U.S. Department of Transportation
Federal Railroad Administration

RECORD OF DECISION
COAST CORRIDOR IMPROVEMENTS PROGRAM

1.0 SUMMARY

This Record of Decision (ROD) records the decision of the Federal Railroad Administration (FRA), an operating administration of the U.S. Department of Transportation (DOT), with regard to the Coast Corridor Improvements Program (the project) proposed by the San Luis Obispo Council of Governments (SLOCOG), the California Department of Transportation Division of Rail (Caltrans DOR), and the Transportation Agency of Monterey County (TAMC), at the initial programmatic phase of environmental review. The state agencies propose to implement physical and service improvements that would extend over the existing 130 miles of railroad between Salinas and San Luis Obispo, California, in order to enhance safety and develop a faster and more reliable passenger and freight rail system that provides added capacity between Los Angeles and San Francisco.

FRA is the federal lead agency for the environmental review under the National Environmental Policy Act (NEPA) and SLOCOG is the state lead agency for the California Environmental Quality Act (CEQA) (together, Lead Agencies). FRA and the state agencies used a tiered environmental process for this project. With a tiered approach, the program-level or Tier 1 NEPA document evaluates impacts of a broad scale project at the appropriate level of detail which may focus on more qualitative than quantitative impacts on specific resources. Following completion of the program-level NEPA document and the associated decision document, project-level or Tier 2 NEPA documents are developed to evaluate the site-specific environmental impacts of project components.

In making this program-level decision, FRA considered the information and analysis contained in the Draft and Final Program Environmental Impact Statement/Environmental Impact Report (hereinafter Program EIS/EIR). FRA also considered comments from the public and agencies received during the scoping process and the public comment period for the Draft Program EIS/EIR.

This ROD has been prepared in accordance with the Council on Environmental Quality's (CEQ) regulations implementing NEPA (40 CFR § 1505.2) and FRA Environmental Procedures (64 Fed. Reg. 28545, May 26, 1999). Specifically, this ROD:

- Describes FRA's role in the Coast Corridor Improvements Program and the NEPA tiering process for the project.
- States FRA's decision on the proposed Coast Corridor Improvements Program and describes the factors considered by FRA in making this decision.
- Provides background on the NEPA process, including a summary of public involvement and agency coordination.

- States and reaffirms the project's Purpose and Need.
- Identifies the alternatives considered by FRA, including the environmentally preferable alternative.
- Identifies the Selected Alternative for the project.
- Summarizes environmental benefits and adverse impacts of the Selected Alternative.
- Discusses measures to avoid and minimize environmental harm, and the future evaluation for project-level studies.
- Describes compliance with other federal regulations.
- Describes some initial next steps in the tiered environmental review process.

This ROD is also being issued with the Final EIS consistent with Section 1319(b) of the Moving Ahead for Progress in the 21st Century Act (MAP-21).

2.0 DECISION

The Coast Corridor Program EIS/EIR is the first programmatic phase of a tiered environmental review process. In making this decision on the proposed Coast Corridor Improvement Program, FRA has worked jointly with SLOCOG and the other state agencies to develop the analyses included in the Program EIS/EIR.

Based on the analysis in the Programmatic EIS/EIR and in consideration of public comments, FRA selects the Preferred Alternative for further evaluation and consideration in future project-level environmental reviews to be prepared subsequent to the Program EIS/EIR.

As described further in **Section 5.2.3**, the Preferred Alternative modifies the Build Alternative to reduce the potential environmental impacts of the Project and in response to public comments received on the Draft Program EIS/EIR. The purpose of and need for the Coast Corridor Improvements Program is to enhance safety and develop a faster and more reliable passenger and freight rail system that provides added capacity in response to increased travel demand between San Francisco and Los Angeles and the intermediate cities along the US 101 corridor.

The evaluation in the Program EIS/EIR also indicates that taking no action under the No Build Alternative would not increase the travel capacity, safety and reliability as population continues to grow, and would fail to meet the purpose and objectives of the program which can be met by the Preferred Alternative. The Preferred Alternative would result in safety and transportation capacity improvements that would not be accomplished under the No Build Alternative. In addition to better meeting the purpose and need, the Preferred Alternative would also provide environmental benefits in the form of improved travel conditions, including mobility, safety, reliability, travel times, and connectivity and accessibility; and reduced air pollutant emissions along the existing rail corridor.

The Lead Agencies prepared the Program EIS/EIR to allow the federal and state lead agencies to consider a future program of improvements to the Coast Corridor between Salinas and San Luis Obispo and to provide information to decide between the No Build and the Build Alternatives. Subsequent tiers of project-level environmental review will evaluate the potential environmental impacts of site-specific components of the Preferred Alternative before they are

advanced for construction. Project-level reviews will also identify specific mitigation measures to address those impacts. These reviews will assess the site characteristics, size, nature, and timing of specific components of the Preferred Alternative to determine if the impacts are significant and if those impacts can be avoided or mitigated.

The Program EIS/EIR identifies design practices and mitigation strategies, which are an array of actions that can be applied at the project level to avoid, minimize, or mitigate the types of environmental impacts anticipated as a result of implementation of the Coast Corridor Improvements Program. To minimize potential future environmental harm from implementation of Coast Corridor improvements, FRA adopts the design practices and mitigation strategies identified in this ROD.

3.0 PROJECT INTRODUCTION

The project corridor is comprised primarily of a portion of the existing Coast Corridor railroad right-of-way (ROW) between the existing Amtrak stations in Salinas and San Luis Obispo. The project corridor is about 130 miles in length and is located within Monterey and San Luis Obispo counties. Portions of the corridor traverse several incorporated cities, including Salinas, Soledad, Greenfield, King City, Paso Robles, Atascadero, and San Luis Obispo.

The Coast Corridor serves as a transportation link between Los Angeles and the San Francisco Bay Area. **Figure 1** shows the entire length of the 470-mile-long Coast Corridor rail line.

The Coast Corridor is divided into three segments:

- *Northern Segment* - 77 miles from San Francisco to Gilroy, also known as the Caltrain Corridor
- *Middle Segment* - 171 miles from Gilroy to San Luis Obispo - inclusive of the entirety of the project area considered in this document (Salinas - San Luis Obispo)
- *Southern Segment* - 222 miles from San Luis Obispo to Los Angeles. Corresponds to the northern half of the Pacific Surfliner Corridor, also known as the LOSSAN Corridor[1]

The Coast Corridor is also served by air and highway systems. In terms of seat capacity, the second most heavily traveled air route in the US connects Los Angeles International Airport and San Francisco International Airport. Additional heavily traveled air routes spanning the corridor serve the Oakland, San José, Burbank and Long Beach airports.[2]

While travel between the ends of the Coast Corridor today is facilitated predominantly by air and automobile, rail plays an increasingly important role in corridor mobility. Current passenger rail services in the corridor include:

- *Pacific Surfliner* intercity service between San Luis Obispo and San Diego, operated by Amtrak and funded by Caltrans

[1] The LOSSAN Corridor is a 351 mile long intercity and commuter rail corridor between San Luis Obispo and San Diego. As of fall 2015, a programmatic EIS/EIR is underway for potential improvements to the LOSSAN North corridor - the segment of the LOSSAN Corridor between Los Angeles and San Luis Obispo Counties.

[2] Additional smaller airports exist along the Corridor; those listed are the 4 next largest regional airports.

- *Coast Starlight* long distance service between Seattle and Los Angeles, operated and funded by Amtrak
- *Capitol Corridor* intercity service between Placer and Santa Clara Counties, for which a planned service extension to Salinas (by 2019) has completed environmental review and as of Spring 2015 is in design/engineering work[3]
- *Metrolink Ventura County Line* commuter rail service, sharing the same route as Pacific Surfliner trains between Los Angeles Union Station and Oxnard, with additional service to East Ventura Station in Ventura
- *Caltrain* commuter rail service between San Francisco and Gilroy

By 2029, the California High-Speed Rail (CA HSR) system is expected to run from San Francisco to the Los Angeles basin in under three hours, at speeds capable of over 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations. An Initial Operation Section (IOS) between Merced and the San Fernando Valley (Burbank) is projected to open as soon as 2022. While the bulk of the CA HSR alignment will traverse the San Joaquin Valley, the Coast Corridor will provide several connection points to the proposed high speed rail system. None of these potential Coast Corridor/CA HSR connection points are in the Salinas to San Luis Obispo corridor that is the subject of this Program EIS/EIR. To the north, the closest major connection points would be Diridon Station in San José and the Gilroy Caltrain Station. To the south, the closest connection points would be Burbank Airport and Los Angeles Union Station.

The Union Pacific Railroad (UPRR) operates freight rail services along the Coast Corridor. Currently, the Coast Corridor carries low levels of freight traffic and is primarily considered a "secondary" or "relief" line to the much busier Central Valley line to the east. The Coast Corridor does not see any containerized traffic, but does carry bulk commodities such as fertilizer, lumber, aggregate, fuel, and coal.

Several planning and feasibility studies have identified and proposed program of improvements for the Coast Corridor. Amtrak completed the *California Passenger Rail System: 20-Year Improvement Plan Technical Report (Amtrak 20-Year Plan)* in March 2001. Caltrans DOR coordinated with Amtrak, FRA, and other transportation agencies to complete the *Coast Corridor Service Development Plan* (SDP) in May 2013. UPRR has recommended a series of improvements it asserts are necessary to allow for increased passenger use of the Coast Corridor. The Preferred Alternative, further described below, was intentionally drawn broadly to encompass all the physical improvements contemplated by these plans and studies.

[3] The Transportation Agency for Monterey County (TAMC) certified an EIR for the Salinas Rail Extension project in 2006 and subsequently adopted a CEQA Addendum for the proposed extension of commuter rail service from San Jose to Salinas. These environmental documents identify proposed physical improvements associated with the planned rail extension. Such improvements would occur between San Jose and Salinas. At present, no NEPA documentation has been completed for this project, but would be required if federal funding were proposed to implement any of the proposed improvements.

4.0 NEPA PROCESS

Pursuant to NEPA, the Lead Agencies conducted a comprehensive public and agency involvement effort as part of the Program EIS/EIR process. FRA initiated scoping by publishing a Notice of Intent (NOI) to prepare a Program EIS/EIR in the Federal Register on August 17, 2012. Public scoping meetings were held on August 28 and 29, 2012. During the scoping process, stakeholder briefings were also held in August, October, and November 2012.

During the preparation of the Draft Program EIS/EIR, the Lead Agencies conducted agency and tribal outreach in July and August 2013. The Lead Agencies published the Draft Program EIS/EIR on November 14, 2014. The Draft Program EIS/EIR presented the purpose and need for the project, the range of alternatives and the alternatives considered and eliminated, the existing environmental setting, potential adverse and beneficial effects from project implementation, and potential strategies to avoid, minimize or mitigation potential adverse environmental effects, and area of future study. Draft Program EIS/EIR public hearings were held on December 3, 2014 in Salinas and Soledad; December 9, 2014 in King City; and on January 7, 2015 in Atascadero.

4.1 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed rail improvements to the Coast Corridor is to enhance safety and develop a faster and more reliable passenger and freight rail system that provides added passenger rail capacity in response to increased travel demand between Los Angeles and San Francisco and the intermediate cities along the US 101 corridor. The existing capacity of the Corridor's transportation system is insufficient to meet existing and future demand, and the current and projected future system congestion will continue to result in reduced reliability, slower travel speeds, increased travel times, and deteriorated air quality. In addition to providing new direct passenger rail service, another purpose of the proposed rail improvements is to foster improved rail connectivity to the proposed CA HSR system.

The greater Coast Corridor region from San Francisco to Los Angeles faces significant mobility challenges today. These challenges apply to the portion of the Coast Corridor between Salinas and San Luis Obispo and are likely to continue in the future as continued growth in population, employment, and tourism activity is expected to generate increased travel demand. By 2040, statewide population is expected to grow substantially, further straining the existing transportation network. An effective rail system is necessary to meet the future mobility needs of residents, businesses, and visitors.

The additional capacity for increased intercity passenger rail service would also allow flexibility for passengers who may prefer other means of transportation over automobiles. Such an increase in service would provide additional transportation system capacity that could relieve some of the projected near- and long-term demand on the highway system, potentially slowing the need to further expand highways and airports in this portion of the corridor, or reduce the scale of those expansions, including their associated cost and impacts on communities and the environment. Reducing vehicle miles traveled (VMT) would have substantial benefits in reducing air pollutant emission and improving air quality in the region. Increasing rail travel capacity could reduce VMT and air pollutant emissions by shifting automobile travel to a more environmentally efficient mode.

An investment in rail improvements to the Coast Corridor would complement and support other transportation systems that currently or are planned to interface with the rail service and the future CA HSR system. Like the Coast Corridor, the Pacific Surfliner Corridor and Capitol Corridor experience similar challenges regarding travel demand growth, congestion, and capacity constraints. Because many trips span the service of all these corridors, improvements and upgrades on one corridor would indirectly impact other corridors. The Coast Corridor would offer multiple connections to the future CA HSR system (north and south of the Salinas - San Luis Obispo segment studied here), offering a feeder service to passengers originating in counties without proposed high-speed rail stations (such as Santa Cruz, Monterey, San Luis Obispo, Santa Barbara and Ventura). New communities would gain access to rail services with the construction of new stations that are not currently served. In all, many communities between San Francisco and Los Angeles would see improved transportation access.

Investment in corridor rail service has not kept pace with population and travel demand growth. Particularly within the Salinas to San Luis Obispo portion of the corridor, many tracks, signals, and bridges have not been upgraded or improved in decades – and in some cases are over 100 years old. Aging infrastructure in need of maintenance or replacement can result in a decrease in operating safety and can impede trains from operating at top speeds. Aging infrastructure if not properly maintained can, therefore, translate to longer travel times and decrease the attractiveness of rail as a transportation option.

5.0 ALTERNATIVES CONSIDERED

5.1 ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER ANALYSIS

The list of proposed physical components comprising the action alternatives originated from several previous planning efforts discussed above. These earlier efforts, including the Amtrak 20-Year Plan and the SDP, took into account factors of overall feasibility and constructability, but were intended to yield a comprehensive list of near, medium, and long-term improvements to rail service along the Coast Corridor. These earlier studies dismissed alternative modes of transportation along the Coast Corridor, such as express buses or increased air travel. Such alternative modes would be inconsistent with the purpose and need for the proposed action (improving intercity rail through the Salinas to San Luis Obispo area, ultimately providing improved passenger rail service between San Francisco and Los Angeles) and were therefore not considered in the Program EIS/EIR. These earlier planning efforts also suggested maintaining conventional rail systems and discounted major changes in locomotive technology, such as electrification or conversion of the Coast Corridor to a high-speed rail corridor. Earlier efforts also screened out the potential inclusion of additional passenger rail stations beyond those proposed for Soledad and King City. Soledad and King City are the two largest cities in population along the corridor not currently served by passenger rail. The SDP summarized that adequate population levels, complementary surrounding land uses, and links to other transportation modes are all necessary features for any proposed station to function properly. Communities along the corridor not meeting these criteria would not be considered for new passenger stations.

5.2 ALTERNATIVES CONSIDERED IN PROGRAM EIS/EIR

5.2.1 No Build Alternative

The No Build Alternative represents the continuation of existing passenger and freight rail operations upon the existing physical components of the railroad system. Existing passenger operations consist of one daily roundtrip of the Coast Starlight passenger train through the Salinas to San Luis Obispo area. Existing freight operations consist of 2 daily long-haul trains (80 cars or more) traveling all or the vast majority of the distance between Salinas and San Luis Obispo to points beyond. Local trains are assumed to travel 50 miles or less of the distance between Salinas and San Luis Obispo with origins or destinations within the corridor. The SDP estimates that an average of 2 long-haul freight trains traverse the corridor daily (year 2012) and estimates this number to increase to 4 daily trains by 2020. The SDP does not estimate the number of local trains.

The No Build Alternative also includes rail improvement projects anticipated to take place between Salinas and San Luis Obispo with or without the project. Only two rail improvements projects are slated for the Salinas to San Luis Obispo corridor.

1. TAMC is proposing a series of rail capital improvements, including station, platform, rail yard, and parking improvements between San José and Salinas so that commuter rail service can be extended to Salinas. TAMC has also designated funding for the operating costs of this commuter rail extension.
2. The No Build Alternative also assumes the future installation of a PTC System along the Coast Corridor in compliance with requirements of the Rail Safety Improvement Act of 2008.

5.2.2 Build Alternative

The Build Alternative is comprised of a program of potential physical components, signal upgrades, equipment purchases, and operational changes intended to meet the identified purpose and need.

The existing Coast Corridor is characterized by single-track operations, short sidings (or no sidings), manually-thrown switches, and an inefficient (automatic block system or ABS) signaling system, each of which individually and all of which collectively result in lower travel speeds and substandard operating conditions.

Various components of the Build Alternative are intended to remedy these conditions and otherwise better enable both existing and proposed future passenger and freight rail services to utilize the corridor.

Table 1 identifies the several corridor-wide proposed components. **Table 2** lists specific improvements by location. Both corridor-wide and specific area components are further described below.

Table 1 Summary of Build Alternative Proposed Components – Corridor-Wide

Location	Component Type
Corridor-Wide	Extend Centralized Traffic Control (CTC) from Salinas to Soledad; install island CTC from San Lucas to Bradley
Corridor-Wide	Grade crossing safety and mobility enhancements
Corridor-Wide	Tie replacement, installation of continuous welded rail (CWR), ballasting, track surfacing, track structure realignment, rehab existing Salinas and Soledad sidings; replace turnouts.
Corridor-Wide	Rolling stock purchases

Source: Caltrans Division of Rail, 2013b

Table 2 Summary of Build Alternative Proposed Components – Site Specific

Mile Post (MP)	Location	Component Type	Approximate Length/Acreage of Proposed Component[4]
Monterey County			
114.9	Existing Salinas siding	New powered switch	NA
121 - 123.4	Spence	New siding	1.89 miles; 19.3 acres
130	Existing Gonzales siding	New powered switch	NA
140	Existing Soledad siding	New powered switch	NA
140	Soledad	New station	1.9 acres
143.9 -151.3	Harlem to Metz	Curve/track realignment	3.43 miles; 41.6 acres
147 – 149	Chalone Creek	New siding	1.89 miles 14.9 acres
154.3 - 154.7	Coburn	Curve/track realignment	2.27 miles; 27.5 acres
160	Existing King City siding	Siding extension	2.41 miles; 25.1 acres
160.3	King City	New station	3.4 acres
160.3	Existing King City siding	New powered switch	NA
165	South of King City	Curve/track realignment	1.06 miles; 12.8 acres
167.2 -190.74	San Lucas	New siding	1.89 miles; 22.9 acres
172	South of San Lucas	Curve/track realignment	2.07 miles; 25.1 acres
177 -179	Existing San Ardo siding	New powered switch	NA
181.5 – 191	Getty to Bradley	Curve/track realignment	1.50 miles; 18.2 acres
190 -192	Existing Bradley siding	Siding extension	2.68 miles; 50.2 acres
190 -192	Bradley	New powered switch	NA

[4] Reported acreages and lengths of proposed siding extensions take a conservative approach and likely overstate actual values. No specific siding extension plans have been developed to date. All existing sidings could potentially be extended to 10,000 feet by adding track at either their north or south ends. For a more conservative basis of analysis, siding extension areas developed for this EIS/EIR contemplate extensions on both north and south ends. For example, an existing 5,000 foot long siding could be extended to 10,000 feet with a 5,000 foot addition on either end. The siding extensions examined here include both extensions. Therefore, generally speaking, likely siding extension lengths and acreages could be computed by dividing in half the numbers reported in the table above.

Mile Post (MP)	Location	Component Type	Approximate Length/Acreage of Proposed Component[4]
San Luis Obispo County			
200 – 207	McKay to Wellsona	Curve/track realignment	2.06 miles; 24.9 acres
200 -203	Existing McKay Siding	New powered switch	NA
205 - 207.6	Wellsona	New siding	1.89 miles; 22.8 acres
208.3 - 216.7	Wellsona to Paso Robles	Curve/track realignment	0.43 miles; 5.2 acres
217 - 218.59	Templeton	Siding extensions	2.78 miles; 46.8 acres
218-223	Templeton to Henry	Curve/track realignment	0.47 miles; 5.7 acres
229-232	Henry to Santa Margarita	Curve/track realignment	2.19 miles; 26.5 acres
226 - 228	Existing Santa Margarita siding	New powered switch	NA
233 - 235.62	Cuesta	New second mainline	1.89 miles; 25.8 acres

Source: Caltrans Division of Rail, 2013b

- **Corridor-wide Track Upgrades:** Track improvements intended to improve performance are proposed along the entire rail alignment between Salinas and San Luis Obispo. Proposed corridor-wide track upgrades include replacement of existing rail with continuous welded rail (CWR), track structure realignment, track resurfacing, tie replacement, replacing or upgrading ballasting, rehabilitation of existing sidings, and replacement of existing turnouts. CWR reduces the number of joints and thus enables trains to move more quickly and with less friction and noise.
- **Signal System Upgrades:** Rail signal systems communicate vital safety information to train conductors. Conductors rely on clear signals regarding maximum allowable speeds, when to slow down or stop, track obstructions, and the like. The existing signal scheme is a mix of older and newer systems.

  The remainder of the corridor is under an ABS that uses train warrant control (TWC). This requires a dispatcher to communicate directly with each train crew before the train can obtain authority to proceed through "blocks." At the end of each block, the train must wait for permission to go forward once again.

  CTC is managed centrally, but uses remotely controlled signals and switches. CTC reduces the amount of time trains must spend waiting for dispatching instructions. Caltrans estimates that about 40 percent of all delays experienced in the Coast Corridor are the result of signaling issues.[5]

  The Build Alternative proposed that CTC be introduced in two locations: 1) from Salinas to Soledad, via the extension of an existing CTC system to the north and 2) an "island" CTC between San Lucas and Bradley (both unincorporated communities in southern Monterey County).

- **New powered switches:** Powered switches are mechanical devices within a railroad track that guide trains from one track to another - such as a siding, or a second mainline. Switching mechanisms include sensors placed on rails/ties and control boxes placed

[5] Caltrans Division of Rail, 2013b, p. 9-7

immediately alongside the railroad within the railroad ROW. Powered switches are generally considered an upgrade over manually thrown switches insofar as they facilitate the speed of transition from one track to another.

- **Siding extensions/new siding:** A siding is a short section of track adjacent to a main track used for passing and dwelling purposes in single track systems. At present, the sidings in the Salinas to San Luis Obispo portion of the corridor are generally one mile in length or shorter. Freight trains often exceed one mile in length and sometimes cannot be accommodated in the existing sidings. The proposed siding extensions are generally located within the existing railroad ROW and would lengthen existing sidings so that each would be at least 10,000 feet in length.

  Sidings could potentially be extended on either their northern or southern ends. For the purposes of the Program EIS/EIR, extensions to existing sidings were contemplated on both their northern and southern ends. The extension lengths are such that either the northern or southern extension area would provide sufficient space to increase the siding to the requisite 10,000 feet in length.

  In addition to several siding extensions, the Build Alternative also includes entirely new sidings at Chalone Creek near Soledad (MP 147 to MP 149), San Lucas (MP 167.2 to MP 190.4), and Wellsona (MP 205 to MP 207.6).

- **New second mainline:** A second main track is contemplated from South Santa Margarita toward the Cuesta Grade (MP 233 to MP 235), terminating just north of the first tunnel between Cuesta Grade and San Luis Obispo. At present, average train speeds through this portion are some of the slowest for the entire alignment - ranging between 25 and 35 mph. Slow speeds here are to the result of track curvature and deficient train control systems. Moreover, this area is where northbound and southbound Coast Starlight passenger trains typically meet and must pass each other (as one train dwells in a siding). Accordingly, a second mainline here would significantly expand mobility. For the purposes of the Program EIS/EIR, it is assumed that the second mainline would consist of a standard track running within a 60 foot new ROW immediately adjacent to the existing rail alignment.

- **Curve or other track realignments:** The existing Coast Corridor alignment includes some sharp curves that require trains to slow down to reduce the risk of derailment. The Build Alternative contemplated several curve realignments intended to reduce track curvature. If constructed, curve realignments would allow for increased speeds, enhanced safety, and reduced trip times. Such realignments typically result in less wear and tear to tracks, reducing the frequency of repair or maintenance.

  Most of the curve realignments were initially identified as part of the Amtrak 20-Year Plan, which also contemplated raising top speeds through this segment of the Coast Corridor to 135 miles per hour. (Subsequently, the 2013 SDP assumed that improvements and maintenance was needed to maintain the Coast Corridor as an FRA Class IV railroad, which allows top speeds of no more than 80 mph for passenger service). The Amtrak 20-Year Plan identified milepost-to-milepost starts and stops of curve realignment areas. For the purposes of the Program EIS/EIR, highly generalized and spatially generous curve realignment areas were identified to enable a better understanding of the type and magnitude of any environmental effects that may result from their construction.

Curve realignments would in effect relocate the entire railroad ROW some distance from the existing ROW. The average width of the railroad ROW is about 60 feet. For the purposes of this evaluation, a curve realignment area width of 100 feet has been assumed along with surrounding buffer areas of 200 feet on each side. Given the relative narrowness of the existing ROW, every curve realignment considered would require the acquisition of land not currently in the railroad ROW or in transportation use. In many cases, a single named curve realignment consisted of multiple, discontinuous sections of realigned track but were collectively considered part of the same curve realignment.[6]

- **Passenger Stations**: The Build Alternative contemplates two new passenger stations in Soledad and King City. The existing Coast Corridor alignment passes through the downtowns of each city. Currently, Coast Starlight passenger trains travel through the downtown areas of each city but do not stop. The proposed Coast Daylight train service may include stops in one or both of these cities. In anticipation of the possible future Coast Daylight service, both Soledad and King City have set forth conceptual station area plans as elements of larger plans related to the revitalization of their downtown areas.[7]
- **Grade Crossing and Mobility Improvements:** There are numerous existing at-grade railroad crossings of public, paved roads between Salinas and San Luis Obispo, plus several dozen additional crossings of private dirt roads/driveways. Safety provisions at existing crossings of public, paved roads range from passive warning devices (static wood/metal signage) to more active warning devices (e.g., flashing lights and gates). The Build Alternative would install as-yet undefined signal, signage, and other related improvements at as-yet unspecified existing at-grade crossings (potentially public and private).
- **Coast Daylight Service and new rolling stock**: The SDP proposed the reinstitution of *Coast Daylight* passenger rail service, which was discontinued in 1971. The SDP proposed initial service of 1 daily southbound and 1 daily northbound train between San Francisco and Los Angeles, requiring 2 full trainsets for 2020 service and 2 additional trainsets for 2040 service. Preliminary proposed schedules would have trains leaving San Francisco and Los Angeles in the early morning (approximately 7 a.m.), and arriving at their respective destinations between 6:30 p.m. and 7 p.m. Future expanded service would see the addition of one additional daily southbound and northbound departure. This expanded service would be overnight, leaving San Francisco or Los Angeles in the early evening and arriving at the respective destination early the following morning.

  Coast Daylight trains would stop at existing Amtrak stations in the Coast Corridor and potentially also at proposed new stations identified in the Build Alternative (Soledad and King City). The proposed Coast Daylight service would require the acquisition of locomotives and passenger railcars.

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[6] As discussed below, the Preferred Alternative does not include four curve realignments that were identified as part of the Build Alternative.

[7] As discussed below, the Preferred Alternative includes a modified site for the City of King station area, based on plans provided to FRA and SLOCOG subsequent to publication of the Draft EIS/EIR.

5.2.3 Preferred Program Alternative – Modified Build Alternative

Based upon the analysis conducted in the Draft Program EIS/EIR and public comments received, FRA, SLOCOG, TAMC, and Caltrans DOR have identified the Build Alternative (with modifications) as the Preferred Alternative for potential future implementation on the Coast Corridor between Salinas and San Luis Obispo.

The Preferred Alternative modifies the Build Alternative as follows:

- Modifications requested by the City of King to siding extension and station area
- Exclusion of four curve realignments in San Luis Obispo County
- Inclusion of "island" Centralized Traffic Control (CTC) between McKay and Santa Margarita

5.2.3.1 Changes Requested by City of King

The City of King provided extensive written comments on the Draft Program EIS/EIR, advising that the City had updated its draft plans for the City of King siding extension and passenger station. These updates were not known to FRA, SLOCOG, Caltrans DOR, or TAMC until the City of King provided its comments on the Draft Program EIS/EIR.

Siding Extension

Draft Program EIS/EIR Analysis: Precise plans for new sidings or siding were not available prior to publication of the Draft Program EIS/EIR. Accordingly, the analysis in the Draft Program EIS/EIR made reasonable assumptions regarding the extension of the existing sidings. It was assumed that the sidings extensions would result in sidings of about 10,000 feet in length (generally, enough to accommodate a typical freight train) and that this length could potentially be achieved by adding all additional track to either the northern or southern end of each siding. As a result, the Draft Program EIS/EIR examined a larger total area for the sidings than would have been necessary to achieve the desired 10,000 foot length.

The existing City of King siding extends from mile post (MP) 159.19 to MP 160.64 and is about 1.45 miles in length (7,650 feet). The Draft Program EIS/EIR analyzed two siding extensions (between MP 158.5 and 159.19 to the north and MP 160.64 and 161.19 to the south). Either the northern or southern extension would have been sufficient to provide a minimum 10,000 foot-long siding.

Revised Draft Plans from City of King: Since publication of the Draft Program EIS/EIR and as noted in the City's comments, the City of King engaged a railroad engineer (RailPros) to consider modifications to rail facilities in the area. The RailPros study (prepared for and endorsed by the City of King in its comment letter) proposed that the siding extension be greater than 10,000 feet in length and that the extension would most feasibly be achieved by extending the siding on the north side exclusively. The RailPros study considered extending the siding from MP 156.38 to 159.19, resulting in a siding 2.81 miles or about 14,800 feet in length.

Passenger Station

Draft Program EIS/EIR: The analysis in the Draft Program EIS/EIR used conceptual plans from adopted City documents that proposed a station site near the intersection of First Street and Broadway. Operating details were assumed to include a station building, parking, and bus pull out areas.

Revised Draft Plans from City of King: However, as noted in the City's comments, the RailPros plan shows a slightly smaller passenger station in generally the same part of downtown, with similar features, and an area set aside for military personnel transfers. The RailPros plan also calls for the relocation of an existing at-grade crossing (at Pearl Street) to move about one block northwest towards Broadway Street.[8]

Analysis

Using the analysis included in this Final Program EIS/EIR, FRA has considered the City's revised draft siding extension and station area plans.

After review, FRA, SLOCOG, TAMC, and Caltrans DOR concur that the City's proposed revision to the siding extension would avoid or reduce the intensity of several potential environmental effects of the previously identified siding extension discussed in the Draft Program EIS/EIR. The revised siding extension would avoid the need for a new creek crossing and would also avoid including any portion of the siding extension within a 100-year flood plain. The revised siding would also be located outside of populated areas, so would have reduced potential for any community effects compared to the previously identified siding extension. Because the City's proposed modification to the siding extension is reasonable and is likely to reduce the impacts of the project, FRA, SLOCOG, TAMC, and Caltrans DOR agree that it should be included and analyzed in the Final Program EIS/EIR.

5.2.4 Exclusion of Curve Realignments in San Luis Obispo County

During the public hearing on the Coast Corridor Draft Program EIS/EIR at SLOCOG's board meeting on January 7, 2015, many of the comments from members of the public focused on several of the curve realignments proposed for various locations in San Luis Obispo County. Commenters stated that the curve realignments had the potential to result in property acquisitions, split of parcels, and have other adverse environmental and socioeconomic effects.

In response to public comments, the SLOCOG Board adopted a motion requesting SLOCOG staff drop from further consideration the following curve realignments in San Luis Obispo County:

1. McKay/Wellsona
2. Wellsona/Paso Robles
3. Templeton/Henry
4. Henry/Santa Margarita

Excluding these curve realignments would not substantially compromise future on-time performance of passenger and freight trains and would reduce the potential impacts identified by the public. As documented in the SDP, an acceptably high rate of on-time performance in near and long-term horizon years was shown to be achievable with the inclusion of island CTC between McKay and Santa Margarita, which corresponds roughly to the same area in which the excluded curve realignments were contemplated.

[8] Such a relocation would be subject to an approval by the California Public Utilities Commission.

Excluding the curve realignments would also eliminate or substantially reduce several potential adverse environmental effects, including:

- **Land Use**: Without these curve realignments, the Preferred Alternative would require fewer property acquisitions than the Build Alternative.
- **Agricultural Lands**: Without the curve realignments, the Preferred Alternative would require substantially less conversion of agricultural lands than the Build Alternative.
- **Air Quality**: By foregoing the construction of these curve realignments, construction-related emissions (fugitive dust, diesel equipment) for would be lower in the Preferred Alternative than in the Build Alternative.
- **Noise and Vibration**: By foregoing the construction of these curve realignments, the Preferred Alternative would generally retain the existing railroad alignment through San Luis Obispo County. In the Build Alternative, the curve realignments would have altered the railroad alignment relative to the location of sensitive receptors.

5.2.5 Inclusion of "Island" CTC between McKay and Santa Margarita

In the Draft Program EIS/EIR, Build Alternative components were carried forward from the SDP. As noted above, the Build Alternative specified the extension of CTC from Salinas to Soledad, as well as installation of an "island" of CTC from San Lucas to Bradley in southern Monterey County. Analysis in the SDP contemplated an additional "island" of CTC between McKay and Santa Margarita (between MP 202.3 and MP 229.6). The SDP noted that this 27-mile section of the corridor currently uses track warrant control (TWC), a non-automated signaling system. The four sidings in this section of the corridor using TWC were presumed to contribute substantially to delays that impair overall on time performance of both passenger and freight trains.

However, this particular island CTC was not explicitly referenced in the SDP's list of Build Alternative components. Notwithstanding, SLOCOG and Caltrans DOR have clarified that it was each agency's intent that this island CTC area be included in the Build Alternative. However, since the Draft Program EIS/EIR did not specifically include this improvement, this Final Program EIS/EIR formally incorporates the island CTC as part of the Preferred Alternative.

Analysis

The Draft Program EIS/EIR noted that CTC equipment would largely be on trains but that physical equipment on the ground would include signals at to-be-determined locations and underground wiring to train switches. Signals would be structures of about 10-12 feet in height located at periodic intervals. Such equipment would be located within the railroad right-of-way, such that signals would be visible by train conductors.

In contemplating potential program-level effects related to CTC at other locations along the corridor, the Draft Program EIS/EIR did not identify any specific substantial adverse environmental effects. It was assumed signaling equipment for CTC would be entirely within the existing railroad right-of-way, so no land outside the railroad right-of-way would be necessary for its installation. The Draft Program EIS/EIR assumed construction-related impacts along the entire corridor, associated with track and signal upgrades generally. Moreover, given that the existing railroad corridor has long been in transportation use as a railroad, the addition of CTC related signaling equipment was not found to cause any substantial adverse visual effects

between Salinas and Soledad and also between San Lucas and Bradley. Accordingly, FRA finds that island CTC between McKay and Santa Margarita would similarly not result in any substantial adverse visual effects. Therefore, no further analysis is necessary and no supplemental or recirculated environmental documentation would be required.

5.3 SELECTED ALTERNATIVE

The Selected Alternative is the alternative that FRA finds would most closely align with FRA's statutory mission and responsibilities, giving consideration to economic, environmental, technical and other relevant factors. FRA has selected the Preferred Alternative.

FRA rejected the No Build Alternative because it would not meet the project purpose and need, Coast Daylight service would not be re-established and rail, and highway congestion would not be reduced.

FRA selects the Preferred Alternative over the Build Alternative because the Preferred Alternative reduces potential environmental effects by incorporating project modifications suggested during the public comment process. Additionally, the Build Alternative would not offer project benefits that would be achieved by the Selected Alternative.

5.4 ENVIRONMENTALLY PREFERABLE ALTERNATIVE

CEQ regulations implementing NEPA require that a ROD specify the alternative or alternatives considered to be environmentally preferable. "Environmentally preferable" is defined as "the alternative that will promote the national environmental policy as expressed in the NEPA, Section 101." In most cases this means the alternative that causes the least damage to the biological and physical environment, but it can also mean the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

The Build and Selected Alternatives offer similar rail operation components that would result in similar levels of reduced regional VMT and reduced emissions of air pollutants. Both would also collectively enhance rail safety and improve overall rail service reliability through a program of corridor-wide track and signal components. Both would foster connectivity with the CA HSR system. The main difference between the Build and Selected Alternatives is that the Selected Alternative excludes four curve realignment areas in San Luis Obispo County. These curve realignments were not found to offer substantial speed or travel time improvements, but the curve realignments had the potential to result in several unique and substantial physical environmental effects. These curve realignments would have resulted in the need to potentially require acquisition of agricultural land, residential property, and potentially biologically sensitive land. Removal of these curve realignments reduces the overall potential of the Selected Alternative to result in significant environmental impacts. Therefore, the Selected Alternative is the environmentally preferable alternative.

Although the No Build Alternative would have no potential to result in any substantial construction period effects or acquisition/incorporation of any agricultural or biologically valuable land into the railroad corridor, it does not offer the same potential air quality and transportation benefits as the action alternatives.

6.0 SUMMARY OF POTENTIAL BENEFICIAL EFFECTS

The Selected Alternative would result in all of the same beneficial environmental effects identified in the Draft Program EIS/EIR for the Build Alternative. These include a decrease in regional vehicle miles traveled (VMT) particularly on the US 101 corridor, resulting in an associated decrease in the emissions of air pollutants and reduced regional transportation energy consumption. Improvements to the rail system were also projected to result in decreased train idling times, which in turn can reduce localized air pollutant emissions and energy consumption.

- **Coast Daylight Passenger Rail Service:** The Selected Alternative would provide an increase in intercity passenger rail service with the reinstitution of the Coast Daylight passenger rail service. This service would help to create an interconnected, multimodal solution allowing for better mobility throughout the Coast Corridor region, providing added capacity in response to increased travel demand between Los Angeles and San Francisco. With the reinstitution of Coast Daylight trains, rail ridership would be anticipated to increase, and would also allow flexibility for people who may prefer or require alternatives to automobile transportation. This an increase in service would provide additional transportation system capacity that could relieve some of the projected near- and long-term demand on the highway system, potentially slowing the need to further expand highways and airports in this portion of the corridor, or reduce the scale of those expansions, including their associated cost and impacts on communities and the environment. Rail improvements would complement the highway and local transit systems, creating an interconnected, multimodal solution, allowing for better mobility throughout the corridor. .
- **Enhanced Safety:** Many tracks, signals, and bridges within the corridor have not been upgraded or improved in decades – and in some cases are over 100 years old. Aging infrastructure – if not properly maintained – can translate to longer travel times and decrease the attractiveness of rail as a transportation option. Proposed components of the Selected Alternative would maintain/replace aging infrastructure which would provide the benefit of increased operating safety and allow trains to operate at faster speeds.
- **Economic Development**: Soledad and King City have developed passenger rail station plans as part of larger planning and revitalization efforts in each jurisdiction. Passenger stations in these cities would complement and support local planning and revitalization plans through the provision of passenger rail service and complementary station area development. While new passenger rail stations have some potential to introduce new employment and growth opportunities, both Soledad and King City planning efforts are explicitly intended to foster such growth.
- **Air quality/GHG:** The Selected Alternative presents some small potential reductions in emissions of air pollutants and greenhouse gases (GHG). These reductions would be achieved through implementation of Coast Daylight rail service and its related potential to attract passengers from other travel modes (especially automobile and airplane). The SDP projects that the Coast Daylight service would generate about 100,000 annual person trips by the year 2020. This averages to about 300 trips per day and translates in projected reduction about 11,000 daily VMT for the Central Coast/Monterey Bay region as a whole. The projected expansion of Coast Daylight service by the year 2040 would further reduce VMT in the Central Coast/Monterey Bay region by an additional 15,000

daily miles (26,000 daily miles total). These VMT reductions comprise relatively small amounts of total regional VMT and are, thus, expected to translate to small reductions in criteria pollutants - well below 1 percent of each of the criteria pollutants generated in the Central Coast/Monterey Bay region.[9]

Upgrading existing tracks (including replacing wooden rail ties with steel ties) would reduce friction and vibration. Improved stabilization would also require less frequent maintenance of the railway infrastructure. Less frequent maintenance would reduce emissions associated with maintenance vehicle trips and idling, as well as maintenance equipment use. The increase in efficiency associated with track upgrades would reduce the severity of localized carbon monoxide and particulate matter emissions, as well as other pollutants. New powered switches and CTC signals would improve the efficiency of train travel and result in better control of the railroad tracks. These features could be expected to reduce the amount of time trains spend waiting for dispatching instructions, improve train safety, and improve the overall reliability of service. Additionally, the proposed realignments would improve train operations by reducing inefficiencies in slowing down to approach a curve, thereby incrementally reducing air pollutant emissions associated with getting back up to speed.

Energy: The projected expansion of Coast Daylight service has potential to attract passengers from other travel modes. Accordingly, it is expected that a portion of these passengers would be using the rail service in place of vehicle, bus, or air travel, thus reducing transportation-related energy consumption. These VMT reductions comprise relatively small amounts of total regional VMT and are, thus, expected to translate to small reductions in energy consumption. Additionally, travel by rail is the most energy efficient mode of long-distance, intercity transportation. However, an empty train would not reduce energy consumption. Overall, the displacement of automobile VMT to increased ridership on the railway would result in reduced transportation-related energy consumption.

7.0 SUMMARY OF POTENTIAL ADVERSE EFFECTS

The Selected Alternative would result in similar or reduced levels of substantial adverse environmental effects relative to what was described as the Build Alternative in the Program EIS/EIR. Installation of the components comprising the Selected Alternative would result in construction-related effects, such as noise, vibration, the localized emission of air pollutants, one-time energy consumption effects, and potential temporary disruptions to both rail and automobile traffic. Certain components requiring the acquisition of land outside the railroad right of way would, if constructed, result in the conversion of agricultural lands as well as other lands known to include sensitive biological habitats. Construction activities could also expose soils and/or groundwater that are contaminated with hazardous materials. Construction could also potentially affect the eligibility of known and unknown archaeological sites and other cultural resources.

[9] Caltrans Division of Rail, 2013b, pp. 13-4 – 13-7

Operational effects would include increased localized noise and vibration from additional daily trains, as well as increased levels of roadway traffic in the vicinity of existing and proposed station areas.

- **Traffic and Travel:** The Selected Alternative contemplates two new passenger stations in King City and Soledad. Buildout of the station areas (which includes the opening of the stations themselves, increased passenger rail activity, and buildout of surrounding planned land uses) would result in increased traffic on local streets.
- **Land Use and Planning, Communities and Neighborhoods, Property and Environmental Justice:** Curve realignments and siding extensions that require substantial land conversion/acquisition outside of the railroad ROW would commit the land uses and natural resources for an expanded and realigned railway in some areas. Future implementation of components outside the existing ROW and in populated areas would have the largest impact on existing land uses and communities. Some of the physical components would convert land uses to be incompatible with the general plan. The proposed design and engineering aspects of each component are conceptual at this time and if carried forward in the future, could be refined to avoid some or all potential impacts on existing land uses and communities.
- **Agricultural and Forest Resources:** Components requiring land outside of the existing railroad ROW, such as curve realignments, new sidings, and siding extensions associated with the Selected Alternative would convert Prime Farmland and other protected types of farmland to nonagricultural uses.

  If the proposed second mainline is carried forward for construction and additional ROW is needed, some or all of the additional ROW (up to 12 acres in all) could include forest land within the Los Padres National Forest, resulting in the conversion of forested land to a non-forest use.

  The evaluation in this document is based on a review of conceptual plans for proposed project components. Design refinements may result in reduced potential impacts to both agricultural and forest land resources.
- **Biological and Wetland Resources**: Proposed curve realignments, new sidings, and siding extensions have the potential to entail the use of lands outside the existing railroad ROW that are critical habitat areas for several protected species (including California red-legged frog and vernal pool fairy shrimp), habitat of special-status species, sensitive vegetation communities, and wetlands. The evaluation in this document is based on a review of highly conceptual plans for proposed rail components the project components. Design refinements may be able to avoid some or all of the aforementioned potential effects.
- **Hydrology and Water Quality**: Proposed new sidings and siding extensions, curve realignments, and the second mainline have the potential to intersect surface waters, potentially resulting in hydrological and/or water quality effects. Design refinements of the conceptual plans components used in this evaluation could potentially avoid some of all of these hydrology and/or water quality impacts.
- **Cumulative Impacts**: The Selected Alternative, in combination with related transportation and land development projects, could contribute to cumulative impacts to land use, communities, property, and environmental justice. This would be due to conversion of agricultural land or established communities to transportation uses. The

conversion would permanently alter the affected areas and could contribute to agricultural conversion effects from other land development projects in the region. The Selected Alternative could also result in a cumulatively significant visual impact if one or more of the curve realignments is ultimately constructed and would convert substantial areas of residential or agricultural land to a transportation use. Project-level design refinements and funding availability will determine if any of the components would ultimately result in any cumulative impact.

8.0 SUMMARY OF AVOIDANCE, MINIMIZATION, AND MITIGATION STRATEGIES AND DESIGN PRACTICES

The combined ROD/Final Program EIS/EIR identifies program-level strategies to avoid, minimize, or mitigate for potential adverse effects resulting from the construction or operation of any of the individual Selected Alternative components. Because FRA is not approving any of the site-specific components for construction at this stage in the environmental review, FRA has not adopted any specific avoidance, minimization, or mitigation measures. However, any project-level measures would be informed by the measures presented in **Table 3.**

To minimize potential future harm from implementation of the Selected Alternative, future project-level environmental reviews will prescribe project-specific measures informed by the avoidance, minimization, and mitigation strategies and design practices identified herein, as well as any analysis conducted at the project level of detail.

Notwithstanding, all practicable strategies to avoid or minimize environmental harm from the selected alternative have been identified herein. It is acknowledged that some mitigation strategies may cause other adverse environmental impacts at the same time that they avoid or minimize impacts addressed in this Program EIS/EIR. Future project-level environmental reviews will determine appropriate site-specific mitigation measures.

9.0 COMPLIANCE WITH OTHER FEDERAL REGULATIONS

9.1 SECTION 4(F) AND 6(F)

To the extent any individual components of the Selected Alternative advance toward construction and involve a major action of a DOT administration, project-level evaluations and findings under Sections 4(f) [49 U.S.C. § 303(c)] and 6(f) [16 U.S.C. § 4601-8] will be prepared as part of project-level environmental reviews. The Program EIS/EIR identifies the potential for uses of these resources for the No Build Alternative, Build Alternative, and Preferred Alternative. There is no certainty of a Section 4(f) use as the state agencies may not choose to move forward with some/any of components of the Selected Alternative. Notwithstanding, the Program EIS/EIR outlines future steps to evaluate potential use of Section 4(f) resources. Future analysis would include, if necessary, analysis to identify all feasible and prudent alternatives to the use of a 4(f) resource.

The Program EIS/EIR analyzed the California State Parks Land and Water Conservation Fund grants list for Monterey and San Luis Obispo counties and did not identify any Section 6(f) resources that would be impacted by the Selected Alternative. Similar to Section 4(f), to the

extent any individual components of the Selected Alternative are advanced for project-level evaluations and findings under Section 6(f) would be prepared as part of project-level environmental reviews. Although not anticipated, if the project-level environmental analysis finds a conversion of a 6(f) resource, the Project component would engage in the required consultations and identify appropriate mitigation.

9.2 SECTION 404 OF THE CLEAN WATER ACT

As detailed plans for specific components have not yet been identified, no formal consultation with the United States Army Corps of Engineers (USACE) was been undertaken to consider potential effects to waters of the US and wetlands. Future project level environmental review may include consultation with USACE and potentially also the United States Environmental Protection Agency (EPA) regarding applications for permits under Section 404 of the Clean Water Act.

9.3 EXECUTIVE ORDER 11988

Prior to implementing physical components that would introduce new structures in the study area, such as curve realignments, further evaluation of potential 100-year flood risk areas would be conducted. The Program EIS/EIR determined that some components of the Selected Alternative would be located within a flood zone. To the extent any individual components of the Selected Alternative advance toward construction, project-level environmental review would evaluate whether the design would be located within a flood risk area. Construction of facilities within floodplains would be avoided where feasible, and floodplains temporarily impacted by construction activities would be restored as much as possible so they can function as before.

9.4 EXECUTIVE ORDER 11990

When federal lands are proposed for lease or sale to nonfederal parties, EO 11990 requires that the lease or conveyance contain restrictions to protect and enhance the wetlands on the property. The restrictions of this executive order apply to wetlands on military installations proposed for closure. In this capacity, EO 11990 can affect the sale of federal lands with wetlands. Compliance with Section 404 permit requirements may constitute compliance with EO 11990. The Program EIS/EIR identified wetland resources within or near proposed components of the Selected Alternative. Delineation of jurisdictional waters and wetlands would be conducted during project-level environmental review if any components of the Selected Alternative advance toward construction. The delineation determination would identify the extent of USACE and CDFW jurisdiction. Accordingly, consultation with these agencies to determine appropriate mitigation would occur.

9.5 EXECUTIVE ORDER NO. 12898

Executive Order No. 12898 requires all federal agencies to identify and address, as appropriate, any disproportionately high adverse human health and environmental effects of their programs, policies, and activities, on minority populations and low-income populations (environmental

justice communities) in the United States. Compliance with EO 12898 involves outreach to the potentially affected minority and/or low-income population to identify issues of importance that may not otherwise be considered. The Program EIS/EIR identified where environmental justice communities are located within or near proposed components of the Selected Alternative. To the extent any individual components of the Selected Alternative advance to construction and involve funding decision or other approval, project-level environmental review would evaluate impacts to environmental justice communities. The Program EIS/EIR outlines future steps to evaluate project-level impacts to environmental justice communities. Future analysis would include outreach to affected communities and identification of any necessary mitigation measures.

9.6 ENDANGERED SPECIES ACT

The Program EIS/EIR identified sensitive biological resources located within or near proposed components of the Selected Alternative. To the extent any individual components of the Selected Alternative advance toward construction, project-level environmental review would involve formal and/or informal consultation with the United States Fish and Wildlife Service (USFWS) if potential impacts to federally listed plant or wildlife species are anticipated. This may include the preparation of a biological assessment or assessments, and biological opinions for specific components moving forward into construction. The lead agency of a component will prepare one or more biological assessments to evaluate the impacts on protected species.

10.0 CONCLUSION

This Project is needed to serve both better serve existing users, as well as expected growth in population and resulting increases in regional intercity travel demand over the next 20 years and beyond. The existing rail corridor is constrained in terms of capacity and includes outdated infrastructure, collectively resulting in travel delays, safety, and reliability issues. These problems will increase as travel demand in the region continues to grow. The intercity highway system, commercial airports, and passenger rail serving the regional market are currently operating at or near capacity, and cannot be feasibly expanded without large public investments for maintenance and expansion to meet existing and projected travel demands.

The evaluation and findings indicate that the Selected Alternative would help meet projected needs for intercity travel in 2020 and 2040, while improving safety, reducing travel time, and improving regional air quality. The evaluation and findings of the Program EIS/EIR also indicate that taking no action under the No Build Alternative would not meet the future intercity travel needs nearly as well as the Selected Alternative, because the rail corridor will continue to be experience delays and reliability issues associated with existing infrastructure, which could in the long term discourage the traveling public from using the rail service. Moreover, the No Build Alternative would result in adverse environmental impacts, but would not offer any of the beneficial travel and environmental effects of the Selected Alternative.

FRA, in accordance with CEQ regulations implementing NEPA and FRA's NEPA Procedures, find that the requirements for NEPA have been satisfied for the Program EIS/EIR for the Coast Corridor Improvements Program. FRA is issuing this ROD for the Coast Corridor Improvements Program based on the analysis included in the Draft Program EIS/EIR dated November 2014, the

Final Program EIS/EIR dated October 2015, and public and resource agency outreach. These documents represent the detailed analysis and findings required by NEPA on the following:

- Potential Environmental impacts of the project;
- Reasonable Alternatives to the project; and
- Irreversible and irretrievable commitments of resources on the environment that may be involved in the project should it be implemented.

On the basis of the evaluation of social, economic, and environmental impacts contained in the Draft and Final Program EIS/EIR, FRA determines that:

- Adequate opportunity was afforded for the presentation of views by all parties with a significant economic, social, or environmental interest, and fair consideration was given to the preservation and enhancement of the environment and to the interest of the communities in which the project is located.
- All reasonable steps were taken to minimize potential adverse environmental effects of the project, and where potential adverse environmental effects remain, they have been fully reported in the Draft and Final Program EIS/EIR and will be further evaluated during project-level environmental review.

Sarah Feinberg
Administrator
Federal Railroad Administration

11/10/2015
Date of Approval

Table 3 Avoidance, Minimization, and Mitigation Strategies

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Traffic and Travel		
Potential construction interference to traffic and travel (Increased traffic, delays and detours)	**MIN-TRA-1**. During the construction of any railway components selected for design, disruption to existing rail operations would be minimized to the maximum extent feasible by scheduling construction at times to minimize interference. Appropriate construction and operational strategies would be developed for project-level reviews through coordination between FRA, Amtrak, UPRR, Caltrans DOR, and other interested agencies. **MIN-TRA-2**. Transportation System Management (TSM)/Signal Optimization (including retiming, re-phasing, and signal optimization) may would be implemented, as well as other measures including turn prohibitions, use of one-way streets, and traffic diversion to alternate routes, to reduce impacts to roadways and intercity travel.	During construction
Potential operational effects	**MIN-TRA-3**. Local spot widening of existing curved areas of the railroad would be implemented to allow for geometric improvements that would allow for increased rail speeds without significant right-of-way acquisition. Spot widening could would avoid or minimize some of the effects associated with full implementation of curve realignments. **MM-TRA-4**. Project-level environmental review would include consultation and coordination with public transit services in order to encourage the provision of adequate bus feeder routes to serve proposed station areas, which could would mitigate potential transit impacts. **A-TRA-5**. Further develop project design to avoid the need for a new at-grade crossing. The one identified new at-grade crossing is associated with potential track realignment (MP 172, Cattlemen Road). The primary strategy for avoiding the creation of the new at-grade crossing at Cattlemen Road would be to omit the MP 172 Track Realignment all together, or at least any portion that would result in the creation of a new at-grade crossing at Cattlemen Road. No specific layout for that track realignment has been defined to date. **MIN-TRA-6**. If the MP 172 Track Realignment is carried forward for further design and the design cannot feasibly avoid the creation of a new at-grade crossing, the development process would include a detailed Traffic Study, consultation, and approval from the CPUC, and implementation would be required to follow all pertinent federal, state, and local policies regarding new at-grade crossings.	During project design

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	MM-TRA-7. In the event that any of the Build Alternative or Preferred Alternative components are carried forward for funding, design, and construction, and the above measures cannot be successfully employed to avoid or minimize roadway traffic effects, major or minor intersection improvements would be employed to reduce any potential adverse traffic effects. This would likely require significant right-of-way acquisition to accommodate additional left-turn and/or through lanes. Adverse effects from such improvements would be assessed during future project-level review.	
Air Quality and Greenhouse Gases		
Potential effects associated with construction	**MIN-AQ-1**. Apply water suppression at least twice a day to all active construction areas to minimize dust. **MIN-AQ-2**. Tarp all trucks hauling soil, sand, and other loose materials or require that all trucks maintain at least two feet of freeboard. **MIN-AQ-3**. Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites. **MIN-AQ-4**. Use water sweepers to sweep all paved access roads, parking areas and staging areas at construction sites daily. **MIN-AQ-5**. Use water sweepers to sweep all streets daily if visible soil material is carried onto adjacent public streets. **MIN-AQ-6**. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more). **MIN-AQ-7**. Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc.). **MIN-AQ-8**. Limit traffic speeds on unpaved roads to 15 miles per hour. **MIN-AQ-9**. Introduce appropriate erosion control measures to reduce silt runoff to public roadways. **MIN-AQ-10**. Replant vegetation as quickly as possible to minimize erosion in disturbed areas. **MIN-AQ-11**. Use alternative fuels for construction equipment when feasible. **MIN-AQ-12**. Minimize equipment idling time. **MIN-AQ-13**. Maintain properly tuned equipment.	During construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Potential effects associated with operation of the project components	**MIN-AQ-14**. Require filters for diesel particulate on locomotives. **MIN-AQ-15**. Require liquefied natural gas for engines. **MIN-AQ-**16. Reduce idling time to reduce DPM and other emissions. **MIN-AQ-17**. Where possible, install anti-idling devices on all locomotives. These devices automatically shut-off the main diesel internal combustion engine that is used for locomotive motive power after a set amount of time when specified parameters (e.g., engine water temperature, ambient temperature, battery charge, railcar brake pressure, etc.) are at acceptable levels. The device can automatically restart the engine when parameters are determined to no longer be at acceptable levels. These can reduce emissions at sidings and while trains dwell at stations. **MIN-AQ-18**. Retrofit head-end power sources (HEPs) in passenger locomotives with after-treatment technologies to reduce emissions. **MIN-AQ-19**. Use a combination of lean-NOx catalyst and diesel particulate filter. **MIN-AQ-20**. Design stations and associated ingress/egress to provide efficient vehicle movements, to reduce idling time and congestion.	Prior to, during, and post construction
Noise and Vibration		
Potential effects associated with construction noise and vibration	**A-NO-1**. Avoid nighttime construction in residential neighborhoods. **MIN-NO-2**. Use specially quieted equipment with enclosed engines and/or high-performance mufflers. **MIN-NO-3**. Locate stationary construction equipment as far as possible from noise-sensitive sites. **MIN-NO-4**. Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers. **MIN-NO-5**. Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents. **MIN-NO-6.** Where construction of components requires deep foundations, avoid impact pile driving near noise-sensitive areas, where possible. Drilled piles or the use of a sonic or vibratory pile driver are quieter alternatives where the geological conditions permit their use. If impact pile drivers must be used, their use will be limited to the periods between 8:00 AM and 5:00 PM on weekdays.	During construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Potential effects associated with increased operational noise and vibration	**MIN-NO-7**. Avoidance, minimization, and mitigation strategies for operational noise and vibration impacts would generally be applied to the trains and the path between the train and the receiver or property. ▪ Noise barriers are a common approach to reducing noise impacts from surface transportation sources. Noise walls constructed near the railroad ROW would shield sensitive receptors from train noise as well. Building sound insulation would also be an effective mitigation strategy. ▪ Noise impacts from surface transportation sources. Noise walls constructed near the railroad ROW would shield sensitive receptors from train noise as well. Building sound insulation would also be an effective mitigation strategy. ▪ Sound insulation to improve the outdoor-to-indoor noise reduction has been widely applied around airports and has seen limited application for rail projects. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where noise barriers are not feasible or desirable, and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) can often be achieved by adding an extra layer of glazing to the windows, by sealing any holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air-conditioning so that windows do not need to be opened. ▪ Localities wishing to reduce train horn noise may take the steps needed to establish a new quiet zone. This would cease the use of train horns at public highway-rail grade crossings. The locality would be required to mitigate the increased risk associated with the absence of a horn before receiving approval of the quiet zone. ▪ Vibration impacts would generally be reduced by vehicle wheel and track maintenance efforts. Additional track work and materials such as rail fasteners with soft and resilient elements would provide greater vibration isolation than standard fasteners. Ballast mats made of rubber-like material can be placed on asphalt or concrete base with the normal ballast, ties, and rail on top. The reduction in ground-borne vibration provided by a ballast mat is strongly dependent on the frequency content of the vibration and design and support of the mat.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Energy		
Potential increases in energy consumption associated with construction activities	**MIN-ENG-1**. Develop and implement a construction energy conservation plan. **MIN-ENG-2**. Explore the opportunity to use newer, more energy efficient construction equipment and materials. **MIN-ENG-3**. Consider, as feasible, acquisition of energy-efficient rolling stock to provide new passenger service. **MIN-ENG-4**. Implement a program to encourage construction workers to carpool or use public transportation to get to and from active work sites.	During construction
Potential increases in energy consumption associated with the operation	**MIN-ENG-5.** As feasible, minimize grade changes in steep terrain areas to reduce the use of diesel fuel. **MIN-ENG-6.** Encourage the development of intermodal transit connections to reduce automobile VMT associated with the railway.	During project design
Land Use and Planning		
Potential effects to the community resulting from property acquisition within the vicinity of environmental justice groups	**A-LU-1.** As only schematic plans have been developed to date, the level of detailed design that would normally precede construction would avoid or minimize the potential for land use displacement and property acquisition, whether temporary and/or permanent, residential or non-residential. **A-LU-2.** Design strategies would be implemented to avoid or minimize the temporary or permanent acquisition of properties to the extent feasible. **MM-LU-3.** In addition, to the extent displacement of any residence or business occurs, relocation assistance procedures in accordance with the Federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 would be implemented. MIN-LU-4. Efforts would be made during design to minimize any barriers to community and neighborhood interaction. **MIN-LU-4.** Efforts would be made during design to minimize any barriers to community and neighborhood interaction. **MIN-LU-5.** Consultation with local governments and planning agencies throughout the design effort would be conducted in order to maintain or enhance neighborhood integrity.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing

MIN-LU-6. If the MP 172 curve realignment is constructed and includes a new at-grade crossing at Cattlemen Road, potential strategies to reduce community effects could would include additional grade separation of rail lines and streets, new pedestrian crossings, new cross-connection points, improved visual quality of project facilities, and traffic management plans that maintain access during and after construction.

MIN-LU-7. Temporary construction-period related impacts on neighborhoods and communities would be addressed through site-specific measures. Potential strategies to alleviate or minimize impact to community during construction may include, but would not be limited to, the following:

- Provide opportunities for community involvement early in future environmental studies;
- Facilitate design workshops within affected neighborhoods to learn from the community which circulation elements (automobile, bicycle, pedestrian) in the impacted area are most critical so that those elements can be preserved;
- Develop design standards for facilities, landscape, and public art associated with the project that reflect the character of adjacent affected neighborhoods;
- Ensure that key connections (pedestrian/bicycle and vehicular crossings) across the rail corridor are maintained where necessary to maintain neighborhood integrity;
- Complete a construction logistics analysis to determine approximate durations, impacts and localized mitigation measures to reduce disruption to communities, activities, traffic and circulation;
- Develop traffic management plans that reduce barriers during construction;
- Where feasible, maintain connectivity during construction;
- Implement measures to maintain high level of visual quality in the neighborhood. Such measures can include visual buffers, trees and other landscaping, architectural design and public artwork; and
- Implement procurement specifications and incentives for construction contractors designed to reduce the duration and disruption of construction. Potential requirements include restrictions on construction vehicle traffic and routes, haul routes, hours of permitted construction activity, and advance public notification of all closures or expected travel delays.

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	A-LU-8. In selecting components of the Preferred Alternative to carry forward for design and potential construction and operation, examine whether the selected components are disproportionately located within environmental justice communities. Environmental justice effects could potentially be avoided if the components carried forward are not disproportionately located within environmental justice communities. **MIN-LU-9.** EO 12898 requires federal agencies to ensure effective public participation and access to information. Compliance with EO 12898 involves outreach to the potentially affected minority and/or low-income population to identify issues of importance that may not otherwise be considered. Outreach to affected communities would be conducted during the decision-making process and identification of any necessary mitigation measures. **MIN-LU-10.** DOT Order 5610.2 requires DOT agencies to establish opportunities for meaningful public involvement by members of minority populations during activities including identification of potential mitigation measures. Minority and low-income populations would be provided with access to information about health and environmental impacts, measures to avoid, minimize and/or to mitigate any disproportionately high and adverse effects and offsetting benefits and opportunities to enhance affected communities, neighborhoods, or individuals during an outreach program conducted as part of the decision-making process. **MIN-LU-11.** As indicated in the Environmental Consequences section above, many of the proposed curve realignments associated with the action alternatives involve multiple segments, some near and some distant from environmental justice communities. A potential avoidance/minimization strategy would be to omit portions of multiple segment curve realignments that include environmental justice communities or where such impacts would be deemed to be disproportionately concentrated. **MIN-LU-12**. Special attention would be given to any permanent impact categories that are commonly of concern for this type of project and to those that previously have been identified as being of concern. These include: Air quality, Noise and vibration, Public health, Visual resources/aesthetics, Parklands, Relocation	

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Visual Resources		
Effects from visual presence of construction equipment and with the permanent transformation of agricultural/residential land into railroad along the alignment	**MIN-VIS-1**. In locations where construction would take place overnight, appropriate light and glare screening measure would be used at construction staging areas, including the use of downward cast lighting. **MIN-VIS-2**. Where physical components pass through or along the edge of residential or heavily traveled roadways, landscape treatments such as trees and shrubs, would be installed and continuously maintained along the edge of the railroad ROW to provide partial screening of visual changes. **MIN-VIS-3**. While new sidings/siding extensions can have low visual impacts as noted above, use of sidings for long-term "parking" of train cars can have visual consequences. Mitigation strategies would include limits on the use of sidings for longer-term train car storage, with potential priority to areas of greater visual sensitivity. **MIN-VIS-4**. Night lighting at stations would be the minimum required for operations and safety. All lights would be hooded and directed to the area where the lighting is required to be on all the time, sensors and timers would be specified. **MM-VIS-5**. Natural land cover removed or disturbed to implement physical components would be replaced, as feasible.	During project design, during construction
Agricultural and Forest Resources		
Potential disruption of agricultural uses during construction and operation	**A-AG-1.** Careful design practices, such as constructing the second mainline to be completely within existing railroad ROW, would avoid potential impacts to agricultural and forest resources along the Corridor, as feasible. Other Preferred Alternative components would be designed to avoid or minimize farmland effects through similar design approaches. **MM-AG-1.** All Farmland impacts would be at least partially offset through purchase of conservation easements that would permanently maintain lands in agricultural use. These conservation easements would be acquired over agricultural lands of equal quality to those affected. With regard to Williamson Act contracts, specific conflicts with Williamson Act contracts would need to be identified prior to implementation of any Preferred Alternative component.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	MIN-AG-2. When there is a need to acquire and convert land enrolled in a Williamson Act contract, the Department of Conservation would be notified and requirements of Government Code Section 51290-51295 and 51296.6 would be met. To the extent the second mainline would require either temporary or permanent use of land outside the existing railroad ROW that traverses the Los Padres National Forest, the Forest Service would be consulted to identify appropriate and feasible means to avoid, minimize, or compensate for any forest land impacts. **MM-AG-3.** To the extent forest land use could not be fully avoided, potentially feasible mitigation measures include land swaps, fee mitigation, or other similar measures that would compensate for loss of forest lands.	
Public Utilities and Services		
Potential effects to utilities from construction and operation	**A-PS-1.** Adapt rail components to accommodate existing utility facilities and transmission lines. **A-PS-2.** During project-level planning and design, refer to each utility owner/provider to best avoid potential impacts on existing and planned utilities through adjustments to design features. **MIN-PS-3.** Where avoidance is infeasible, utility transmission lines and facilities would be relocated or protected in place throughout all phases of construction and operation, and in compliance with the involved utility owners/providers. **MIN-PS-4.** Implement solar powered CTC in remote areas where utility connections would be difficult.	During project design, during construction
Hazardous Materials and Waste		
Potential effects associated with construction and operation	**MIN-HAZ-1.** Detailed investigation of soils for contamination as part of an environmental site assessment (ESA), and if appropriate a Phase II ESA, for each component prior to implementation would be conducted. Where conditions warrant a Phase II ESA, such ESAs shall include the following: ▪ A work plan that includes the numbers and locations of proposed soil borings/monitoring wells, sampling intervals, drilling and sampling methods, analytical methods, sampling rationale, site geohydrology, field screening methods, quality control/quality assurance, and reporting methods. ▪ A site-specific Health and Safety Plan (HSP) signed by a Certified Industrial Hygienist. ▪ Necessary permits for encroachment, boring completion, and well installation.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing

- A traffic safety plan.
- Sampling program (fieldwork) in accordance with the work plan and HSP. Fieldwork shall be completed under the supervision of a geologist registered in the State of California, as appropriate.
- Hazardous materials testing through a certified laboratory.
- Documentation to include field procedures, boring logs/well diagrams, tables of analytical results, cross-sections, an evaluation of the levels and extent of contaminants found, and conclusions and recommendation regarding the environmental condition of the site and the need for further assessment. Recommendations may include additional assessment or handling of the contaminants found though the contaminated soil contingency plan. If the contaminated soil contingency plan is inadequate for the contamination found, a remedial action plan shall be developed. Contaminated groundwater shall generally be handled though the NPDES/dewatering process.
- Disposal process including transport by a state-certified hazardous material hauler to a state-certified disposal /recycling facility licensed to accept/treat the identified waste.

Where contaminated groundwater is encountered, the project sponsor shall obtain a NPDES permit prior to the issuance of a permit to construct. The NPDES permit shall specify site-specific testing and monitoring requirements and discharge limitations.

Additionally, available agency files for moderate and high risk properties should be reviewed prior to demolition, grading, or construction. If the file review indicates a low likelihood of contaminants being present beneath or adjacent to a project feature (rail alignment, station, etc.), additional assessment/mitigation may not be recommended and the property could be reclassified as low risk.

MIN-HAZ-2. Surveys for lead-based paint and asbestos containing materials would be required prior to demolition of any buildings or structures.

MIN-HAZ-3. A Site Management Program/Contingency Plan would be required prior to construction to address known or potential hazardous material issues such as contaminated soil or groundwater, health and safety plan for construction workers and the public, and procedures to protect workers and the public if buried contaminants are encountered.

MIN-HAZ-4. Construction contractors would dispose of all hazardous or solid wastes and debris encountered or generated during construction and demolition activities in accordance with all applicable Federal regulations.

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	MM-HAZ-5. A Hazardous Materials Management Plan for all facilities that use, store, or dispose of hazardous materials should be prepared. Facilities emitting toxic air emissions shall submit inventories and plans to the appropriate air quality management district and be subject to permitting and monitoring regulations of the district. All necessary local, state and federal permits for the installation and operation of any above or below ground chemical or fuel storage tanks prior to installing such tanks would be obtained.	
Cultural and Paleontological Resources		
Potential effects to historic properties, cultural, archaeological and paleontological resources from construction and operation	**MIN-CUL-1.** Recordation: The lead agency(s) would ensure that cultural resources adversely affected by the Preferred Alternative are recorded and documented in a similar manner to a Historic American Building Survey (HABS) or Historic American Engineering Record (HAER) to be coordinated with the SHPO. **MIN-CUL-2.** Design Guidelines: The lead agency would ensure that design guidelines are developed for appropriate and compatible construction with regard to aesthetics. Design guidelines would meet HABS and HAER standards and would be reviewed by SHPO and other agencies. **MIN-CUL-3.** Interpretive/Educational Materials: The lead agency may prepare interpretive and/or educational materials regarding affected historic properties or resources. The focus of this mitigation would be the historic themes of this resource. **A-CUL-4.** Relocation: Historic properties or resources that would be demolished because of the project should be relocated and rehabilitated. The lead agency would prepare a removal plan, including site plans for the new locations and placing them on new foundations. **MIN-CUL-5.** Monitoring: Project construction documents and new construction would be monitored to ensure they confirm to the design guidelines. A professional would monitor construction to identify conditions that would conflict with the mitigation measures. **MIN-CUL-6.** Minor Repairs and Reconstruction: The lead agency would ensure that inadvertent damage to historic properties or resources would be repaired in accordance Secretary of the Interior's Standards for Treatment of Historic Properties. **MIN-CUL-7.** Salvage: The lead agency would ensure that selected decorative or architectural elements of any adversely affected historic properties or resources should be reviewed for feasibility of salvage to	During project design, during construction, post construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	mitigate loss or destruction. Where possible, these elements would be retained and reused in construction. Where not possible, selected salvaged elements would be made available for educational purposes. **MIN-CUL-8.** Paleontological Resources: Mitigation measures for paleontological resources would be identified prior to implementing specific elements of the Preferred Alternative, such as education of workers, recovery of fossils found during reconnaissance, monitoring construction. Furthermore, mitigation strategies would include establishing protocols for recovering fossils during construction for identification, dating, interpreting, and preserving at appropriate facilities.	
Geology and Soils		
Potential adverse effects from ground shaking.	**MIN-GEO-1.** Infrastructure would be designed to withstand strong ground motion. Designs typically include additional ductility in the structure. The design needed to reduce ground shaking would be determined upon for structures during subsequent stages of development, when detailed design plans are created. **MIN-GEO-2.** Liquefaction potential would be reduced through site-specific methods such as soil densification or structural design.	During project design
Potential impacts associated with fault crossings.	**MIN-GEO-3.** Techniques to monitor track alignment as routine maintenance and the installation of ground motion warning systems would be used to reduce the effects of fault crossings.	During project design
Potential Impacts associated with natural and constructed slope failure.	**A-GEO-4**. Geotechnical studies during subsequent site-specific evaluation would assist in determining the potential for failure of natural and constructed slopes and identifying temporary and permanent slope reinforcement and protection measures where appropriate.	During project design

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
Potential hazards associated with shrink/swell, and corrosive soils.	**A-GEO-5.** A site-specific subsurface evaluation would be performed by a qualified geologist to evaluate the extent of soils susceptible to shrink-swell present in the area of the physical component. Where expansive soil conditions are found and would be detrimental to physical component, measures recommended by the geologist would be implemented in project design. **MIN-GEO-6.** A subsurface evaluation would be performed prior to design and construction to evaluate the potential for corrosive soil and identify recommendations to minimize or avoid any potential effects related to the presence of such soils (including but not limited to corrosion of rails or ties).	During project design
Impacts associated with the potential migration of hazardous gases.	**A-GEO-7.** The use of safe and explosion-proof equipment during construction and testing for gases regularly. **A-GEO-8.** Active monitoring systems and alarms would be required in underground construction areas and facilities where subsurface gases are present.	During project design
Potential proximity related impacts to mineral resources.	**A-GEO-9.** Important mineral sites will be identified as early as possible during detailed project-level reviews and avoided where possible.	During project design
Hydrology and Water Resources		
Potential construction and operation related impacts to surface waters	**A-HYD-1.** Where feasible, project-level design would avoid adverse impacts to water resources. For example, siding extension impact areas were analyzed assuming one mile extension areas could occur entirely on one side or the other. In the event that one end of a siding extension would impact a surface water body, the siding extension would be designed on the opposite side and away from the water resource area. **MIN-HYD-2.** NPDES permits and Storm Water Pollution Prevention Plans (SWPPP) would be obtained prior to implementing components of the Preferred Alternative. NPDES permit requirements would be followed and BMPs would be implemented as mandated. These would include measures to provide permeable surfaces, where feasible, and to retain and treat stormwater onsite using catch basins and treatment wetlands. The SWPPP would include BMPs to minimize potential sediment transport due to construction activities, including obligatory erosion control techniques, stormwater management, and channel dewatering for all stream/river crossings. The SWPPP would also include measures to control the	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	overall amount and quality of stormwater runoff to regional systems. Potential BMPs may include the following: ▪ Practices that minimize contact between construction materials, equipment, and maintenance supplies with stormwater; ▪ Practices that reduce soil erosion including watering for dust control, perimeter silt fences, placement of rice straw bales, sediment basins, and soil stabilization; and ▪ Practices that maintain water quality including filtration, detention, and retention systems, constructed wetland systems, biofiltration/bioretention systems, grass buffer strips, ponding areas, organic mulch layers, planting soil beds, sand beds, or vegetated systems (biofilters) such as vegetated swales and grass strips designed to convey and treat either shallow flow (swales) or sheerflow (filter strips) runoff. **MM-HYD-3.** The project sponsor would obtain permits required under Sections 401 and 404 of the CWA and comply with mitigation measures required in the permits. Mitigation measures may include compensation for habitat loss involving habitat restoration, reconstruction onsite, or habitat replacement offsite, with the ultimate goal of ensuring minimal impact to surface water quality. **MIN-HYD-4.** If required, the project sponsor would comply with any permit conditions required under Section 10 of the Rivers and Harbors Act. **MIN-HYD-5.** If required, the project sponsor would secure a Lake or Streambed Alteration Agreement for any work that would take place along the banks of surface water bodies. **MIN-HYD-6.** The project sponsor would manage potential fuel or other spills and a spill prevention and emergency response plan would be developed and implemented.	
Potential construction and operation related impacts to floodplains	**A-HYD-7**. Prior to implementing physical components that would introduce new structures in the study area, such as curve realignments, further evaluation of potential 100-year flood risk areas would be conducted. Construction of facilities within floodplains would be avoided where feasible, and floodplains temporarily impacted by construction activities would be restored as much as possible so they can function as before.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	MIN-HYD-8. Where avoidance is infeasible, the footprint of facilities within the floodplain would be minimized to the extent possible. All opportunities for redesign or modification to minimize flooding risk and potential harm to or within the floodplain would be assessed. For instance, siding extensions can be designed to either extend from the north or south end of the existing siding, potentially avoiding a flood-prone area.	
Potential construction and operation related impacts to groundwater	**A-HYD-9.** Design facilities that are elevated and/or permeable so as to not affect recharge potential where construction is required in areas of potentially substantial groundwater discharge or recharge. **MIN-HYD-10.** Minimize development of facilities in areas that have substantial groundwater discharge or that would affect recharge. **MM-HYD-11.** Obtain waste discharge permits where required. **MIN-HYD-12.** Obtain a NPDES permit and implement permit requirements, as well as BMPs that would control the release of contaminants near areas of surface water or groundwater recharge. **MIN-HYD-13.** Consider use and retention of native materials with high infiltration potential at the ground surface in areas that are critical to infiltration for groundwater recharge.	During project design, during construction
Biological Resources and Wetlands		
Potential construction and operation related impacts to biological resources	**MIN-BIO-1.** Field surveys would be conducted to determine the extent and type of general and sensitive biological resources, including focused surveys following resource agency protocols for special- status species. **MM-BIO-2.** Biological Resources Management Plans (BRMP) would be prepared to specify the design and implementation of biological resources mitigation measures, including habitat replacement and revegetation, protection during construction, performance (growth) standards, maintenance criteria, and monitoring requirements. USFWS, CDFW, and USACE would review Draft BRMPs. The primary goal of a BRMP is to ensure the long- term perpetuation of the existing diversity of habitats in the study area and adjacent urban interface zones. BRMPs will contain the following: ▪ Specific measures to ensure the protection of sensitive amphibian, mammal, bird, and plant species during construction activities. ▪ Identification and quantification of habitats that will be removed, as well as the locations where these habitats are to be restored or relocated.	During project design, during construction

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	▪ Procedures for vegetation analyses of adjacent protected habitats to estimate their relative composition; site preparation (clearing, grading, weed eradication, soil amendment, topsoil storage); irrigation, planting (container plantings, seeding); and maintenance (weed control, irrigation system checks, replanting). This information would be used to determine the requirements for revegetation areas. ▪ Proposed sources of plant materials and methods of propagation. ▪ Specific parameters for the determination of the amount of replacement habitat for temporary disturbance areas. ▪ Specification of parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and monitoring reports for temporary disturbance areas. ▪ Specification of performance standards for growth of re-established plant communities and cut-and-fill slopes. ▪ Remedial measures to be taken if performance standards are not met. ▪ Procedures and requirements to monitor all restoration/replacement efforts. ▪ Measures to preserve topsoil and control erosion control. ▪ Design of protective fencing around Environmentally Sensitive Areas (ESAs) and construction staging areas. ▪ Identification of location and quantities of gallinaceous guzzlers (catch basin/artificial watering structures, if needed); specification of monitoring of water levels in guzzlers. ▪ Location of trees that are designated as protected for wildlife habitat (roosting sites) and locations for planting of replacement trees. ▪ Identification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within sensitive habitat areas. ▪ Specific monitoring programs for sensitive species during construction. ▪ Specific procedures to ensure the protection of sensitive species identified for preservation. These measures may include, but are not limited to, erosion and siltation control measures, protective	

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing

fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements.

- Provisions for biological monitoring during construction activities that ensure the compliance and success of the proposed protective measures. The monitoring procedures would (1) identify specific locations of wildlife habitat and sensitive species to be monitored; (2) identify the frequency of monitoring, monitoring methodology (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s); and (4) identify reporting requirements.

MM-BIO-3. Mitigation techniques to protect plant and wildlife species would include, but would not be limited to on- and/or off-site revegetation/restoration of plant species, and purchase of credits from existing mitigation banks. Requirements for mitigation ratios would vary depending on the character of the impacted plant community and whether or not it provides notable habitat for sensitive plant or wildlife species. Regulatory agencies would be consulted to determine appropriate mitigation ratios. Relocation of plants, seed collection, plant propagation, out-planting to a suitable mitigation site, and participation in an existing HCP would be employed to mitigate for impacted plant species. Restoration of suitable breeding and foraging habitat, purchase of credits from an existing mitigation bank, and participation in an existing HCP would mitigate for impacted wildlife species.

Whenever possible, on-site mitigation would be preferred to off-site. Off-site mitigation would be located within the same watershed or in close proximity to the impact area, where feasible.

MIN-BIO-4. Minimization measures would include, but not be limited to, pre- construction focused surveys and construction monitoring. Prior to construction, focused surveys would be conducted for sensitive plant and wildlife species identified as occurring in the study area. Locations of sensitive plant/wildlife species observed would be mapped on construction drawings. Research would must be conducted on appropriate methods to use on a species-by-species basis (i.e., transplantation, germination from seed, greenhouse propagation), and construction could would be phased around the breeding season for sensitive wildlife species (See also BRMP information above.)

MIN-BIO-5. Specific measures would be developed to minimize or avoid the propagation of weeds during construction and operation. Potential preventive measures during construction could include identification of areas with existing weed problems and measures to control traffic moving out of those areas (e.g., cleaning of construction vehicles, limitations on movement of fill). Mitigation for operational impacts would be developed similarly.

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing

MIN-BIO-6. Field studies would identify locally significant wildlife movement/migration corridors beyond those discussed in this programmatic document and provide data to assist in the design of bridges and wildlife crossings at crucial travel route points. Wildlife crossings would be designed to mimic natural corridors and must be sufficiently attractive to encourage wildlife use. Where feasible, overcrossings and undercrossings for wildlife would be appropriately vegetated to afford cover and other species requirements. Functional corridors would be established to provide connectivity to protected land zoned for uses that provide wildlife permeability. Corridors would be designed using the following procedure:

- Identify the habitat areas the corridor is designed to connect;
- Determine several species of interest from the species present in these areas;
- Evaluate the relevant needs of each selected species;
- For each potential corridor, evaluate how the area will accommodate movement according to the needs of each species of interest;
- Map the corridors;
- Design a monitoring program.

MM-BIO-7. Delineation of jurisdictional waters and wetlands would be conducted to determine the extent of USACE and CDFW jurisdiction, and consultation with these agencies to determine appropriate mitigation would occur.

- The amount of mitigation required would be assessed on an acreage basis, with ratios depending upon the nature and condition of the jurisdictional areas located within the impact areas. Whenever appropriate and feasible, on-site mitigation would be preferred. Off-site mitigation should be located within the same watershed or as close in proximity to the area of impact as possible. Mitigation options for unavoidable impacts to state and federal jurisdictional waters would include on- or off-site restoration, creation, or enhancement, mitigation banking, or in-lieu fee payments, as described below:
  - Restoration – Return degraded habitat to a pre-existing condition.
  - Creation – Conversion of a persistent non-wetland habitat into wetland (or other aquatic) habitat. The created habitat may be self-sustaining or dependent upon artificial irrigation.

Environmental Impacts	Avoidance, Minimization, and Mitigation Strategies	Timing
	▪ Enhancement – Increase one or more functions of a replacement habitat through activities such as plantings or non-native vegetation eradication. ▪ Passive Revegetation – Allow a disturbed area to naturally revegetate without intervention or plantings. ▪ Mitigation Banking – Purchase of units of previously restored or enhanced wetland or waters habitat within a larger managed conservation area. These units are often known as "credits" and are typically sold by the acre. ▪ In-Lieu Fee Program – A monetary payment would be made to an entity approved by an agency that provides habitat conservation or restoration. For example, the Nature Conservancy may receive in-lieu fee payments for impacts in all watersheds. ▪ Current federal and state policy emphasizes a "no net loss" of wetlands habitats policy, which is usually achieved through restoration of areas subject to temporary impacts or creation of wetlands to offset permanent impacts. However, according to the January 27, 2003, Special Public Notice for Mitigation and Monitoring Guidelines, USACE favors the use of approved mitigation banks or in-lieu fee programs in the event that these programs would result in a net increase in regional or watershed benefit over on-site compensatory mitigation. Approved mitigation and in-lieu fee programs include measures designed to ensure the no net loss of wetlands policy is met.	
Growth Inducement		
Potential adverse impacts to growth and development along the alignment.	**MIN-GR-1**. New station development would be coordinated early in project-level reviews with local jurisdictions. This would ensure that land use plans and controls can be revised and implemented in conjunction with any new station development.	During project design

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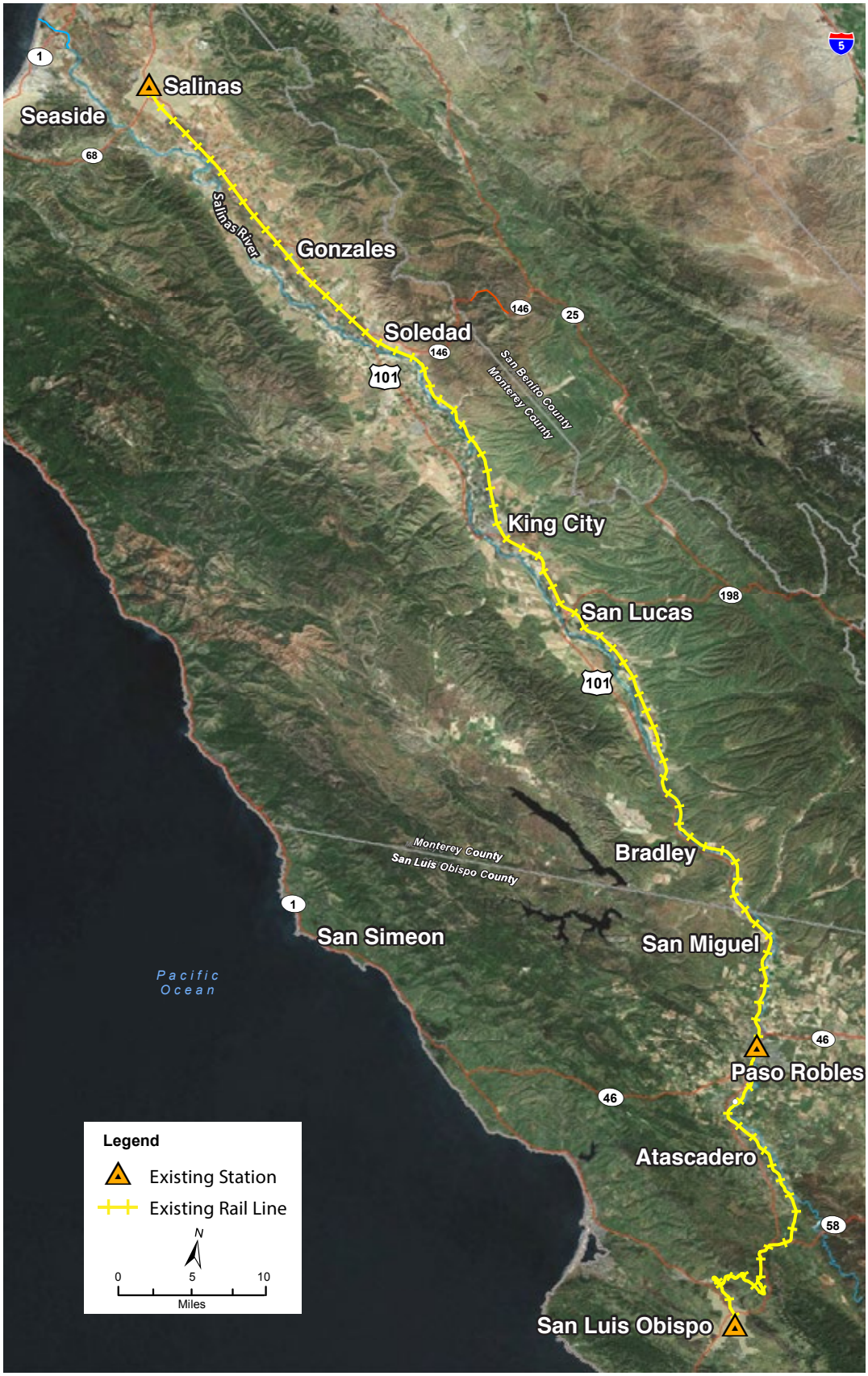

Project Location Map **Figure 1**

Source: Circlepoint, 2013

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