Chapter 2
Project Description

The Altamont Corridor Express (ACE) Ceres–Merced Extension (Project) would support the extension of ACE service to Merced. The Proposed Project is the extension of ACE service from Ceres to Merced and includes the development of the following facilities.

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

In addition, the San Joaquin Regional Rail Commission (SJRRC) has identified the Atwater Station Alternative as an alternative to the Livingston Station. Only one station would be implemented in either Livingston or Atwater. This EIR analyzes both stations at an equal level of detail. The final decision as to whether to adopt the Proposed Project and/or an alternative will be made after completion of the final environmental impact report (EIR) for this Project. This chapter provides information regarding operations and maintenance activities, construction activities, potential right-of-way (ROW) and easement needs, costs and funding sources, and required permits and approvals.

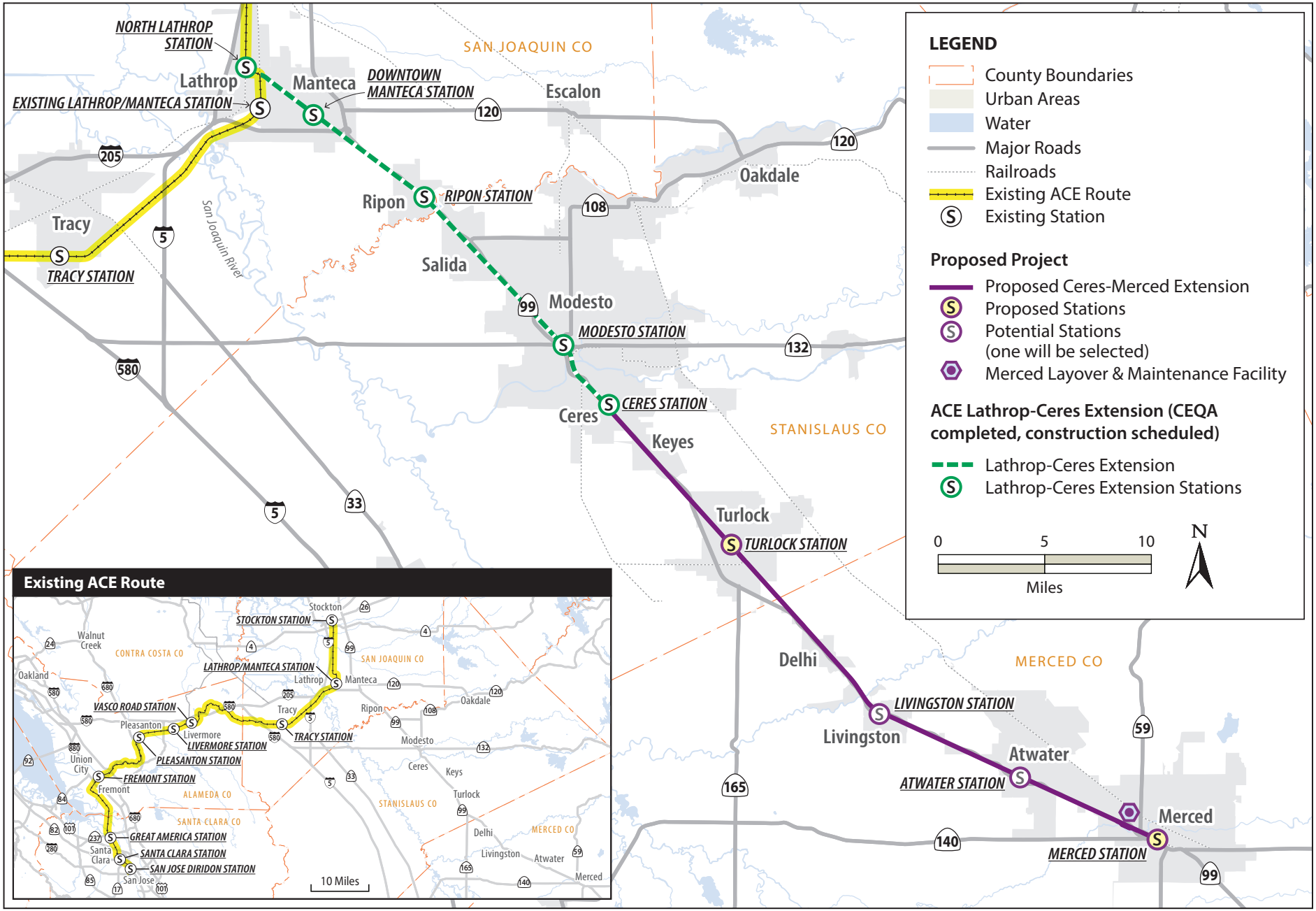
2.1 Project Location and Limits

As shown in Figure 2-1, the limits of the Project span Stanislaus and Merced Counties. SJRRC proposes to extend ACE passenger rail service from Ceres to Merced 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 Ceres to Merced Extension Alignment. Project improvements include portions of the UPRR Fresno Subdivision ROW and additional ROW for new facilities (stations and layover yards) and for any construction or access areas located outside the ROW.

2.2 Background

SJRRC 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, also referred to as Caltrain) and UPRR to operate on portions of their respective tracks. ACE shares tracks with freight trains dispatched by UPRR within the UPRR 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.

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



ACE
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Figure 2-1
Project Location
ACE Ceres-Merced Extension Project

To enhance commuter and intercity rail service and to promote greater transit connectivity between the San Joaquin Valley and the San Francisco Bay Area (Bay Area), SJRRC is proposing to expand ACE service. On August 3, 2018, the SJRRC Board of Commissioners approved the *ACE Extension Lathrop to Ceres/Merced EIR* (Prior EIR) for Phase I of the extension, which includes the extension of ACE to Ceres with stations in downtown Manteca, Ripon, Modesto, and Ceres. The Prior EIR included a programmatic analysis for Phase II of the extension, which includes the extension of ACE from Ceres to Merced with stations in Turlock, Livingston or Atwater, and Merced. This EIR updates the programmatic analysis previously analyzed for the ACE Extension Ceres to Merced (i.e., Phase II) and includes project-level details that were not previously available.

2.3 Proposed Alignment, Stations, and Layover & Maintenance Facility

ACE currently does not operate passenger rail services between Ceres and Merced and is proposing to extend passenger rail service from Ceres to Merced on the UPRR Fresno Subdivision. No facilities are proposed as part of the Project between Ceres and Lathrop, though facilities are being pursued as part of a separate previously approved project. Additionally, no facilities are proposed as part of the Project along the existing ACE corridor between Stockton and San Jose. However, where applicable, this EIR analyzes operations impacts of the Project due to increased ridership at existing ACE destination stations in the Bay Area.

Specific proposed track improvements, stations, and the layover & maintenance facility are illustrated in Figures 2-1 through 2-7. The environmental footprint is illustrated in Appendix B, *ACE Ceres-Merced Extension Environmental Footprint*.[2] In addition, Appendix C, *ACE Ceres-Merced Extension 15% Preliminary Engineering Plans*, contains track plans and section drawings, structure plans, roadway plans, utility plans, station plans, and ROW plans for these improvements.

The analysis in this EIR would allow subsequent implementation of individual facilities, and prioritization and phasing of facilities. Infrastructure improvements and passenger service can be increased in a phased approach over time. Thus, the development of physical improvements and implementation of ACE service could be phased in over time, as follows.

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

[2] The *footprint* is defined as the area covered by a facility or affected by construction activities.

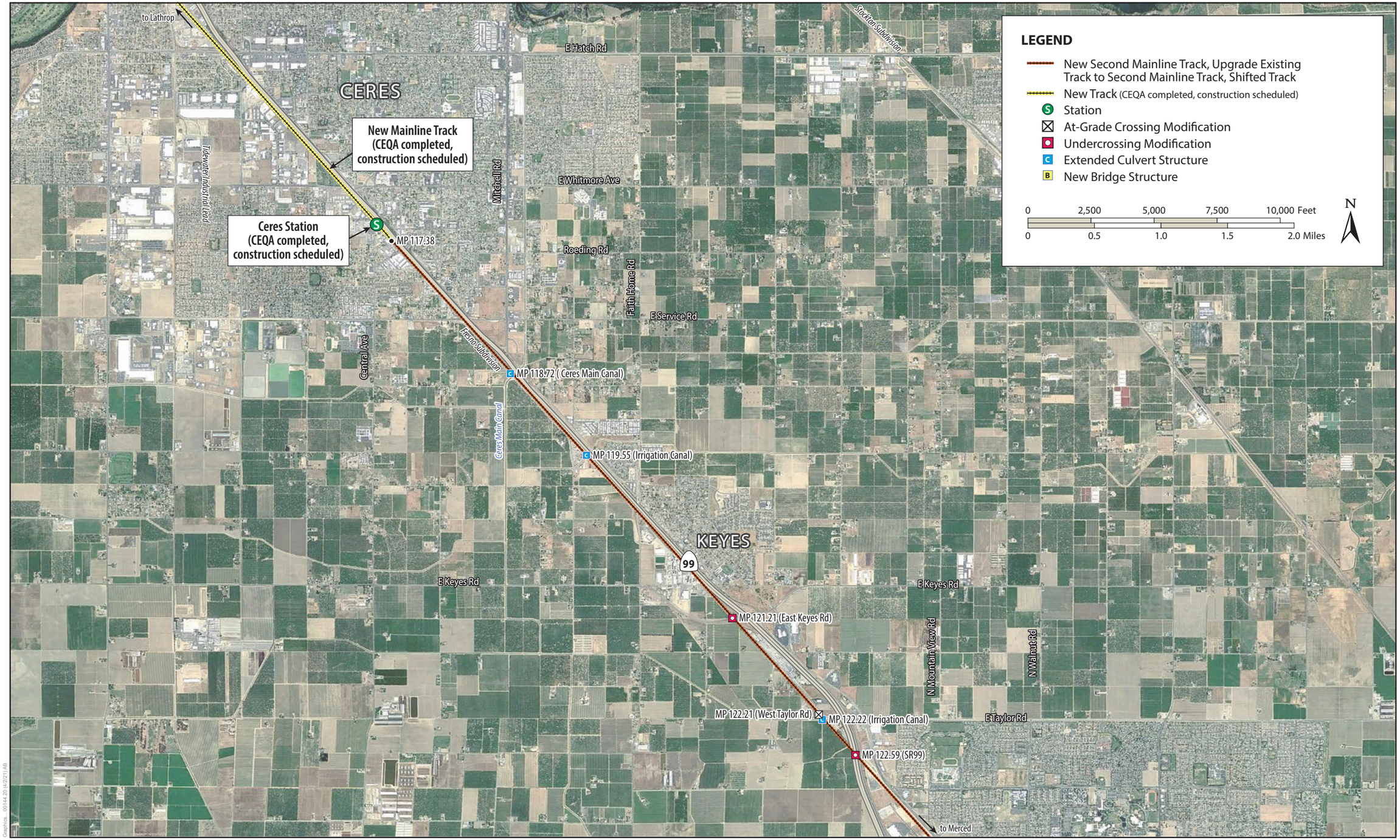

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Figure 2-2a
Ceres to Merced Extension Alignment
ACE Ceres-Merced Extension Project

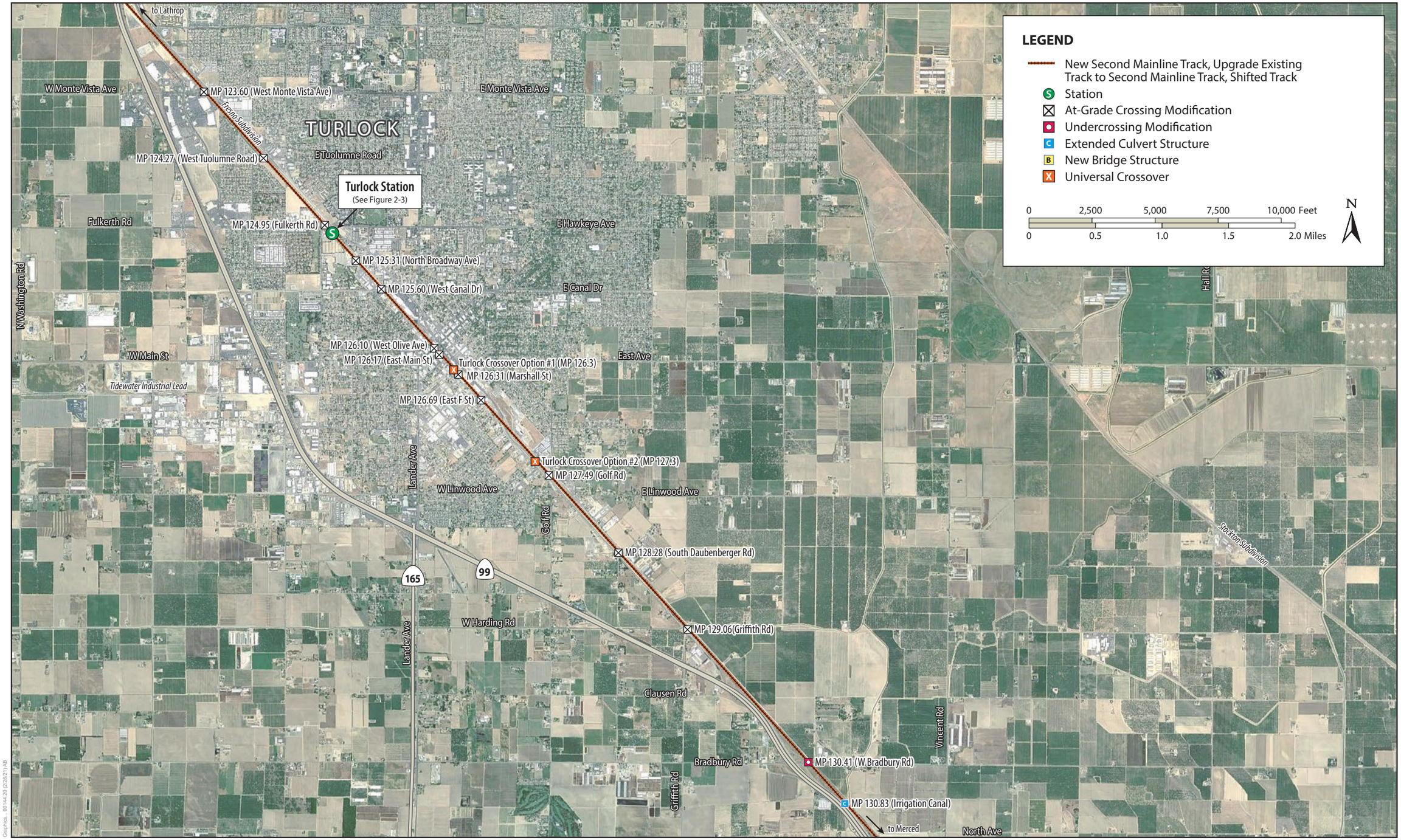

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Figure 2-2b
Ceres to Merced Extension Alignment
ACE Ceres-Merced Extension Project

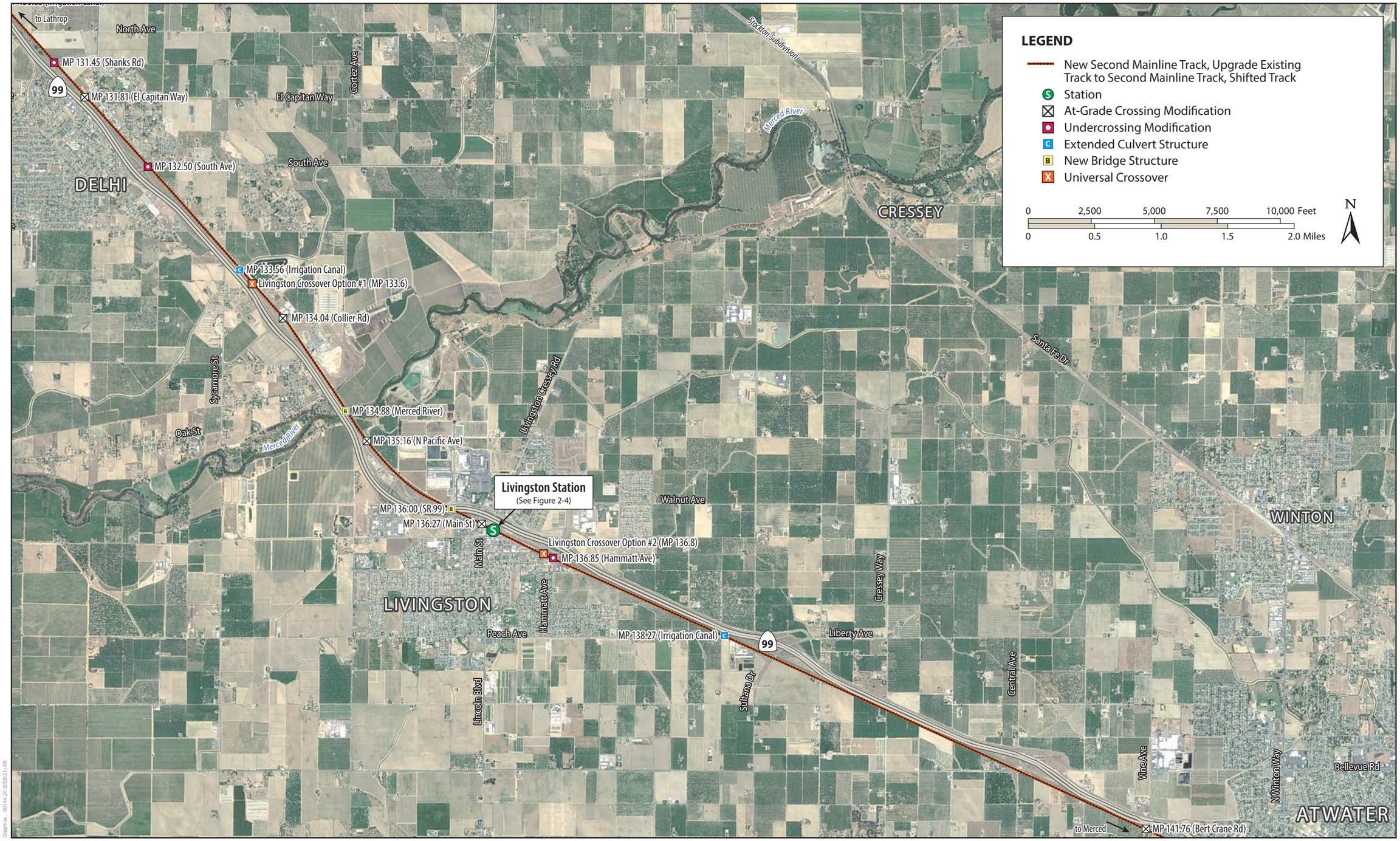

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Figure 2-2c
Ceres to Merced Extension Alignment
ACE Ceres-Merced Extension Project

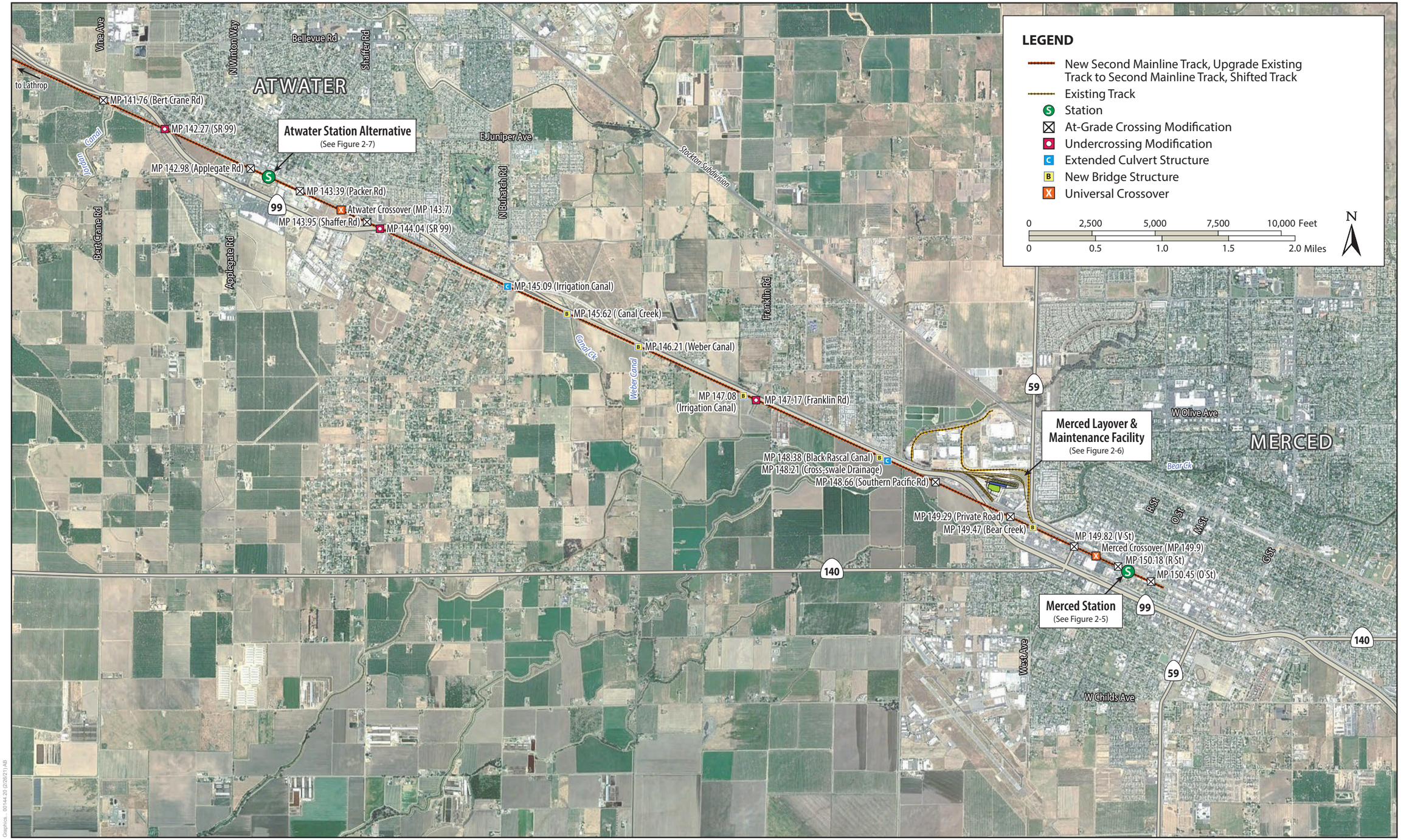

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Figure 2-2d
Ceres to Merced Extension Alignment
ACE Ceres-Merced Extension Project

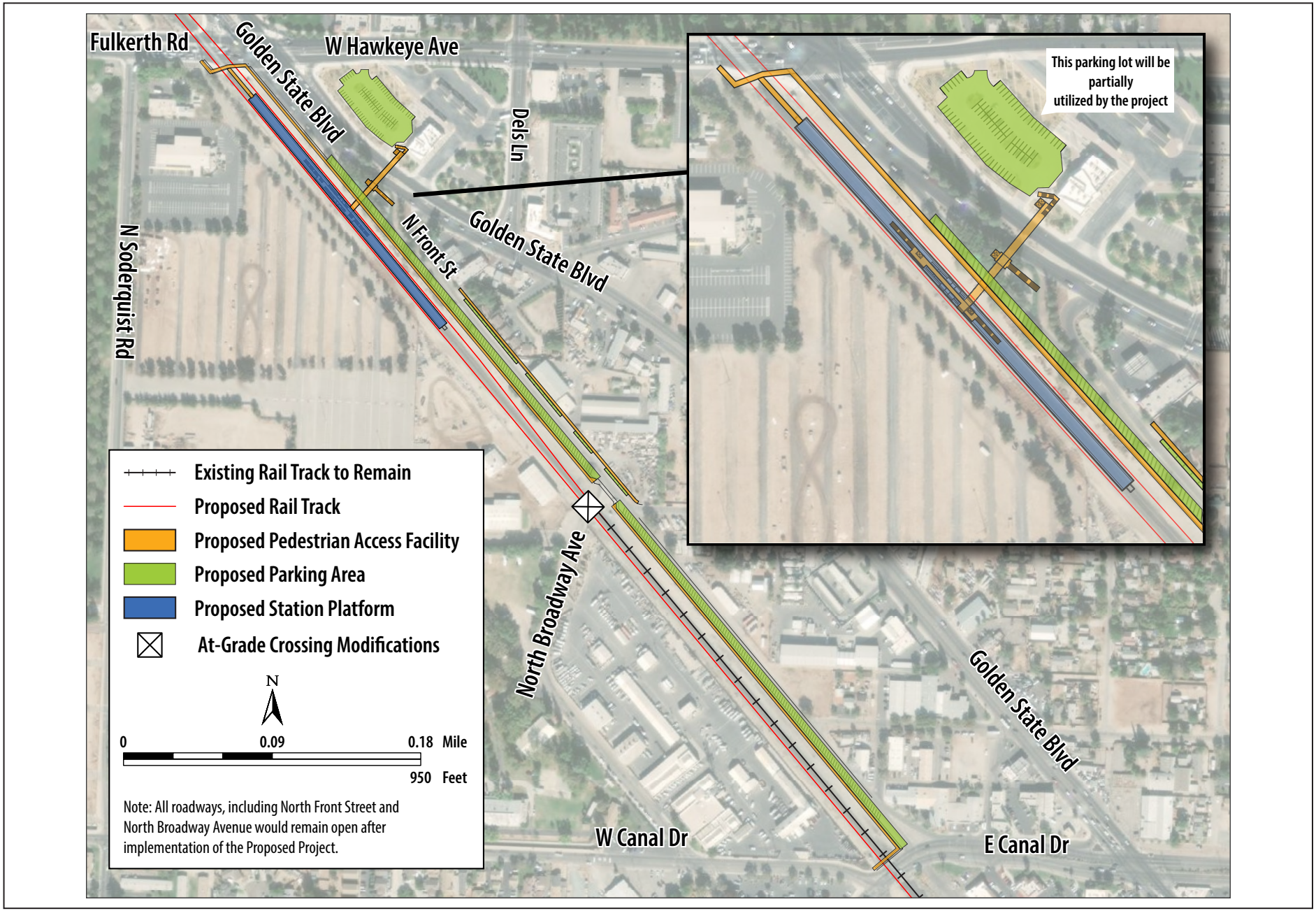

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Figure 2-3
Turlock Station
ACE Ceres-Merced Extension Project

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Figure 2-4
Livingston Station
ACE Ceres-Merced Extension Project

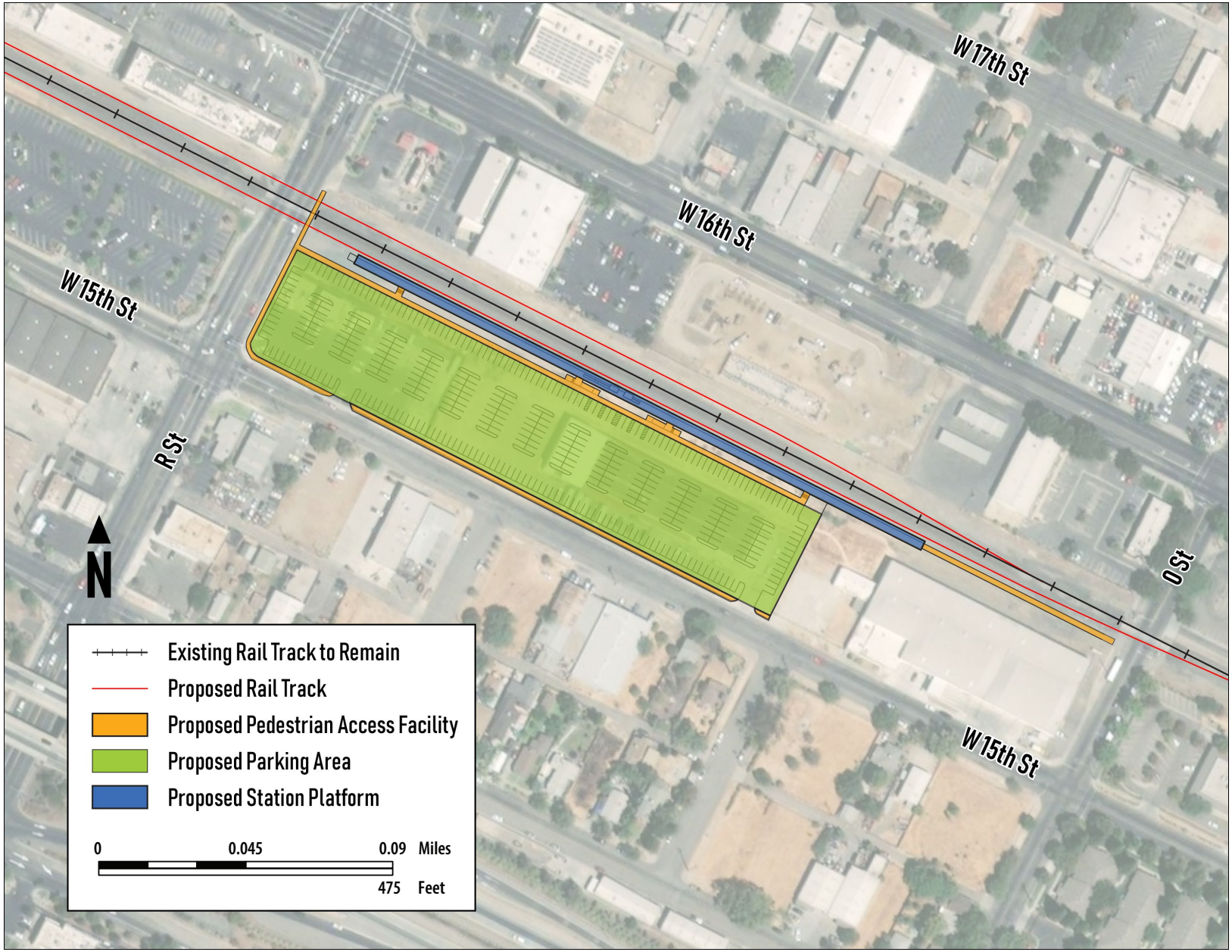

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Figure 2-5
Merced Station
ACE Ceres-Merced Extension Project

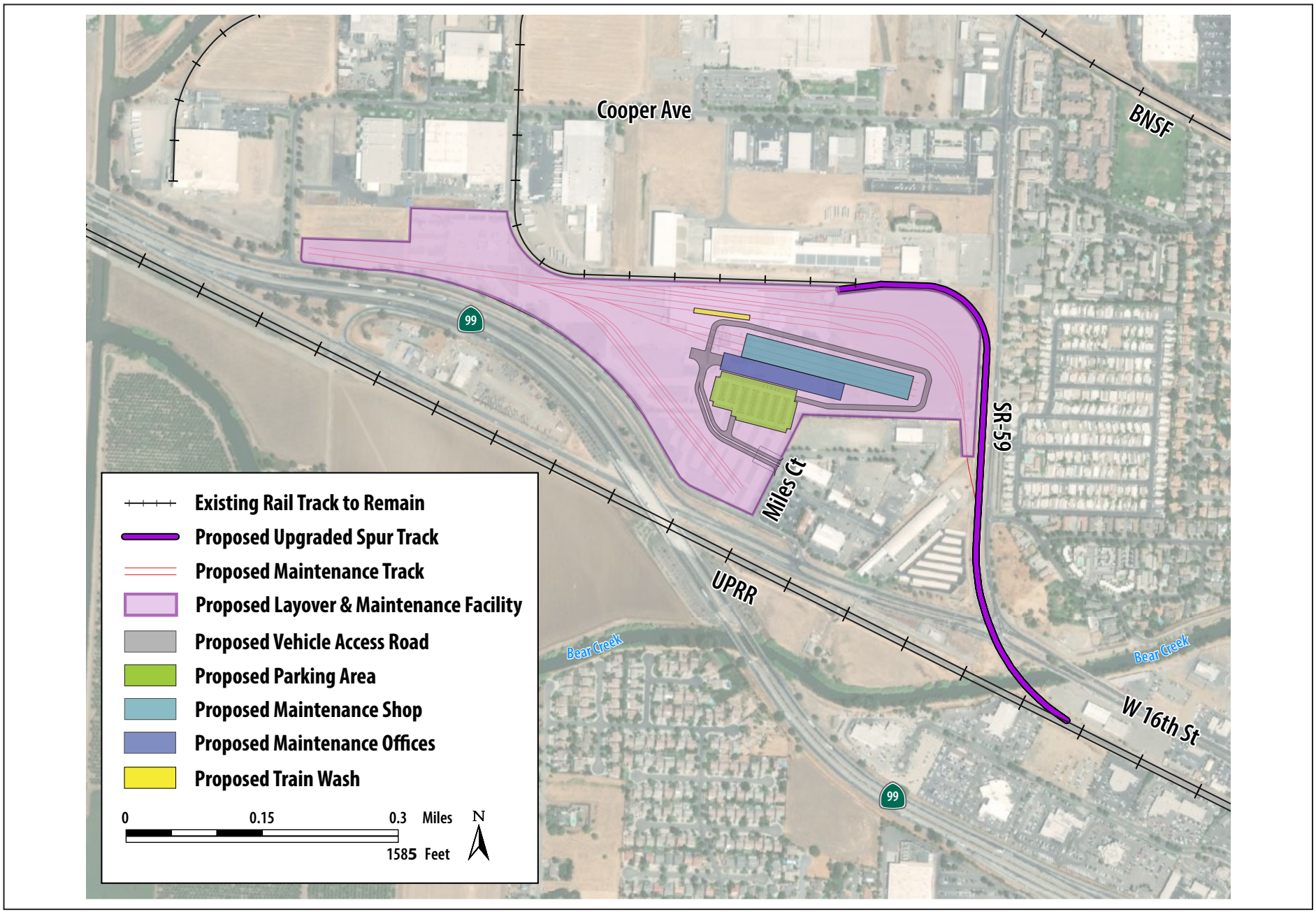

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Figure 2-6
Merced Layover & Maintenance Facility
ACE Ceres-Merced Extension Project

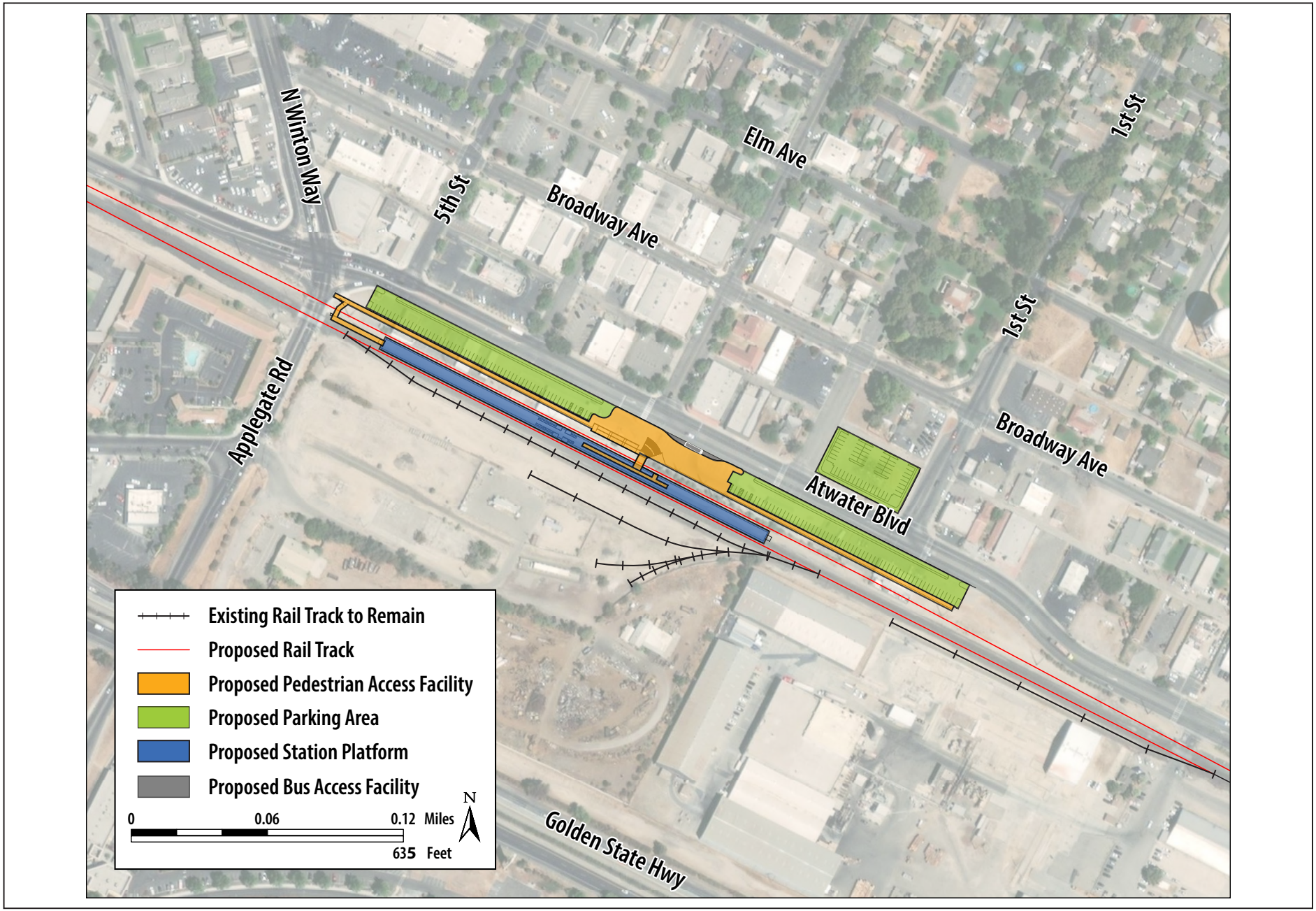

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Figure 2-7
Atwater Station Alternative
ACE Ceres-Merced Extension Project

2.3.1.1 Proposed Project

Ceres to Merced Extension Alignment

As shown in Figures 2-2a through 2-2d, the extension to Merced would construct a combination of track upgrades and new track, which would result in a second mainline on the UPRR Fresno Subdivision between Ceres and Merced. Improvements on the UPRR Fresno Subdivision that are part of the Ceres to Merced Extension Alignment are as follows.

- Construction of new track and track upgrades between MP 117.38 and MP 150.4 on the UPRR Fresno Subdivision.
    - From MP 117.38 to MP 117.6, shift tracks to transition from Ceres Station (already environmentally cleared as a part of the Prior EIR) to conform with existing track geometry.
    - Upgrade of sidings[3] to a new second mainline track from MP 117.6 to MP 118.9; MP 119.5 to MP 119.9; MP 126.4 to MP 126.6; MP 128.7 to MP 130.3; MP 138.9 to MP 140.6 (Arena siding); MP 142.8 to MP 143.7; MP 146.3 to MP 147.9 (Fergus siding); MP 149.7 to MP 150.1.
    - Removal of turnout at MP 118.9 and MP 119.5
    - Construction of a new second mainline track from MP 118.9 to MP 119.5; MP 120.1 to MP 120.8; MP 121.0 to MP 122.3; MP 122.7 to MP 126.4; MP 127.2 to MP 128.3; MP 130.3 to MP 133.7; MP 134.2 to MP 134.8; MP 135.8 to MP 136.0; MP 136.2 to MP 136.4; MP 136.6 to MP 138.9; MP 140.6 to MP 142.1; MP 142.4 to MP 142.6; MP 142.8 to MP 143.0; MP 143.7 to MP 143.8; MP 144.0 to MP 145.2; MP 145.4 to MP 146.3; MP 147.9 to MP 149.1; MP 149.3 to MP 149.7; MP 150.1 to MP 150.4.
    - Shift of tracks to transition to a new second mainline track from MP 119.9 to 120.1; MP 120.8 to MP 121.0; MP 122.3 to MP 122.7; 124.8 to MP 125.3; MP 128.3 to MP 128.7; MP 133.7 to MP 134.2; MP 134.8 to MP 135.8; MP 136.0 to MP 136.2; MP 136.4 to MP 136.6; MP 142.0 to MP 142.4; MP 142.6 to MP 142.8; MP 143.0 to MP 143.3; MP 143.8 to MP 144.0; MP 145.2 to MP 145.4; MP 149.1 to MP 149.3.
    - Construction of a turnout at MP 150.4 at the end of the Ceres to Merced Extension Alignment.
- Modification of 9 existing undercrossings, as shown in Table 2-1.
- Modification of 28 existing at-grade crossings, as shown in Table 2-2.
- Construction of new culvert crossings at eight locations, as shown in Table 2-3.
- Construction of a new single-track concrete bridge crossing over the Merced River at milepost (MP) 134.88.
- Construction of a new single-track steel bridge crossing over the State Route (SR) 99 underpass in Livingston at MP 136.00.
- Construction of a new single-track concrete bridge crossing over Canal Creek at MP 145.62
- Construction of a new single-track concrete bridge crossing over Weber Canal at MP 146.21.

[3] A *siding* is a section of track alongside the mainline track where a train can temporarily pull off the mainline track for maintenance, coupling up cars or locomotives, or to let other trains pass along the mainline track.

- Construction of a new single-track concrete bridge crossing over an irrigation canal at MP 147.08.
- Construction of a new single-track concrete bridge crossing over a cross-swale drainage at MP 148.21.
- Construction of a new single-track concrete bridge crossing over Black Rascal Canal at MP 148.38.
- Construction of a new single-track concrete bridge crossing over Bear Creek at MP 149.47.

The proposed track upgrades and new track described above for the Ceres to Merced Extension Alignment would be located east or west of the existing mainline track. Existing siding tracks would be upgraded, including 1.7 miles of the Ceres siding, 1.6 miles of the Alcant siding, 1.7 miles of the Arena siding, and 1.6 miles of the Fergus siding. Approximately 26 miles of new mainline track will be installed as part of the Project and will be located between existing sidings, which will also be upgraded, resulting in two mainline tracks running the full extent of the corridor between Ceres and Merced.

Four short portions of spur turnouts[4] in this segment would be realigned to accommodate the new mainline track and to allow for the continued use of the spur track[5] to transport materials to and from the industrial users in the area. These areas include a 0.07-mile portion of an existing spur turnout at MP 119.5; a 0.08-mile portion of an existing spur turnout at MP 120.1; a 0.04-mile portion of an existing spur turnout at MP 126.6; and a 0.02-mile portion of an existing spur turnout at MP 134.1 on the UPRR Fresno Subdivision.

A total of four universal crossovers would be implemented as a part of the Ceres to Merced Extension Alignment: one in Turlock, one in Livingston, one in Atwater, and one in Merced. At Turlock, there are two locations that are being considered for the universal crossover at MP 126.3 and MP 127.3. Only one of these locations will be selected by the SJRRC upon consultation with UPRR. At Livingston, there are two locations that are being considered for the universal crossover at MP 133.6 and MP 136.8. Only one of these locations will be selected by the SJRRC upon consultation with UPRR. The universal crossover at Atwater would be located at MP 143.7. The universal crossover at Merced would be located at MP 149.9.

Following the same alignment as the existing mainline track, the new track would cross over 28 existing at-grade crossings, under 10 existing overhead structures, and over several roadway and water features that would require the construction of new bridges or culverts or expansion of an existing bridge. Notable roadways and water features crossed by the track extension to Merced requiring the construction of new bridges or culverts are the Ceres Main Canal, Merced River, Jordan Canal, SR 99 underpass in Livingston, Canal Creek, Weber Canal, Black Rascal Canal, and Bear Creek.

Tables 2-1 and 2-2 list the modifications to existing undercrossings and at-grade crossings to accommodate the new second mainline track. Modifications to existing overhead structure undercrossings generally entail installation of pier protection along the existing piers for the overhead structures and retaining walls along the length of existing abutment slopes.[6] Modifications

[4] A *turnout track* enables trains to be guided from one track to another.

[5] A *spur track* is a short, usually dead-end section of track used to access a facility or loading/unloading ramp.

[6] Overhead structures with a pier closer than 25 feet from the centerline of a new track require *pier protection* in the form of a crash wall. Pier protection is designed to resist impact and redirect equipment in case of derailment.

to the existing at-grade crossings generally require installation of concrete crossing panels where the new mainline track crosses the roadway; relocation of railroad crossing signals, guards or gates, and signal houses; and installation of stop bars. [7, 8, 9]

Tables 2-3 and 2-4 detail the specifications of extensions to existing culverts and new bridge structures crossing waterways and roadways that would be constructed to accommodate the new second mainline track. New culvert crossings would vary in type and material but would generally extend from the existing culvert structure for the existing mainline track. The new bridge structures would be approximately 17-foot-wide single-track structures with varying length, depending on the length of the feature crossed, located adjacent to the existing bridge structure supporting the existing mainline track.

All improvements for the Ceres to Merced Extension Alignment would be located within the existing UPRR ROW, and no new ROW would be acquired for this improvement.

[7] A *signal house* stores the electrical devices used to operate the at-grade crossing signals.
[8] *Crossing panels* are installed so that the tracks lie flush with the roadway.
[9] A *stop bar* is placed near an at-grade crossing to warn drivers and pedestrians of an approaching railroad crossing.

Table 2-1. Undercrossing Modifications

Existing Overhead Structure (west to east)	Modifications
Keyes	
MP 121.21 East Keyes Road overhead structure	• Install pier protection along two of East Keyes Road overhead structure's west piers
Turlock	
MP 122.59, SR 99 overhead structure in Turlock	• Install pier protection along two of northbound SR 99 overhead structure's east piers and two of the west piers • Install pier protection along two of southbound SR 99 overhead structure's east piers and two of the west piers
MP 130.41, West Bradbury Road overhead structure	• Install pier protection along two of West Bradbury Road overhead structure's east piers
Delhi	
MP 131.45, Shanks Road overhead structure	• Install pier protection along two of Shanks Road overhead structure's east piers
MP 132.50, South Avenue overhead structure	• Install pier protection along two of South Avenue overhead structure's east piers
Livingston	
MP 136.85, Hammatt Avenue overhead structure	• Install pier protection along two of Hammatt Avenue overhead structure's west piers
Atwater	
MPs 142.27, SR 99 overhead structure in west Atwater	• Install pier protection along four of northbound SR 99 overhead structure's center piers • Install pier protection along four of southbound SR 99 overhead structure's center piers
MPs 144.04, SR 99 overhead structure in east Atwater	• Install pier protection along four of northbound SR 99 overhead structure's center piers • Install pier protection along four of southbound SR 99 overhead structure's center piers
MP 147.17, Franklin Road overhead structure	• Install pier protection along two of Franklin Road overhead structure's west piers

MP = milepost.
SR = State Route.

Table 2-2. Ceres to Merced Extension Alignment—At-Grade Crossing Modifications

Existing Roadway (west to east)	Modifications
Turlock	
MP 122.21, West Taylor Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Relocate signal house
MP 123.60, West Monte Vista Avenue	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Relocate signal house
MP 124.27, West Tuolumne Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach
MP 124.95, Fulkerth Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Install concrete crossing panels where the shifted mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound and eastbound approaches • Install stop bars at the westbound and eastbound approaches • Relocate signal house
MP 125.31, North Broadway Avenue	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach
MP 125.60, West Canal Drive	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Relocate signal house
MP 126.10, West Olive Avenue	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach

Existing Roadway (west to east)	Modifications
MP 126.17, East Main Street	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach
MP 126.31, Marshall Street	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Relocate signal house
MP 126.69, East F Street	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Relocate signal house
MP 127.49, Golf Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Replace signal house
MP 128.28, South Daubenberger Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach • Replace signal house
MP 129.06, Griffith Road	• Shift concrete crossing panels where the existing track crosses the roadway
Delhi	
MP 131.81, El Capitan Way	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound approach • Install stop bar at the westbound approach • Replace signal house
MP 134.04, Collier Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound approach • Install stop bar at the westbound approach • Relocate signal house

Existing Roadway (west to east)	Modifications
Livingston	
MP 135.16, North Pacific Avenue	• Install concrete crossing panels where the new mainline track crosses the roadway
MP 136.27, Main Street	• Install concrete crossing panels where the new mainline track crosses the roadway • Install concrete crossing panels where the shifted main track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound and eastbound approach • Install stop bar at the westbound and eastbound approach • Relocate signal house
Atwater	
MP 141.76, Bert Crane Road North	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach
MP 142.98, Applegate Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound approach • Install standard stop marking at the southbound Atwater Boulevard approach • Install stop bar at the westbound approach
MP 143.39, Packer Street	• Shift concrete panels where the existing tracks cross the roadway • Relocate railroad crossing signals and guard/gates at the westbound approach • Install stop bar at the westbound approach
MP 143.95, Shaffer Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Shift concrete panels where the existing tracks cross the roadway • Relocate railroad crossing signals and guard/gates at the eastbound and westbound approach • Install stop bars at the eastbound and westbound approaches
Merced	
MP 148.66, Southern Pacific Avenue	• Install concrete crossing panels where the new mainline track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach
MP 149.29, Private Road	• Install concrete crossing panels where the new mainline track crosses the roadway • Shift concrete panels where the existing tracks cross the roadway

Existing Roadway (west to east)	Modifications
MP 149.82, V Street	• Shift concrete crossing panels where the existing track crosses the roadway • Relocate railroad crossing signals and guard/gates at the westbound approach • Install stop bar at the westbound approach
MP 150.18, R Street	• Install concrete crossing panels where the new mainline track and siding track cross the roadway • Relocate railroad crossing signals and guard/gates at the eastbound and westbound approach • Install stop bars at the eastbound and westbound approaches
MP 150.45, O Street	• Install concrete crossing panels where the new siding track crosses the roadway • Relocate railroad crossing signals and guard/gates at the eastbound approach • Install stop bar at the eastbound approach

MP = milepost.

Table 2-3. Extended Culvert Structures

Location (west to east)	Culvert Structure
MP 118.72, Ceres Main Canal	• Install a 10-foot-long section of double-cell concrete box culvert, extending from the existing culvert located to the east for the existing tracks
MP 119.55, Irrigation canal	• Install a 15-foot-long section of double-cell concrete box culvert, connecting to existing culvert located to the east for the existing tracks • Remove existing headwalls and wingwalls
MP 122.22, Irrigation canal	• Install a 25-foot-long section of single-cell concrete box culvert, extending from the existing culvert located to the east for the existing track
MP 130.83, Irrigation canal	• Install a 20-foot-long section of metal pipe culvert, extending from the existing culvert located to the west for the existing track
MP 133.56, Irrigation canal	• Install a 20-foot-long section of triple-cell concrete box culvert, extending from the existing culvert located to the west for the existing track • Remove portion of existing canal wall
MP 138.27, Irrigation canal	• Install a 30-foot-long section of double-cell concrete box culvert, extending from the existing culvert located to the east for the existing track
MP 145.09, Irrigation canal	• Install a 25-foot-long section of concrete pipe culvert, extending from the existing culvert located to the west for the existing track • Install a 5-foot-long section of concrete pipe culvert, extending from the existing culvert located to the east for the existing track
MP 148.21, Cross-swale drainage	• Install a 20-foot-long section of triple metal pipe culvert, extending from the existing culvert located to the east for the existing track

MP = milepost.

Table 2-4. New Bridge Structures

Location (west to east)	Bridge Structure
MP 134.88, Merced River	• Install a single-track, steel deck plate girder (DPG) bridge with precast/prestressed double cell concrete box (PCB) approach spans, to the west of the existing single-track bridge • Width of bridge: 17 feet • Length of bridge: Approximately 369 feet; a seven-span structure consisting of four PCB spans on the north approach and three DPG spans crossing the Merced River • Supporting structures: two abutments at each end of bridge and six piers located to match the supports for the existing bridge to minimize any impacts to the hydraulic conveyance capacity of the channel.
MP 136.00, SR 99 underpass in Livingston	• Install a single-track steel bridge, northeast of the existing single-track bridge • Width of bridge: 22 feet • Length of bridge: 940 feet, five-span structure consisting of three 210-foot truss spans at the northern end, one 168-foot truss span, and one 126-foot truss span at the southern end • Supporting structures: two abutments at each end of bridge and four piers located between the span sections
MP 145.62, Canal Creek	• Install a single-track concrete bridge with steel bracing, west of the existing single-track bridge • Width of bridge: 17 feet • Length of bridge: 150 feet, ten-span structure consisting of 15-foot spans for the length of the bridge • Supporting structures: two abutments at each end of bridge and nine piers located between the span sections; nine supporting piers would be placed in the canal
MP 146.21, Weber Canal	• Install a single-track concrete bridge with steel bracing, west of the existing single-track bridge • Width of bridge: 17 feet • Length of bridge: 60 feet, four-span structure consisting of 15-foot spans for the length of the bridge • Supporting structures: two abutments at each end of bridge and three piers located between the span sections; three supporting piers would be placed in the canal
MP 147.08, Irrigation canal	• Widen existing double-track bridge to the west • Width of bridge widening: 5 feet • Length of bridge: 60 feet, four-span structure consisting of 15-foot spans for the length of the bridge • Supporting structures: two abutments at each end of bridge and three piers located between the span sections; three supporting piers would be placed in the canal

Location (west to east)	Bridge Structure
MP 148.38, Black Rascal Canal	• Install a single-track concrete bridge with steel bracing, west of the existing single-track bridge • Width of bridge: 17 feet • Length of bridge: 90 feet, six-span structure consisting of 15-foot spans for the length of the bridge • Supporting structures: two abutments at each end of bridge and five piers located between the span sections; five supporting piers would be placed in the canal
MP 149.47, Bear Creek	• Install a single-track concrete bridge with steel bracing, east of the existing single-track bridge • Width of bridge: 17 feet • Length of bridge: 225 feet, fourteen-span structure consisting of thirteen 15-foot spans, and one 30-foot span at the center of the bridge structure • Supporting structures: two abutments at each end of bridge and 13 piers located between the span sections; 13 supporting piers would be placed in Bear Creek

MP = milepost.
SR = State Route.

Proposed Stations

Turlock Station

The Turlock Station would be constructed between the Fulkerth Road at-grade crossing and the West Canal Drive at-grade crossing in Turlock. This proposed station would connect to the Turlock Transit Center by a pedestrian bridge. The Turlock Transit Center operates as a hub for local and commuter bus services provided by Turlock Transit, Stanislaus Regional Transit, and Merced County Transit. As shown in Figure 2-3, development of the Turlock Station would consist of the following improvements.

- Construction of a station platform and fences outside of the two mainline tracks.
- Construction of street parking providing a total of 261 parking spaces. Use of up to 50 parking spaces in the Turlock Transit Center parking lot would provide a total of 311 parking spaces.
- Construction of a new pedestrian bridge, connecting the Turlock Transit Center and the station platform. The pedestrian bridge would cross over the railroad tracks and North Golden State Boulevard and would include associated elevators and stairways.

To provide ACE service at this new station, a new station platform would be constructed to allow passengers to board and disembark the train. A 30-foot-wide and 955-foot-long center platform located between the re-aligned existing mainline track and new mainline track would be constructed between MP 124.98 and MP 125.17 on the UPRR Fresno Subdivision, south of the Fulkerth Road at-grade crossing. The new platform would accommodate up to 10 ACE rail cars and one locomotive. A pedestrian overcrossing over North Golden State Boulevard to the east would be constructed to provide pedestrian access from the Turlock Transit Center and areas east of North Golden State Boulevard, as well as from the on-street parking area along North Front Street to the station platform. To access the pedestrian overpass structure, one or two elevators would be provided at each access point, including at the Turlock Transit Center, the area in between North Golden State Boulevard and North Front Street, and from the station platform. One stairway would

be provided at the Turlock Transit Center and one at the area in between North Golden State Boulevard and North Front Street, while 1 or 2 stairways would be provided from the platform. Additional platform access would be provided via an at-grade crossing over the tracks along Fulkerth Road, which would connect to a ramp extending from the station platform. Passenger amenities and safety features, such as patron shelters with benches and map boxes, ticket validation machines, streetlamps, guardrails, security equipment, and emergency call box stations would be installed on the station platform area. Two 3,000-foot-long fences would be constructed outside of the two mainline tracks from Fulkerth Road to the south. These fences would be to prevent passengers from accessing the platform across the train tracks. To meet future parking demands generated by ACE service, an on-street parking lot would be constructed along North Front Street between Golden State Boulevard and West Canal Drive.

The street parking and pedestrian bridge for the Turlock Station would be located outside the UPRR ROW.

Livingston Station

The Livingston Station would be constructed in downtown Livingston, northeast of the Main Street grade crossing. As shown in Figure 2-4, development of the Livingston Station would consist of the following improvements.

- Construction of a station platform and fences outside of the two mainline tracks.
- Construction of a new surface parking lot providing a total of 238 parking spaces.
- Construction of a new pedestrian tunnel under the railroad tracks, including associated ramps and stairways.
- Construction of bus/shuttle drop off areas.
- Relocation of the detention basin and its associated facilities within the environmental footprint.

To provide ACE service at the Livingston Station, a new station platform would be constructed to allow passengers to board and disembark the train. A 30-foot-wide and 955-foot-long center platform located between the re-aligned existing mainline track and new mainline track would be constructed between MP 136.33 and MP 136.42 on the UPRR Fresno Subdivision, southeast of the Main Street and Court Street intersection. The new platform would accommodate up to 10 ACE rail cars and one locomotive. Construction of a pedestrian tunnel, which would include 2 ramps and 2 stairways, would provide access to the platform on the south end of the platform. Platform access would also be via an at-grade crossing over the northbound and southbound tracks along Main Street and connecting to a ramp extending from the north end of the platform to Main Street. Passenger amenities and safety features, such as patron shelters with benches and map boxes, ticket validation machines, streetlamps, guardrails, security equipment, and emergency call box stations, would be installed on the station platform area. Two 3,000-foot-long fences would be constructed outside of the two mainline tracks from Main Street to the south. These fences would be to prevent passengers from accessing the platform across the train tracks.

To meet future parking demands generated by ACE service, a new surface parking lot would be constructed north of the railroad tracks. Vehicle access to the new surface parking lot would be provided by two entrances on Main Street. Construction of the new surface parking lot would require the demolition of an existing commercial building onsite. In addition, landscaping would be

installed at the station, including at surface parking lot areas. A bus/shuttle drop-off area would also be incorporated within the parking area.

An existing detention basin is located in an area where parking is proposed for the Livingston Station. This detention basin and its associated facilities would be relocated within the footprint for the Livingston Station.

The majority of improvements at the Livingston Station would be located outside the UPRR ROW, particularly the parking improvements.

SJRRC has included the Livingston Station as part of the Proposed Project for the following reasons:

- *Spacing between stations*. The Livingston Station would be 14 miles from the Merced Station and 11 miles from the Turlock Station, which allows better freight operations than the Atwater Station Alternative. The Atwater Station Alternative is located only 7 miles from the Merced Station, which could create more freight bottlenecks.
- *Parking accessibility*. With the Livingston Station, ACE riders would be able to access the station platform from one contiguous lot and would not need to cross a roadway to access the station. The Atwater Station Alternative would require two parking lots, with one adjacent to the station and another across the street.
- *Number of Parcels.* The Livingston Station would require the acquisition of one parcel and one area that is Caltrans excess ROW. The Atwater Station Alternative would require the acquisition of ten parcels (see Tables 2-11 and 2-12).
- *Demolition and Business Impacts.* The Livingston Station would require the demolition of only one existing building and the potential relocation of any associated active business operations. The Atwater Station Alternative would require the demolition of four existing buildings and the potential relocation of any associated active business operations.
- *Cost*. The cost associated with the Livingston Station, as shown in Table 2-13, is expected to be $6.4 million less than the Atwater Station Alternative.

Merced Station

The Merced Station would be constructed adjacent to the UPRR Fresno Subdivision between R Street and O Street in downtown Merced. As shown in Figure 2-5, development of the Merced Station would consist of the following improvements.

- Construction of a station platform and fence between the new station track and existing mainline track.
- Construction of a new surface parking lot, providing a total of 380 parking spaces.

To provide ACE service at this new station, a new station platform would be constructed to allow passengers to board and disembark the train. An approximately 15-foot-wide and 955-foot-long side platform would be constructed between MP 150.15 and MP 151.33 on the UPRR Fresno Subdivision on the west side of a re-aligned existing mainline track, between the R Street and O Street at-grade crossings. The new platform would accommodate up to 10 ACE rail cars and one locomotive. Pedestrian access to the platform would be provided from a walkway along the north side of the proposed parking lot. This walkway would also connect to the existing sidewalk along R Street. Additionally, pedestrian access would be provided from the existing sidewalk along O Street and the station platform via a new walkway that would be installed between the southern side of the

platform and R Street, as depicted on Figure 2-5. A 1,100-foot-long fence would be constructed between the existing mainline track and the station track, in the vicinity of the station platform.

To meet future parking demands generated by ACE service, a new surface parking lot would be constructed between the station platform and 15th Street. Vehicle access to the new surface parking lot would be provided by two entrances on West 15th Street. Construction of the new surface parking lot would require the demolition of existing buildings onsite. In addition, landscaping would be installed at the station, including at surface parking lot areas. The parking improvements for the Merced Station would be located outside the UPRR ROW.

The California High-Speed Rail Authority (CHSRA) intends to extend high-speed rail (HSR) service to Merced in the future. In the CHSRA environmental impact report/environmental impact statement (EIR/EIS) for the Merced to Fresno HSR project section (California High-Seed Rail Authority and Federal Railroad Administration 2014), CHSRA included an HSR station in Merced located adjacent to the UPRR Fresno Subdivision between G Street and Martin Luther King Jr. Way. However, the City of Merced has identified that it would prefer that both the ACE Station and the HSR station be located in closer proximity to the Merced Transit Station, which is on 16th Street between N Street and O Street. The proposed Merced Station is at the location preferred by the City of Merced, and the City has urged CHSRA to relocate its adopted station. If CHSRA decides to move its station to the City-preferred location, then the new ACE station and HSR station would be adjacent to each other. If CHSRA chooses to keep its station at the previously approved location, then the ACE station and the HSR station would be approximately 0.5 mile apart and passengers transferring from one system to the other would either walk or potentially use a shuttle.

SJRRC is proposing to locate the ACE Merced Station in the location preferred by the City of Merced. The City of Merced prefers a more northerly location for both the ACE station and the HSR station for the following reasons (City of Merced pers. comm.):

- It would have greater transit-oriented development potential.
- It would extend the revitalization of downtown Merced to the northwest providing a catalyst for further economic development.
- It would be adjacent to the City's existing transit center.
- It would avoid relocation of the City's central Fire Department and Station.
- It would avoid disruption to historic buildings in the downtown.
- It would avoid disruption to the City's recent investments in G Street, which is the primary emergency route to Dignity Health.
- It would not require the roadway crossing relocations that are needed for the more southerly HSR station location.

Merced Layover & Maintenance Facility

To support train layovers, storage, maintenance, and operations associated with the extension to Merced, a new layover facility would be constructed north of downtown Merced. As shown in Figure 2-5, improvements that are part of the Merced Layover & Maintenance Facility are as follows.

- Construction of four new storage tracks, ranging from 0.4 to 0.5 mile, in an industrial area north of SR 59.[10]
- Construction of a train wash facility.
- Construction of a 140,000 square foot maintenance building.
- Construction of a parking lot for employees and visitors.

The Merced Layover & Maintenance Facility would be constructed in an industrial area north of SR 99 and west of SR 59. The existing lead track would be utilized to provide access to the layover and maintenance facility and would cross an existing bridge over Bear Creek and cross 16th Street at-grade. Four new storage tracks, ranging from 0.4 to 0.5 mile would turn out from the lead track to the layover and maintenance facility. The maintenance building would also be constructed and include support facilities such as administrative offices, crew facilities, light vehicle repair facilities, parts storage, fueling facilities, wayside power, and train cleaning function areas. The maintenance building would be constructed along the length of the new storage tracks and a fence would be constructed around the perimeter of the layover and maintenance facility. All of the improvements for the Merced Layover & Maintenance Facility would be located outside the UPRR ROW. As explained in Chapter 5, *Alternatives,* this location is proposed instead of the location considered in the Prior EIR because it is more consistent with land use planning (located in an industrial park instead of on farmland) and would have lower impacts on prime farmland, biological resources, and visual aesthetics.

2.3.1.2 Alternative Analyzed at an Equal Level of Detail

Atwater Station Alternative

The Atwater Station Alternative would include a station at Atwater instead of a station at Livingston as part of the Proposed Project. The station would be constructed in southwestern Atwater, between the Applegate Road at-grade crossing and the Packer Street at-grade crossing. This potential station would be located adjacent to the Atwater Transpo located south of Atwater Boulevard, between Third Street and First Street. The Atwater Transpo operates as a bus stop for local and intercity bus services provided by Merced County Transit and as a parking lot for bus users. As shown in Figure 2-7, development of the Atwater Station Alternative would consist of the following unique improvements instead of a station in Livingston.

- Construction of a station platform and fences outside of the two mainline tracks.
- Construction of a new surface parking lots providing a total of 172 parking spaces.
- Modification of Atwater Boulevard to allow vehicle access to parking lot.
- Construction of a new pedestrian tunnel under the railroad tracks, including associated ramps and stairways.
- Sidewalk improvements and crosswalk enhancements on First Street.

To provide ACE service at this new station, a new station platform would be constructed to allow passengers to board and disembark the train. A 30-foot-wide and 955-foot-long center platform located between the re-aligned existing mainline track and new mainline track would be

[10] A *lead track* is a non-mainline track connecting a railroad yard or facility to the main line or running track.

constructed between MP 143.13 and MP 143.32 on the UPRR Fresno Subdivision, between the Applegate Road and Packer Street at-grade crossing. The new platform would accommodate 10 ACE rail cars and one locomotive. Construction of a pedestrian tunnel, which would include 2 ramps and 2 stairways, would provide access to the platform on the south end of the platform. Platform access would also be via an at-grade crossing at the north end of the platform. Passenger amenities and safety features, such as patron shelters with benches and map boxes, ticket validation machines, streetlamps, guardrails, security equipment, and emergency call box stations, would be installed on the station platform area. Two 3,000-foot-long fences would be constructed outside of the two mainline tracks from Fulkerth Road to the south. These fences would be to prevent passengers from accessing the platform across the train tracks.

To meet future parking demands generated by ACE service, two new surface parking lots would be constructed. A new surface parking lot (Main Lot) would be constructed just north-east of the station platform with 120 parking spaces. Vehicle access to the Main Lot would be provided by two entrances on Atwater Boulevard. Designated turning lanes on Atwater Boulevard between Fourth Street and Fifth Street would be installed to facilitate vehicles accessing the Main Lot. Construction of the Main Lot would require the demolition of existing industrial and commercial buildings onsite. In addition, landscaping would be installed at the station, including at-surface parking lot areas. A new surface parking lot (East Lot) would be constructed on a lot located off of Atwater Boulevard, between First Street and Second Street with 52 parking spaces. Vehicle access to the East Lot would be provided by two entrances on First Street and Second Street.

The parking improvements at the Atwater Station Alternative would be located outside the UPRR ROW.

2.3.2 Existing Parking

The Project is not expected to induce parking demand at the existing ACE stations or the ACE stations that are proposed for the Ceres Extension (i.e., the Phase I stations in the Prior EIR). With the Project, people would access ACE from Turlock, Livingston or Atwater, and Merced in the morning and commute to the Tri-Valley and Silicon Valley. Those same commuters would return in the evening using ACE. Thus, these commuters would not park at any of the existing ACE stations or the stations proposed for the Ceres Extension. Appendix D, *ACE Ceres–Merced Extension Ridership, Revenue, and Benefits Report,* shows that the Project would not increase the demand for parking at the existing ACE stations or the stations proposed for the Ceres Extension. As such, there are no impacts associated with an increasing demand for parking at those stations.

2.4 Operations and Maintenance

2.4.1 Conceptual Service Plan

Due to the current circumstances associated with the Novel Coronavirus (COVID-19) pandemic, ACE service has been reduced. During the COVID-19 pandemic, ACE is operating two westbound trains in the morning from Stockton to San Jose and two eastbound trains in the afternoon from San Jose to Stockton on weekdays. No weekend service is provided. It is anticipated that ACE service would be restored to its pre-COVID-19 levels once the pandemic is over. As such, the pre-COVID-19 service levels are identified below.

Prior to the COVID-19 pandemic, ACE operated four westbound trains in the morning from Stockton to San Jose and four eastbound trains in the afternoon from San Jose to Stockton during weekdays only. There was approximately one train per hour in the westbound direction departing the Stockton Station from approximately 4 a.m. until 7 a.m. and one train per hour in the eastbound direction departing the San Jose Station from approximately 3:30 p.m. to 6:30 p.m. Prior to the COVID-19 pandemic, ACE provided Saturday service under a pilot program; however, this service was suspended on March 21, 2020 in response to the COVID-19 pandemic.

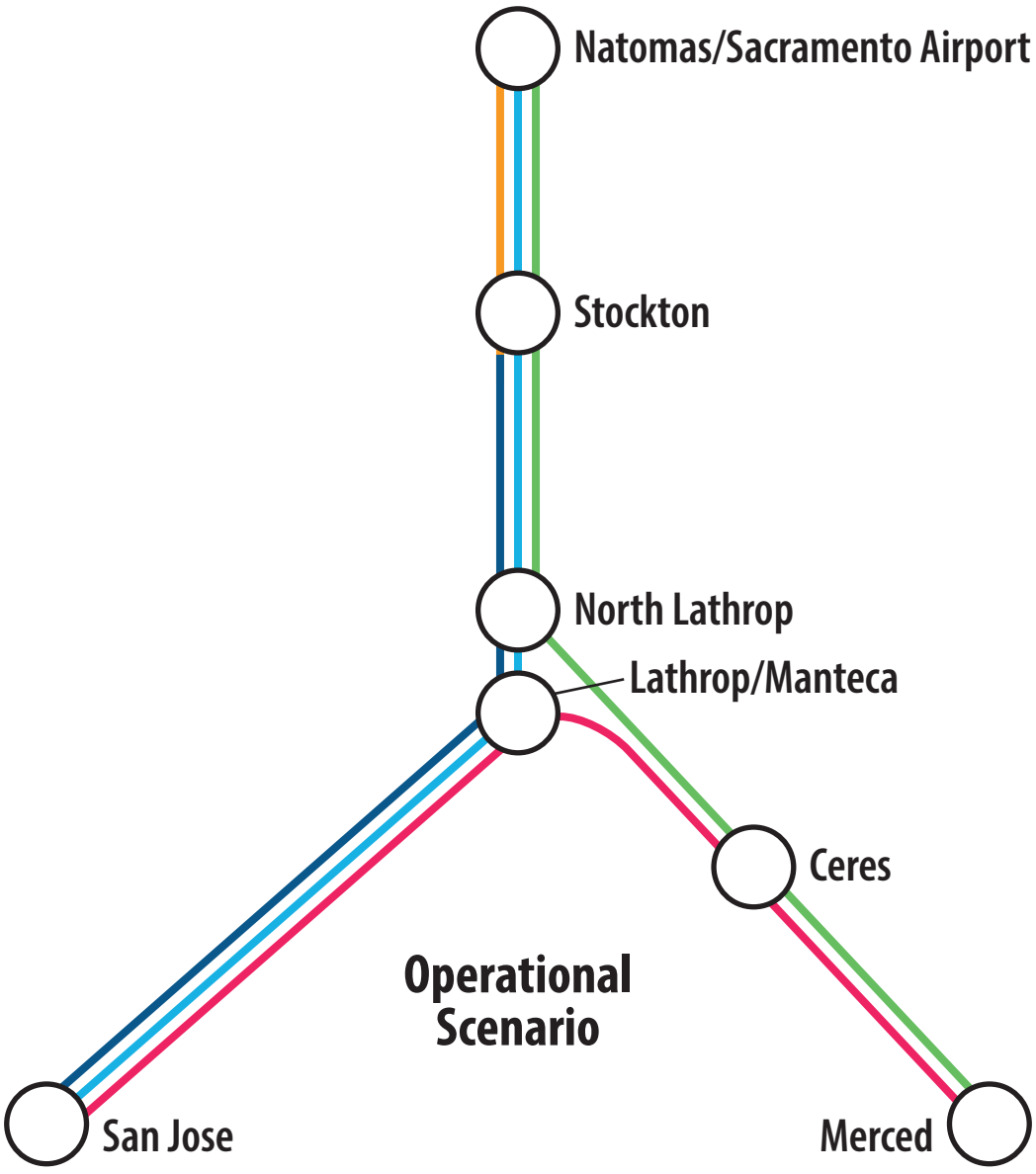
Upon implementation of full operations for the Project, ACE train service originating/terminating in Merced would consist of the following service, which would be limited to weekdays:

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

Figure 2-8 depicts the conceptual service plans for operation of the Project. The Project would not change existing service between the San Jose Diridon Station and Stockton Station; the proposed service to the Natomas/ Sacramento Airport Station, which is a part of the approved Valley Rail Sacramento Extension Project and is analyzed in its own environmental document; or the proposed service between the North Lathrop Station and Ceres Station, which was analyzed previously at a project-level detail in the Prior EIR. The change in service due to the Project would be limited to four additional trains in the morning and four additional trains (as extended trains from trains serving Ceres) in the evening between the Ceres Station and Merced Station.

As summarized in Tables 2-5 and 2-6, overall, with operation of the Project, operation of the approved Valley Rail Sacramento Extension Project, and operation of the service between Ceres and Lathrop, ACE service would include the following trains.

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



Legend

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

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ACE ALTAMONT CORRIDOR EXPRESS

Figure 2-8
Conceptual Service Plan
ACE Ceres-Merced Extension Project

Full service between Ceres and Merced (e.g., four trains in the morning and four trains in the evening) is expected to commence by 2029. An initial service between Ceres and Merced, of up to two trains in the morning and up to two trains in the evening, is expected to commence by 2025. For the purposes of analysis, this EIR identifies the potential impacts for the Project in 2030. Please note that using 2030 as the full buildout is a more conservative analysis for determining potential impacts on air quality, greenhouse gas emissions, and energy resources. Given the progressive improvement in passenger vehicle efficiency, the benefits of diverting passenger vehicle use through increase train use would be lower in 2030 than in 2025 or 2029 on a per vehicle-mile travelled (VMT) diverted basis and thus the analysis for 2030 would be conservative compared to 2025 or 2029.

2.4.2 Shuttle Services

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

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

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

Tables 2-5 and 2-6 provides the prototypical schedule of proposed ACE service with the extension to Merced. This schedule was developed to derive ridership estimates and for use in the analysis in this EIR. The actual schedules may vary.

Table 2-5. Prototypical Schedule – Inbound

Station	A01	A03	A05	A07	A09	302	204	304
Merced	3:43					4:31	5:31	6:31
Atwater/Livingston**	3:57/4:01					4:45/4:49	5:45/5:49	6:45/6:49
Turlock	4:08					4:56	5:56	6:56
Ceres	4:17					5:05	6:05	7:05
Modesto	4:25					5:13	6:13	7:13
Ripon	4:36					5:24	6:24	7:24
Manteca	4:44					5:32	6:32	7:32
North Lathrop						5:41	6:41	7:41
Stockton		5:33	6:33	7:33	8:39	5:52	6:52	7:52
Lodi				7:18	8:25	6:09	7:09	8:09
Elk Grove				6:56	7:56	6:31	7:31	8:31
Sutterville				6:42	7:42	6:45	7:45	8:45
Midtown Sacramento				6:36	7:36	6:51	7:51	8:51
North Sacramento				6:29	7:29	6:58	7:58	8:58
Natomas				6:19	7:19	7:09	8:09	9:09
North Lathrop		5:45	6:45	7:45		5:45	6:45	7:45
Lathrop-Manteca	4:52	5:52	6:52	7:52		5:52	6:52	7:52
Tracy	5:04	6:04	7:04	8:04		6:04	7:04	8:04
Vasco	5:33	6:33	7:33	8:33		6:33	7:33	8:33
Livermore	5:38	6:38	7:38	8:38		6:38	7:38	8:38
Pleasanton	5:46	6:46	7:46	8:46		6:46	7:46	8:46
Fremont	6:08	7:08	8:08	9:08		7:08	8:08	9:08
Great America	6:26	7:26	8:26	9:26		7:26	8:26	9:26
Santa Clara	6:33	7:33	8:33	9:33		7:33	8:33	9:33
San Jose	6:45	7:45	8:45	9:45		7:45	8:45	9:45

*Grey highlighted timestamps indicate transfers to another train.

**The first timestamp in a cell refers to the Atwater Station Alternative and the second timestamp refers to the Livingston Station.

Table 2-6. Prototypical Schedule – Outbound

Station	A98	A04	A06	A08	A10	215	315	217
Merced		18:17				19:35	20:35	21:35
Atwater/ Livingston**		18:03/17:59				19:21/19:17	20:21/20:17	21:21/21:17
Turlock		17:52				19:10	20:10	21:10
Ceres		17:43				18:55	19:55	20:55
Modesto		17:37				18:49	19:49	20:49
Ripon		17:25				18:37	19:37	20:37
Manteca		17:17				18:28	19:28	20:28
North Lathrop						18:20	19:20	20:20
Stockton	14:28		18:28	19:27	20:27	18:07	19:07	20:07
Lodi	14:44		18:44			17:53	18:53	19:53
Elk Grove	15:06		19:06			17:31	18:31	19:31
Sutterville	15:20		19:20			17:17	18:17	19:17
Midtown Sacramento	15:26		19:26			17:11	18:11	19:11
North Sacramento	15:33		19:33			17:04	18:04	19:04
Natomas	15:41		19:41			16:51	17:51	18:51
North Lathrop			18:16	19:16	20:16	18:16	19:16	20:16
Lathrop-Manteca		17:10	18:10	19:10	20:10	18:10	19:10	20:10
Tracy		16:51	17:51	18:51	19:51	17:51	18:51	19:51
Vasco		16:22	17:22	18:22	19:22	17:22	18:22	19:22
Livermore		16:17	17:17	18:17	19:17	17:17	18:17	19:17
Pleasanton		16:08	17:08	18:08	19:08	17:08	18:08	19:08
Fremont		15:45	16:45	17:45	18:45	16:45	17:45	18:45
Great America		15:29	16:29	17:29	18:29	16:29	17:29	18:29
Santa Clara		15:20	16:20	17:20	18:20	16:20	17:20	18:20
San Jose		15:15	16:15	17:15	18:15	16:15	17:15	18:15

*Grey highlighted timestamps indicate transfers to another train.

**The first timestamp in a cell refers to the Atwater Station Alternative and the second timestamp refers to the Livingston Station.

2.4.3 Ridership

The annual ridership (calculated in 2020) was calculated to be 1,506,203 riders (San Joaquin Regional Rail Commission 2020). Implementation of the Project is anticipated to result in increased ridership by 2030. Table 2-7 summarizes the projected annual ridership for the entire ACE system without the Project, the forested annual ridership for the entire ACE system with the Project, and the net new annual ridership due to this Project. Ridership for the Project is presented in more detail in Appendix D, *ACE Ceres–Merced Extension Ridership, Revenue, and Benefits Report*.

Table 2-7. System Ridership with Operations of the Project

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

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

Notes:

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

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

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

2.4.4 Energy Consumption

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

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

2.4.5 Maintenance Activities

2.4.5.1 Track Maintenance

SJRRC does not own the tracks on which ACE operates; instead, SJRRC has entered into trackage rights agreements with host railroads (both PCJPB and UPRR) to operate on portions of their

respective tracks. Maintenance-of-way (MOW) is the responsibility of the host railroad. In general, MOW is the ongoing maintenance of track (e.g., tie replacement, switch greasing, ballast recontouring), track structures, bridges, drainage features, signal apparatus and other signal infrastructure. Maintenance activities are both ongoing responses to daily issues and planned preventive maintenance. Maintenance of bridges would include routine removal of woody debris, sediment, and other materials that accumulate near the piers of the bridges. Host railroads would have other maintenance activities that are required, specific to the features located in the corridor.

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

2.4.5.2 Station Maintenance

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

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

2.4.5.3 Fleet Maintenance

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

2.5 Construction

Appendix B, *ACE Ceres–Merced Extension Environmental Footprint*, and Appendix C, *ACE Ceres–Merced Extension 15% Preliminary Engineering Plans* include conceptual details regarding the areas of disturbance associated with the proposed or alternative facilities, potential utility conflicts and whether the utility would be protected or relocated, and construction staging areas and access for the proposed or alternative facilities. A description of the construction activities that could be undertaken and the estimated construction durations based on conceptual engineering are provided in the following subsections.

2.5.1 Construction Methods

2.5.1.1 Trackwork

Construction of new track or upgrades to existing track would include grading for the track subgrade with graders and excavators and the placement of subballast and ballast. Concrete ties are then laid out. Continuous Welded Rail (1,000-foot-long rail strings) are welded together and clipped to ties. The ballast is tamped with on-track machinery along with the final adjustments to the alignment and profile. Construction of a new mainline track within the UPRR ROW would occur in segments; once the subgrade, ballast, and mainline track are installed for one segment, construction would continue down the alignment. The duration of construction activities for a new track generally lasts approximately a few days to a week for a given location.

Track construction could conflict with existing utility lines, and these lines would be relocated or protected. Appendix C depicts the potential utility conflicts and whether the utility would be protected or relocated.

2.5.1.2 Bridges, Underpasses, and Overpasses

Trackwork would also involve the construction of track-supporting structures, such as new bridges (track over waterway) and modifications to existing at-grade crossings and grade separation structures such as overheads (roadway over the rail) or underpasses (rail over roadway).

Bridges over Waterways

The typical bridge (track over waterway) shown in Appendix C consists of a combination of short spans supported on driven steel H-pile bents with precast concrete bent caps. Structures that require longer spans to avoid obstacles or provide adequate opening to pass design flows would likely be supported on cast-in-place reinforced concrete (RC) pier caps and columns extended from RC cast-in-drilled-hole pile shafts. The short spans consist of either precast concrete slab beams or double-cell box girders, and the longer spans would typically consist of either single-cell precast concrete box girders, steel-plate girders, steel-plate through-girders, or a steel through-truss.

Tables 2-7 and 2-8 summarize the piles that would be installed for the bridges over the Merced River and Bear Creek, including the number of piles that would be installed in water and on land, and the method that would be used to install the piles. Construction would include installation of a casing that would extend about 20 feet into the ground. The top of the casing would be above water level. The casing for the piles would be installed either using the vibration method or be advanced by the drilling equipment. There may be some local dewatering of the casing prior to drilling;

however, the construction method would be slurry displacement, which would eliminate the need for dewatering during construction. This method uses a slurry in the hole during drilling and concrete pours, which keeps the water out. As the final concrete is poured, the concrete is heavier than the slurry, and the slurry is removed at the top of the hole as concrete fills the bottom. The portion of the casing above the pile would be removed once the column is poured.

The permanent impact from installation of the bridges would be 3 square feet per H-pile and approximately 20 square feet per Cast-In-Drilled-Hole-Pile (CIDHP).[11, 12] As shown in Table 2-8, no piles would be placed in the water; therefore, construction of the bridge over the Merced River would result in no permanent impact on the river. As shown in Table 2-9, 27 H-piles would be placed within the water of Bear Creek; therefore, construction of the bridge over Bear Creek would result in a permanent impact of 81 square feet in the creek.

As summarized in Tables 2-7 and 2-8, pile driving would be required for the installation of the bridges over the Merced River and Bear Creek. Pile driving would occur on land and in water. During the pile driving, five piles would be installed per day, there would be 500 strikes per pile, and a 5-second interval between strikes.

Table 2-8. Construction Details for the Bridge over the Merced River

No.	Pile type	Number of Piles	On Land or In Water?	Installation Method	Approximate Distance from Water's Edge (feet)	Days of Construction
1	Abutment – H-pile	3	Land	Impact	135	1.0 days
2	H-pile	3	Land	Impact	105	0.5 days
3	H-pile	3	Land	Impact	75	0.5 days
4	H-pile	3	Land	Impact	45	0.5 days
5	60-inch CIDH	2	Land	Drilled	15	3–5 days
6	60-inch CIDH	2	Land	Drilled	5	3–5 days
7	60-inch CIDH	2	Land	Drilled	95	3–5 days
8	Abutment – H-pile	8	Land	Impact	185	0.5 days

Table 2-9. Construction Details for the Bridge over Bear Creek

No.	Pile type	Number of Piles	On Land or In Water?	Installation Method	Approximate Distance from Water's Edge (feet)	Days of Construction
1	Abutment – H-pile	3	Land	Impact	35	1.0 days
2	H-pile	3	Land	Impact	20	0.5 days
3	H-pile	3	Land	Impact	5	0.5 days
4	H-pile	3	Water	Impact	N/A	0.5 days

[11] The area was calculated based on the measurements of the H-pile. The area was calculated with the assumption of a 14-inch square (1.167 feet). 3 square feet = 1.167 feet * 1.167 feet.

[12] The area was calculated based on the measurements of the CIDH-pile. The area was calculated with the assumption of a circle with a 60-inch (5 foot) diameter. A 5-foot diameter corresponds to a 2.5-inch radius. The area of a circle is equal to πr^2. 20 square feet = π * 2.5 feet * 2.5 feet.

No.	Pile type	Number of Piles	On Land or In Water?	Installation Method	Approximate Distance from Water's Edge (feet)	Days of Construction
5	H-pile	3	Water	Impact	N/A	0.5 days
6	H-pile	3	Water	Impact	N/A	0.5 days
7	H-pile	3	Water	Impact	N/A	0.5 days
8	H-pile	3	Water	Impact	N/A	0.5 days
9	H-pile	3	Water	Impact	N/A	0.5 days
10	H-pile	3	Water	Impact	N/A	0.5 days
11	H-pile	3	Water	Impact	N/A	0.5 days
12	H-pile	3	Water	Impact	N/A	0.5 days
13	H-pile	3	Land	Impact	5	0.5 days
14	H-pile	3	Land	Impact	20	0.5 days
15	Abutment – H-pile	3	Land	Impact	35	1.0 days

N/A = not applicable.

The foundations for the piles outside the waterway are typically accessed by temporary dirt roads with the construction equipment working in a temporary construction easement that extends about 50 feet from the edges of the bridge deck on both sides. Wherever possible, the main waterway is crossed by a single span placed by cranes operating on both banks reaching out and passing the girders across, with the new pier foundations located just outside of the anticipated waterway.

Pier foundations within the waterway may be accessed from the ground by pushing clean fill into the waterway on top of temporary pipe culverts, or narrowing or diverting the waterway, then restoring the original condition when done. For the standard railroad trestle consisting of short spans on H-pile bents, it is possible to construct in a top-down, span-by-span process with a crane on the back span reaching out to build the next pier and place the next span. The reach and lifting capacity of the crane limits the feasibility of the span-by-span top-down method for longer spans. An alternative way of accessing pier foundations in the waterway is to build a temporary work trestle bridge from which the construction equipment can work. The temporary work trestle would include installation of two platforms located on both banks of the river. A steel cap and stringers are installed, and timber crane mats are used for the surface. The temporary work trestle would be used to support equipment that would install the piers located within the water. Thus, no equipment would be located within the water itself, and no damming or blocking of the water would result because work would occur from the temporary work trestle on the banks of the river.

A temporary work trestle would require the installation of 18- to 24-inch steel pipe piles, including some that would be located within the water. These piles would be installed using a vibratory hammer. These piles, along with the trestle, would be pulled out once construction is completed. Thus, the only temporary impact on the Merced River and Bear Creek would be from the installation of these temporary piles in the water. The estimated surface area of the temporary work trestle over the Merced River is 5,000 square feet, and the estimated surface area of the temporary work trestle over Bear Creek is 4,000 square feet. The temporary impact on the Merced River and Bear Creek is conservatively estimated to be 5,000 square feet and 4,000 square feet, respectively. The actual impacts on this river and creek would be lower because the temporary impact area would be limited to the areas where the piles would be installed within the water for the construction of the

temporary work trestle. No dewatering would be required for the installation of a temporary work trestle.

A typical construction sequence for the bridges (track over water) follows.

- Prepare temporary construction access road(s).
- Construct temporary work trestle within the waterway.
- Install proposed cast-in-drilled-hole pile shafts.
- Form and cast RC columns.
- Form and cast RC pier caps.
- Place and install precast concrete box girders or steel girders with steel deck.
- Drive steel H-piles for standard railroad trestle bents.
- Place precast concrete bent caps and field weld connections to the piles.
- Place precast concrete abutment wingwalls.
- Place precast beams with attached curbs and sidewalks.
- Install deck waterproofing, ballast, and track.
- Restore landscaping (revegetation).

Typical equipment used in the bridge construction may include the following.

- Excavator with bucket or breaker.
- Bulldozer with blade or ripper.
- Backhoe.
- Loader.
- Dump truck.
- Crane with pile driving rig.
- Crane with pile drilling rig.
- Trucks with flatbed trailers and large crane(s) to haul, pick and place rebar cages, pile casings, column forms, girders, etc.
- Concrete trucks and pump trucks for cast-in-place concrete.

Based on similar projects, construction of a railroad bridge crossing the river could last approximately 14 to 36 months, depending on the access and in-water work windows.

Modifications to At-Grade and Grade-Separated Crossings

Modifications to at-grade crossings to support new track generally require clearing and grubbing for the installation of concrete crossing panels where the new mainline track crosses the roadway; relocation of railroad crossing signals, guards or gates, and signal houses; and installation of stop bars. Based on similar projects, construction associated with modified at-grade crossings would last approximately 7 to 15 working days, with an average of 9 working days.

Modifications to existing overhead structures generally require clearing, grubbing, and rough grading for the installation of pier protection along the existing piers supporting the overhead roadway structure and retaining walls along the length of existing abutment slopes. The structure types for overhead structures normally follow the code/design guidelines promulgated by either the local agency or California Department of Transportation. Based on similar projects, construction associated with modified overhead structure undercrossings would last approximately 30 to 120 working days, with an average of 60 working days.

2.5.1.3 Station Improvements

Station improvements would include the construction of new station facilities, such as station platforms, station tracks, and passenger amenities including surface parking lots and pedestrian connection between the parking areas and station platforms.

Construction activities associated with station platforms include clearing and grubbing, rough grading, structural excavation for walls, forming and pouring concrete for the walls, access stairs and ramps, platform surface, installation of signage, shelters, lighting, security, railings, benches and trash receptacles. Based on similar projects, construction of a station platform would last approximately 3 months. Construction activities associated with station tracks would be similar to trackwork activities described in Section 2.5.1.1, *Trackwork*. Construction activities associated with surface parking areas include clearing and grubbing, rough grading, installation of drainage and utilities, final grading, installation of aggregate base, installation of curb and gutter, paving, landscaping, installation of lighting and security, installation of signage and striping.

Construction activities associated with pedestrian overpasses and underpasses include clearing and grubbing, rough grading, installation of utilities, installation of cast-in-drilled-hole piles, installation of ramp footings, placing column reinforcing steel, pouring structural concrete for columns, placing falsework for ramps and abutments, pouring structural concrete for ramps and abutments, placing reinforcing steel and pouring structural concrete for decks, placing handrails for ramps, erecting steel superstructure, installation of elevators, and installation of lighting.

2.5.2 Construction Schedule and Durations

SJRRC proposes to initiate service along the Ceres to Merced Extension by 2025. Table 2-10 identifies the duration for construction of each proposed or alternative facility. The construction durations presented are not sequential; construction could occur simultaneously at several locations. The durations noted below are for actual construction activity. These facilities would require permitting, contractor selection, and final design prior to construction and, thus, the total duration could be longer than the construction durations noted in the table.

Table 2-10. Construction Durations

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

2.6 Right-of-Way and Easement Needs

Table 2-11 lists the parcels outside the UPRR ROW that would be affected by the Proposed Project. Table 2-12 lists the parcels outside the UPRR ROW that would be affected by the Atwater Station Alternative**.** These parcels may be acquired or require easements for track ROW or rail support facilities.

Table 2-11. Right-of-Way and Easement Needs for the Proposed Project

Parcel (APN)	Ownership	Area (Acres)	Reason for Acquisition or Easement
Livingston Station			
024-083-004	A.V. Thomas Produce	0.81	Fee Take (station parking)
Merced Station			
031-173-013	Merced City School District	0.60	Fee Take (station parking)
031-173-014	Merced City School District	0.25	Fee Take (station parking)
031-173-015	Merced City School District	0.93	Fee Take (station parking)
031-173-017	Private	0.93	Fee Take (station parking)
Merced Layover & Maintenance Facility			
059-051-002	Private	3.00	Fee Take
059-051-010	Private	7.8	Fee Take
059-051-029	Private	40	Fee Take
059-051-028	City of Merced	0.23	Fee Take
059-051-036	Private	0.30	Fee Take
059-051-042	Private	0.14	Fee Take
059-450-046	Private	5.9	Fee Take
059-450-057	Private	2.3	Fee Take

Notes:
APN = Assessor Parcel Number.

Table 2-12. Right-of-Way and Easement Needs for the Atwater Station Alternative

Parcel (APN)[a]	Ownership	Area (Acres)	Reason for Acquisition or Easement
Atwater Station Alternative [b]			
002-219-010	Private	0.38	Fee Take (station parking)
002-219-011	Private	0.13	Fee Take (station parking)
003-170-001	Private	0.14	Fee Take (station parking)
003-170-002	Private	0.33	Fee Take (station parking)
003-170-003	Private	0.21	Fee Take (station parking)
003-170-004	Private	0.22	Fee Take (station parking)
003-170-030	Private	0.45	Fee Take (station parking)
003-170-031	City of Atwater	0.79	Permanent Easement (station parking)
003-170-033	Private	0.30	Fee Take (station parking)
003-170-034	City of Atwater	0.27	Permanent Easement (station parking)

Notes:

a. APN = Assessor Parcel Number.

b. If SJRRC chooses not to advance the Atwater Station Alternative, then the parcels identified as being required for acquisition for the Atwater Station Alternative would not be acquired.

2.7 Costs and Revenues

2.7.1 Capital Costs

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

As shown in Table 2-13, capital costs associated with the construction of the Project differ slightly, depending on whether the Livingston Station or Atwater Station Alternative is implemented. Capital costs associated with the Project are presented in more detail in Appendix E, *ACE Ceres–Merced Extension Opinion of Probable Cost Report.*

Table 2-13. Construction Cost Estimates for the Project (2021 dollars)

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

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

2.7.2 Operating and Maintenance Costs and Revenues

As shown in Table 2-14, existing annual operations and maintenance costs are estimated at approximately $24.5 million (this estimate is in 2021 dollars). Under the No Project Conditions, annual operations and maintenance costs are estimated at approximately $43.1 million in 2021 dollars. With operation of service between Ceres and Merced, annual operations and maintenance costs are estimated at approximately $50.2 million in 2021 dollars.

Table 2-14. Summary of Annual Projected Operations & Maintenance Cost (2021 dollars in millions)

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

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

As shown in Table 2-15, anticipated revenue associated with the No Project Conditions in 2030 and 2040 would be approximately $24.5 million and $31.6 million, respectively. Anticipated revenue associated with operation of the Project would be approximately $27.0 million in 2030 and approximately $34.8 million in 2040. Operations and maintenance costs and revenues are presented in more detail in Appendix F, *ACE Ceres–Merced Extension Operating and Maintenance Cost Technical Memorandum.*

Table 2-15. ACE System Revenue

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

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

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

2.8 Permits and Approvals

Table 2-16 lists the anticipated permits and approvals that could be required. SJRRC would coordinate with all local, regional, and state agencies to ensure that permits and approvals are received.

Table 2-16. Anticipated Permits, Funding, and Other Approvals

Agency	Funding, Approval, or Permit
Federal Agencies	
Federal Railroad Administration (FRA)	National Environmental Policy Act (NEPA) review if federal funding is proposed
Federal Transit Administration (FTA)	National Environmental Policy Act (NEPA) review if federal funding is proposed
National Marine Fisheries Service (NMFS)	Concurrence of effects on listed fish species under the federal Endangered Species Act (ESA) Section 7 consultation process; issuance of a biological opinion
U.S. Army Corps of Engineers (USACE)	Permit for effects on wetlands and other waters of the United States under Section 404 of the Clean Water Act (CWA)
U.S. Coast Guard	Potential bridge permit for new structures crossing over Merced River, Canal Creek, Weber Canal, Black Rascal Canal, and Bear Creek (if determined navigable)
U.S. Fish and Wildlife Service (USFWS)	Concurrence of effects on listed terrestrial wildlife and plant species under ESA Section 7 consultation process; issuance of a biological opinion

Agency	Funding, Approval, or Permit
State Agencies	
California State Transportation Authority (CalSTA)	Potential source of funding
California Department of Fish and Wildlife (CDFW)	Permits for the placement of structures affecting waterways under Section 1602 streambed alteration agreement; incidental take permits for effects on listed state wildlife and plant species under the California Endangered Species Act Section 2081
California Department of Toxic Substances (DTSC)	Review of worker health and safety plan
California Department of Transportation (Caltrans)	Encroachment permit for encroachment on state roadways and highways
California Public Utilities Commission (CPUC)	Approvals required for rail crossing improvements
California State Lands Commission (SLC)	Approval required for structures crossing over Merced River and Bear Creek
Central Valley Flood Protection Board (CVFPB)	Encroachment permit for CVFPB floodways and levees
Regional Water Quality Control Board (Regional Water Board)—Central Valley	Permit under the CWA Section 401 water quality certification/waste discharge requirements for placement of structures affecting waterways and under the Porter-Cologne Water Quality Control Act
San Joaquin Valley Air Pollution Control District (SJVAPCD)	Permits for authority to construct and to operate emergency generators at the Merced Layover & Maintenance Facility
State Historic Preservation Office (SHPO)	Concurrence of effects on historic resources under Section 106 of the National Historic Preservation Act consultation process; potential development of a memorandum of agreement
State Water Resources Control Board (State Water Board)	General construction activity storm water permit under Section 402 National Pollutant Discharge Elimination System (NPDES)
Regional Agencies and Transportation Agencies	
San Joaquin Regional Rail Commission (SJRRC)	Certification of California Environmental Quality Act (CEQA) environmental document; project proponent; project funding
San Joaquin Council of Governments	Funding coordination
Stanislaus Council of Governments	Funding coordination
Merced Council of Governments	Funding coordination
Central Valley Flood Protection Board	Encroachment Permit
Local Agencies (from west to east)[a]	
Stanislaus County	Encroachment permit for construction in county ROW; use and building permits for improvements outside rail ROW
City of Turlock	Encroachment permit for construction in the city ROW; use and building permits for improvements outside rail ROW
Merced County	Encroachment permit for construction in county ROW; use and building permits for improvements outside rail ROW

Agency	Funding, Approval, or Permit
City of Livingston	Encroachment permit for construction in the city ROW; use and building permits for improvements outside rail ROW
City of Atwater	Encroachment permit for construction in the city ROW; use and building permits for improvements outside rail ROW
City of Merced	Encroachment permit for construction in the city ROW; use and building permits for improvements outside rail ROW
Other Parties	
Union Pacific Railroad (UPRR)	Project approval; right of entry permit(s) for work conducted within UPRR ROW; design and installation permits/construction maintenance agreements for structures and facilities

[a] UPRR is not subject to the land use jurisdiction of local governments.