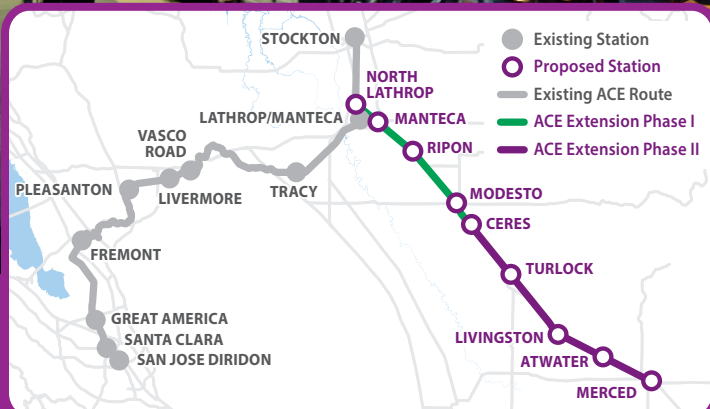


# ACE Extension Lathrop to Ceres/Merced Draft Environmental Impact Report EXECUTIVE SUMMARY

SCH #2018012014



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# Executive Summary

This executive summary presents the key findings of this environmental impact report (EIR) for the San Joaquin Regional Rail Commission's (SJRRRC) Altamont Corridor Express (ACE) Extension Lathrop to Ceres/Merced (referred to as the ACE Extension) project. SJRRRC proposes to expand service to additional cities in San Joaquin, Stanislaus, and Merced Counties.

This section summarizes the background, purpose and need, description, costs, environmental impacts and mitigation, alternatives, areas of controversy, and areas to be resolved associated with the ACE Extension.

## ES.1 Project Background

SJRRRC is the designated owner, operator, and policy-making body for the ACE service that presently focuses on connecting northern San Joaquin County, the Tri-Valley, and Silicon Valley by providing daily train service from Stockton to San Jose.

SJRRRC does not own the tracks on which ACE operates, but instead has entered into passenger rights agreements with both the Peninsula Corridor Joint Powers Board (PCJPB; operators of Caltrain) and Union Pacific Railroad (UPRR) to operate on portions of their respective tracks. ACE shares tracks with freight trains dispatched by UPRR within the UPRR right-of-way (ROW) and with freight trains dispatched by Caltrain in the Caltrain corridor. In addition, other passenger train services (Caltrain, Amtrak Coast Starlight, and Capitol Corridor) also operate on PCJPB and UPRR tracks where ACE trains travel.

In 2013, SJRRRC identified and developed a suite of improvements, known as the *ACEforward* plan, to modernize the existing ACE service that would result in faster intercity and commuter train services and could expand the connections between the San Joaquin Valley and San Jose within the next 10 years. A Notice of Preparation (NOP) was issued in June 2013 to initiate the prior environmental process for *ACEforward* (State Clearinghouse #2013062059). In May 2017, SJRRRC released the *ACEforward* draft EIR which analyzed the environmental impacts associated with the phased improvement plan to increase service reliability and frequency, enhance passenger facilities, reduce travel times along the existing ACE service corridor from San Jose to Stockton, and to extend ACE service to Manteca, Ripon, Modesto, Ceres, Turlock, Livingston or Atwater and Merced.

Through the *ACEforward* project development and environmental review, substantial financial, environmental, and logistical challenges were identified with some of the improvements necessary to increase ACE service levels to San Jose. Those improvements also require coordinated timing with other regional rail services in the corridor. The analysis has also shown that expansion to Ceres and Merced would provide substantial increases in ACE ridership without the financial, logistical, and environmental challenges necessary to increase service levels to San Jose. As a result, the near-term feasible and fundable extension of service in the Central Valley is now the focus of ACE expansion. Given the new focus on the fundable project, SJRRRC has rescinded the prior *ACEforward* NOP and draft EIR and is preparing a new EIR for this ACE Extension project. This is a new environmental process for a newly defined project. This ACE Extension project is consistent with the CHSRA Draft 2018 Business Plan in relation to providing an opportunity to connect existing intercity and commuter rail services to future HSR service (California High-Speed Rail Authority 2018).

## ES.2 Purpose and Need

The purpose and need for the ACE Extension are summarized in this section.

### ES.2.1 Need for the ACE Extension

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

- Transportation demand driven by the economic relationships between San Francisco Bay Area (Bay Area) and northern San Joaquin Valley counties.
- Roadway congestion along primary routes from the northern San Joaquin Valley to the Bay Area and limited roadway expansion options.
- Air quality in the northern San Joaquin Valley and the Bay Area and the greenhouse gas (GHG) emissions reduction imperative.

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

#### ES.2.1.1 Transportation Demand

##### Existing Altamont Corridor Express Service Area

Since its inception, ACE remains 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 currently does not operate on the weekend, but does provide extra service for special events such as San Francisco 49er football games. ACE trains presently 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).

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). Approximately 45 percent of existing ACE riders travel between Stockton/Tracy and San Jose, 30 percent travel between the Tri-Valley<sup>1</sup> and San Jose, 16 percent travel between Stockton/Tracy and the Tri-Valley, and internal trips within the South Bay and Tri-Valley consisted of 6 and 3 percent, respectively. Within the last 5 years, ACE ridership has roughly doubled. In 2015, approximately 1.33 million annual riders traveled on ACE.

The existing need for ACE passenger rail intercity and commuter service stems from the social and economic ties that bind together the San Joaquin Valley, the Tri-Valley, and the South Bay. The most characteristic ACE trips are journeys to and from employment areas 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 the South Bay.

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<sup>1</sup> The Tri-Valley is located in eastern Bay Area and includes Pleasanton, Livermore, Dublin, San Ramon, and Danville as well as the unincorporated Alameda County communities near these cities.

Table ES-1 summarizes the anticipated increases in population and employment growth in the counties within the existing ACE corridor. Population in Santa Clara, Alameda, and San Joaquin Counties is anticipated to grow at a generally steady rate from 2015 to 2025, with San Joaquin County experiencing the greatest population growth among the three counties. Employment growth within the three counties is anticipated to be the highest from 2015 to 2020, with San Joaquin County also experiencing the greatest employment growth among the three counties during this time. Comparatively, San Joaquin County will 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 1:1.7 and 1:1.4 jobs/person, respectively, from 2015 to 2025. San Joaquin County has a greater discrepancy in the jobs/person ratio than in the Bay Area counties, with 1:3.0 jobs/person in 2015 and 1:2.9 jobs/person in 2020 and 2025. Although San Joaquin County is projected to have the greatest employment growth of the three counties from 2015 to 2020 and from 2020 to 2025, this will 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 trends are not expected to change. 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	2015	2020	2025	% Change 2015–2020	% Change 2020–2025
<b>Population</b>					
Santa Clara County	1,915,102	2,018,257	2,124,780	5.4%	5.3%
Alameda County	1,619,679	1,708,594	1,795,390	5.5%	5.1%
San Joaquin County	727,547	783,572	839,665	7.7%	7.2%
<b>Employment</b>					
Santa Clara County	1,087,190	1,159,640	1,232,090	6.7%	6.2%
Alameda County	1,152,080	1,231,980	1,311,880	6.9%	6.5%
San Joaquin County	246,580	269,980	293,380	9.5%	8.7%

Source: California Department of Finance 2017; California Employment Development Department 2016a, 2016c, 2016d

Note: 2015, 2020, and 2025 employment figures are based upon a linear interpolation of 2014 and 2024 employment estimates from the California Employment Development Department.

## **Extended Altamont Corridor Express Service Area**

As part of this project, SJRRC proposes to extend ACE service from Manteca to Modesto, Ceres, Turlock and Merced, from San Joaquin to Stanislaus and Merced Counties. 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). Because the three-county region 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). Given these travel characteristics, there is an existing and growing demand for transit services between the Bay Area and the San Joaquin Valley within the extended ACE corridor.

Table ES-2 summarizes the anticipated increases in population and employment in the counties within the extended ACE corridor. As shown, the anticipated populations in San Joaquin, Stanislaus, and Merced Counties are significantly greater than the number of jobs offered in the respective counties for 2015, 2020, and 2025. This population and employment growth pattern is likely to increase the existing trend for commutes from the three-county region to the Bay Area and commutes within the three-county region.

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

Counties	2015	2020	2025	% Change 2015–2020	% Change 2020–2025
<b>Population</b>					
San Joaquin County	727,547	783,572	839,665	7.7%	7.2%
Stanislaus County	538,372	572,155	605,618	6.3%	5.8%
Merced County	269,729	286,397	305,794	6.2%	6.8%
<b>Employment</b>					
San Joaquin County	246,580	269,980	293,380	9.5%	8.7%
Stanislaus County	192,250	208,000	223,750	8.2%	7.6%
Merced County	82,670	88,520	94,370	7.1%	6.6%

Sources: California Department of Finance 2017; California Employment Development Department 2016a, 2016b, 2017

Note: 2015, 2020, and 2025 employment figures are based upon a linear interpolation of 2014 and 2024 employment estimates from the California Employment Development Department.

### ES.2.1.2 Roadway Congestion

The predominant mode of personal travel where the existing and extended ACE corridors are located is the automobile. In addition, many of the roadway corridors are influenced by truck traffic between the Central Valley and the Port of Oakland, 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 from Merced to Stockton
- SR 120 from SR 99 to I-5
- I-5 from Stockton to Lathrop
- 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, and the South Bay, coupled with the growth in population in the surrounding areas, has placed increasing pressures on the highways serving the region. Alameda and Santa Clara are the first and second most congested counties within the nine-county Bay Area (California Department of Transportation 2016). In the Bay Area, three freeway segments near the existing ACE corridor are identified as the second, sixth, and eighth locations with the most delay during the commute hour in the Bay Area (Metropolitan Transportation Commission 2015).

- Southbound I-880 from San Leandro to Milpitas during the morning period is the second most congested freeway segment in the Bay Area with 7,300 daily (weekday) vehicle hours of delay.
- Northbound I-680 from southern Fremont over the Sunol Grade to SR 84 during the afternoon period is the sixth most congested freeway segment in the Bay Area with 3,940 daily (weekday) vehicle hours of delay.
- Westbound I-580 from the San Joaquin County line over the Altamont Pass to Dublin and Pleasanton during the morning period is the eighth most congested commute with 3,800 daily (weekday) vehicle hours of delay.

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 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. I-205 experiences congestion in the morning peak hours with 192 daily (weekday) vehicle hours of delay and heavy return traffic in the afternoon peak hours with 902 daily (weekday) vehicle hours of delay (California Department of Transportation and San Joaquin Council of Governments 2010). In the future, this out-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 bottlenecks 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 2016).

Without future roadway improvements, 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. Bottlenecks would continue to constrain movement through the corridor. The California Employment Development Department and the California Department of Finance projections indicate that job growth in the Bay Area is expected to increase approximately 14 percent between 2015 and 2025, with population in the Bay Area increasing approximately 11 percent in the same timeframe. In addition, populations in San Joaquin, Stanislaus, and Merced Counties are expected to increase 14 percent between 2015 and 2025, with job growth in these counties increasing approximately 17 percent in the same timeframe. 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 is expected to increase as follows on routes of regional significance in the Tri-Valley and adjacent areas (DKS Associates 2015).

- 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 ROW 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 Extension would help to ease congestion on the Bay Area and San Joaquin Valley freeways.

### ES.2.1.3 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 and 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 and extended ACE corridor 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 nonattainment area for the federal PM<sub>2.5</sub> (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, PM<sub>2.5</sub>, and PM<sub>10</sub> (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 PM<sub>2.5</sub> 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, PM<sub>2.5</sub>, and PM<sub>10</sub> standards.

Section 4.3, *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 congestion will add to the potential problems because of increased emissions of vehicles operating in 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 including in areas with the most severe air quality problems in the corridor. Compared to existing conditions, by 2040, the ACE Extension would result in reduction in emissions of up to 21 tons per year of ozone precursors and 25 tons per year of PM<sub>10</sub> in the BAAQMD and up to 8 tons per year of ozone precursors and 26 tons per year of PM<sub>10</sub> in the SJVAPCD as a result of extended ACE service (see Section 4.3).

Transportation is the largest source of GHG emissions in California and in most communities along the existing and extended ACE corridor. Most of the communities in the ACE corridor have adopted climate action plans to lower their community contributions of GHG emissions, with all seeking to lower transportation emissions. California has ambitious goals to reduce GHG emissions throughout the state. By reducing vehicle travel on regional roadways, the ACE Extension would also help communities along the ACE corridor and California as a whole to meet their goals for GHG reductions. Compared to the 2020 No Project Alternative, Phase I operations of the ACE Extension would result in a reduction of up to 4,200 metric tons of carbon dioxide equivalent of GHG emissions. Phase II operations of the ACE Extension would result in a reduction of additional GHG emissions beyond Phase I operations (see Section 4.8, *Greenhouse Gas Emissions*).

## ES.2.2 Purpose of the ACE Extension

The primary purposes of the ACE Extension is to enhance intercity service and transit connectivity in the Central 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 intercity service and transit connections in the Central Valley.** Project improvements would support enhanced intercity transit connectivity and provide additional surface passenger transportation capacity in the Central Valley. The ACE Extension would service the existing intercity and commuter transportation needs of the Central Valley, and would support transit-oriented development in the downtown parts of cities with potential or proposed service. Modesto Max (City of Modesto bus transit) currently run buses to meet each ACE train at the existing Lathrop/Manteca Station. The extension to Merced would also provide a future opportunity to connect with the California HSR System which would integrate ACE into a unified Northern California rail system. These intercity transit 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, 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 Central Valley, the ACE Extension 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 well as post-2020 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 as a means 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 Senate Bill [SB] 375) and other local, regional, and state sustainability initiatives. ACE is evaluating potential new ACE stations in Lathrop and downtown areas between Manteca 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 Central Valley.

## ES.3 Description of ACE Extension Improvements

To enhance intercity and commuter rail service and to promote greater transit connectivity between the Central Valley and the Bay Area, SJRRC is proposing to expand ACE service to Ceres and to Merced. The ACE Extension contains both Phase I and Phase II improvements that are analyzed in the EIR. Phase I improvements would support the ACE service extension to Ceres possibly as soon as 2020, no later than 2023. Phase II improvements would support the ACE service extension to Merced, with service commencing as soon as 2025.

Figure ES-1 depicts the locations of Phase I and Phase II improvements. For the analytical purposes of this EIR, impacts are discussed relative to the following geographic areas: Lathrop to Stockton, Lathrop to Ceres, Ceres to Merced, and existing ACE stations.

Phase I improvements are analyzed at a project level of detail based on preliminary engineering analysis in the EIR, and no further environmental analysis under the California Environmental Quality Act (CEQA) is anticipated. Phase II improvements are analyzed at a programmatic, more conceptual level of detail in the EIR because only conceptual engineering has been completed at this time. Subsequent project-level environmental documentation would be required for the Phase II improvements.

The ACE Extension improvements and extended passenger service may be provided in an incremental phased approach over time that would include only some of the Phase I or Phase II improvements. Thus, the development of physical improvements and expanded service should be seen as a range over time, as follows.

- Minimal improvements: Addition of station, parking and key track/infrastructure improvements and commencement of initial service or expansion of existing trains (one or more trains)
- Interim improvements: Construction of additional track improvements, such as the addition of a new main 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
- Full build: Completion of all proposed improvements along existing and new ACE corridors

### ES.3.1 Overview of Phase I Improvements

Phase I improvements would support the ACE service extension to Ceres possibly as soon as 2020, no later than 2023. The timing of improvements will depend on the time necessary to obtain all necessary permits and approvals and the construction duration for the specific improvements selected (see Section ES.3.1.3, *Construction Schedule and Durations*).

The project-level analysis of the Phase I improvements in the EIR will allow the selected improvements to proceed with permitting, final design, and construction. It is possible that there will be a phased implementation of Phase I improvements. Infrastructure improvements and passenger service can be increased and extended in a phased approach over time.

As shown in Figure ES-1, the limits of the Phase I improvements span San Joaquin, Stanislaus, and Merced Counties. SJRRC proposes to extend ACE passenger rail service from Lathrop to Ceres in Phase I by constructing and upgrading tracks within the existing UPRR Fresno Subdivision ROW, a distance of approximately 24 miles. New stations and operating facilities would be constructed in the Lathrop area and along the extension alignment. The Phase I improvements include portions of the UPRR Oakland and Fresno Subdivisions ROW, additional ROW for new facilities (stations and layover yards) and for any construction or access areas located outside the ROW.

Phase I improvements are only proposed in the Lathrop to Ceres and Ceres to Merced segments. No Phase I improvements are proposed along the existing ACE corridors between Stockton and San

Jose. However, where applicable, this EIR analyzes Phase I operational impacts due to increased ridership at existing ACE destination stations<sup>2</sup> in the Bay Area.

### ES.3.1.1 Phase I Improvements – Proposed Project and Alternatives

The Proposed Project is the extension of ACE service from Lathrop to Ceres and Merced, and includes the following Phase I improvements.

- Two stations in Lathrop, consisting of the **Existing Lathrop/Manteca Station** and a new **North Lathrop Station**
- The **Oakland-Fresno Subdivision Connection**, a new track connection between the Oakland and Fresno Subdivisions<sup>3</sup> in Lathrop
- The **Ceres Extension Alignment** consisting of upgrades to track, new tracks, and bridges within the Fresno Subdivision between Lathrop and Ceres
- The **Ceres Layover Facility, variant 2** located south of Ceres to support extension operations
- New **Downtown Manteca, Ripon, Modesto, and Ceres Stations** along the extension alignment
- An interim bus bridge between Merced and Ceres, with stops at the **Turlock, Livingston, Atwater, and Merced Bus Stops**

This EIR also analyzes several Phase I alternatives at an equal level of detail as the Proposed Project. These alternatives include the following Phase I improvements.

- Single-station scenarios in Lathrop, with
  - The **Existing Lathrop/Manteca Station**, which would require the **Oakland-Fresno Subdivision Connection**
  - A new **Relocated Lathrop/Manteca Station**, which would require the **Oakland-Fresno Subdivision Connection** OR
  - A new **North Lathrop Station**, which would not require the new subdivision connection
- A different selection of stations for the two-station scenario in Lathrop, consisting of new **North Lathrop** and **Relocated Lathrop/Manteca Stations** and would require the **Oakland-Fresno Subdivision Connection** AND/OR
- The **Ceres Layover Facility, variant 1** rather than variant 2 of the layover facility.

Detailed descriptions of the Phase I improvements and the alternatives analyzed at an equal level of detail are presented in Chapter 2, *Description of Phase I Improvements*.

<sup>2</sup> These stations are the San Jose Diridon, Santa Clara, Great America, Fremont, Pleasanton, Livermore, and Vasco Road Stations.

<sup>3</sup> A *subdivision* is a portion of railroad or railway that operates under a single timetable (authority for train movement in the area).

## ES.3.1.2 Operation and Maintenance

### Conceptual Service Plan

There are two operational scenarios for Phase I, which are dependent on whether SJRRC chooses to implement direct ACE service from Ceres to San Jose. Figure ES-2 depicts the conceptual service plans for Phase I operations.

- Phase I operational scenario A: If no direct ACE service between Ceres and San Jose is pursued, ACE service in Phase I would consist of the following scenario. This operational scenario represents the “worst-case” (i.e., the greatest level of impact) for the purposes of analyzing potential environmental impacts.
  - In the morning, four westbound trains from Ceres to Lathrop, where passengers would transfer onto the four westbound trains from Stockton to San Jose at the selected Lathrop-area station (timed transfers). Four buses from Merced would meet the four trains at Ceres in the morning.
  - In the evening, four eastbound trains from San Jose to Stockton, where passengers would transfer onto the four eastbound trains from Lathrop to Ceres at the selected Lathrop-area station (timed transfers). Four buses would meet the four trains at Ceres in the evening and provide a connection to Merced.
- Phase I operational scenario B: If direct ACE service between Ceres and San Jose is pursued, ACE service in Phase I would consist of the following scenario.
  - In the morning, three westbound trains from Ceres to Lathrop, where passengers would transfer onto the three westbound trains from Stockton to San Jose at the selected Lathrop-area station (timed transfers); and one westbound train from Ceres to San Jose. Four buses from Merced would meet the four trains at Ceres in the morning.
  - In the evening, three eastbound trains from San Jose to Stockton, where passengers would transfer onto the three eastbound trains from Lathrop to Ceres at the selected Lathrop-area station (timed transfers); and one eastbound train from San Jose to Ceres. Four buses would meet the four trains at Ceres in the evening and provide a connection to Merced.

With the service extension to Ceres, a bus bridge would operate between Merced and Ceres, with stops in Livingston and Turlock. The bus route would primarily utilize SR 99 and local streets in the vicinity of stop locations. Bus bridge service would consist of four buses in the morning that would shuttle passengers from Merced to Ceres, where passengers would transfer onto westbound Stockton to San Jose trains. In the evening, four buses would meet passengers disembarking eastbound San Jose to Stockton trains and provide bus services to Merced. Three buses would support the four daily roundtrips between Ceres and Merced.<sup>4</sup> The bus bridge service between Merced and Ceres would discontinue, pending the completion of the ACE service extension to Merced.

Based on a prototypical schedule, in Phase I, there would be no more than three trains per hour in the morning westbound direction and no more than two trains per hour in the evening eastbound direction.

<sup>4</sup> Because three buses would support the four daily roundtrips between Ceres and Merced, there would be up to two one-way trips to account for the buses returning the origin station.

## Ridership

Implementation of the ACE service extension for Phase I is anticipated to result in increased ridership by 2020. Table ES-3 summarizes the existing ACE ridership and the projected base and maximum ridership for 2020 and 2040. Ridership for the ACE Extension is presented in more detail in Appendix D-2, *ACE Extension Ridership, Revenue, and Benefits Report*.

**Table ES-3. ACE Extension—System Ridership with Phase I Operations**

Ridership Scenarios	Annual Riders				% Increase from 2015
	2015	2020	% Increase from 2015	2040	
No Project Alternative <sup>a</sup>	1,285,200	1,511,700	18%	2,186,800	70%
<b>Scenarios with Ceres Extension, 4 trains to San Jose</b>					
Phase I Operational Scenario A <sup>b</sup>	--	1,946,500	51%	2,807,800	118%
Phase I Operational Scenario B <sup>c</sup>	--	1,947,500	52%	2,809,300	119%

Source: Appendix D-2, *ACE Extension Ridership, Revenue, and Benefits Report*.

Notes:

<sup>a</sup> No Project Alternative consists of four roundtrip trains per weekday between Stockton and San Jose.

<sup>b</sup> Operational Scenario A would include 4 trains from Stockton to San Jose, 4 train shuttles between Ceres and Lathrop, and 4 bus shuttles from Merced to Ceres.

<sup>c</sup> Operational Scenario B would include 3 trains from Stockton to San Jose, 1 train from Ceres to San Jose, 3 train shuttles between Ceres and Lathrop, and 4 bus shuttles from Merced to Ceres.

## 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 Phase I operations, ACE diesel trains would require approximately 657,000 gallons of fuel per year. This represents an increase of approximately 202,000 gallons per year, or a 44 percent increase compared to existing conditions. Electrical use at new stations and facilities with Phase I operations would require approximately 2,744,000 kWh of electricity per year. This represents an increase of approximately 391,000 kWh of electricity per year, or a 17 percent increase compared to existing conditions. Section 4.6, *Energy*, provides a detailed analysis of energy demand associated with Phase I operations.

## 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, and 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. Depending on the corridor, host railroads will 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 Phase I ACE operations, 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 between Pleasanton and Stockton. Maintenance crews are located at the ACE 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.

New stations would be established with Phase I improvements, including the following: **North Lathrop Station, Relocated Lathrop/Manteca Station** alternative, **Downtown Manteca Station, Ripon Station, Modesto Station, and Ceres Station**. SJRRC would own and maintain the station platforms at all new stations. As the **Downtown Manteca, Ripon, Modesto, and Ceres Stations** are either co-located at existing transit centers and the local jurisdiction owns the parcels identified for surface parking, or that on-street parking would be utilized at these stations, SJRRC would not maintain parking areas at these stations. For the **North Lathrop Station** and the **Relocated Lathrop/Manteca Station** alternative, SJRRC would own and maintain the entire station area, including the station platforms and parking areas.

In addition, new bus stops (**Turlock, Livingston, Atwater, and Merced Bus Stops**) would be established to support the interim Ceres to Merced bus bridge during Phase I operations. However, since these bus stops are co-located at existing transit centers/bus stops, and passenger amenities and parking for bus bridge passengers would be provided at these existing transit center/bus stop locations, SJRRC would not maintain these bus stop locations.

## Fleet Maintenance

SJRRC's existing fleet maintenance activities for ACE are conducted at the ACE 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 Phase I operations, fleet maintenance

activities would continue at the ACE Maintenance Facility. The temporary **Ceres Layover Facility, variant 1 or 2** would support train layovers, storage, light maintenance, and daily servicing. For heavy maintenance and repairs, trains would be cycled back to the ACE Maintenance Facility.

### ES.3.1.3 Construction Schedule and Durations

SJRRC proposes to implement the ACE service extension to Ceres possibly as soon 2020, no later than 2023. Table ES-4 identifies the duration for construction of each Phase I improvement. The construction durations presented are not sequential; construction could occur simultaneously at several locations. The durations noted below are for actual construction activity. The Phase I improvements would require permitting, contractor selection, and final design prior to construction and thus the total duration from now could be longer than the construction durations noted in the table.

**Table ES-4. Construction Durations for Phase I Improvements**

Phase I Improvement	Construction Duration (months)
<b>Lathrop to Ceres</b>	
<i>Lathrop station options</i>	
Relocated Lathrop/Manteca Station	16
Existing Lathrop/Manteca Station	14
North Lathrop Station	20
<i>Ceres extension improvements</i>	
Oakland-Fresno Subdivision Connection	8
Ceres Extension Alignment	42
Alignment trackwork/signaling	18
Bridges	26
Ceres Layover Facility (variant 1 or 2)	24
Downtown Manteca Station	10
Ripon Station	20
Modesto Station	10
Ceres Station	12
<b>Ceres to Merced</b>	
Merced Bus Stop	3

### ES.3.1.4 Right-of-Way and Easement Needs

Approximately 20 parcels outside the UPRR ROW could be affected by Phase I improvements. Portions of these public and private parcels may be acquired or require easements for track ROW or rail support facilities.



## ES.3.2 Overview of Phase II Improvements

Phase II improvements would support the ACE service extension to Merced, with service commencing as soon as 2025.<sup>5</sup>

The programmatic analysis of the Phase II improvements in the EIR will allow subsequent project-level clearance of individual Phase II improvements, and prioritization and phasing of Phase II improvements. For example, depending on funding, service may be extended to Turlock and then Merced in a phased approach. Infrastructure improvements and passenger service can be increased and extended in a phased approach over time.

As shown in Figure ES-1, the limits of the Phase II improvements span Stanislaus and Merced Counties. SJRRC proposes to extend ACE passenger rail service from Ceres to Merced in Phase II by constructing and upgrading tracks within the existing UPRR Fresno Subdivision ROW, a distance of approximately 34 miles. New stations and operating facilities would be constructed along the extension alignment. The Phase II improvements include portions of the Fresno Subdivision ROW, additional ROW for new facilities (stations and layover yards) and for any construction or access areas located outside the ROW.

Phase II physical improvements are only proposed in the Ceres to Merced segment. No Phase II improvements are proposed between Ceres and Lathrop or along the existing ACE corridors between Stockton and San Jose. However, where applicable, this EIR analyzes Phase II operational impacts due to increased ridership at existing ACE destination stations in the Bay Area.

### ES.3.2.1 Phase II Improvements—Proposed Project

The Proposed Project is the extension of ACE service from Lathrop to Ceres and Merced, and includes the following Phase II improvements.

- The **Merced Extension Alignment** consisting of upgrades to track, new tracks, and bridges within the Fresno Subdivision between Ceres and Merced
- The **Merced Layover Facility** located north of Merced to support extension operations<sup>6</sup>
- New **Turlock, Livingston or Atwater, and Merced Stations** along the extension alignment

Only one station would be implemented in either Livingston or Atwater. This EIR analyzes both stations at an equal level of detail. At this time, SJRRC is considering them both as a possible station. SJRRC will identify the preferred station in the subsequent project-level environmental documentation for Phase II improvements which will complete the detailed analysis of the impacts and benefits of these two options.

Detailed descriptions of the Phase II improvements are presented in Chapter 3, *Description of Phase II Improvements*.

<sup>5</sup> The service extension to Merced is analyzed at a programmatic level at this time because this extension would be implemented at a later date, and because the location of the ACE **Merced Station** is dependent on the final location of the HSR station and may be subject to change.

<sup>6</sup> Please note that an alternative to the proposed Merced Layover Facility west of SR 99 is analyzed at a lesser level of detail in Chapter 6.

## ES.3.2.2 Operation and Maintenance

### Conceptual Service Plan

There are two operational scenarios in Phase II, which are dependent on whether SJRRC chooses to implement direct ACE service from Merced to San Jose. Figure ES-3 depicts the conceptual service plans for Phase II operations.

- Phase II operational scenario A: If no direct ACE service between Merced and San Jose is pursued, ACE service in Phase II would consist of the following scenario. This operational scenario represents the “worst-case” (i.e., the greatest level of impact) for the purposes of analyzing potential environmental impacts.
  - In the morning, four westbound trains from Merced to Lathrop, where passengers would transfer onto the four westbound trains from Stockton to San Jose at the selected Lathrop-area station (timed transfers).
  - In the evening, four eastbound trains from San Jose to Stockton, where passengers would transfer onto the four eastbound trains from Lathrop to Merced at the selected Lathrop-area station (timed transfers).
- Phase II operational scenario B: If direct ACE service between Merced and San Jose is pursued, ACE service in Phase II would consist of the following scenario.
  - In the morning, three westbound trains from Merced to Lathrop, where passengers would transfer onto the three westbound trains from Stockton to San Jose at the selected Lathrop-area station (timed transfers); and one westbound train from Merced to San Jose.
  - In the evening, three eastbound trains from San Jose to Stockton, where passengers would transfer onto the three eastbound trains from Lathrop to Merced at the selected Lathrop-area station (timed transfers); and one eastbound train from San Jose to Merced.

It is anticipated that in Phase II, there would be no more than two trains per hour in both the morning westbound and evening eastbound directions.

### Ridership

Implementation of the ACE service extension in Phase II is anticipated to result in increased ridership. The ACE system ridership with Phase II operations have not been determined as service planning has yet to be fully developed. Specific details regarding Phase II ridership would be identified and disclosed in future project-level environmental analyses for the Phase II improvements.

### 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 kWh of electricity in 2016.

Energy consumption associated with Phase II operations have not been determined. Specific details regarding Phase II energy uses would be identified and disclosed in future project-level

environmental analyses for the Phase II improvements when service planning for Phase II is further developed.

### **Maintenance**

Maintenance for Phase II improvements would be the same as maintenance for Phase I improvements, with two additions.

New stations would be established with Phase II improvements, including the following: **Turlock, Livingston or Atwater, and Merced Stations**. SJRRC would own and maintain the station platforms at all new stations. As the **Turlock, Livingston, Atwater, and Merced Stations** are either co-located at existing transit centers and the local jurisdiction owns the parcels identified for surface parking, or that on-street parking would be utilized at these stations, SJRRC would not maintain parking areas at these stations.

With Phase II operations, fleet maintenance activities would continue at the ACE Maintenance Facility. The **Merced Layover Facility** would support train layovers, storage, light maintenance, and daily servicing. For heavy maintenance and repairs, trains would be cycled back to the ACE Maintenance Facility.

#### **ES.3.2.3 Construction Schedule and Durations**

Specific construction plans for Phase II improvements have not been determined. Specific details regarding construction schedule and duration, methods and equipment to be used during construction, and construction staging areas and access would be identified and disclosed in future project-level environmental analyses for the Phase II improvements.

#### **ES.3.2.4 Right-of-Way and Easement Needs**

The ROW and easement needs for the Phase II improvements have not been determined. Specific details regarding additional ROW and easement needs would be identified and disclosed in future project-level environmental analyses for the Phase II improvements.

### **ES.3.3 Overview of Core Capacity Improvements**

Implementation of the ACE service extension in Phase I is anticipated to increase ACE ridership system-wide and may place a strain on the existing ACE core capacity.<sup>7</sup> Improvements needed to maintain adequate core capacity with Phase I operations entail the following:

1. Additional ACE/local transit shuttle services at the Great America and Pleasanton Stations (included in this EIR).
2. Additional cars for longer train consists on the truck line (Stockton to San Jose route) (included in this EIR).

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<sup>7</sup> The *core* of the ACE system is the existing trunk line between Stockton and San Jose. Extension of ACE service beyond this core, such as the extension of ACE service to Ceres and Merced, would generate new ridership in addition to the established ACE markets. ACE must ensure that enough capacity is available on the trunk line—in other words, *core capacity*—to accommodate ridership from both the existing markets and the added extension markets.

3. Station platforms at the Pleasanton, Livermore, Vasco Road, Tracy, and Existing Lathrop/Manteca Stations would be lengthened to accommodate the longer train consists on the trunk line. Existing platforms at these stations are approximately 450 feet and would be extended by approximately 550 feet for a total station platform length of 1,000 feet. The extended platforms would accommodate longer ACE trains proposed to be used. These platform extensions functions independently of the ACE Extension and have independent utility. These platform extensions have undergone environmental review and construction is anticipated for 2018. In addition, the Fremont Station platform would be extended, also as an independent project.

The existing supply of parking provided at the existing ACE stations on the trunk line would be sufficient to accommodate parking needs for Phase I operations with the extension to Ceres. No additional parking would be required at the existing ACE stations with Phase I operations.

The core capacity improvements listed above are those SJRRC has identified for the near-term (2025) which are required for Phase I operations. In 2040, ridership from Phase II operations and other projects (Valley Rail Sacramento Extension Project and California HSR) may also affect the ACE core capacity. The specifics of these other projects, including comparable ridership projections, have yet to be developed. As such, it is considered premature to consider core capacity impacts based solely on 2040 ACE ridership forecasts.

Improvements needed to maintain adequate core capacity Phase II operations have not been analyzed at this time. Core capacity improvements for Phase II operations would be identified and disclosed in future project-level environmental analyses for the Phase II improvements. In the subsequent project-level environmental review, core capacity effects of Phase II and out to 2040 would be assessed.

## ES.4 Costs and Revenues

### ES.4.1 Capital Costs

As part of SB 132 passed in April 2017, SJRRC was awarded \$400 million for the ACE service expansion in the San Joaquin Valley, including associated system improvement. Capital costs associated with Phase I improvement aspects of the Proposed Project would be approximately \$303 million. The cost of additional rolling stock required for Phase I operations is estimated as \$82 million (2017 dollars) which would be a one-time cost. Capital costs associated with Phase II improvement aspects of the Proposed Project could be approximately \$350 million for infrastructure improvements, depending on coordination with the host railroad (UPRR) and subsequent project-level environmental analysis.<sup>8</sup>

The extension of service to Ceres and Merced does not necessarily require the full build of Phase I or Phase II improvements discussed in this EIR in order to extend service. Train service could be initially expanded or extended with station, parking and key track/infrastructure improvements and then expanded over time with additional improvements, and then be expanded fully with the full build suite of improvements.

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<sup>8</sup> Rolling stock costs required for Phase II operations are not included in this total. This would be identified and disclosed in future project-level environmental analyses for the Phase II improvements.

Capital costs associated with the ACE Extension is presented in Chapter 2, Chapter 3, and in Appendix E, *ACE Extension Opinion of Probable Cost Report*.

## ES.4.2 Operating and Maintenance Costs and Revenues

Existing annual operations and maintenance costs are estimated at approximately \$21.6 million. Anticipated revenue associated with the No Project Alternative in 2020/2025 and 2040 would be approximately \$10.6 million and \$15.4 million, respectively.

With Phase I operations, annual operations and maintenance costs are estimated at approximately \$28.4 million to \$29.6 million, depending on the operational scenario implemented. Anticipated revenue associated with Phase I operations would be approximately \$14.4 million in 2020 and approximately \$20.7 million in 2040.

With Phase II operations, annual operations and maintenance costs are estimated at approximately \$33.2 million to \$35.7 million, depending on the operational scenario implemented. ACE system revenue associated with Phase II operations have not been determined. Specific details regarding annual fare revenue would be identified and disclosed in future project-level environmental analyses for the Phase II improvements once service planning for Phase II is more developed and ridership is available.

The service increases may be implemented in phases. For example, service along the extension to Ceres and Merced may be phased in with smaller service levels initially (such as one or two daily roundtrip trains) and then later increasing up to four daily roundtrip trains.

Operations and maintenance costs and revenues associated with the ACE Extension is presented in more detail in Appendix F, *ACE Extension Operating and Maintenance Cost Technical Memorandum*.

## ES.5 Summary of Environmental Impacts and Mitigation

The potential impacts of the ACE Extension's Phase I and Phase II improvements are presented in Chapter 4, *Environmental Impact Analysis*, and cumulative impacts are presented in Chapter 5, *Other CEQA-Required Analysis*, and are summarized in Tables ES-5 and ES-6.<sup>9</sup> Mitigation measures were also identified, where available and feasible, for significant impacts identified in this EIR. These mitigation measures are also listed in Tables ES-5 and ES-6.

Please note that in Tables ES-5 and ES-6, the term "significant" refers to the level of impact and the term "considerable" refers to the ACE Extension's contribution to a cumulative impact.

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

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<sup>9</sup> The cumulative impacts analysis takes into account both Phase I and Phase II improvements in consideration with the cumulative projects and projections.

not a comprehensive list of impact conclusions; for a comprehensive review, please refer to Tables ES-5 and ES-6, Chapter 4, and Chapter 5.

- Summary of construction-period impacts

- *Aesthetics*: Phase I and Phase II improvements 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 would minimize the duration and extent of these temporary impacts and impacts would be less than significant.
- *Agricultural Resources*: The majority of Phase I and Phase II improvement are located within or adjacent to the existing UPRR ROW, which passes through urbanized or otherwise disturbed areas with limited agricultural resources. Several Phase I and Phase II improvements or portions of these improvements are located in areas identified for current agricultural uses which would result in minor conversions of farmlands to nonagricultural resources, conflicts with agricultural land protection mechanisms, and creation of unviable remnant or severed farmland parcels. Mitigation measures requiring restoration and conservation of farmlands and coordinating irrigation and utility disruptions prior to construction would reduce impacts to less-than-significant levels.
- *Air Quality*: Construction of Phase I and Phase II improvements 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, maintenance and idling restrictions, and use of modern fleet for on-road material deliveries and haul truck would reduce impacts regarding criteria pollutants and toxic air contaminants to less-than-significant levels.
- *Biological Resources*: The majority of Phase I and Phase II improvement are located within or adjacent to the existing UPRR ROW, which passes through urbanized or otherwise disturbed areas with limited potential to support biological resources. Several Phase I and Phase II improvements or portions of these improvements are located in small pockets of area that support natural land cover and with suitable habitat characteristics. Construction of Phase I and Phase II improvements 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 preventive and avoidance project mitigation measures would reduce impacts on these biological resources to a less-than-significant level.
- *Cultural Resources*: Construction of Phase I and Phase II improvements would have a less-than-significant impact on built environment historical resources. Construction impacts on archaeological resources and human remains would be reduced to a less-than-significant level with mitigation requiring cultural resources awareness training and monitoring, establishing protocols in the event of discovery, archaeological testing, implementation of avoidance and protection measures, and compliance with regulations regarding Native American remains.

- *Energy*: Construction of Phase I and Phase II improvements 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 Phase I and Phase II operations would substantially offset the short-term construction energy.
- *Geology and Soils*: Construction of Phase I and Phase II improvements would not expose people or structures to significant impacts related to geologic hazards. 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 Phase I and Phase II improvements 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 ACE Extension due to the reduction of automobile emissions with increased ACE ridership.
- *Hazards and Hazardous Materials*: Several Phase I and Phase II improvements 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 Phase I and Phase II improvements could result in temporary degradation of water quality, particularly involved with: in-water construction for new bridges; discharge of dewatering effluent for construction of pedestrian bridges at new stations; 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 Phase I and Phase II improvements would have a less than significant impact in regards 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 Phase I and Phase II improvements would require construction activities in the daytime, and possibly nighttime, in order to maintain existing freight rail service. 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 Phase I and Phase II improvements would not result in substantial changes in population. In addition, construction of Phase I and Phase II improvements would not displace existing housing units or residential uses.



- *Public Services:* Temporary interference to emergency response during construction of Phase I and Phase II improvements would be reduced to less-than-significant levels through coordination with local roadway agencies and emergency service providers.
- *Recreation:* Temporary disruption to recreation resulting from construction of Phase I and Phase II improvements would be reduced to less-than-significant levels with measures minimizing construction-period visual, noise, and dust impacts on users of nearby recreational resources and through coordination with local agencies to provide advance notification and safe access.
- *Safety and Security:* Temporary interference with an adopted emergency response plan or emergency evacuation plan during construction of Phase I and Phase II improvements would be reduced to less-than-significant levels through coordination with local roadway agencies and emergency service providers.
- *Transportation and Traffic:* Construction of Phase I and Phase II improvements could result in temporary disruptions to traffic as well as freight service during construction. Controls would include coordination with local roadway agencies and freight rail service operators to minimize disruption.
- *Utilities and Service Systems:* Phase I and Phase II improvements 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.
- Summary of operational impacts
  - *Aesthetics:* Phase I and Phase II improvements 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 Phase I and Phase II improvements are a result of the introduction of new features such as parking lots, pedestrian bridges, utility lines and railroad bridges and vegetation removal that would alter the existing visual landscape. In addition, new stations and the layover facility would introduce new sources of light or glare that would 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:* Phase I and Phase II 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 Phase I and Phase II operations would be less than threshold levels and impacts would be less than significant.
  - *Air Quality:* Phase I and Phase II operations would create air quality impacts through extended ACE rail service and increased shuttle/bus bridge activity. However, Phase I and Phase II operations would also improve existing passenger rail opportunities, which would reduce single-occupancy VMT in the transportation network. Overall, Phase I operations would not generate emissions in excess of BAAQMD or SJVAPCD's thresholds. Moreover, several pollutants, such as carbon monoxide and particulate matter, would be reduced relative to the No Project Alternative. This would be a regional air quality benefit in BAAQMD for all criteria pollutants and SJVAPCD for carbon monoxide and particulate

1 matter, and a less-than-significant impact in SJVAPCD for reactive organic gases and  
2 nitrogen oxides for Phase I operations. Phase II air quality benefits would be similar to those  
3 identified in Phase I; however, the criteria pollutant savings in Phase II may not be sufficient  
4 offset increased ROG and NOx from additional locomotive activity. Implementation of  
5 mitigation, if necessary, would offset operational ozone precursors to a less-than-significant  
6 level in Phase II.

- 7 ○ *Biological Resources*: Phase I and Phase II operations would have limited impacts on  
8 biological resources except on nesting birds and bats during vegetation trimming or clearing  
9 for maintenance. These impacts would be less than significant with mitigation to control the  
10 timing of maintenance activities.
- 11 ○ *Cultural Resources*: Phase I and Phase II improvements would have no significant impact on  
12 cultural resources during operations.
- 13 ○ *Energy*: Phase I and Phase II operations would result in a net energy savings due to the  
14 reduction of automobile VMT and consequently reduce energy consumption per passenger  
15 mile. Energy use benefits achieved through Phase I and Phase II operations would  
16 substantially offset the short-term construction energy and would be a beneficial impact.
- 17 ○ *Geology and Soils*: Phase I and Phase II operations would not expose people or structures to  
18 significant impacts related to geologic hazards or affect paleontological resources.
- 19 ○ *Greenhouse Gas Emissions*: Phase I and Phase II operations would result in a net GHG  
20 reduction from changes in regional traffic and diverted private automobile trips to public  
21 transit. Net emission reductions will decline as a function of time because the vehicles that  
22 will be removed from the road will be progressively cleaner due to engine improvements  
23 and vehicle modernization. GHG benefits achieved through operation in Phase I and Phase II  
24 would offset construction emissions and would be a beneficial impact.
- 25 ○ *Hazards and Hazardous Materials*: Several Phase I and Phase II improvements are located on  
26 or in close proximity to areas with hazardous materials contamination due to prior land use  
27 activities. Project mitigation measures would control potential exposure of workers and the  
28 public to contamination where encountered during maintenance activities.
- 29 ○ *Hydrology and Water Quality*: Several Phase I and Phase II improvements would be located  
30 within the 100-year floodplain, but mitigation requiring detailed hydraulic evaluations and  
31 modifications to designs within drainage courses and flood zone areas would reduce  
32 impacts to a less-than-significant level. Minor increases in impervious spaces and alterations  
33 to drainage patterns would occur with implementation of Phase I and Phase II  
34 improvements, but runoff impacts would be controlled through compliance with  
35 stormwater regulation requirements and mitigation requiring detailed hydraulic  
36 evaluations and modifications to designs for stormwater controls to prevent flooding would  
37 reduce impacts to a less-than-significant level.
- 38 ○ *Land Use and Planning*: The ACE Extension would establish new stations and facilities in  
39 areas supported by the general plans of the municipalities in which new stations would be  
40 located. The majority of Phase I and Phase II improvement are located within the existing  
41 UPRR ROW where no land use designation is identified. Several Phase I and Phase II  
42 improvements, specifically new stations and the layover facility, are located wholly or  
43 partially outside the existing UPRR ROW where land use designations are identified by the  
44 local jurisdiction. Construction of several Phase I and Phase II improvements would conflict

with local land use plans and policies for the purposes of avoiding or mitigating an environmental effect. Where Phase I and Phase II improvements would conflict with local land use designations, the improvements would not preclude the development of other allowable uses or significantly change the land use pattern envisioned for these area. Where Phase I and Phase II improvements would conflict with local policies for the purposes of avoiding or mitigating an environmental effect, implementation of mitigation measures to protect agricultural and biological resources would reduce impacts on these resources and inconsistencies of Phase I and Phase II improvements with policies to preserve agricultural or biological resources would be less than significant.

In regards to land use impacts associated with the **Turlock Station**, construction of the station on a portion of the existing Stanislaus County Fairgrounds used for parking could result in secondary environmental impacts. Mitigation identified would require SJRRC to work with the Stanislaus County Fair to provide replacement parking during large events to replace any lost parking opportunity due to the **Turlock Station**. The mitigation stipulates that a replacement site can only be considered if it is without cultural resources and where biological or agricultural impacts could be reduced to less-than-significant levels with the project mitigation measures included in this EIR. Implementation of these mitigation measure would reduce impacts to less-than-significant levels.

- *Noise and Vibration*: Noise impacts from Phase I operations would result from the introduction of new rail passenger along the ACE Extension. Mitigation measures, including wayside horns, building insulation, and support to local jurisdictions choosing to implement quiet zones, would help to reduce this impact, but may not be feasible to avoid significant impacts at all locations. Thus, operational noise associated with Phase I operations would be significant and unavoidable at certain locations. However, with Phase II operations, operational noise impacts would be less than significant because the number of daily trains operating in Phase II compared to Phase I would decrease slightly by two train trips per day. Operational vibration impacts are found to be less than significant.
- *Population and Housing*: New stations established along the ACE Extension 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 Phase I and Phase II improvements would have less-than-significant impacts on population and housing during operation.
- *Public Services*: Phase I and Phase II improvements would have less-than-significant impacts on public services during operation.
- *Recreation*: Phase I and Phase II improvements would have no impact on recreational resources during operations.
- *Safety and Security*: Phase I and Phase II improvements would have less-than-significant impacts on increasing hazards to workers, passenger, or adjacent human and environmental receptors along the ACE Extension corridor during operation.
- *Transportation and Traffic*:
  - This EIR quantitatively analyzes the potential traffic benefits and adverse impacts of the Phase I improvements. In 2020, Phase I improvements would substantially reduce overall VMT in the ACE corridor by approximately 34 million (compared to the No

Project Alternative). In 2040, VMT reductions would be even greater at approximately 71 million (compared to the No Project Alternative).

- Despite the overall traffic reduction benefits, the Phase I improvements would result in localized traffic impacts at certain intersections near at-grade crossings and around new stations along the ACE Extension. The impact at the at-grade crossings is due to more frequent gate-down time due to new passenger rail service. With increased ridership, there will also be increased traffic around existing ACE stations in the Bay Area and new ACE stations along the extension alignment.

- This EIR studied a total of 64 intersections along the ACE Extension corridor that were selected as the most likely locations of potential impacts. Of those intersections, the Proposed Project in 2020 would have significant impacts at two intersections. Project-level mitigation would reduce the impact at one intersection to a less-than-significant level, provided the mitigation is implemented prior to Phase I operations. However, the impact at the remaining intersection would be significant and unavoidable, as no feasible mitigation has been identified. Additional vehicle traffic generated around existing ACE stations in the Bay Area due to increased ridership under Phase I operations would be less than significant. Year 2040 conditions are summarized below under discussion of cumulative impacts.

- For Phase II improvements, traffic impacts were analyzed qualitatively. The general character of impacts would be similar to the Phase I improvements. Impacts on at-grade conditions along the extension to Merced would be similar to those identified for Phase I operations. Ridership benefits would be higher, which would reduce regional VMT and regional traffic, but station-related traffic would be similar and result in localized traffic intersection impacts. A quantitative analysis of traffic impacts of Phase II improvements will be completed during subsequent project-level environmental review.

- ACE Extension operations would have less-than-significant impacts on other transit services, station access, parking, pedestrian and bicycle facilities.

- ACE Extension operations would have less-than-significant impacts on freight rail service and operations.

- *Utilities and Service Systems:* Phase I and Phase II improvements would have less-than-significant impacts on utilities and service systems during operation.

- Summary of cumulative impacts

- *Aesthetics:* The ACE Extension contributions to cumulative impacts related to aesthetics can be reduced to less-than-significant levels with project mitigation measures.

- *Agricultural Resources:* The ACE Extension contributions to cumulative impacts related to agricultural resources can be reduced to less-than-significant levels with project mitigation measures.

- *Air Quality:* The ACE Extension would improve air quality in some respects; where the ACE Extension would increase criteria pollutant emissions, these emissions would not contribute adversely to cumulative air quality impacts.

- *Biological Resources:* The ACE Extension contributions to cumulative impacts related to biological resources can be reduced to less-than-significant levels with project mitigation measures.

- *Cultural Resources*: Cultural resource impacts usually result from construction; therefore, no significant cumulative impacts on cultural resources were identified.
- *Energy*: The ACE Extension would not contribute considerably to any cumulative impacts related to energy resources.
- *Geology and Soils*: The ACE Extension contributions to cumulative impacts related to geology, soils and seismicity can be reduced to less-than-significant levels with project mitigation measures.
- *Greenhouse Gas Emissions*: The ACE Extension would reduce GHG emissions and thus would not contribute to cumulative impacts related to GHG emissions.
- *Hazards and Hazardous Materials*: The ACE Extension contributions to cumulative impacts related to hazards and hazardous materials can be reduced to less-than-significant levels with project mitigation measures.
- *Hydrology and Water Quality*: The ACE Extension contributions to cumulative impacts related to hydrology and water quality can be reduced to less-than-significant levels with project mitigation measures.
- *Land Use and Planning*: The ACE Extension contributions to cumulative impacts related to land use and planning can be reduced to less-than-significant levels with project mitigation measures.
- *Noise and Vibration*:
  - Cumulative noise impacts were evaluated for 2040 with the combined effect of the ACE Extension, Amtrak San Joaquin, Valley Rail Sacramento Extension, and increases in freight service. Cumulative noise increases were found to increase noise levels in excess of Federal Transit Administration noise thresholds in 2040 at all study locations if all rail increases come to fruition. However, with Phase II operations, there a significant number of moderate noise impacts but no severe noise impacts. This is because the number of daily trains operating in Phase II compared to Phase I would decrease slightly by two train trips per day in the Lathrop to Ceres segment. A general noise assessment was performed for Phase II operations, if severe noise impacts are identified in subsequent project-level detailed analysis, then Mitigation Measure NOI-2.1, which requires a phased program to reduce train noise along the ACE Extension, may be necessary. Although a significant cumulative operational noise impact exists, the ACE Extension's contribution to this cumulative impact is less than considerable.
  - Because there would be at least a doubling of train events (the threshold of impacts for heavily-used rail corridors) in the Lathrop to Ceres and Ceres to Merced segments when considering cumulative train increases, there would be the potential for cumulative vibration impacts for sensitive receptors located within 100 feet. However, operation of the ACE Extension would not contribute considerably to any cumulative impacts related to vibration.
- *Population and Housing*: The ACE Extension would not contribute considerably to any cumulative impacts related to population and housing.
- *Public Services*: The ACE Extension contributions to cumulative impacts related to public services can be reduced to less-than-significant levels with project mitigation measures.

- *Recreation*: The ACE Extension would not contribute considerably to any cumulative impacts related to public services.
- *Safety and Security*: The ACE Extension would not contribute considerably to any cumulative impacts related to safety and security.
- *Transportation and Traffic*:
  - Since the ACE Extension would reduce regional VMT, it would not contribute adversely to cumulative regional traffic.
  - This EIR studied cumulative impacts at 64 intersections along the ACE Extension corridor. Of those intersections, there would be four intersection locations where the ACE Extension would contribute considerably to significant localized cumulative traffic impacts. Mitigation would reduce the impact at two intersections to less-than-significant levels. Additionally, a separate project (SR 99/SR 120 Connector project) would convert the third affected intersection into a grade separation and when this occurs, there would be no intersection traffic impact, provided this improvement is implemented prior to Phase I operations. However, the impact at the remaining intersection would be significant and unavoidable, as no feasible mitigation has been identified. Additional vehicle traffic generated around existing ACE stations in the Bay Area due to increased ridership would have less-than-considerable contributions to cumulative impacts.
  - The ACE Extension would have less-than-considerable contributions to cumulative impacts on other transit services, pedestrian and bike facilities, and station access and parking.
- *Utilities and Service Systems*: The ACE Extension 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 ongoing meetings with local agencies, communities, stakeholders, organizations, working groups, and resource agencies (Chapter 7, *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 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 the ACE Extension’s purpose and need?
- **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 ACE Extension?

Alternatives determined not to meet all or most of the ACE Extension's purpose and need, to be infeasible, or not to avoid or substantially reduce one or more significant impacts of the ACE Extension, were dismissed from further analysis in this EIR. All of the alternatives considered, but dismissed from analysis, are discussed in Chapter 6, *Alternatives*, along with the rationale for their dismissal.

All of the alternatives analyzed in detail in this EIR (Chapter 2 and Chapter 3) were determined to meet the purpose and need and to be potentially feasible. Their environmental impacts are disclosed in Chapter 4 and Chapter 5. In addition, the No Project Alternative and one additional alternative (Merced Layover East of SR 99 alternative) are analyzed at a lesser level of detail in Chapter 6.

## 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. The environmentally superior alternative is the alternative (other than the Proposed Project) that would avoid or substantially lessen, to the greatest extent, the environmental impacts associated with the Proposed Project while feasibly obtaining most of the major project objectives. If the alternative with the least environmental impact is determined to be the No Project Alternative, the EIR must also identify an environmentally superior alternative among the other alternatives.

The environmental impacts of the alternatives analyzed in detail are presented in Chapter 4 and Chapter 5 and these chapters describe notable differences in impacts between the alternatives and the Proposed Project. Chapter 6 presents an analysis of the environmental impacts of the No Project Alternative and the Merced Layover East of SR 99 alternative at a lesser level of detail. Chapter 6 also provides a tabular comparison of the key environmental impact discriminators between the alternatives.

The environmentally superior alternative is not the No Project Alternative. Any of the alternatives would provide benefits, such as reducing vehicle trips on freeways and reducing regional air pollutants and GHG emissions that would not be realized under the No Project Alternative.

The environmentally superior alternative is identified as a combination of the different alternatives by segment for both Phase I and Phase II conditions as shown in Table 6-6. Specifically, the environmentally superior alternative includes the following:

- Phase I:
  - **Existing Lathrop/Manteca Station** as the only Lathrop area station;
  - **Ceres Extension Alignment with Downtown Manteca, Ripon, Modesto, and Ceres Stations;** and
  - **Ceres Layover Facility, variant 1.**



- Phase II:
  - **Merced Extension Alignment** with **Turlock, Atwater** or **Livingston**<sup>10</sup>, and **Merced Stations**; and
  - Merced Layover Facility East of SR 99 alternative.

CEQA does not require a lead agency to select the environmentally superior alternative as its Proposed Project. Implementing the project (or an alternative) will have adverse environmental impacts regardless of which alternative is selected. As discussed in Chapter 6, this alternative would best minimize impacts on the natural environment, farmland, and land use planning while also providing project benefits of increasing ridership, reducing VMT and associated regional traffic, air quality emissions, and GHG emissions.

## 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.

- **Agricultural Farmland**—Scoping comments expressed concern over the impact of the project on Important Farmland. The EIR discusses impacts on agricultural lands and potential mitigation measures.
- **Traffic**—Scoping comments expressed concern over the impact of the project on traffic due to new stations and additional gate-down time at the at-grade roadway crossings along the project route. The EIR discusses impacts on traffic from both sources and potential mitigation measures.
- **Consideration of Alternatives**—While the EIR considers a wide range of alternatives for Phase I and Phase II improvements, some may desire that other alternatives should be evaluated in detail. Chapter 6 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**—SJRRRC will consider and respond to substantive comments on this draft EIR in the final EIR scheduled for completion later in 2018.
- **Certification of the EIR and Project Adoption** —SJRRRC will need to consider the final EIR, once prepared, and decide whether to certify the document. If certified, then the SJRRRC Board would need to decide whether to approve the Proposed Project as is or to adopt one of the Phase I alternatives to adopt and whether to carry Phase II alternatives forward for project-level review.
- **Design of the Phase I Improvements**—The final design of Phase I improvements 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 Phase I improvements.

<sup>10</sup> Selection of a preferred station between Turlock and Merced will be done after detailed review of these two options in the subsequent project-level environmental review.

- 1       • **National Environmental Policy Act (NEPA) Compliance**—Compliance with NEPA will be  
2       necessary for any associated federal actions necessary to implement the project. Federal actions  
3       could include future federal funding (if identified) as well as regulatory permitting concerning  
4       waters/wetlands and threatened and endangered species, modifications of federal facilities  
5       (such as aqueducts), and/or potential temporary or permanent encroachment on federally  
6       owned lands.
- 7       • **Subsequent Project-Level Environmental Review for Phase II**—The analysis of Phase II of  
8       the project in this EIR is often at the programmatic level. Additional project-level environmental  
9       review under CEQA will be required prior to approval and construction of Phase II  
10      improvements. A key item that needs to be resolved for Phase II is the location of the HSR  
11      Station in Merced, which could require a change from the ACE Station location proposed in this  
12      document. A second key item will be selection of either Livingston or Atwater for an ACE Station  
13      for Phase II. As Phase II has only received programmatic review overall, the SJRRC would like to  
14      have project-level data on both stations prior to identifying a preferred station option. The  
15      resolution of impacts and mitigation relative to the Stanislaus County Fairgrounds parking  
16      displacement due to the Turlock Station will also need to be resolved by SJRRC in consultation  
17      with the Stanislaus County Fairgrounds.
- 18      • **Funding**—ACE has obtained funding commitments through SB 1 for approximately \$400  
19      million to initiate Phase 1 implementation. It will need to be determined how to best use this  
20      funding to expand and extend ACE service as soon as possible and how to best leverage any  
21      other funding that may be necessary in Phase II to achieve the longer-term project goals.

1 **Table ES-5. Summary of Phase I Improvement Impacts and Required Mitigation Measures**

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
<b>4.1 Aesthetics</b>			
Impact AES-1. Construction of the Phase I improvements 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	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 AQ-2.5: Implement fugitive dust controls	Less than significant
Impact AES-2. Phase I operations could substantially degrade the existing visual character or quality of the site and its surroundings, including scenic vistas.	Potentially significant	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 AES-3. Phase I operations could substantially damage scenic resources within a state scenic highway.	No impact	None required	--
Impact AES-4. Phase I operations could create a new source of substantial light or glare that would adversely affect day or nighttime views.	Potentially significant	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-4.1: Apply minimum lighting standards	Less than significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact C-AES-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on aesthetics.	Potentially significant	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-4.1: Apply minimum lighting standards AQ-2.5: Implement fugitive dust controls	Less than considerable contribution
<b>4.2 Agricultural Resources</b>			
Impact AG-1. Construction and operation of the Phase I improvements could convert Important Farmlands to nonagricultural use.	Potentially significant	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)	Less than significant
Impact AG-2. Construction and operation of the Phase I improvements could conflict with a Williamson Act contract or other agricultural lands protection mechanism.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact AG-3. Construction and operation of the Phase I improvements could result in conversion of farmland through noise and vibration impacts on confined farm animals.	Less than significant	None required	--
Impact AG-4. Construction of the Phase I improvements could create unviable remnant or severed Important Farmland parcels.	Less than significant	None required	--
Impact AG-5. Construction and operation of the Phase I improvements 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	AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Less than significant
Impact C-AG-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on agricultural resources.	Potentially significant	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Less than considerable contribution
<b>4.3 Air Quality</b>			
Impact AQ-1. Construction and operation of Phase I improvements could conflict with or obstruct implementation of the applicable air quality plan.	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact AQ-2a. Construction of Phase I improvements could violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks	Less than significant
Impact AQ-2b. Phase I operations could violate an air quality standard or contribute substantially to an existing or projected air quality violation.	Less than significant (beneficial) (BAAQMD, SJVAPCD: CO, PM10, PM2.5)  Less than significant (SJVAPCD: ROG, NO <sub>x</sub> )	None required	--
Impact AQ-3. Construction and operation of Phase I improvements could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks	Less than significant
Impact AQ-4a. Phase I operations could expose sensitive receptors to substantial carbon monoxide concentrations from increased passenger rail traffic.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact AQ-4b. Construction of Phase I improvements could expose sensitive receptors to substantial diesel particulate matter or localized particulate matter concentrations.	Less than significant	None required	--
Impact AQ-4c. Phase I operations could expose sensitive receptors to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-4d. Phase I operations could expose sensitive receptors adjacent to ACE stations and maintenance facilities to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-4e. Phase I improvements could 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	None required	--
Impact AQ-4f. Phase I improvements could expose sensitive receptors to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations from multiple emission sources.	Less than significant	None required	--



<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact AQ-4g. Phase I improvements could expose sensitive receptors to cumulative health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-4h. Construction of Phase I improvements could expose sensitive receptors to increased risk of contracting Valley Fever.	Less than significant	None required	--
Impact AQ-5. Construction and operation of Phase I improvements could create objectionable odors affecting a substantial number of people.	Less than significant	None required	--
Impact C-AQ-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on air quality.	<p>Construction: Potentially significant</p> <p>Operation: Less than considerable contribution (beneficial) (BAAQMD; SJVAB: CO, PM2.5, PM10, and SOx); less than considerable contribution (SJVAB: ROG and NOx)</p>	<p>AQ-2.1: Implement advanced emissions controls for off-road equipment</p> <p>AQ-2.2: Implement off-road engine maintenance and idling restrictions</p> <p>AQ-2.3: Implement advanced emissions controls for locomotives</p> <p>AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks</p>	Construction: Less than considerable contribution

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
<b>4.4 Biological Resources</b>			
Impact BIO-1. Construction of the Phase I improvements could remove or degrade special-status plants and their habitat.	Potentially significant	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 BIO-2. Construction of the Phase I improvements could injure or kill special-status wildlife species and remove or degrade their habitat.	Potentially significant	BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: Conduct a worker environmental training program for construction personnel BIO-2.3: Avoid vernal pool–endemic species BIO-2.4: Avoid valley elderberry longhorn beetle BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog BIO-2.6: Avoid western pond turtle and giant garter snake BIO-2.7: Avoid coast horned lizard and silvery legless lizard BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson’s hawk BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss BIO-2.11: Avoid western yellow-billed cuckoo BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird BIO-2.15: Avoid roosting bats BIO-2.16: Avoid riparian brush rabbit and riparian woodrat	Less than significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact BIO-3. Construction of the Phase I improvements could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant	BIO-2.17: Compensate for riparian brush rabbit and riparian woodrat habitat loss BIO-2.18: Avoid San Joaquin kit fox and American badger BIO-2.19: Compensate for San Joaquin kit fox and American badger habitat loss <sup>11</sup>	Less than significant
Impact BIO-4. Construction of the Phase I improvements could remove or degrade federally regulated wetlands and other aquatic resources.	Potentially significant	BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: 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-5.2: Compensate for loss of riparian habitat BIO-10.1: Model hydraulics of new bridge before construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters 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 ACE Extension improvements impacts during construction	Less than significant

<sup>11</sup> The ACE Extension improvements within San Joaquin County will either obtain compensatory habitat mitigation through the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP), or use the mitigation prescribed in SJMSCP as a basis for ACE Extension mitigation.

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact BIO-5. Construction of the Phase I improvements 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	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 ACE Extension 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 riparian habitat	Less than significant
Impact BIO-6. Construction of the Phase I improvements could substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas.	Potentially significant	BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson's hawk BIO-2.10: Compensate for Swainson's hawk foraging habitat loss BIO-2.11: Avoid western yellow-billed cuckoo BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird BIO-2.15: Avoid roosting bats BIO-3.3: Implement seasonal restrictions for in-water work BIO-10.1: Model hydraulics of new bridge before construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant
Impact BIO-7. Construction of the Phase I improvements could conflict with local biological resource policies, including tree preservation policies or ordinances.	Potentially significant	BIO-7.1: Compensate for tree removal during construction	Less than significant

Impact BIO-8. Construction of the Phase I improvements could conflict with provisions of adopted habitat conservation plans, natural community conservation plans, or approved local, regional, or state habitat conservation plans	Potentially significant	<p>BIO-1.1: Conduct preconstruction surveys for special-status plant species</p> <p>BIO-1.2: Prepare a salvage, relocation, or propagation and monitoring plan for special-status plant species</p> <p>BIO-1.3: Document affected special-status plant species</p> <p>BIO-1.4: Prevent introduction or spread of invasive plant species</p> <p>BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies</p> <p>BIO-2.2: Conduct a worker environmental training program for construction personnel</p> <p>BIO-2.3: Avoid vernal pool–endemic species</p> <p>BIO-2.4: Avoid valley elderberry longhorn beetle</p> <p>BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog</p> <p>BIO-2.6: Avoid western pond turtle and giant garter snake</p> <p>BIO-2.7: Avoid coast horned lizard and silvery legless lizard</p> <p>BIO-2.8: Avoid nesting birds</p> <p>BIO-2.9: Avoid Swainson’s hawk</p> <p>BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss</p> <p>BIO-2.11: Avoid western yellow-billed cuckoo</p> <p>BIO-2.12: Avoid burrowing owl</p> <p>BIO-2.13: Compensate for burrowing owl habitat loss</p> <p>BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird</p> <p>BIO-2.15: Avoid roosting bats</p> <p>BIO-2.16: Avoid riparian brush rabbit and riparian woodrat</p> <p>BIO-2.17: Compensate for riparian brush rabbit and riparian woodrat habitat loss</p> <p>BIO-2.18: Avoid San Joaquin kit fox and American badger</p> <p>BIO-2.19: Compensate for San Joaquin kit fox and American badger habitat loss</p>	Less than significant
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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		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 ACE Extension 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 riparian habitat HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	
Impact BIO-9. Operation of the Phase I improvements could injure or kill special-status wildlife species.	Potentially significant	BIO-9.1: Avoid nesting bird impacts during operational vegetation management BIO-9.2: Avoid roosting bat impacts during operational vegetation management	Less than significant
Impact BIO-10. Operation of the Phase I improvements could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant	BIO-10.1: Model hydraulics of new bridges before construction 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 BIO-11. Operation of the Phase I improvements could substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact BIO-12. Operation of the Phase I improvements could conflict with local biological resource policies, including tree preservation policies or ordinances.	Less than significant	None required	--
Impact BIO-13. Operation of Phase I improvements could 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. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on biological resources.	Potentially significant	All mitigation measures identified for biological resources (see Impacts BIO-1 through Impact BIO-26).	Less than considerable contribution
<b>4.5 Cultural Resources</b>			
Impact CUL-1. Construction and operation of Phase I improvements could directly or indirectly cause a substantial adverse change in the significance of a built environment historical resource.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact CUL-2. Construction and operation of Phase I improvements could cause a substantial adverse change in the significance of an archaeological resource or tribal cultural resource.	Potentially significant	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 CUL-2.7: Implement procedures in case of inadvertent tribal cultural resources discoveries	Less than significant
Impact CUL-3. Construction of Phase I improvements could disturb human remains, including those interred outside of formal cemeteries.	Potentially significant	CUL-3.1: Comply with state laws relating to Native American remains	Less than significant
Impact C-CUL-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on cultural resources.	Construction: Potentially significant  Operation: No cumulative 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 discoveries CUL-2.5: Conduct archaeological testing CUL-2.6: Implement avoidance and protection measures CUL-2.7: Implement procedures in case of inadvertent tribal cultural resources discoveries CUL-3.1: Comply with state laws relating to Native American human remains	Construction: Less than considerable contribution
<b>4.6 Energy</b>			
Impact EN-1. Construction, operation, and maintenance of Phase I improvements could result in wasteful, inefficient, and unnecessary consumption of energy.	Less than significant (beneficial)	None required	--



<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact EN-2. Construction, operation, and maintenance of Phase I improvements could result in substantial increases in energy demand that would affect local or regional energy supplies and require additional capacity during peak and base period demands for electricity to meet that increased demand.	Less than significant	None required	--
Impact C-EN-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on energy resources.	Construction: Less than considerable contribution  Operation: Less than considerable contribution (beneficial)	None required	--
<b>4.7 Geology and Soils</b>			
Impact GEO-1. Construction or operation of the Phase I improvements could expose people or infrastructure to geologic hazards, including expansive and corrosive soils, erosion, difficult excavation, landslides, subsidence, surface faulting, strong groundshaking, liquefaction, and earthquake-induced landslides.	Less than significant	None required	--
Impact GEO-2. Construction or operation of the Phase I improvements could affect geologic resources, including oil and gas wells, mineral resources, or geothermal resources.	No impact	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact GEO-3. Construction of the Phase I improvements could directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	Potentially significant	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 GEO-4. Operation and maintenance of Phase I improvements would directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	No impact	None required	--
Impact C-GEO-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on geology, soils, and unique paleontological/geologic resources.	Construction: Potentially significant  Operation: Less than considerable contribution	GEO-3.1: Monitor for discovery of paleontological resources, evaluate found resources, and prepare and follow a recovery plan for found resources	Construction: Less than considerable contribution
<b>4.8 Greenhouse Gas Emissions</b>			
Impact GHG-1. Construction and operation of Phase I improvements could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant (beneficial)	None required	--
Impact GHG-2. Phase I improvements could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Less than significant (beneficial)	None required	--

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact C-GHG-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative GHG emissions impact.	Construction: Less than considerable contribution  Operation: Less than considerable contribution (beneficial)	None required	--
<b>4.9 Hazards and Hazardous Materials</b>			
Impact HAZ-1. Construction, operation, and maintenance of the Phase I improvements could 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	None required	--
Impact HAZ-2. Construction, operation, and maintenance of the Phase I improvements could create a significant hazard to the public or the environment involving reasonably foreseeable upset conditions or the disturbance of existing hazardous materials.	Potentially significant	AQ-2.5: Implement fugitive dust controls 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 HAZ-3. Construction, operation, and maintenance of the Phase I improvements could create a potentially significant hazard for children at nearby schools from emissions or handling of hazardous or acutely hazardous materials.	Potentially significant	AQ-2.5: Implement fugitive dust controls HAZ-2.3: Implement construction risk management plan	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact HAZ-4. Phase I improvements are located on sites on a list of hazardous materials sites and, as a result, could create a significant hazard to the public or the environment	Potentially significant	AQ-2.5: Implement fugitive dust control 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 C-HAZ-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact from hazards and hazardous materials.	Potentially significant	AQ-2.5: Implement fugitive dust control HAZ-2.1: Implement voluntary oversight agreement HAZ-2.2: Conduct site investigations HAZ-2.3: Implement construction risk management plan	Less than considerable contribution
<b>4.10 Hydrology and Water Quality</b>			
Impact HYD-1. Construction of Phase I improvements could violate water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.	Potentially significant	HAZ-2.3: Implement construction risk management plan 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-7.1: Limit groundwater or dewatering discharge flow rates	Less than significant
Impact HYD-2. Operation and maintenance of Phase I improvements could violate water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.	Potentially significant	HAZ-2.3: Implement construction risk management plan	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact HYD-3. Construction of Phase I improvements could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than significant	None required	--
Impact HYD-4. Phase I operations could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than significant	None required	--
Impact HYD-5. Construction of the Phase I improvements could expose people or structures or property to significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam; placing structures within 100-year flood hazard areas that could impede or redirect flood flows; or substantially altering the existing drainage courses of the site or area.	Potentially significant	HYD-5.1: Prevent construction workers, materials, and equipment from being exposed to storm flooding hazards	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact HYD-6. Phase I operations could expose people or structures or property to significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam; placing structures within 100-year flood hazard areas that could impede or redirect flood flows; or substantially altering the existing drainage courses of the site or area.	Potentially significant	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 HYD-7. Construction of the Phase I improvements could alter drainage patterns and/or create or contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems and result in flooding.	Potentially significant	HYD-7.1: Limit groundwater or dewatering discharge flow rates	Less than significant
Impact HYD-8. Phase I operations could alter drainage patterns or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems and result in flooding.	Potentially significant	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

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact C-HYD-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on hydrology and water quality.	Potentially significant	HAZ-2.3: Implement construction risk management plan 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-5.1: Prevent construction workers, materials, and equipment from being exposed to storm flooding hazards 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-7.1: Limit groundwater or dewatering discharge flow rates 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 considerable contribution
<b>4.11 Land Use and Planning</b>			
Impact LU-1. Construction or Operation of Phase I improvements could physically divide an established community.	Less than significant	None required	--
Impact LU-2. Construction and operation of Phase I improvements 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	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers 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	Less than significant

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		BIO-1.3: Document affected special-status plant species BIO-1.4: Prevent introduction or spread of invasive plant species BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: Conduct a worker environmental training program for construction personnel BIO-2.3: Avoid vernal pool–endemic species BIO-2.4: Avoid valley elderberry longhorn beetle BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog BIO-2.6: Avoid western pond turtle and giant garter snake BIO-2.7: Avoid coast horned lizard and silvery legless lizard BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson’s hawk BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.15: Avoid roosting bats BIO-2.18: Avoid San Joaquin kit fox and American badger BIO-2.19: Compensate for San Joaquin kit fox and American badger habitat loss 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 ACE Extension improvements impacts during construction BIO-7.1: Compensate for tree removal during construction BIO-9.1: Avoid nesting bird impacts during operational vegetation management BIO-9.2: Avoid roosting bat impacts during operational vegetation management	



Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact LU-3. Construction and operation of Phase I improvements could conflict with an applicable habitat conservation plan or natural community conservation plan	Potentially significant	HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant
		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: Obtain coverage from, be consistent with, and tier from existing conservation strategies	
		BIO-2.2: Conduct a worker environmental training program for construction personnel	
		BIO-2.3: Avoid vernal pool–endemic species	
		BIO-2.4: Avoid valley elderberry longhorn beetle	
		BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog	
		BIO-2.6: Avoid western pond turtle and giant garter snake	
		BIO-2.7: Avoid coast horned lizard and silvery legless lizard	
		BIO-2.8: Avoid nesting birds	
		BIO-2.9: Avoid Swainson’s hawk	
		BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss	
		BIO-2.11: Avoid western yellow-billed cuckoo	
		BIO-2.12: Avoid burrowing owl	
		BIO-2.13: Compensate for burrowing owl habitat loss	
		BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird	
		BIO-2.15: Avoid roosting bats	
		BIO-2.16: Avoid riparian brush rabbit and riparian woodrat	
		BIO-2.17: Compensate for riparian brush rabbit and riparian woodrat habitat loss	

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		BIO-2.18: Avoid San Joaquin kit fox and American badger BIO-2.19: Compensate for San Joaquin kit fox and American badger habitat loss 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 ACE Extension 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 riparian habitat HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	
Impact C-LU-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on land use and planning.	Potentially significant	All mitigation measures identified for land use and planning (see Impacts LU-1 through Impact LU-6).	Less than considerable contribution
<b>4.12 Noise and Vibration</b>			
Impact NOI-1. Construction of Phase I improvements could expose sensitive receptors to substantial increases in noise levels.	Potentially significant	NOI-1.1: Implement a construction noise control plan	Significant and unavoidable

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact NOI-2. Increased passenger rail on the existing ACE route and new passenger rail on new routes with Phase I operations could result in severe noise impacts.	Potentially significant	NOI-2.1: Implement a phased program to reduce train noise along the ACE Extension as necessary to address noise increases over Federal Transit Administration's severe impact thresholds	Significant and unavoidable
Impact NOI-3. Construction of Phase I improvements could expose sensitive receptors to substantial increases in groundborne vibration levels.	Potentially significant	NOI-3.1: Implement a construction vibration control plan	Less than significant
Impact NOI-4. Increased passenger rail on the existing ACE route and new passenger rail on new routes with Phase I operations could result in vibration impacts.	Less than significant	None required	--
Impact C-NOI-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact from noise and vibration.	Construction (noise and vibration): Potentially significant Operation (noise): Potentially significant Operation (vibration): Less than considerable contribution	NOI-1.1: Implement a construction noise control plan NOI-2.1: Implement a phased program to reduce train noise along the ACE Extension as necessary to address noise increases over Federal Transit Administration's severe impact thresholds NOI-3.1: Implement a construction vibration control plan	Construction and Operation (vibration): Less than considerable contribution Construction and operation (noise): Cumulatively considerable and unavoidable
<b>4.13 Population and Housing</b>			
Impact POP-1. Construction and operation of the Phase I improvements could substantially induce, either directly or indirectly, population growth in an area.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact POP-2. Construction and operation of the Phase I improvements could displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere.	No impact	None required	--
Impact C-POP-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on population and housing.	Less than considerable contribution	None required	--
<b>4.14 Public Services</b>			
Impact PS-1. Construction and operation of Phase I improvements could increase fire protection, emergency responders and law enforcement service ratios and response times, but would not result in unmet performance objectives that would result in the need for new or physically altered fire protection or law enforcement facilities.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact PS-2. Construction and operation of Phase I improvements could change service ratios and performance objectives, or result in the need for new or physically altered schools or other public facilities.	Less than significant	None required	--

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact C-PS-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on public services.	Construction: Potentially significant  Operation: Less than considerable contribution	TR-7.1: Implement construction road traffic control plan	Construction: Less than considerable contribution
<b>4.15 Recreation</b>			
Impact REC-1. Construction of Phase I improvements could increase the use of existing recreational resources such that substantial physical deterioration of the facility would occur or be accelerated.	Potentially significant	REC-1.1: Coordinate with San Joaquin and Stanislaus Counties to provide advance notice of and maintain a safe open channel in the Stanislaus River during construction activities REC-1.2: Coordinate with Stanislaus County and Tuolumne River Regional Park Joint Powers Agency to provide advance notice of and maintain a safe open channel in the Tuolumne River and public access to the Tuolumne River Regional Park during construction activities REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities 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 off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-2.5: Implement fugitive dust controls NOI-1.1: Implement construction noise control plan	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact REC-2. Operation of Phase I improvements could increase the use of existing recreational resources such that substantial physical deterioration of the facility would occur or be accelerated.	Less than significant	None required	--
Impact REC-3. Phase I improvements would not include recreational facilities or require the construction or expansion of recreational facilities that might have adverse physical effects on the environment.	No impact	None required	--
Impact C-REC-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on recreational resources.	Construction: Potentially significant  Operation: Less than considerable contribution	REC-1.1: Coordinate with San Joaquin and Stanislaus Counties to provide advance notice of and maintain a safe open channel in the Stanislaus River during construction activities REC-1.2: Coordinate with Stanislaus County and Tuolumne River Regional Park Joint Powers Agency to provide advance notice of and maintain a safe open channel in the Tuolumne River and public access to the Tuolumne River Regional Park during construction activities REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities REC-4.1: Coordinate with Merced County to provide advance notice of and maintain a safe open channel in the Merced River during construction activities AES-1.1: Install visual barriers between construction work areas and sensitive receptors AQ-2.1: Implement advanced emissions controls for off-road equipment	Construction: Less than considerable contribution

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
		AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-2.5: Implement fugitive dust controls NOI-1.1: Implement construction noise control plan	
<b>4.16 Safety and Security</b>			
Impact SAF-1. Phase I improvements could be located within an airport land use plan area, be within 2 miles of a public airport or public-use airport, or be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the study area.	No impact	None required	--
Impact SAF-2. Construction and operation of Phase I improvements could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact SAF-3. Construction and operation of Phase I improvements could increase exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact SAF-4. Construction and operation of Phase I improvements could 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	None required	--
Impact C-SAF-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on safety and security.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than considerable contribution
<b>4.17 Transportation and Traffic</b>			
Impact TR-1. Construction and operation of Phase I improvements could conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.	Potentially significant	TR-7.2: Implement roadway widening/geometry improvements at the West Lathrop Road/South Airport Way Intersection in Manteca TR-7.3: Implement Traffic Roadway Improvements at the West Yosemite Avenue/South Willow Avenue and Spreckles Avenue/Industrial Park Drive/Moffat Boulevard Intersections in Manteca	Significant and unavoidable
Impact TR-2. Phase I operations could conflict with an applicable congestion management program.	Less than significant (beneficial)	None required	--



<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact TR-3. Construction and operation of Phase I improvements could result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	Less than significant	None required	--
Impact TR-4. Construction of Phase I improvements could substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less than significant	None required	--
Impact TR-5. Construction of Phase I improvements could conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	Less than significant (beneficial)	None required	--
Impact TR-6. Phase I operations would reduce overall regional VMT per service population in the study area.	Less than significant (beneficial)	None required	--
Impact TR-7a. Construction of Phase I improvements could substantially disrupt existing or future traffic operations.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact TR-7b. Operation of Phase I improvements in Year 2020 Plus Project Conditions could conflict or create inconsistencies with local traffic plans or substantially disrupt future local traffic operations.	Potentially significant	TR-7.2: Implement roadway widening/geometry improvements at the West Lathrop Road/South Airport Way intersection in Manteca	Significant and unavoidable
Impact TR-7c. Operation of Phase I improvements in Year 2040 Plus Project Conditions could conflict or create inconsistencies with local traffic plans or substantially disrupt future local traffic operations.	Potentially significant	TR-7.3: Implement Traffic Roadway Improvements at the West Yosemite Avenue/South Willow Avenue and Spreckles Avenue/Industrial Park Drive/Moffat Boulevard Intersections in Manteca	Significant and unavoidable
Impact TR-7d. Operation of Phase I improvements could substantially increase hazards for traffic on roadways because of a design feature or otherwise substantially compromise the safety of roadway facilities.	Less than significant	None required	--
Impact TR-8a. Construction of Phase I improvements could disrupt existing or planned transit services or facilities.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact TR-8b. Phase I operations could create demand for public transit services above the capacity which is provided or planned; interfere with existing or planned transit services or facilities; or conflict or create inconsistencies with adopted transit system plans, guidelines, policies, or standards.	Less than significant (beneficial)	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact TR-8c. Construction and operation of Phase I improvements could substantially increase hazards for transit system operations because of a design feature or otherwise substantially compromise the safety of transit facilities.	Less than significant	None required	--
Impact TR-9a. Construction of Phase I improvements could disrupt existing or planned pedestrian or bicycle facilities, or conflict or create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.	Potentially significant	TR-7.1: Implement construction road traffic control plan REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities	Less than significant
Impact TR-9b. Phase I operations could disrupt existing or planned pedestrian or bicycle facilities, or conflict or create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.	Less than significant	None required	--
Impact TR-10a. Construction of Phase I improvements could result in inadequate emergency vehicle circulation and/or access.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact TR-10b. Phase I operations could result in inadequate emergency vehicle circulation and/or access.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact TR-11a. Construction of Phase I improvements could result in inadequate parking supply.	Less than significant	None required	--
Impact TR-11b. Phase I operations could result in secondary traffic operational impacts relative to existing and proposed station parking facilities throughout the existing and proposed ACE system.	Less than significant	None required	--
Impact TR-12a. Construction of Phase I improvements could result in a change in freight rail service such that resultant diversions to truck or other freight modes would result in significant secondary impacts on freight operations.	Potentially significant	TR-12.1: Implement construction railway disruption control plan	Less than significant
Impact TR-12b. Phase I operations could result in a change in freight rail service such that resultant diversions to truck or other freight modes would result in significant secondary impacts.	Less than significant	None required	--

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact C-TRA-1: Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on transportation and traffic.	Potentially significant	TR-7.1: Implement construction road traffic control plan TR-7.2: Implement roadway widening/geometry improvements at the West Lathrop Road/South Airport Way Intersection in Manteca TR-7.3: Implement Traffic Roadway Improvements at the West Yosemite Avenue/South Willow Avenue and Spreckles Avenue/Industrial Park Drive/Moffat Boulevard Intersections in Manteca TR-12.1: Implement construction railway disruption control plan REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities	Construction: Less than considerable contribution  Operation: Cumulatively considerable and unavoidable
<b>4.18 Utilities and Service Systems</b>			
Impact USS-1. Construction or operation of Phase I improvements could result in conflicts with utilities infrastructure.	Potentially significant	USS-1: Implement utility relocation and disruption plans	Less than significant
Impact USS-2. Construction of the Phase I improvements could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; result in a determination by the water, wastewater treatment, or stormwater drainage provider that serves or may serve the project that it does not have adequate capacity, entitlements, or resources to serve the project's projected demand in addition to the provider's existing commitments; or require or	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
result in the construction of new water, wastewater, or stormwater infrastructure, the construction of which could cause significant environmental effects.			
Impact USS-3. Phase I operations could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board or result in a demand for water or wastewater services such that the construction of new or expansion of existing water or wastewater infrastructure, the construction of which could cause significant environmental effects, would be necessary.	Less than significant	None required	--
Impact USS-4. Phase I operations could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than significant	None required	--

<b>Impacts</b>	<b>Significance before Mitigation</b>	<b>Mitigation Measures</b>	<b>Significance after Mitigation</b>
Impact USS-5. Phase I improvements could be served by a landfill during construction that does not have sufficient permitted capacity to accommodate the program's solid waste disposal needs or violate federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	--
Impact USS-6. Phase I improvements could be served by a landfill during operation that does not have sufficient permitted capacity to accommodate the project's solid waste disposal needs or violate federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	--
Impact C-USS-1: Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on utilities and service systems.	Construction: Potentially significant  Operation: Less than considerable contribution	USS-1: Implement utility relocation and disruption plans	Construction: Less than considerable contribution

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1 **Table ES-6. Summary of Phase II Improvement Impacts and Required Mitigation Measures**

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
<b>4.1 Aesthetics</b>			
Impact AES-5. Construction of the Phase II improvements 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	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 AQ-2.5: Implement fugitive dust controls	Less than significant
Impact AES-6. Phase II operations could substantially degrade the existing visual character or quality of the site and its surroundings, including scenic vistas.	Potentially significant	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 AES-7. Phase II operations could substantially damage scenic resources within a state scenic highway.	Less than significant	None required	--
Impact AES-8. Phase II operations could create a new source of substantial light or glare that would adversely affect day or nighttime views.	Potentially significant	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-4.1: Apply minimum lighting standards	Less than significant
Impact C-AES-1. Implementation of the ACE Extension, in combination with other	Potentially significant	AES-1.1: Install visual barriers between construction work areas and sensitive receptors	Less than considerable contribution



Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
foreseeable projects in the surrounding area, could result in a significant cumulative impact on aesthetics.		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-4.1: Apply minimum lighting standards AQ-2.5: Implement fugitive dust controls	
<b>4.2 Agricultural Resources</b>			
Impact AG-6. Construction and operation of the Phase II improvements could convert Important Farmlands to nonagricultural use.	Potentially significant	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland).	Less than significant
Impact AG-7. Construction and operation of the Phase II improvements could conflict with a Williamson Act contract or other agricultural lands protection mechanism.	Less than significant	None required	--
Impact AG-8. Construction and operation of the Phase II improvements could result in conversion of farmland through noise and vibration impacts on confined farm animals.	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact AG-9. Construction of the Phase II improvements could create unviable remnant or severed Important Farmland parcels.	Less than significant	None required	--
Impact AG-10. Construction and operation of the Phase II improvements 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	AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Less than significant
Impact C-AG-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on agricultural resources.	Potentially significant	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers	Less than considerable contribution
<b>4.3 Air Quality</b>			
Impact AQ-6. Construction and operation of Phase II improvements could conflict with or obstruct implementation of the applicable air quality plan.	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-7: Offset operational ozone precursors in San Joaquin Valley Air Pollution Control District (if necessary)	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact AQ-7a. Construction of Phase II improvements could violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks	Less than significant
Impact AQ-7b. Phase II operations could violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Less than significant (beneficial) (BAAQMD, SJVAPCD: CO, PM10, PM2.5)  Potentially significant (SJVAPCD: ROG, NOx)	AQ-7: Offset operational ozone precursors in San Joaquin Valley Air Pollution Control District (if necessary)	Less than significant
Impact AQ-8. Construction and operation of Phase II improvements could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).	Potentially significant	AQ-2.1: Implement advanced emissions controls for off-road equipment AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-7: Offset operational ozone precursors in San Joaquin Valley Air Pollution Control District (if necessary)	Less than significant
Impact AQ-9a. Phase II operations could expose sensitive receptors to substantial carbon monoxide concentrations from increased passenger rail traffic.	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact AQ-9b. Construction of Phase II improvements could expose sensitive receptors to substantial diesel particulate matter or localized particulate matter concentrations.	Less than significant	None required	--
Impact AQ-9c. Phase II operations could expose sensitive receptors along the ACE alignment to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-9d. Phase II operations could expose sensitive receptors adjacent to ACE stations and maintenance facilities to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-9e. Phase II improvements could 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	None required	--
Impact AQ-9f. Phase II improvements could expose sensitive receptors to health risks from increased exposure to diesel particulate matter and PM2.5 concentrations from multiple emission sources.	No impact	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact AQ-9g. Phase II improvements could expose sensitive receptors to cumulative health risks from increased exposure to diesel particulate matter and PM2.5 concentrations.	Less than significant	None required	--
Impact AQ-9h. Construction of Phase II improvements could expose sensitive receptors to increased risk of contracting Valley Fever.	Less than significant	None required	--
Impact AQ-10. Construction and operation of Phase II improvements could create objectionable odors affecting a substantial number of people.	Less than significant	None required	--
Impact C-AQ-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on air quality.	<p>Construction: Potentially significant</p> <p>Operation: Less than considerable contribution (beneficial) (BAAQMD; SJVAB: CO, PM2.5, PM10, and SOx); potentially significant (SJVAB: ROG and NOx)</p>	<p>AQ-2.1: Implement advanced emissions controls for off-road equipment</p> <p>AQ-2.2: Implement off-road engine maintenance and idling restrictions</p> <p>AQ-2.3: Implement advanced emissions controls for locomotives</p> <p>AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks</p> <p>AQ-7: Offset operational ozone precursors in San Joaquin Valley Air Pollution Control District (if necessary)</p>	<p>Construction: Less than considerable contribution</p> <p>Operation: Less than considerable contribution (SJVAB: ROG and NOx)</p>

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.4 Biological Resources</b>			
Impact BIO-14. Construction of the Phase II improvements could remove or degrade special-status plants and their habitat.	Potentially significant	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 BIO-15. Construction of the Phase II improvements could injure or kill special-status wildlife species and remove or degrade their habitat.	Potentially significant	BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: Conduct a worker environmental training program for construction personnel BIO-2.3: Avoid vernal pool–endemic species BIO-2.4: Avoid valley elderberry longhorn beetle BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog BIO-2.6: Avoid western pond turtle and giant garter snake BIO-2.7: Avoid coast horned lizard and silvery legless lizard BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson’s hawk BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss BIO-2.11: Avoid western yellow-billed cuckoo BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird BIO-2.15: Avoid roosting bats BIO-2.16: Avoid riparian brush rabbit and riparian woodrat	Less than significant

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		BIO-2.17: Compensate for riparian brush rabbit and riparian woodrat habitat loss BIO-2.18: Avoid San Joaquin kit fox and American badger BIO-2.19: Compensate for San Joaquin kit fox and American badger habitat loss	
Impact BIO-16. Construction of the Phase II improvements could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant	BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: 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-5.2: Compensate for loss of riparian habitat BIO-10.1: Model hydraulics of new bridge before construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant
Impact BIO-17. Construction of the Phase II improvements could remove or degrade federally regulated wetlands and other aquatic resources.	Potentially significant	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 ACE Extension improvements impacts during construction	Less than significant
Impact BIO-18. Construction of the Phase II improvements 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	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 ACE Extension 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 riparian habitat BIO-5.3: Compensate for loss of sensitive natural communities (excluding riparian habitat)	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact BIO-19. Construction of the Phase II improvements could substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas.	Potentially significant	BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson's hawk BIO-2.10: Compensate for Swainson's hawk foraging habitat loss BIO-2.11: Avoid western yellow-billed cuckoo BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird BIO-2.15: Avoid roosting bats BIO-3.3: Implement seasonal restrictions for in-water work BIO-10.1: Model hydraulics of new bridge before construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters	Less than significant
Impact BIO-20. Construction of the Phase II improvements could conflict with local biological resource policies, including tree preservation policies or ordinances.	Potentially significant	BIO-7.1: Compensate for tree removal during construction	Less than significant
Impact BIO-21. Construction of the Phase II improvements could conflict with provisions of adopted habitat conservation plans, natural community conservation plans, or approved local, regional, or state habitat conservation plans	Less than significant	None required	--
Impact BIO-22. Operation of the Phase II improvements could injure or kill special-status wildlife species.	Potentially significant	BIO-9.1: Avoid nesting bird impacts during operational vegetation management BIO-9.2: Avoid roosting bat impacts during operational vegetation management	Less than significant



<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact BIO-23. Operation of the Phase II improvements could injure or kill special-status fish and remove or degrade their habitat.	Potentially significant	BIO-10.1: Model hydraulics of new bridges before construction 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 BIO-24. Operation of the Phase II improvements could substantially interfere with native resident or migratory fish or wildlife species movement, established migration corridors, or their use of nursery areas	Less than significant	None required	--
Impact BIO-25. Operation of the Phase II improvements could conflict with local biological resource policies, including tree preservation policies or ordinances.	Less than significant	None required	--
Impact BIO-26. Operation of Phase II improvements could 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. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on biological resources.	Potentially significant	All mitigation measures identified for biological resources (see Impacts BIO-1 through Impact BIO-26).	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.5 Cultural Resources</b>			
Impact CUL-4. Construction and operation of Phase II improvements could directly or indirectly cause a substantial adverse change in the significance of a built environment historical resource.	Less than significant	None required	--
Impact CUL-5. Construction and operation of Phase II improvements could cause a substantial change in the significance of an archaeological resource or tribal cultural resource.	Potentially significant	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 CUL-2.7: Implement procedures in case of inadvertent tribal cultural resources discoveries	Less than significant
Impact CUL-6. Construction of Phase II improvements could disturb human remains, including those interred outside of formal cemeteries.	Potentially significant	CUL-3.1: Comply with state laws relating to Native American human remains	Less than significant
Impact C-CUL-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on cultural resources.	Construction: Potentially significant  Operation: No cumulative 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 discoveries CUL-2.5: Conduct archaeological testing CUL-2.6: Implement avoidance and protection measures CUL-2.7: Implement procedures in case of inadvertent tribal cultural resources discoveries CUL-3.1: Comply with state laws relating to Native American human remains	Construction: Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.6 Energy</b>			
Impact EN-3. Construction, operation, and maintenance of Phase II improvements could result in wasteful, inefficient, and unnecessary consumption of energy.	Less than significant (beneficial)	None required	--
Impact EN-4. Construction, operation, and maintenance of Phase II improvements could result in substantial increases in energy demand that would affect local or regional energy supplies and require additional capacity during peak and base period demands for electricity to meet that increased demand.	Less than significant	None required	--
Impact C-EN-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on energy resources.	Construction: Less than considerable contribution  Operation: Less than considerable contribution (beneficial)	None required	--
<b>4.7 Geology and Soils</b>			
Impact GEO-5. Construction or operation of the Phase II improvements could expose people or infrastructure to geologic hazards, including expansive and corrosive soils, erosion, difficult excavation, landslides, subsidence, surface faulting, strong groundshaking,	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
liquefaction, and earthquake-induced landslides.			
Impact GEO-6. Construction or operation of the Phase II improvements could affect geologic resources, including oil and gas wells, mineral resources, or geothermal resources.	No impact	None required	--
Impact GEO-7. Construction of the Phase II improvements could directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	Potentially significant	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 GEO-8. Operation and maintenance of the Phase II improvements would not directly or indirectly destroy a unique paleontological resource or site or unique geological feature.	No impact	None required	--
Impact C-GEO-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on geology, soils, and unique paleontological/geologic resources.	Construction: Potentially significant  Operation: Less than considerable contribution	GEO-3.1: Monitor for discovery of paleontological resources, evaluate found resources, and prepare and follow a recovery plan for found resources	Construction: Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.8 Greenhouse Gas Emissions</b>			
Impact GHG-3. Construction and operation of Phase II improvements could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	Less than significant (beneficial)	None required	--
Impact GHG-4. Phase II improvements could conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.	Less than significant (beneficial)	None required	--
Impact C-GHG-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative GHG emissions impact.	Construction: Less than considerable contribution  Operation: Less than considerable contribution (beneficial)	None required	--
<b>4.9 Hazards and Hazardous Materials</b>			
Impact HAZ-5. Construction, operation, and maintenance of the Phase II improvements could 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 (beneficial)	None required	--
Impact HAZ-6. Construction, operation, and maintenance of the Phase II improvements could create a significant hazard to the public or the environment	Potentially significant	AQ-2.5: Implement fugitive dust controls 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	Significance before Mitigation	Mitigation	Significance after Mitigation
involving reasonably foreseeable upset conditions or the disturbance of existing hazardous materials.			
Impact HAZ-7. Construction, operation, and maintenance of the Phase II improvements could create a potentially significant hazard for children at nearby schools from emissions or handling of hazardous or acutely hazardous materials.	Potentially significant	AQ-2.5: Implement fugitive dust controls HAZ-2.3: Implement construction risk management plan	Less than significant
Impact HAZ-8. Phase II improvements are located on sites that are included on a list of hazardous materials sites and, as a result, could create a significant hazard to the public or the environment	Potentially significant	AQ-2.5: Implement fugitive dust control 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 C-HAZ-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact from hazards and hazardous materials.	Potentially significant	AQ-2.5: Implement fugitive dust control HAZ-2.1: Implement voluntary oversight agreement HAZ-2.2: Conduct site investigations HAZ-2.3: Implement construction risk management plan	Less than considerable contribution
<b>4.10 Hydrology and Water Quality</b>			
Impact HYD-9. Construction of the Phase II improvements could violate water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise	Potentially significant	HAZ-2.3: Implement construction risk management plan 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-7.1: Limit groundwater or dewatering discharge flow rates	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
substantially degrade water quality.			
Impact HYD-10. Operation and maintenance of the Phase II improvements could violate water quality standards or waste discharge requirements, provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.	Potentially significant	HAZ-2.3: Implement construction risk management plan	Less than significant
Impact HYD-11. Construction of the Phase II improvements could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than significant	None required	--
Impact HYD-12. Phase II operations could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	Less than significant	None required	--
Impact HYD-13. Construction of the Phase II improvements could expose people or structures or property to significant risk of loss, injury, or death involving flooding as a result of the failure	Potentially significant	HYD-5.1: Prevent construction workers, materials, and equipment from being exposed to storm flooding hazards	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
of a levee or dam; placing structures within 100-year flood hazard areas that could impede or redirect flood flows; or substantially altering the existing drainage courses of the site or area.			
Impact HYD-14. Phase II operations could expose people or structures or property to significant risk of loss, injury, or death involving flooding as a result of the failure of a levee or dam; placing structures within 100-year flood hazard areas that could impede or redirect flood flows; or substantially altering the existing drainage courses of the site or area.	Potentially significant	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 HYD-15. Construction of the Phase II improvements could alter drainage patterns and/or create or contribute runoff water that could exceed the capacity of existing or planned stormwater drainage systems and result in flooding.	Potentially significant	HYD-7.1: Limit groundwater or dewatering discharge flow rates	Less than significant
Impact HYD-16. Phase II operations could alter drainage patterns or create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems and result in flooding.	Potentially significant	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	Significance before Mitigation	Mitigation	Significance after Mitigation
Impact C-HYD-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on hydrology and water quality.	Potentially significant	HAZ-2.3: Implement construction risk management plan 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-5.1: Prevent construction workers, materials, and equipment from being exposed to storm flooding hazards 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-7.1: Limit groundwater or dewatering discharge flow rates 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 considerable contribution
<b>4.11 Land Use</b>			
Impact LU-4. Construction or operation of Phase II improvements could physically divide an established community.	Less than significant	None required	--
Impact LU-5. Construction and operation of Phase II improvements 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	AG-1.1: Restore Important Farmlands used for temporary staging areas AG-1.2: Conserve Important Farmlands (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) AG-5.1: Relocate irrigation facilities AG-5.2: Coordinate with utility providers 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	Less than significant

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		BIO-1.3: Document affected special-status plant species BIO-1.4: Prevent introduction or spread of invasive plant species BIO-2.1: Obtain coverage from, be consistent with, and tier from existing conservation strategies BIO-2.2: Conduct a worker environmental training program for construction personnel BIO-2.3: Avoid vernal pool–endemic species BIO-2.4: Avoid valley elderberry longhorn beetle BIO-2.5: Avoid California tiger salamander, western spadefoot toad, and California red-legged frog BIO-2.6: Avoid western pond turtle and giant garter snake BIO-2.8: Avoid nesting birds BIO-2.9: Avoid Swainson’s hawk BIO-2.10: Compensate for Swainson’s hawk foraging habitat loss BIO-2.12: Avoid burrowing owl BIO-2.13: Compensate for burrowing owl habitat loss BIO-2.14: Avoid bank swallow, tricolored blackbird, and yellow-headed blackbird BIO-2.15: Avoid roosting bats 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 ACE Extension 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 riparian habitat	

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		BIO-7.1: Compensate for tree removal during construction BIO-9.1: Avoid nesting bird impacts during operational vegetation management BIO-9.2: Avoid roosting bat impacts during operational vegetation management BIO-10.1: Model hydraulics of new bridges before construction HYD-1.2: Avoid water quality impacts from construction adjacent to, within, and crossing over surface waters 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 LU-5.1: Work with Stanislaus County Fair to provide replacement parking during large events to replace any lost parking opportunity due to the Turlock Station, as necessary	
Impact LU-6. Construction and operation of Phase II improvements could conflict with an applicable habitat conservation plan or natural community conservation plan.	No impact	None required	--
Impact C-LU-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on land use and planning.	Potentially significant	All mitigation measures identified for land use and planning (see Impacts LU-1 through Impact LU-6).	Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.12 Noise and Vibration</b>			
Impact NOI-5. Construction of Phase II improvements could expose sensitive receptors to substantial increases in noise levels.	Potentially significant	NOI-1.1: Implement a construction noise control plan	Significant and unavoidable
Impact NOI-6. Increased passenger rail on the existing ACE route and new passenger rail on new routes with Phase II operations could result in severe noise impacts.	Potentially significant	NOI-2.1: Implement a phased program to reduce train noise along the ACE Extension as necessary to address noise increases over Federal Transit Administration's severe impact thresholds	Less than significant
Impact NOI-7. Construction of Phase II improvements could expose sensitive receptors to substantial increases in groundborne vibration levels.	Potentially significant	NOI-3.1: Implement a construction vibration control plan	Less than significant
Impact NOI-8. Increased passenger rail on the existing ACE route and new passenger rail on new routes with Phase II operations could result in vibration impacts.	Less than significant	None required	--
Impact C-NOI-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact from noise and vibration.	Construction (noise and vibration): Potentially significant Operation (noise and vibration): Less than considerable contribution	NOI-1.1: Implement a construction noise control plan NOI-3.1: Implement a construction vibration control plan	Construction (vibration): Less than considerable contribution Construction (noise): Cumulatively considerable and unavoidable

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
<b>4.13 Population and Housing</b>			
Impact POP-3. Construction and operation of the Phase II improvements could substantially induce, either directly or indirectly, population growth in an area.	Less than significant	None required	--
Impact POP-4. Construction and operation of the Phase II improvements could displace a substantial number of existing housing units or people, necessitating the construction of replacement housing elsewhere.	No impact	None required	--
Impact C-POP-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on population and housing.	Less than considerable contribution	None required	--
<b>4.14 Public Services</b>			
Impact PS-3. Construction and operation of Phase II improvements could increase fire protection, emergency responders and law enforcement service ratios, response times, or other performance objectives, but would not result in the need for new or physically altered fire protection or law enforcement facilities.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact PS-4. Construction and operation of Phase II improvements could change service ratios and performance objectives, or result in the need for new or physically altered schools or other public facilities.	Less than significant	None required	--
Impact C-PS-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on public services.	Construction: Potentially significant  Operation: Less than considerable contribution	TR-7.1: Implement construction road traffic control plan	Construction: Less than considerable contribution
<b>4.15 Recreation</b>			
Impact REC-4. Construction of Phase II improvements could increase the use of existing recreational resources such that substantial physical deterioration of the facility would occur or be accelerated.	Potentially significant	REC-4.1: Coordinate with Merced County to provide advance notice of and maintain a safe open channel in the Merced River during construction activities 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 off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-2.5: Implement fugitive dust controls NOI-1.1: Implement construction noise control plan	Less than significant

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact REC-5. Operation of Phase II improvements could increase the use of existing recreational resources such that substantial physical deterioration of the facility would occur or be accelerated.	Less than significant	None required	--
Impact REC-6. Phase II improvements would not include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effects on the environment.	No impact	None required	--
Impact C-REC-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on recreational resources.	Construction: Potentially significant  Operation: Less than considerable contribution	REC-1.1: Coordinate with San Joaquin and Stanislaus Counties to provide advance notice of and maintain a safe open channel in the Stanislaus River during construction activities REC-1.2: Coordinate with Stanislaus County and Tuolumne River Regional Park Joint Powers Agency to provide advance notice of and maintain a safe open channel in the Tuolumne River and public access to the Tuolumne River Regional Park during construction activities REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities REC-4.1: Coordinate with Merced County to provide advance notice of and maintain a safe open channel in the Merced River during construction activities AES-1.1: Install visual barriers between construction work areas and sensitive receptors AQ-2.1: Implement advanced emissions controls for off-road equipment	Construction: Less than considerable contribution

Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		AQ-2.2: Implement off-road engine maintenance and idling restrictions AQ-2.3: Implement advanced emissions controls for locomotives AQ-2.4: Utilize modern fleet for on-road material delivery and haul trucks AQ-2.5: Implement fugitive dust controls NOI-1.1: Implement construction noise control plan	
<b>4.16 Safety and Security</b>			
Impact SAF-5. Phase II improvements could be located within an airport land use plan area, be within 2 miles of a public airport or public-use airport, or be located within the vicinity of a private airstrip, and result in a safety hazard for people residing or working in the study area.	Less than significant	None required	--
Impact SAF-6. Construction and operation of Phase II improvements could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact SAF-7. Construction and operation of Phase II improvements could increase exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires.	Less than significant	None required	--



<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact SAF-8. Construction and operation of Phase II improvements could 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	None required	--
Impact C-SAF-1. Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on safety and security.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than considerable contribution
<b>4.17 Transportation and Traffic</b>			
Impact TR-13. Construction and operation of Phase II improvements could conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system.	Potentially significant	No feasible mitigation measures have been identified at this time; mitigation would be identified during subsequent project-level environmental review.	Potentially significant and unavoidable
Impact TR-14. Phase II operations could conflict with an applicable congestion management program.	Less than significant (beneficial)	None required	--
Impact TR-15. Construction and operation of Phase II improvements could result in a change in air traffic patterns,	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
including either an increase in traffic levels or a change in location that results in substantial safety risks.			
Impact TR-16. Construction and operation of Phase II improvements could substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Less than significant	None required	--
Impact TR-17. Construction and operation of Phase II improvements could result in inadequate emergency access.	Potentially significant	TR-7.1: Implement construction road traffic control plan	Less than significant
Impact TR-18. Construction and operation of Phase II improvements could conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.	Less than significant (beneficial)	None required	--
Impact C-TRA-1: Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on transportation and traffic.	Potentially significant	TR-7.1: Implement construction road traffic control plan TR-7.2: Implement roadway widening/geometry improvements at the West Lathrop Road/South Airport Way Intersection in Manteca TR-7.3: Implement Traffic Roadway Improvements at the West Yosemite Avenue/South Willow Avenue and Spreckles Avenue/Industrial Park Drive/Moffat Boulevard Intersections in Manteca TR-12.1: Implement construction railway disruption control plan	Construction: Less than considerable contribution  Operation: Cumulatively considerable and unavoidable

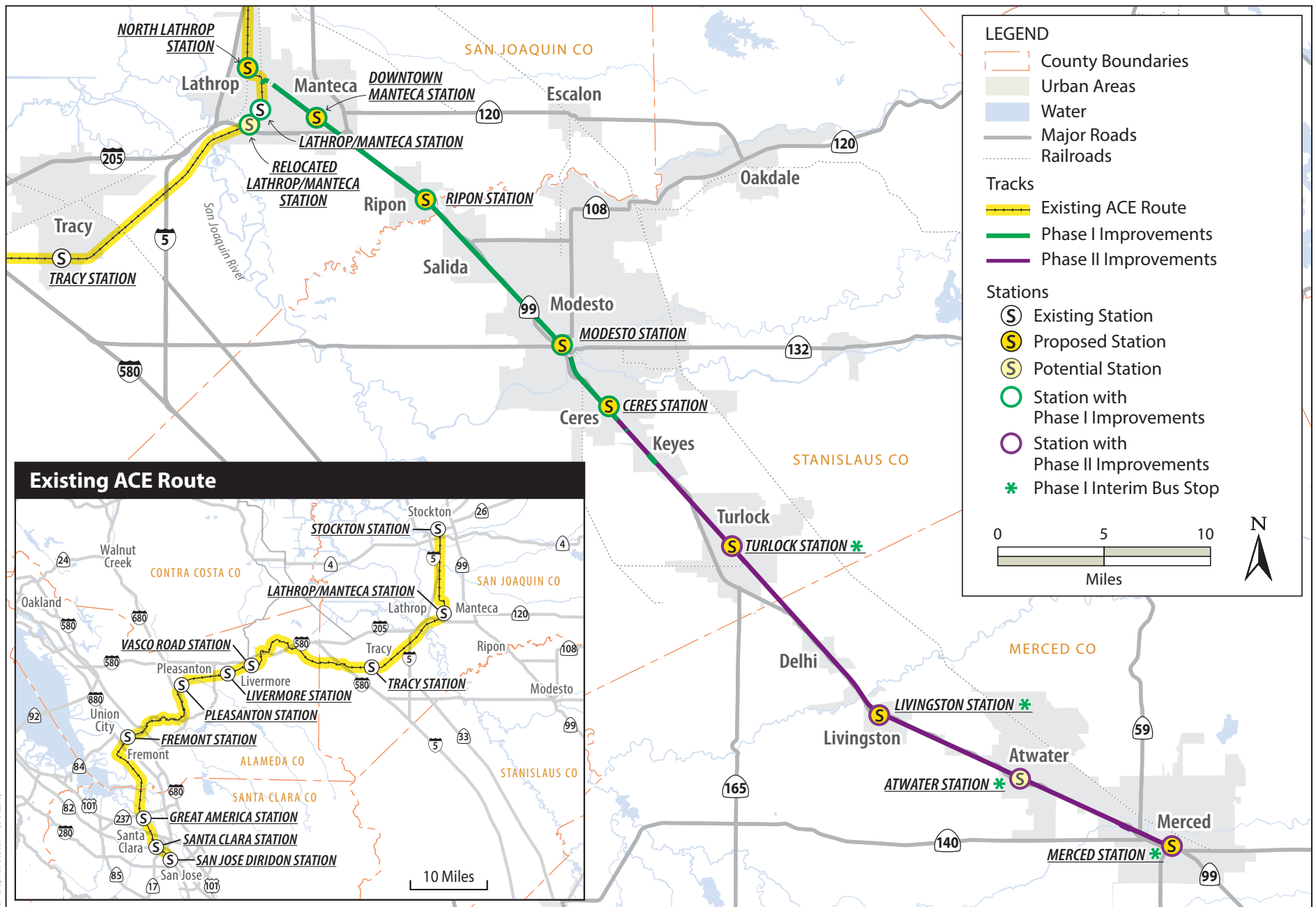
Impact	Significance before Mitigation	Mitigation	Significance after Mitigation
		REC-1.3: Coordinate with the City of Manteca Parks and Recreation Department to provide advance notice of and maintain safe access for the Tidewater Bikeway during construction activities	
<b>4.18 Utilities and Service Systems</b>			
Impact USS-7. Construction or operation of Phase II improvements could result in conflicts with utilities infrastructure.	Potentially significant	USS-1: Implement utility relocation and disruption plans	Less than significant
Impact USS-8. Construction of Phase II improvements could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; result in a determination by the water, wastewater treatment, or stormwater drainage provider that serves or may serve the project that it does not have adequate capacity, entitlements, or resources to serve the project's projected demand in addition to the provider's existing commitments; or require or result in the construction of new water, wastewater, or stormwater infrastructure, the construction of which could cause significant environmental effects.	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact USS-9. Phase II operations could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board or result in a demand for water or wastewater services such that the construction of new or expansion of existing water or wastewater infrastructure, the construction of which could cause significant environmental effects, would be necessary.	Less than significant	None required	--
Impact USS-10. Phase II operations could require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	Less than significant	None required	--
Impact USS-11. Phase II improvements could be served by a landfill during construction that does not have sufficient permitted capacity to accommodate the program's solid waste disposal needs or violate federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	--

<b>Impact</b>	<b>Significance before Mitigation</b>	<b>Mitigation</b>	<b>Significance after Mitigation</b>
Impact USS-12. Phase II improvements could be served by a landfill during operation that does not have sufficient permitted capacity to accommodate the project's solid waste disposal needs or violate federal, state, and local statutes and regulations related to solid waste.	Less than significant	None required	--
Impact C-USS-1: Implementation of the ACE Extension, in combination with other foreseeable projects in the surrounding area, could result in a significant cumulative impact on utilities and service systems.	Construction: Potentially significant  Operation: Less than considerable contribution	USS-1: Implement utility relocation and disruption plans	Construction: Less than considerable contribution

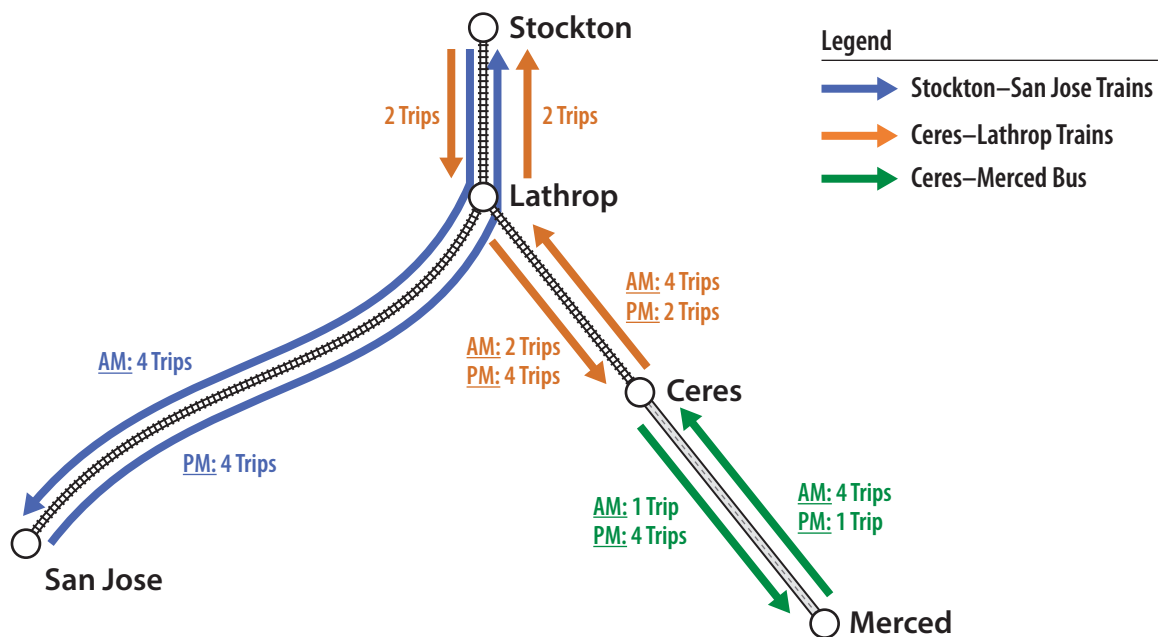
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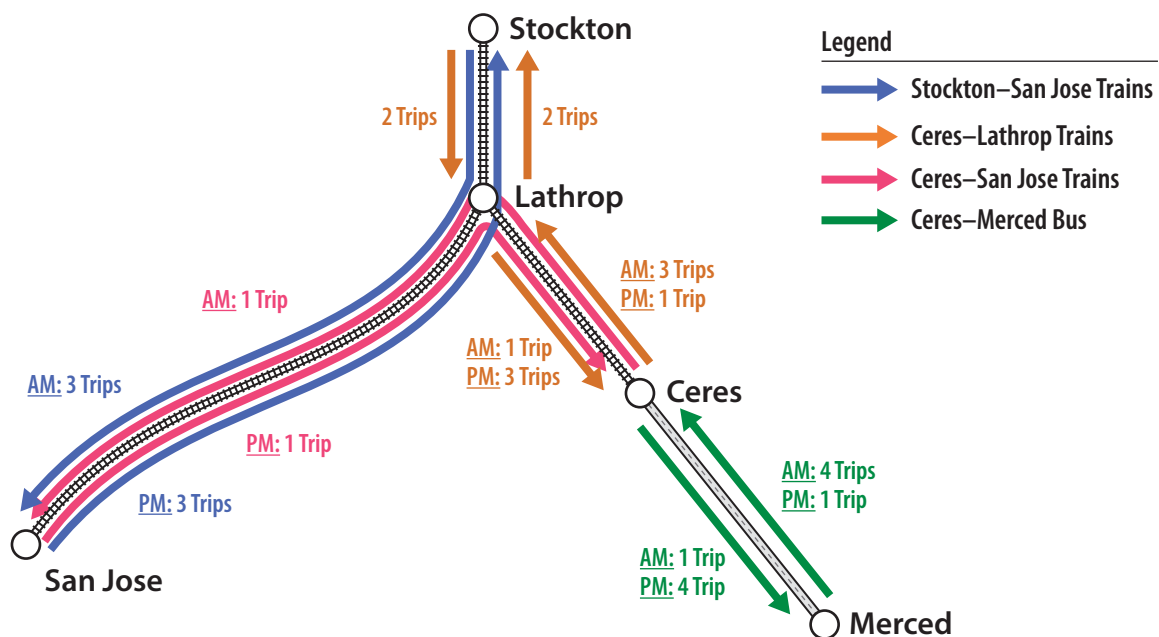


**Figure ES-1**  
**Locations of Phase I and Phase II Improvements**  
ACE Extension Lathrop to Ceres/Merced

### Operational Scenario A: Without Direct Service Between Ceres and San Jose

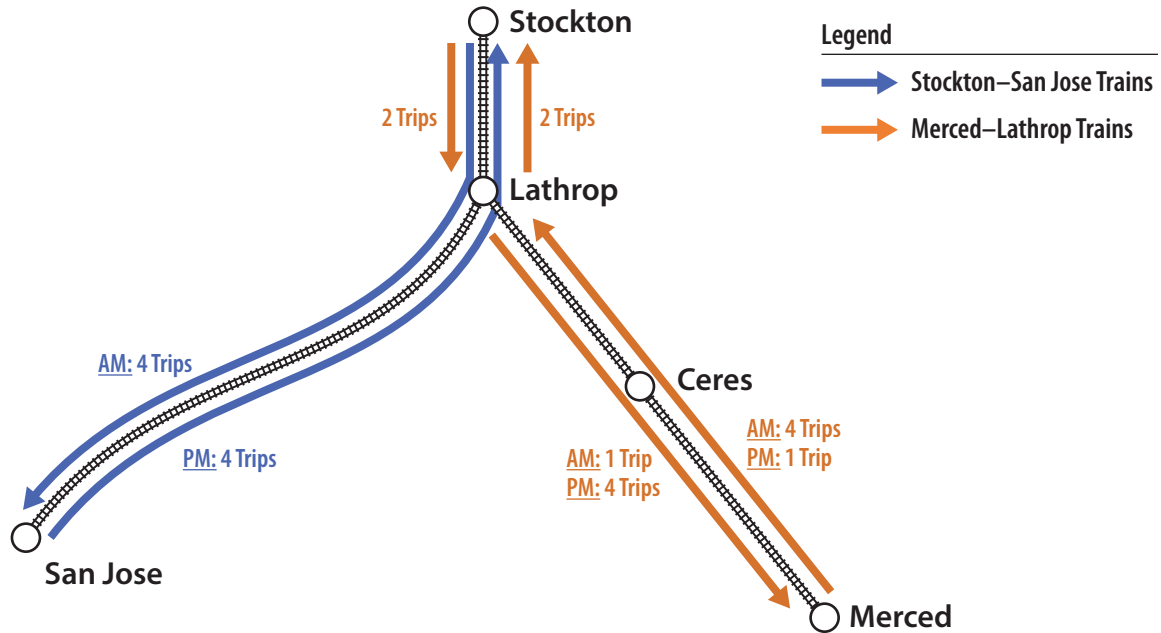


### Operational Scenario B: With Direct Service Between Ceres and San Jose

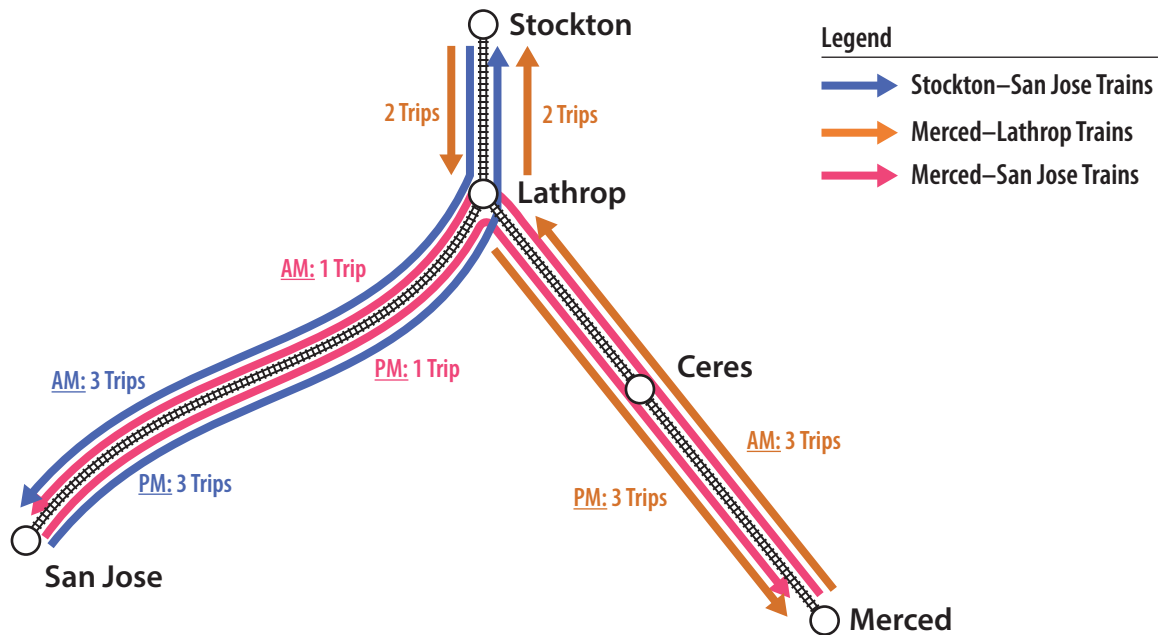


ICF Graphics 00509.17 (3-14-2018)

### Operational Scenario A: Without Direct Service Between Merced and San Jose



### Operational Scenario B: With Direct Service Between Merced and San Jose



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