identify a Proposed Project as the "environmental superior alternative" even if the Proposed Project has better environmental performance than all the alternatives. As discussed below, except for the Atwater Station Alternative, the Proposed Project would be environmentally superior to any other alternative.

The environmental impacts of the Atwater Station Alternative are presented in Chapter 3 and 4 and these chapters describe the slight but insubstantial differences in impacts between the Atwater Station Alternative and the proposed Livingston Station. Chapter 5 presents an analysis of the environmental impacts of the No Project Alternative, Merced Station Alternative, and the Merced Layover Facility Alternative at a lesser level of detail. Chapter 5 also provides a tabular comparison of the key environmental impact differences between the alternatives.

The Proposed Project as well as any of the alternatives considered would provide benefits, such as reducing VMT and reducing regional air pollutants and GHG emissions that would not be realized under the No Project Alternative. While the No Project Alternative would avoid the construction impacts of the Proposed Project and any of the build alternatives, it is not considered the "environmentally superior alternative" because it would not provide the long-term environmental benefits of expanded passenger rail service.

The "environmentally superior alternative" among the alternatives to the Proposed Project is a combination of different alternative facilities and is summarized in Table 5-10 of Chapter 5. The

"environmentally superior alternative" among the alternatives would consist of the following Project facilities:

- The rail alignment as described for the Proposed Project but extended 0.6 mile southward to the Merced Station Alternative
- Implementation of the Turlock Station
- Implementation of the Atwater Station Alternative
- Implementation of the Merced Station Alternative
- Implementation of the Merced Layover Facility Alternative.

As described in Chapter 3, there are no substantial differences in environmental impacts between the Atwater Station Alternative and the proposed Livingston Station. There are, however, some environmental tradeoffs between the "environmentally superior alternative" and the Proposed Project in relation to the impacts of the Merced Layover Facility Alternative versus the proposed Merced Layover & Maintenance Facility and the impacts of the Merced Station Alternative versus the proposed Merced Station. These environmental tradeoffs are summarized in Table 5-11 in Chapter 5.

The Proposed Project is environmentally superior to the "environmentally superior alternative" for the following reasons:

- The Merced Station would have greater potential for transit-oriented development than the Merced Station Alternative and thus would be more consistent with City of Merced's long-term planning direction than the Merced Station Alternative. The Merced Station Alternative would require more trackwork than the proposed Merced Station and thus would result in more construction air quality and GHG emissions than the proposed Merced Station. The Merced Station Alternative would have slightly higher train criteria pollutant and GHG emissions than the proposed Merced Station because the Merced Station Alternative is located slightly south of the proposed Merced Station and thus trains would have a longer distance to travel. However, the Merced Station Alternative would have less of a noise impact during construction than the proposed Merced Station because it is further away from sensitive receptors.
- The Merced Layover & Maintenance Facility would have lower impacts on agricultural farmland because it would affect much lower quality of farmland and a lesser quantity of farmland than the Merced Layover Facility Alternative. The Merced Layover & Maintenance Facility would be more consistent with land use planning and have lower aesthetic impacts since it would be located within an existing industrial park compared to the Merced Layover Facility Alternative, which would be in an agricultural area. The Merced Layover & Maintenance Facility would have a lower impact on biological resources than the Merced Layover Facility Alternative. However, the Merced Layover Facility Alternative would have less of a construction noise impact during than the proposed Merced Layover & Maintenance Facility because it would be located further away from sensitive receptors.

Taking all these factors into consideration, the Proposed Project would be environmentally superior for all relevant environmental factors that differ between the Proposed Project and the "environmentally superior alternative" with the exception of construction noise. Since construction noise would be a temporary effect, whereas the Proposed Project's environmental benefits would be primarily related to permanent long-term effects such as conservation of prime farmland, land use

consistency, potential for transit-oriented development, as well as biological resources, the Proposed Project would be environmentally superior to the "environmentally superior alternative."

ES.8 Issues of Controversy and Issues to be Resolved

There are some areas of controversy for the Proposed Project including, but not limited to, the following issues.

- **Consideration of Alternatives**—While the EIR considers a wide range of alternatives for the Project, some may desire that other alternatives should be evaluated in detail. Chapter 5 discusses all alternatives considered and why some alternatives were not carried forward for detailed evaluations.

The following issues remain to be resolved:

- **Consideration of Comments on this Draft EIR**—SJRRC will consider and respond to substantive comments on this draft EIR in the final EIR scheduled for completion later in 2021.
- **Certification of the EIR and Project Adoption**—SJRRC will need to consider the final EIR, once prepared, and decide whether to certify the document. If certified, then the SJRRC Board would need to decide whether to approve the Proposed Project as is or to adopt an alternative.
- **Selection of the Livingston Station versus the Atwater Station Alternative**—SJRRC will select either the Livingston Station or the Atwater Station Alternative after considering the comments on the Draft EIR and after the final EIR is certified.
- **Design of the Project**—The final design of the Project would be completed following the environmental review process.
- **Regulatory Permitting**—Permits from a wide range of local, state, and federal agencies would need to be obtained in order to implement the Project.
- **National Environmental Policy Act (NEPA) Compliance**—If federal funding is obtained, then compliance with NEPA will be necessary. At this time, no federal funding has been identified and NEPA compliance is not required at this time.
- **Funding**—ACE has obtained funding commitments through SB 1 for approximately $400 million to support the extension of ACE services to Ceres and Merced. It will need to be determined how to best use this funding to expand and extend ACE service as soon as possible and how to best leverage any other funding that may be necessary achieve the longer-term project goals.
- **High-Speed Rail Merced Station**—While not necessary for the completion of this Project, which can be implemented independent of the HSR project, the California High Speed Rail Authority would need to confirm and environmentally clear the HSR Merced Station that is preferred by the City of Merced. The proposed ACE Merced Station is located at the preferred location of the City of Merced.

Table ES-9. Summary of Impacts and Required Mitigation Measures

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.1 Aesthetics			
Impact AES-1. Construction of the Proposed Project could substantially degrade the existing visual character or quality of the site and its surroundings, including scenic vistas and scenic highways, and could create a new source of substantial light or glare that would adversely affect day or nighttime views.	Potentially significant impact	AES-1.1: Install visual barriers between construction work areas and sensitive receptors AES-1.2: Limit construction near residences to daylight hours AES-1.3: Minimize fugitive light from portable sources used for construction	Less than significant impact
Impact AES-2. Proposed Project operations could conflict with applicable zoning and other regulations governing scenic quality in an urbanized area, including scenic vistas.	Potentially significant impact	AES-2.1: Landscape parking facilities AES-2.2: Apply aesthetic design treatments to pedestrian bridges over tracks and bridges with visibility to residents and recreationists AES-2.3: Underground new utilities AES-2.4: Apply aesthetic surface treatments to fencing and pedestrian bridge safety barriers AES-2.5: Replace disturbed vegetation along landscaped freeways	Less than significant impact
Impact AES-3. Proposed Project operations would not substantially degrade the existing visual character or quality of public views the site and its surroundings in a non-urbanized area, including scenic vistas.	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact AES-4. Proposed Project operations could substantially damage scenic resources within a state scenic highway.	Potentially significant impact	AES-2.1: Landscape parking facilities AES-2.3: Underground new utilities AES-2.4: Apply aesthetic surface treatments to fencing and pedestrian bridge safety barriers	Less than significant impact
Impact AES-5. Proposed Project operations could create a new source of substantial light or glare that would adversely affect day or nighttime views.	Potentially significant impact	AES-2.1: Landscape parking facilities AES-2.2: Apply aesthetic design treatments to pedestrian bridges over tracks and bridges with visibility to residents and recreationists AES-5.1: Apply minimum lighting standards	Less than significant impact
Impact C-AES-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on aesthetics.	Significant cumulative impact	AES-1.1: Install visual barriers between construction work areas and sensitive receptors AES-1.2: Limit construction near residences to daylight hours AES-1.3: Minimize fugitive light from portable sources used for construction AES-2.1: Landscape parking facilities AES-2.2: Apply aesthetic design treatments to pedestrian bridges over tracks and bridges with visibility to residents and recreationists AES-2.3: Underground new utilities AES-2.4: Apply aesthetic surface treatments to fencing and pedestrian bridge safety barriers AES-2.5: Replace disturbed vegetation along landscaped freeways AES-5.1: Apply minimum lighting standards	Less than considerable contribution
3.2 Agricultural Resources			
Impact AG-1. Construction and operation of the Proposed Project could convert Important Farmlands to nonagricultural use.	Potentially significant impact	AG-1.1: Avoid Important Farmlands and Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance)	Significant and unavoidable impact
Impact AG-2. Construction and operation of the Proposed Project would not conflict with a	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Williamson Act contract or other agricultural lands protection mechanism.			
Impact AG-3. Construction and operation of the Proposed Project would not result in conversion of farmland through noise and vibration impacts on confined farm animals.	Less than significant impact	None required	--
Impact AG-4. Construction of the Proposed Project would not create unviable remnant or severed parcels of Important Farmland.	Less than significant impact	None required	--
Impact AG-5. Construction and operation of the Proposed Project could involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to nonagricultural use.	Potentially significant impact	AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Less than significant impact
Impact C-AG-1. Construction and Operations of the Project could contribute considerably to a significant cumulative impact on agricultural resources.	Significant cumulative impact	AG-1.1: Avoid Important Farmlands and Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance) AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Considerable contribution
3.3 Air Quality			
Impact AQ-1. Construction of the Proposed Project could conflict with or obstruct implementation of the applicable air quality plan. Operation of the Proposed	Potentially significant impact	AQ-2.1: Implement advanced emissions controls for off-road equipment	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Project would not conflict with or obstruct implementation of the applicable air quality plan.			
Impact AQ-2a. Construction of the Proposed Project could result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is designated a nonattainment area under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).	Potentially significant impact	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction	Less than significant impact
Impact AQ-2b. Operations of the Proposed Project would not result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is designated a nonattainment area under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).	Less than significant impact (beneficial) (BAAQMD: all pollutants and SJVAPCD: CO, PM2.5, PM10, and SOx) Less than significant impact (SJVAPCD: ROG, NOx)	None required	--
Impact AQ-3a. Operation of the Proposed Project would not expose sensitive receptors to substantial carbon monoxide concentrations from increased passenger rail traffic.	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact AQ-3b. Construction of the Proposed Project could expose sensitive receptors to substantial diesel particulate matter or localized particulate matter concentrations.	Potentially significant impact	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction	Less than significant impact
Impact AQ-3c. Operations of the Proposed Project would not expose sensitive receptors to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant impact	None required	--
Impact AQ-3d. Operations of the Proposed Project would not expose sensitive receptors adjacent to ACE stations and maintenance facilities to health risks from increased exposure to diesel particulate matter.	Potentially significant impact	AQ-3.1: Locate emergency generator for the Merced Layover & Maintenance Facility more than 1,000 feet from residences	Less than significant impact
Impact AQ-3e. Operations of the Proposed Project would not expose sensitive receptors adjacent to shuttle routes to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations from expanded shuttle service.	Less than significant impact	None required	--
Impact AQ-3f. Construction and operations of the Proposed Project would not expose sensitive receptors to health risks from increased exposure to diesel particulate matter and	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
PM2.5 concentrations from multiple emission sources.			
Impact AQ-3g. Construction and operations of the Proposed Project would not expose sensitive receptors to cumulative health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant impact	None required	--
Impact AQ-3h. Construction of the Proposed Project would not expose sensitive receptors to increased risk of contracting Valley Fever or exposure to asbestos-containing material.	Less than significant impact	None required	--
Impact AQ-4. Construction and operations of the Proposed Project would not create objectionable odors affecting a substantial number of people.	Less than significant impact	None required	--
Impact C-AQ-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on air quality.	Less than considerable contribution (beneficial)	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.4 Biological Resources			
Impact BIO-1. Construction of the Proposed Project could remove or degrade special-status plants and their habitat.	Potentially significant impact	BIO-1.1: Conduct preconstruction surveys for special-status plant species BIO-1.2: Prepare a salvage, relocation, or propagation and monitoring plan for special-status plant species BIO-1.3: Document affected special-status plant species BIO-1.4: Prevent introduction or spread of invasive plant species HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant impact
Impact BIO-2. Construction of the Proposed Project could injure or kill special-status wildlife species and remove or degrade their habitat.	Potentially significant impact	BIO-2.1: Conduct a worker environmental training program for construction personnel BIO-2.2: Avoid vernal pool–endemic species BIO-2.3: Avoid valley elderberry longhorn beetle BIO-2.4: Avoid California tiger salamander and western spadefoot toad BIO-2.5: Avoid western pond turtle and giant garter snake BIO-2.6: Avoid coast horned lizard and Northern California legless lizard BIO-2.7: Avoid nesting birds BIO-2.8: Avoid Swainson's hawk BIO-2.9: Compensate for Swainson's hawk foraging habitat loss BIO-2.10: Avoid burrowing owl BIO-2.11: Compensate for burrowing owl habitat loss BIO-2.12: Avoid song sparrow (Modesto population), tricolored blackbird, and yellow-headed blackbird BIO-2.13: Avoid roosting bats BIO-2.14: Avoid San Joaquin kit fox and American badger BIO-2.15: Compensate for San Joaquin kit fox and American badger habitat loss BIO-2.16: Avoid direct impacts on Western Monarch Butterfly Host Plants & Provide Compensatory Mitigation for Impacts on Monarch Butterfly Habitat	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact BIO-3. Construction of the Proposed Project could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant impact	BIO-2.1: Conduct a worker environmental training program for construction personnel BIO-3.1: Implement noise reduction measures for pile driving BIO-3.2: Develop and implement a hydroacoustic monitoring plan to minimize noise effects on fish BIO-3.3: Implement seasonal restrictions for in-water work BIO-4.1: Avoid and protect wetlands during construction BIO-4.2: Compensate for impacts on jurisdictional wetlands and non-wetland waters of the United States (aquatic resources) prior to improvements impacts during construction BIO-5.1: Avoid and protect sensitive natural communities, including riparian habitat, during construction BIO-5.2: Compensate for loss of sensitive natural communities (including riparian habitat) HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant impact
Impact BIO-4. Construction of the Proposed Project could remove or degrade state or federally regulated wetlands and other aquatic resources.	Potentially significant impact	BIO-4.1: Avoid and protect wetlands during construction BIO-4.2: Compensate for impacts on jurisdictional wetlands and non-wetland waters of the United States (aquatic resources) due to proposed impacts during construction	Less than significant impact
Impact BIO-5. Construction of the Proposed Project could remove or degrade sensitive natural communities, including riparian habitat, identified in local or regional plans, policies, and regulations or by CDFW or USFWS.	Potentially significant impact	BIO-4.1: Avoid and protect wetlands during construction BIO-4.2: Compensate for impacts on jurisdictional wetlands and non-wetland waters of the United States (aquatic resources) due to Proposed Project impacts during construction BIO-5.1: Avoid and protect sensitive natural communities, including riparian habitat, during construction BIO-5.2: Compensate for loss of sensitive natural communities (including riparian habitat)	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact BIO-6. Construction of the Proposed Project could substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas.	Potentially significant impact	BIO-2.3: Avoid valley elderberry longhorn beetle BIO-2.7: Avoid nesting birds BIO-2.8: Avoid Swainson's hawk BIO-2.9: Compensate for Swainson's hawk foraging habitat loss BIO-2.10: Avoid burrowing owl BIO-2.11: Compensate for burrowing owl habitat loss BIO-2.12: Avoid song sparrow (Modesto population), tricolored blackbird, and yellow-headed blackbird BIO-2.13: Avoid roosting bats BIO-3.3: Implement seasonal restrictions for in-water work HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant impact
Impact BIO-7. Construction of the Proposed Project could conflict with local biological resource policies, including tree preservation policies or ordinances.	Potentially significant impact	BIO-1.1: Conduct preconstruction surveys for special-status plant species BIO-1.2: Prepare a salvage, relocation, or propagation and monitoring plan for special-status plant species BIO-1.3: Document affected special-status plant species BIO-1.4: Prevent introduction or spread of invasive plant species BIO-2.1: Conduct a worker environmental training program for construction personnel BIO-2.2: Avoid vernal pool–endemic species BIO-2.3: Avoid valley elderberry longhorn beetle BIO-2.4: Avoid California tiger salamander and western spadefoot toad BIO-2.5: Avoid western pond turtle and giant garter snake BIO-2.6: Avoid coast horned lizard and Northern California legless lizard BIO-2.7: Avoid nesting birds BIO-2.8: Avoid Swainson's hawk BIO-2.9: Compensate for Swainson's hawk foraging habitat loss BIO-2.10: Avoid burrowing owl	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		BIO-2.12: Avoid Song sparrow (Modesto population), tricolored blackbird, and yellow-headed blackbird BIO-2.13: Avoid roosting bats BIO-2.14: Avoid San Joaquin kit fox and American badger BIO-3.1: Implement noise reduction measures for pile driving BIO-3.2: Develop and implement a hydroacoustic monitoring plan to minimize noise effects on fish BIO-3.3: Implement seasonal restrictions for in-water work BIO-4.1: Avoid and protect wetlands during construction BIO-5.1: Avoid and protect sensitive natural communities, including riparian habitat, during construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters BIO-7.1: Compensate for tree removal during construction	
Impact BIO-8. Construction of the Proposed Project would not conflict with provisions of adopted habitat conservation plans, natural community conservation plans, or approved local, regional, or state habitat conservation plans.	No impact	None required	--
Impact BIO-9. Operation of the Proposed Project could injure or kill special-status wildlife species.	Potentially significant impact	BIO-9.1: Avoid nesting bird impacts during operation and maintenance activities BIO-9.2: Avoid roosting bat impacts during operation and maintenance activities BIO-9.3: Conduct pre-activity survey for special-status wildlife species prior to conducting maintenance activities	Less than significant impact
Impact BIO-10. Operation of the Proposed Project could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant impact	BIO-10.1: Model hydraulics of new bridges before construction	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact BIO-11. Operation of the Proposed Project would not substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas.	Less than significant impact	None required	--
Impact BIO-12. Operation of the Proposed Project could conflict with local biological resource policies, including tree preservation policies or ordinances.	Potentially significant impact	BIO-9.1: Avoid nesting bird impacts during operation and maintenance activities BIO-9.2: Avoid roosting bat impacts during operation and maintenance activities BIO-9.3: Conduct pre-activity survey for special-status wildlife species prior to conducting maintenance activities	Less than significant impact
Impact BIO-13. Operation of the Proposed Project would not conflict with provisions of adopted Habitat Conservation Plans, Natural Community Conservation Plans, or approved local, regional, or state habitat conservation plans.	No impact	None required	--
Impact C-BIO-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on biological resources.	Significant cumulative impact	All mitigation measures identified for biological resources (see Impacts BIO-1 through Impact BIO-13).	Less than considerable contribution
3.5 Cultural Resources and Tribal Cultural Resources			
Impact CUL-1. Construction and operations of the Proposed Project would not directly or indirectly cause a substantial adverse change in the significance of a built environment historical resource.	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact CUL-2. Construction and operation of the Proposed Project could cause a substantial adverse change in the significance of an archaeological resource or tribal cultural resource.	Potentially significant impact	CUL-2.1: Conduct cultural resources awareness training CUL-2.2: Implement cultural resources monitoring plan CUL-2.3: Conduct archaeological monitoring CUL-2.4: Implement procedures in case of inadvertent archeological discoveries CUL-2.5: Conduct archaeological testing CUL-2.6: Implement avoidance and protection measures	Less than significant impact
Impact CUL-3. Construction of the Proposed Project could disturb human remains, including those interred outside of formal cemeteries.	Potentially significant impact	CUL-2.1: Conduct cultural resources awareness training CUL-2.4: Implement procedures in case of inadvertent archeological discoveries CUL-3.1: Comply with state laws relating to Native American remains	Less than significant impact
Impact CUL-4. Construction of 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.	Potentially significant impact	CUL-2.1: Conduct cultural resources awareness training CUL-2.4: Implement procedures in case of inadvertent archeological discoveries CUL-3.1: Comply with state laws relating to Native American remains CUL-4.1: Implement procedures in case of inadvertent tribal cultural resources discoveries	Less than significant impact
Impact C-CUL-1. Construction of the Project would not contribute considerably to a significant cumulative impact on cultural resources and tribal cultural resources. Operations of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on cultural resources and tribal cultural resources.	Construction: significant cumulative impact Operations: less than significant cumulative impact	CUL-1.1: Prepare and submit Historic American Engineering Record documentation CUL-1.2: Prepare interpretive exhibits CUL-2.1: Develop and implement an Archaeological Testing Plan CUL-2.2: Conduct cultural resources awareness training CUL-2.3: Implement cultural resources monitoring plan CUL-2.4: Implement avoidance and protection measures CUL-2.5: Conduct archaeological monitoring CUL-2.6: Implement procedures in case of inadvertent discoveries CUL-3.1: Comply with state laws relating to Native American remains CUL-4.1: Implement procedures in case of inadvertent tribal cultural resources discoveries	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.6 Energy			
Impact EN-1. Construction and operations of the Proposed Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources.	Less than significant (beneficial)	None required	--
Impact EN-2. Construction and operations of the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	Less than significant	None required	--
Impact C-EN-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on energy resources.	Less than considerable contribution (beneficial)	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction	--
3.7 Geology and Soils			
Impact GEO-1. Construction or operation of the Proposed Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving surface fault rupture, strong seismic ground shaking, liquefaction, seiches, landslides, subsidence and settlement, expansive soils, corrosive soils, and erosion.	Less than significant impact	None required	--
Impact GEO-2. Construction or operation of the Proposed	No impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Project would not affect geologic resources, including oil and gas wells, mineral resources, or geothermal resources, and would not result in a loss of availability of regionally or locally important mineral resources.			
Impact GEO-3. Construction of the Proposed Project could directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	Potentially significant impact	GEO-3.1: Monitor for discovery of paleontological resources, evaluate found resources, and prepare and follow a recovery plan for found resources.	Less than significant impact
Impact GEO-4. Operation and maintenance of the Proposed Project would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	No impact	None required	--
Impact C-GEO-1. Construction of the Project would not contribute considerably to a significant cumulative impact on geology, soils, and unique paleontological/geologic resources. Operations of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on geology, soils, and unique paleontological/geologic resources.	Construction: significant cumulative impact Operations: less than significant cumulative impact	GEO-3.1:Monitor for discovery of paleontological resources, evaluate found resources, and prepare and follow a recovery plan for found resources	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.8 Greenhouse Gas Emissions			
Impact GHG-1. Construction and operation of the Proposed Project could generate GHG emissions, either directly or indirectly, that would not have a significant impact on the environment.	Less than significant impact (beneficial)	None required	--
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 GHGs.	Less than significant impact (beneficial)	None required	--
Impact C-GHG-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative GHG emissions impact.	Less than considerable contribution (beneficial)	None required	--
3.9 Hazardous Materials			
Impact HAZ-1. Construction, operation, and maintenance of the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal, or accidental release of hazardous materials.	Less than significant impact	None required	--
Impact HAZ-2. Construction, operation, and maintenance of the Proposed Project could create a significant hazard to the public or the environment involving reasonably foreseeable	Potentially significant impact	HAZ-2.1: Implement voluntary oversight agreement HAZ-2.2: Conduct site investigations HAZ-2.3: Implement construction risk management plan	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
upset conditions or the disturbance of existing hazardous materials.			
Impact HAZ-3. Construction, operation, and maintenance of the Proposed Project could create a potentially significant hazard for children by emitting hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	Potentially significant impact	HAZ-2.3: Implement construction risk management plan AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction	Less than significant impact
Impact HAZ-4. The Proposed Project is 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	Potentially significant impact	HAZ-2.1: Implement voluntary oversight agreement HAZ-2.2: Conduct site investigations HAZ-2.3: Implement construction risk management plan	Less than significant impact
Impact C-HAZ-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact from hazardous materials.	Significant cumulative impact	HAZ-2.1: Conduct site investigations HAZ-2.2: Implement construction risk management plan AQ-2.5: Implement fugitive dust controls during construction	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.10 Hydrology and Water Quality			
Impact HYD-1. Construction of the Proposed Project could violate water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality.	Potentially significant impact	HYD-1.1: Avoid water quality impacts from groundwater or dewatering discharges HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters HYD-1.3: Limit groundwater or dewatering discharge flow rates HAZ-2.2: Conduct Site Investigations HAZ-2.3: Implement construction risk management plan	Less than significant impact
Impact HYD-2. Operation of the Proposed Project could violate water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality.	Potentially significant impact	HAZ-2.3: Implement construction risk management plan	Less than significant impact
Impact HYD-3. Construction of the Proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Proposed Project may impede sustainable groundwater management of the basin.	Less than significant impact	None required	--
Impact HYD-4. Proposed Project operations would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Proposed Project may impede sustainable groundwater management of the basin.	Less than significant impact	None required	--
Impact HYD-5. Construction of the Proposed Project could	Potentially significant impact	HYD-5.1: Prevent construction materials and equipment from impeding or redirecting flood flows	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion, siltation, or impede or redirect flood flows.			
Impact HYD-6. Proposed Project operations could substantially alter the existing drainage pattern of the site or area in a manner that would result in substantial erosion, siltation, or impede or redirect flood flows.	Potentially significant impact	HYD-6.1: Perform detailed hydraulic evaluations and modify designs for facilities within drainage courses and flood zones if required to reduce potential flooding impacts	Less than significant impact
Impact HYD-7. Construction of the Proposed Project could alter drainage patterns and/or create or contribute runoff water that could substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite, create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff.	Potentially significant impact	HYD-1.3: Limit groundwater or dewatering discharge flow rates	Less than significant impact
Impact HYD-8. Proposed Project operations could alter drainage patterns or create or contribute runoff water that could substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite, create or contribute runoff water which	Potentially significant impact	HYD-8.1: Perform detailed hydraulic evaluations and modify designs for stormwater controls if required to prevent storm drainage system capacity exceedance and/or reduce potential flooding impacts	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
would exceed the capacity of existing or planned stormwater drainage systems, or provide substantial additional sources of polluted runoff.			
Impact HYD-9. In a flood hazard, construction of the Proposed Project could risk release of pollutants due to project inundation.	Potentially significant impact	HYD-5.1: Prevent materials and equipment from being exposed to storm flooding hazards	Less than significant impact
Impact HYD-10. In a flood hazard, Proposed Project operations could risk release of pollutants due to project inundation.	Potentially significant impact	HYD-6.1: Perform detailed hydraulic evaluations and modify designs for improvements within drainage courses and flood zones if required to reduce potential flooding impacts	Less than significant impact
Impact C-HYD-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on hydrology and water quality.	Significant cumulative impact	HYD-5.1: Prevent construction materials and equipment from impeding or redirecting flood flows HYD-6.1: Perform detailed hydraulic evaluations and modify designs for improvements within drainage courses and flood zones if required to reduce potential flooding impacts HYD-8.1: Perform detailed hydraulic evaluations and modify designs for stormwater controls if required to prevent storm drainage system capacity exceedance and/or reduce potential flooding impacts HAZ-2.3: Implement construction risk management plan	Less than considerable contribution
3.11 Land Use			
Impact LU-1. Construction and operation of the Proposed Project would not physically divide an established community.	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact LU-2. Construction and operation could conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the improvements for the purpose of avoiding or mitigating an environmental effect.	Potentially significant impact	AG-1.1: Avoid Important Farmlands and Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, Unique Farmland, and Farmland of Local Importance) BIO-2.1: Conduct a worker environmental training program for construction personnel BIO-2.4: Avoid California tiger salamander and western spadefoot toad BIO-2.5: Avoid western pond turtle and giant garter snake BIO-2.7: Avoid nesting birds BIO-2.8: Avoid Swainson's hawk BIO-2.9: Compensate for Swainson's hawk foraging habitat loss BIO-2.10: Avoid burrowing owl BIO-2.11: Compensate for burrowing owl habitat loss BIO-2.13: Avoid roosting bats BIO-7.1: Compensate for tree removal during construction BIO-9.1: Avoid nesting bird impacts during operation and maintenance activities BIO-9.2: Avoid roosting bat impacts during operation and maintenance activities BIO-9.3: Conduct pre-activity survey for special-status wildlife species prior to conducting maintenance activities	Less than significant impact
Impact C-LU-1. Construction of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on land use and planning. Operations of the Project would not contribute considerably to a significant cumulative impact on land use and planning (apart	Construction: less than significant cumulative impact Operations: significant cumulative impact	All mitigation measures identified for agricultural resources (see Impacts AG-1 through Impact AG-5) and biological resources (see Impacts BIO-1 through Impact BIO-13).	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
from the separately disclosed considerable contribution to agricultural land conversion under Impact CU-AG-1)			
3.12 Noise and Vibration			
Impact NOI-1. Construction of the Proposed Project could generate a substantial temporary increase in ambient noise levels in the vicinity of the Proposed Project in excess of FTA thresholds.	Potentially significant impact	NOI-1.1: Implement a construction noise control plan	Significant and unavoidable impact
Impact NOI-2. Operation of the Proposed Project would not generate a substantial permanent increase in ambient noise levels in the vicinity of the Proposed Project in excess of FTA thresholds.	Less than significant impact	None required	--
Impact NOI-3. Construction of the Proposed Project could generate excessive groundborne vibration or groundborne noise levels	Potentially significant impact	NOI-3.1: Implement a construction vibration control plan	Less than significant impact
Impact NOI-4. Operation of the Proposed Project could generate excessive groundborne vibration or groundborne noise levels.	Potentially significant impact	NOI-4.1: Implement special trackwork	Less than significant impact
Impact C-NOI-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on noise and vibration.	Significant cumulative impact	NOI-1.1: Implement a construction noise control plan NOI-3.1: Implement a construction vibration control plan NOI-4.1: Implement special trackwork	Considerable contribution (construction noise) Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
			(operational noise; construction and operational vibration)
3.13 Population and Housing			
Impact POP-1. Construction and operation would not substantially induce, either directly or indirectly, unplanned population growth in an area.	Less than significant impact	None required	--
Impact POP-2. Construction and operation would not displace a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere.	No impact	None required	--
Impact C-POP-1. Construction of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on population and housing. Operations of the Project would not contribute considerably to a significant cumulative impact on population and housing.	Construction: less than significant cumulative impact Operations: less than considerable contribution	None required	--
3.14 Public Services			
Impact PS-1. Construction and operations could increase fire protection, emergency responders and law enforcement service ratios, response times, or other performance objectives but would not result in the need	Potentially significant impact	TR-4.1: Implement a construction road traffic control plan	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
for new or physically altered fire protection or law enforcement facilities.			
Impact PS-1. Construction and operations would not change service ratios and performance objectives or result in the need for new or physically altered schools or other public facilities.	Less than significant impact	None required	--
Impact C-PS-1. Construction and Operations of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on public services.	Less than significant cumulative impact	TR-4.1: Implement a construction road traffic control plan	--
3.15 Recreation			
Impact REC-1. Construction of the Proposed Project could impair access to or quality of existing recreational facilities.	Potentially significant impact	AES-1.1: Install visual barriers between construction work areas and sensitive receptors AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction NOI-1.1: Implement a construction noise control plan REC-1.1: Coordinate with Merced County and California Department of Parks and Recreation to provide advance notice of and maintain a safe open channel in the Merced River during construction activities	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact REC-2. Operation of the Proposed Project would not increase the use of existing recreational resources such that substantial physical deterioration of the facility would occur or be accelerated.	Less than significant impact	None required	--
Impact REC-3. The Proposed Project would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.	No impact	None required	--
Impact C-REC-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on recreational resources.	Significant cumulative impact	AES-1.1: Install visual barriers between construction work areas and sensitive receptors AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement advanced emissions controls for locomotives used for construction NOI-1.1: Implement a construction noise control plan	Less than considerable contribution
3.16 Safety and Security			
Impact SAF-1. The Proposed Project would be located within an airport land use plan area, within 2 miles of a public airport or public-use airport, and within the vicinity of a private airstrip, but would not result in a safety hazard or excessive noise for people residing or working in the study area.	No impact	None required	--
Impact SAF-2. Construction and operation of the Proposed Project could impair	Potentially significant impact	TR-4.1: Implement a construction road traffic control plan	Less than significant impact

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.			
Impact SAF-3. Construction and operation of the Proposed Project would not increase exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires and the Proposed Project is not located in or near state responsibility areas or lands classified as high or very high fire hazard severity zones so would not result in any of the associated consequences of being in such a zone.	Less than significant impact	None required	--
Impact SAF-4. Construction and operation of the Proposed Project would not increase hazards to workers, passengers, or adjacent human and environmental receptors along rail routes due to a design feature (e.g. sharp curves or dangerous intersections) or increase in passenger train movements.	Less than significant impact	None required	--
Impact C-SAF-1. Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on safety and security.	Significant cumulative impact	TR-4.1: Implement a construction road traffic control plan	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.17 Transportation			
Impact TR-1. Construction and operation of the Proposed Project could conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities.	Potentially significant impact	TR-1.1: Implement construction railway disruption control plan	Less than significant impact
Impact TR-2. The Proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(2).	Less than significant impact (beneficial)	None required	--
Impact TR-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	None required	--
Impact TR-4. Construction of the Proposed Project could result in inadequate emergency access and operations of the Proposed Project would not result in inadequate emergency access.	Potentially significant impact	TR-4.1: Implement construction road traffic control plan	Less than significant impact
Impact C-TRA-1: Construction and Operations of the Project would not contribute considerably to a significant cumulative impact on transportation.	Significant cumulative impact	TR-1.1: Implement construction railway disruption control plan TR-4.1: Implement construction road traffic control plan	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
3.18 Utilities and Service Systems			
Impact USS-1. Construction of 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, the construction or relocation of which could cause significant environmental effects.	Potentially significant impact	USS-1: Implement utility relocation and disruption plans	Less than significant impact
Impact USS-2. There would be sufficient water supplies available to serve the Proposed Project (due to construction operations) and reasonably foreseeable future development during normal, dry, and multiple dry years; and construction and operations of the Proposed Project would not result in a determination by the wastewater treatment provider that serves or may serve the Proposed Project that it does not have adequate capacity to serve the Proposed Project's projected demand in addition to the providers existing commitments.	Less than significant impact	None required	--

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact USS-3. Construction and operations of 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; and/or violate federal, state, and local management and reduction statutes and regulations related to solid waste.	Less than significant impact	None required	--
Impact C-USS-1: Construction of the Project, in combination with other foreseeable projects in the surrounding area, would not result in a significant cumulative impact on utilities and service systems. Operations of the Project would not contribute considerably to a significant cumulative impact on land use and planning.	Construction: Less than significant cumulative impact. Operations: Less than considerable contribution	None required	--