Memorandum

To: CHAIR AND COMMISSIONERS **CTC Meeting**: August 16-17, 2023

From: TANISHA TAYLOR, Executive Director

Reference Number: 2.2c.(3), Action

Prepared By: Cherry Zamora
Assistant Deputy Director

Published Date: August 4, 2023

Subject: Approval of Project for Future Funding Consideration – Addenda for the Peninsula Corridor Electrification Project, Resolution #E-23-127A

Recommendation:

Staff recommends the California Transportation Commission (Commission), as a Responsible Agency, accept the Addenda for the Peninsula Corridor Electrification Project (Project) in San Francisco, San Mateo, and Santa Clara counties and approve the Project for future funding consideration.

Issue:

The Peninsula Corridor Joint Powers Board is the California Environmental Quality Act Lead Agency for the Project. The Project will electrify the Caltrain Corridor from San Francisco's 4th and King Caltrain Station to south of the Tamien Caltrain Station, convert diesel-hauled trains to Electric Multiple Unit trains, and increase service to up to six Caltrain trains per peak hour per direction. Operating speed will be up to 79 miles per hour, which is what it is today. The Project is located on the Caltrain corridor from the current northern terminus station in San Francisco to south of the Tamien Station in San Jose and is located in San Francisco, San Mateo, and Santa Clara counties.

For all projects that are anticipated to be funded through a program under the purview of the Commission, full compliance with the California Environmental Quality Act is required. The Commission will not allocate funds to projects for design, right-of-way, or construction until the environmental document is complete, and the Commission has approved the environmentally cleared project for future funding consideration.

Background:

On January 8, 2015, the Peninsula Corridor Joint Powers Board certified the Final Environmental Impact Report for the Project. On December 7, 2016, the Commission accepted the Final Environmental Impact Report for the project and approved the project for future consideration of funding. To evaluate design refinements made since the 2015 certification, the

Peninsula Corridor Joint Powers Board has approved the following addenda to the Final Environmental Impact Report:

- On February 4, 2016, the Peninsula Corridor Joint Powers Board approved an addendum evaluating an additional site location for Paralleling Station 7.
- On October 5, 2017, the Peninsula Corridor Joint Powers Board approved two addenda evaluating minor shifts in the overhead contact systems alignment and refined design for improvements at the South San Francisco and San Jose PG&E substations and their interconnections to Peninsula Corridor Joint Powers Board substations.
- On August 2, 2018, the Peninsula Corridor Joint Powers Board approved an addendum evaluating a new site for Paralleling Station 2.
- On September 19, 2018, the Peninsula Corridor Joint Powers Board approved an addendum evaluating a new site for Paralleling Station 3.
- On March 13, 2020, the Peninsula Corridor Joint Powers Board approved an addendum evaluating the design for the electrical interconnection from PG&E substations in South San Francisco and San Jose to the project substations.
- On November 5, 2020, the Peninsula Corridor Joint Powers Board approved an addendum evaluating the closure of the Atherton Station.
- On February 3, 2021, the Peninsula Corridor Joint Powers Board approved an addendum evaluating the PG&E East Grand Substation to Traction Power Substation #1 interconnection.

These addenda found that the Project's refined designs would be accomplished without resulting in new or substantially more severe impacts than disclosed in the Final Environmental Impact Report. On July 31, 2023, the Peninsula Corridor Joint Powers Board confirmed that the Final Environmental Impact Report and addenda remain valid and that there are no new identified impacts requiring new mitigation beyond that identified in the Final Environmental Impact Report. The Peninsula Corridor Joint Powers Board also confirmed that the Project set forth in the Final Environmental Impact Report and addenda are consistent with the Project scope of work programmed by the Commission.

The Project is estimated to cost $2,442,690,000 and is funded through construction with Transit and Intercity Rail Capital Program ($387,000,000), Federal Transit Administration ($1,073,090,000), Prop 1A and other California High Speed Rail Authority ($713,000,000), Prop 1B ($8,126,000), and local ($261,474,000) funds.

Construction began in July 2017. Approval of future funding consideration would be applicable to supplemental fund allocations.

Attachments:

- Attachment A: Resolution E-23-127A
- Attachment B: Findings of Fact and Statement of Overriding Considerations
- Attachment C: Notice of Determination
- Attachment D: Project Location Map

CALIFORNIA TRANSPORTATION COMMISSION
Resolution for Future Funding Consideration

4 – San Francisco, San Mateo, and Santa Clara Counties
Resolution E-23-127A

1.1 WHEREAS, the Peninsula Corridor Joint Powers Board has completed addenda to the Final Environmental Impact Report for the Peninsula Corridor Electrification Project (Project); and

1.2 WHEREAS, the Peninsula Corridor Joint Powers Board has certified the Final Environmental Impact Report and prepared the addenda pursuant to the California Environmental Quality Act (CEQA) and the CEQA Guidelines; and

1.3 WHEREAS, the Project is located on the Caltrain corridor from the current northern terminus station in San Francisco to south of the Tamien Station in San Jose and is located in San Francisco, San Mateo, and Santa Clara counties; and

1.4 WHEREAS, the Project will electrify the Caltrain Corridor from San Francisco's 4th and King Caltrain Station to south of the Tamien Caltrain Station, convert diesel-hauled trains to Electric Multiple Unit trains, and increase service to up to six Caltrain trains per peak hour per direction. Operating speed will be up to 79 miles per hour, which is what it is today; and

1.5 WHEREAS, on January 8, 2015, the Peninsula Corridor Joint Powers Board certified the Final Environmental Impact Report; and

1.6 WHEREAS, on December 7, 2016, the California Transportation Commission (Commission) accepted the Final Environmental Impact Report and approved the project for future funding consideration; and

1.7 WHEREAS, the Peninsula Corridor Joint Powers Board approved addenda in 2016, 2017, 2018, 2020, and 2021 to evaluate design refinements; and

1.8 WHEREAS, these addenda found that the Project's refined designs would be accomplished without resulting in new or substantially more severe impacts than disclosed in the Final Environmental Impact Report; and

1.9 WHEREAS, on July 31, 2023, the District confirmed that the proposed Project set forth in the Final Environmental Impact Report and addenda are consistent with the Project scope of work programmed by the Commission; and

1.10 WHEREAS, the Commission, as a Responsible Agency, has considered the information contained in the addenda to the Final Environmental Impact Report; and

2.1 NOW, THEREFORE, BE IT RESOLVED that the Commission does hereby accept the addenda to the Final Environmental Impact Report and approves the above-referenced Project for future funding consideration.

FINDINGS OF FACT AND STATEMENT OF OVERRIDING CONSIDERATIONS

PENINSULA CORRIDOR ELECTRIFICATION PROJECT

PREPARED FOR:

Peninsula Corridor Joint Powers Board
1250 San Carlos Avenue
San Carlos, CA 94070
Contact: Stacy Cocke
650.508.6207

PREPARED BY:

ICF International
620 Folsom Street, Suite 200
San Francisco, CA 94107
Contact: Rich Walter
415.677.7167

January 2015

ICF International. 2015. Findings of Fact and Statement of Overriding Considerations for the Peninsula Corridor Electrification Project. January. (ICF 00359.14.). Prepared for the Peninsula Corridor Joint Powers Board.

Introduction

Introduction

The Peninsula Corridor Joint Powers Board (JPB) has certified a Final EIR for the Caltrain Peninsula Corridor Electrification Project (Proposed Project or PCEP[1]). The JPB decided to prepare the new EIR for the corridor electrification due to the changes in existing conditions[2] that have occurred along the corridor since prior EIR analyses were conducted, to update the environmental analysis, and to update the cumulative analysis of Blended Service and other developments along the corridor that affect the cumulative scenario. The EIR also allowed public agencies, stakeholders, the public and decision-makers the opportunity to review and comment on the PCEP's environmental effects in light of current information and analyses.

The PCEP will modernize Caltrain service and includes the following basic components. Corridor electrification is the only component that is being environmentally cleared with the FEIR, as explained below. For a detailed description of the PCEP, see Chapter 2, *Project Description*, of the FEIR.

Corridor Electrification: The PCEP will install facility improvements, including overhead catenary wires, support poles, traction power facilities, and other appurtenances necessary to convert service from the existing diesel-locomotive driven trains to Electric Multiple Units (EMUs). EMUs are self-propelled electric trains that do not have a separate locomotive. EMUs can accelerate and decelerate at faster rates than diesel-powered trains, even with longer trains. With EMUs, Caltrain could run longer trains without degrading speeds, thus increasing peak-period capacity. This will provide for operation of up to 6 Caltrain trains per peak hour per direction (an increase from 5 trains per peak hour per direction at present). Electrification of the rail line is scheduled to be operational by 2020/2021[3]. The PCEP includes operating 114 trains per day between San Jose and San Francisco and six trains per day between Gilroy and San Jose. Future proposed actions to expand service beyond 114 trains per day may require additional environmental review.

The PCEP would include the installation of 130 to 140 single-track miles of overhead contact system (OCS) for the distribution of electrical power to the new electric rolling stock. The OCS would be powered from a 25 kilovolt (kV), 60 Hertz (Hz), single-phase, alternating current (AC) traction power

[1] Capitalized terms in this document have the same meaning as in the FEIR.

[2] For example, there have been changes in existing development adjacent to the Caltrain right of way and stations, in levels of traffic, and in adopted land use plans around stations.

[3] The first year of project operation would be 2020/2021 depending on the timing of construction completion. For the sake of simplicity and in recognition that the first year of operations could be in 2020, this document refers to the operational year as 2020.

system consisting of two traction power substations (TPSs), one switching station and seven paralleling stations.

The Proposed Project can be analyzed as a separate project under the California Environmental Quality Act (CEQA) because it has independent utility (providing Caltrain electrified service – see Section 1.5.1.2 of the FEIR) and logical termini (station end points). The PCEP is not dependent upon either of the other components (CBOSS PTC or Blended Service) for operation.

- **Advanced Signal System (commonly referred to as CBOSS PTC or CBOSS):** This component will increase the operating performance of the current signal system, improve the efficiency of at-grade crossing warning functions, and automatically stop a train when there is violation of safe operating parameters. This component, which includes implementation of safety improvements mandated by federal law and a new fiber optic backbone, has been previously approved and is currently being installed. It is scheduled to be operational by 2015 as mandated by the Federal Railroad Administration (FRA).
- **Blended Service:** The JPB, California High Speed Rail Authority (CHSRA), and the Memorandum of Agreement (MOU) partners have agreed on shared use of the Caltrain corridor for the use of up to six Caltrain trains per peak hour per direction and up to four high-speed rail (HSR) trains per peak hour per direction.[4] The operational feasibility of Blended Service has been studied but is presently only at the conceptual planning phase. The potential addition of HSR service to this corridor will be the subject of a separate environmental review process that will be undertaken by CHSRA as the lead agency subsequent to the environmental process for the PCEP. Based on the current *2014 Business Plan* (CHSRA 2014), Blended Service along the Corridor is scheduled to commence sometime between 2026 and 2029. Blended Service would connect with the Downtown Extension (DTX) near the Fourth and King Station in San Francisco, providing Caltrain and HSR service to downtown San Francisco at the Transbay Terminal Center (TTC).

Section 1 of this document provides a summary of the environmental review process. Section 2 describes the alternatives considered in the 2014 FEIR. Section 3 contains the JPB's findings for each significant environmental effect of the Project identified in the FEIR, as required by CEQA. Section 3 also describes the reasons why the project alternatives ultimately have been rejected. Section 4 consists of a statement of overriding considerations, as required by State CEQA Guidelines Section 15093, stating the specific circumstances that support the JPB's determination that the unavoidable significant environmental effects of the PCEP are acceptable because specific benefits of the PCEP outweigh those effects.

CEQA Process

The JPB analyzed the PCEP on the basis of the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (14 CCR 15000, et seq.). The FEIR prepared by the JPB determined that the PCEP could have potentially significant effects on the environment, including significant effects that cannot be avoided.

[4] The CHSRA 2014 Business Plan (CHSRA 2014) presumes Phase 1 Blended Service would have up to four trains per peak hour and up to four trains per off-peak hour. As explained in Chapter 4, Section 4.1 *Cumulative Impacts,* of the EIR, the EIR presumes up to 40 to 53 daily round-trip high-speed trains in 2040 based on the CHSRA 2012 Business Plan, *Estimating High-Speed Train Operating and Maintenance Cost for the CHSRA 2012 Business Plan* (CHSRA 2012c), which presumed 40 HSR daily round-trips per day and, the Draft 2014 Business Plan *Service Planning Methodology* document (CHSRA 2014) which includes an assumption of 53 daily round trip trains starting in 2029 and continuing beyond 2040. The 2014 Business Plan does not make an explicit statement about the level of service on the Caltrain corridor. Thus, the exact amount of daily HSR service is unknown. The later CHSRA project-level environmental evaluation will address proposed high-speed train service levels along the San Francisco Peninsula.

Consistent with CEQA's requirements, the Draft EIR was circulated for a public comment period beginning on February 28, 2014 and ending on April 29, 2014. All written comments received during the public comment period and during the public meetings held during the public comment period to receive comments on the Draft EIR were responded to in Volume II of the FEIR.

Prior to approving the PCEP, the JPB must certify that it has considered the FEIR, that the FEIR adequately meets the requirements of CEQA, and that the FEIR reflects the independent judgment of the JPB.

Upon approving the PCEP, the JPB must adopt the following findings of fact regarding the significant effects identified in the FEIR, the alternatives identified in the FEIR, and statement of overriding considerations explaining the benefits that outweigh the significant unavoidable effects identified in the FEIR.

Pursuant to Public Resources Code (PRC) Section 21081.6, the JPB is also adopting a mitigation monitoring and reporting program (MMRP) for the mitigation measures that are the JPB's responsibility to implement. The MMRP establishes a program to ensure that the adopted mitigation measures identified in the FEIR will be implemented.

Alternatives Considered

Introduction

The JPB conducted a comprehensive alternative identification and screening process to identify which alternatives to analyze in the PCEP EIR. During the scoping process, the JPB solicited input from the public, agencies, and stakeholders about potential alternatives for consideration. The JPB also reviewed the impacts of the Proposed Project and identified several additional potential alternatives for consideration as well. As discussed in Section 5.4, Alternative Screening Process in the FEIR, the JPB initially considered a wide range of 52 alternatives to the project (other than the No Project Alternative) and then conducted a three-part screening evaluation to select the potentially feasible alternatives to be analyzed in the EIR. Forty-one alternatives were determined to be technically, logistically or financially infeasible, to not avoid or substantially reduce one or more significant impacts of the Proposed Project, or to not meet all or most of the project's purpose and need and were dismissed from further analysis. Of the remaining eleven (11) alternatives, seven (7) were incorporated into the project or mitigation, leaving four (4) action alternatives.

The FEIR examined five alternatives to the PCEP: the No Project Alternative, a Diesel Multiple Unit (DMU) Alternative, a Dual-Mode Multiple Unit Alternative, a Tier 4 Diesel Locomotive Alternative, and an Electrification with Overhead Contact System (OCS) Installation by Factory Train Alternative. Each of these alternatives is ultimately rejected as infeasible[5] for the reasons described in Section 3 below.

No-Project Alternative

State CEQA Guidelines Section 15126.6(e)(2) states that the "no project analysis shall discuss the existing conditions at the time the notice of preparation is published as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

Under the No-Project Alternative, there would be no electrification of the Caltrain right of way between San Jose and San Francisco, no purchase of EMUs, and no increase in train service. The current train service is assumed to continue unchanged to 2020 and 2040. This service consists of five trains per peak hour, 92 trains per day, through use of diesel engine–hauled locomotive trains. Locomotives and passenger carriages would be replaced when they reach the end of their service life, meaning that approximately 75 percent of the existing fleet would be replaced by 2020. As new equipment is purchased, the new locomotives would meet the U.S. Environmental Protection Agency (USEPA) Tier 4 emissions standards.

[5] See section below on "Findings Regarding the Alternatives" for discussion of the definition of "infeasible" used in these findings.

While this alternative would not increase the frequency of train service, ridership would still be expected to increase, based on the increase in ridership in recent years. This means that trains would have a higher average occupancy in the future than at present.

DMU Alternative

DMUs are self-propelled diesel-mechanical vehicles with engines located below the passenger compartment. The key DMU characteristic related to desired service improvements is the reduction of running times due to faster acceleration than traditional diesel locomotive push-pull service. DMUs require less time to accelerate up to full speed from stations stops and slow areas (compared to existing single-head diesel locomotive trains). This reduces overall travel times, particularly on a corridor featuring frequent stops.

For the purposes of the EIR, this alternative assumed the following:

- An eight-car single-level DMU train, with a capacity of 78 passengers per car (624 passengers per train) was analyzed in order to analyze an alternative that would roughly match the approximate number of seats ridership per train capacity of the PCEP. Only a single-level DMU is being evaluated because the currently available double-deck DMU designs would not fit through the Caltrain system tunnels and because there are a number of other constraints to a double-deck design including that there is no existing market for double-deck DMUs.
- The Caltrain service schedule for the DMU Alternative would be the same as the PCEP, although ridership would likely be less due to inferior performance. DMUs do not accelerate or decelerate as fast as EMUs and thus the number of station stops would likely have to be reduced to maintain the same trip time as the PCEP EMUs. Otherwise, travel times would be unacceptably longer.
- The eight-car single-level DMU train length of 680 feet would exceed the length of Caltrain platforms at most Caltrain stations and would require platform extension construction.
- The DMU Alternative is assumed to terminate at the Fourth and King Station in San Francisco. It would not proceed to the TTC because the DTX tunnel and the TTC are designed only for electric trains. In the long-run, this would also result in less ridership than the Proposed Project.

Dual-Mode Multiple Unit Alternative

Dual-mode MUs are self-propelled vehicles that can operate in both a diesel mode and in an electrified mode. While there are dual-mode locomotives in operation on the East Coast, there are no known dual-mode MUs presently in operation in the United States. However, there are dual-mode MUs in operation in Europe and others under construction that can operate in both a diesel mode in non-electrified territory and in an electrified mode using an overhead 25 kVA OCS.

For the purposes of this alternative analysis, existing European train designs were used to derive alternative assumptions:

- A 10-car single-level dual-mode MU train, consisting of two, coupled, five-car trainsets with an approximate capacity of 600 passenger seats per train was analyzed in order to provide an alternative that would roughly match the per-train capacity of the PCEP.

- The 10-car single-level dual-mode MU train length would be 600 feet which would require lengthening at some of the Caltrain platforms including the platforms at 22nd Street, Broadway, California Street, Sunnyvale, and Santa Clara.
- Caltrain's service schedule for the Dual-Mode MU Alternative would be the same as the PCEP, but likely lower ridership due to inferior performance compared to EMUs. Dual-mode MUs do not accelerate or decelerate as fast as EMUs and thus the number of station stops would likely have to be reduced to maintain the same trip time as the PCEP EMUs. Otherwise, travel times would be unacceptably longer.
- This alternative does not include electrification between San Jose and the Fourth and King Station in San Francisco. However, this alternative would need to include traction power facilities to link the electrified lines in the DTX to power from PG&E. This electrification would involve connecting overhead or underground transmission wires from PG&E to a new traction power substation, and connecting transmission lines from the new traction power substation to the Overhead Contact System (OCS) for the DTX.
- This Alternative is assumed to operate in a diesel mode from San Jose to San Francisco and then either terminate at the San Francisco Fourth and King Station or proceed in an electric mode to the TTC. In 2020, this alternative, like the Proposed Project, would terminate at the Fourth and King Station. In 2040, this alternative is presumed to operate with split service with 4 trains terminating at the Fourth and King Station and two trains proceeding to TTC.

Tier 4 Diesel Locomotive (T4DL) Alternative

This alternative would substitute Tier 4 diesel locomotives for EMUs. This alternative includes two variants: 1) a single-head (SH) scenario where the train is operated with only one locomotive; and 2) a double-head (DH) scenario in which trains are operated with two locomotives in order to match the PCEP schedule.[6]

The following assumptions were made for this alternative in the EIR:

- The train would be the same as today with a single or double locomotive hauling 5 bi-level passenger coaches with a nominal capacity of 600 passenger seats per train order. The alternative would roughly match the ridership per train capacity of the PCEP.
- It was assumed that the Caltrain service levels (6 trains per peak hour, 114 trains/weekday) would be the same as the PCEP.
- For 2040, the T4DL Alternative is assumed to terminate at the San Francisco Fourth and King Station and would not proceed to the TTC because the DTX and the TTC are designed only for electric trains.

[6] In order to provide an "apples to apples" comparison, the Tier 4 Diesel Locomotive Alternative presumes replacement of approximately 75 percent of the existing diesel locomotives in 2020 with Tier 4 diesel locomotives and the use of the other remnant Caltrain diesel locomotives until they reach the end of their service life, which is the same assumption made about the use of EMUs for the PCEP.

Electrification with OCS Installation by Factory Train Alternative

This alternative consists of the same operational elements as the PCEP (i.e., electrified service with EMUs), but with a different method for construction of the OCS. The alternative method of installing the OCS would be through the use of a so-called "Factory Train" (also called an "Electrification Train" and a "High Output Plant System" or the HOPS train), which is a moveable assembly line system, mounted on rails. One of the prime advantages of a Factory Train is the faster rate of progress in OCS installation compared to the PCEP. Rates of progress up to one (1) mile/night have been reported, and the system can reportedly be used while allowing for adjacent rail lines to be used by existing trains although there may be speed restrictions for the use of adjacent lines.

This is a construction methodology alternative to conventional construction of the OCS. Thus, analysis in the EIR is limited to differences between the PCEP and this alternative relative to OCS construction. Under this alternative, about 80 percent of the OCS is presumed to be installed using a Factory Train with the remaining 20 percent assumed to be installed using conventional construction.

Findings

CEQA Requirements

CEQA requires the lead agency to make written findings about the disposition of the project's effects whenever it decides to approve a project for which an EIR has been certified (PRC Section 21081). Regarding these findings, Section 15091 of the State CEQA Guidelines states, in part:

(a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:

(1) Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
(2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
(3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(b) The findings required by subsection (a) shall be supported by substantial evidence in the record.

The "changes or alterations" referred to in the State CEQA Guidelines may be mitigation measures, alternatives to the project, or changes to the project by the project proponent. The FEIR for the PCEP identifies mitigation measures that will reduce significant effects of the PCEP or mitigate other potential effects that may not be, strictly speaking, environmental effects under CEQA. These mitigation measures will be incorporated into the design of the Project. An MMRP will also be adopted by the JPB to ensure that the mitigation measures identified in the FEIR and these findings will be implemented.

The documents and other materials that constitute the record upon which the JPB's decision and these findings are based can be reviewed in person at the following location:

Peninsula Corridor Joint Powers Board
1250 San Carlos Avenue
San Carlos, CA 94070
Contact: Stacy Cocke

Findings Regarding Independent Review and Judgment

Each member of the JPB was provided a complete copy of the FEIR for the PCEP in advance of the hearing on the project. The JPB hereby finds that the FEIR reflects its independent judgment. The JPB also finds that it has independently reviewed and analyzed the FEIR prior to taking final action with respect to the PCEP.

Findings Regarding the PCEP

Findings Regarding Significant and Unavoidable Effects

The JPB determines that the following significant effects cannot be avoided. Feasible mitigation measures included in the FEIR will lessen the effects, but will not result in complete mitigation of the effects to a less-than-significant level. The following identifies the pertinent mitigation measures by number and summary title. The full text of each of the mitigation measures cited below is found in the FEIR and that text is hereby incorporated by reference.

Note that the next section identifies those effects for which mitigation measures have been adopted and that are thereby reduced below the level of significance. The titles/numbers of the effects are the same as those in the FEIR.

Aesthetics

Significant Effect: AES-2 - Substantially degrade the existing visual character or quality of the site and its surroundings (certain operations).

Findings: The JPB hereby makes findings (a)1 and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The PCEP would change local visual character through addition of the OCS, TPFs and tree removal along the existing Caltrain right of way. The effect of the OCS and the TPFs can be mitigated to a less-than-significant level with the measures identified in the FEIR as discussed in the discussion below on *Findings Regarding Significant Effects Mitigated to a less than Significant Level*.

However, the change in aesthetics resulting from the tree removal necessary to operations is considered a significant and unavoidable impact. The following measures mitigate this impact to the extent feasible, but not to a less than significant level.

- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers.
- BIO-5: Tree Avoidance, Minimization, and Replacement Plan.
- CUL-1d: Implement design commitments at historic railroad station.

While Mitigation Measure BIO-5 would require the use of alternative pole designs (such as center poles, two-track cantilevers, side poles with offset insulators, and portals) to reduce the removal and pruning of trees where consistent with construction, maintenance, operations and safety concerns, in some locations along the project corridor there is insufficient ROW width or track spacing to both place electrification infrastructure and completely avoid tree removal. For example, center poles can only be used when there is adequate spacing between tracks to allow for adequate separation of the electrified lines, which does not exist in all areas. Even with alternative designs, there will remain a need to provide for electrical safety of the electrified overhead wires from contact with vegetation. Where trees must be removed, Mitigation Measure BIO-5 requires them to be replanted within areas to help offset the aesthetic effects of the tree removal. But in some locations, trees may not be able to be replanted directly in the same line of sight as trees removed, which could change localized visual character. Thus, adopted mitigation would reduce this impact as much as possible, but is not guaranteed to avoid localized significant effects to visual character.

Four of the five alternatives analyzed in the FEIR would avoid tree removal impacts of the Proposed Project because they do not include electrical infrastructure between San Jose and San Francisco (the fifth alternative involving the installation of the OCS using a factory train would not). The reasons for rejecting the four alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives that would avoid this impact, such as third-rail technology, were also considered and screened out of the range of potentially feasible alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Significant Effect: CUMUL-1-AES – Cumulative impacts on visual aesthetics (operations).

Findings: The JPB hereby makes findings (a)1 and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Blended service with more than two high-speed trains would require a set of passing tracks. Depending on location, this may result in a significant change in local visual character in combination with the PCEP's impacts related to tree removal and OCS installation. Because the PCEP would result in changes in visual character at some locations due to tree removal where tree replacement is not possible on-site, the PCEP may contribute considerably to localized changes in visual character along with blended service passing tracks.

The following measures mitigate the PCEP's contribution to this impact, but not to a less than considerable (i.e., less than significant) level.

- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers.
- BIO-5: Tree Avoidance, Minimization, and Replacement Plan.
- CUL-1d: Implement design commitments at historic railroad station.
- AES-4b: Minimize light spillover at TPFs.

There is no feasible alternative that would avoid this impact. See *Findings Regarding the Alternatives* for an explanation of why none of the five alternatives analyzed in the FEIR were adopted. Other alternatives that would avoid this impact, such as third-rail technology, were considered and screened out of the range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Cultural Resources

Significant Effect: CUL-1 - Cause a substantial adverse change in the significance of historic built resources pursuant to Section 15064.5 (certain locations)

Findings: The JPB hereby makes findings (a)(1) and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction of the Proposed Project's OCS has the potential to affect certain historic resources, specifically the Caltrain San Francisco Railroad Tunnels 1 through 4, historic Caltrain stations, certain bridges and underpasses, and several other potential historic resources. Required mitigation measures would avoid significant effects on historical resources, with the exception of Railroad Tunnel 4 in San Francisco. Tunnel 4 modifications necessary to provide sufficient height clearances for Caltrain and freight rail cars, particularly the removal of the decorative stone portal, may result in significant and unavoidable impacts.

To create safety clearance for the OCS, trees would be potentially pruned or removed from potentially historic residential properties at 45 and 51 Mount Vernon Lane in Atherton. Because these two properties are 50 years old or more and were not visually accessible, for the purpose of this Project they are assumed to be historic resources eligible for listing due to their architectural significance. At this time, it is unknown whether the properties are historic resources, whether the PCEP would have a significant impact on their historic character due to tree removal and whether Mitigation Measure CUL-1e would avoid significant impacts. Therefore, it is presumed that this impact is potentially significant and unavoidable.

The following measures mitigate this impact, but not to a less than significant level.

- CUL-1a: Evaluate and minimize impacts on structural integrity of historic tunnels
- CUL-1b: Minimize impacts on historic decorative tunnel material
- CUL-1c: Install project facilities in a way that minimizes impacts on historic tunnel interiors
- CUL-1d: Implement design commitments at historic railroad stations.
- CUL-1e: Implement specific tree mitigation considerations at two potentially historic properties and landscape recordation, as necessary.
- CUL-1f: Implement historic bridge and underpass design requirements.
- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan.

At San Francisco Tunnel 4 a combination of tunnel notching and track lowering is proposed to provide necessary vertical clearances. Due to track alignment issues north and south of the tunnel, it is not feasible to lower the track sufficiently to avoid the need for notching. Mitigation Measure CUL-1b would lower the impact on the decorative tunnel portal but may not be able to fully avoid visual alteration of the portal decorative material.

Mitigation Measure BIO-5 would require the use of alternative poles to minimize tree removal including on the two potentially historic residential properties. A preliminary analysis conducted for the FEIR for Atherton showed that the use of center poles, if ultimately feasible, could avoid encroachment on private properties in Atherton including the two potentially historic residential properties, in which case this significant impact could be avoided. However, this cannot be determined until final design.

Four of the five alternatives analyzed in the FEIR would avoid tree removal impacts to the two potentially historic residential properties and tunnel modification to San Francisco Tunnel 4 because they do not include electrical infrastructure between San Jose and San Francisco (the fifth alternative involving the installation of the OCS using a factory train would not). The reasons for rejecting the four alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of potentially feasible alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Hydrology and Water Quality

Effect: HYD-7 - Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of sea level rise.

Findings: The JPB hereby makes findings (a)(1), (a)(2) and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings:
Sea level rise (SLR) is a concern for the future, particularly in combination with future storm events and coastal flooding. A scenario with 100-year flood flows coincident with high tides taking into account SLR over a 50-year or 100-year horizon would dramatically increase the risk of flooding in the vicinity of the project area. The PCEP, the tracks, and associated facilities, are minimal in size relative to their surrounding areas and would not divert or increase flood risks relative to other adjacent areas associated with these events.

However, future SLR may result in worsened coastal flooding events that could affect new project facilities (i.e., traction power substations, switching station, and paralleling stations), existing facilities (tracks and stations), and service and riders on Caltrain. The concern is the impact of SLR on the PCEP (and existing facilities) as opposed to the impact of the PCEP on SLR (the project would help to reduce GHG emissions which would help to reduce the potential amount of SLR in combination with other global efforts to reduce such emissions). Given recent court rulings (including *Ballona Wetlands*) and the pending review of this issue by the California Supreme Court, it is uncertain whether analysis of such "impacts of the environment on the project" are or are not required by CEQA. Caltrain is providing this analysis as if such analysis is required under CEQA as a conservative approach and for the purpose of full public disclosure.

The PCEP would not change the potential localized impacts of flooding associated with SLR when they would occur. However, the PCEP would introduce electrical infrastructure at risk of flooding impact and electrical safety risks associated with water contact. The OCS wires and energized elements would be at least 15 feet above the ground surface and, thus, would not be at risk of flooding, even with projected SLR ranges in the higher part of the range for 2100 (+ 5.5 feet). However, the TPFs would be at ground surface and thus those TPFs in areas subject to future coastal flooding may be exposed to mid-century (2050) and/or end-of-century (2100) SLR projections.

Portions of the Caltrain right of way and some of the new project facilities are at risk of future coastal flooding due to the projected SLR associated with climate change. Existing trackbed elevations along the alignment were compared to the future state projections of sea level rise elevations for 2050 and 2100(CO-CAT 2013).

The following measures mitigate this impact, but not to a less than significant level.

- HYD-4: Minimize floodplain impacts by minimizing new impervious areas for new TPFs or relocating these facilities
- HYD-5: Provide for electrical safety for all new TPFs subject to periodic or potential flooding
- HYD-7: Implement a sea level rise vulnerability assessment and adaptation plan

Given that effective coastal flooding mitigation requires the involvement of multiple parties beyond Caltrain, at this time it cannot be concluded that future flooding impacts on the Caltrain system would be fully avoided. Potential adaptation solutions could include flood levees, seawalls, elevated tracks, and/or minor track realignment. In most locations, new levees or seawalls would be optimally placed closer to the Bay or along tidal channels rather than directly along the Caltrain alignment given the need to protect other development subject to flooding between the Caltrain alignment and the Bay. At this time, the feasibility of implementing all measures necessary to avoid future inundation associated with 100-year floods influenced by SLR is not known given that assessment of such solutions will be an ongoing, long-term, and multi-agency process.

Four of the five alternatives analyzed in the FEIR would avoid placing new electrical infrastructure of the between San Jose and San Francisco (the fifth alternative involving the installation of the OCS using a factory train would not) which would avoid placing such new facilities at potential risk of future flooding with SLR. The reasons for rejecting the four alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of potentially feasible alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Significant Effect: CUMUL-9-HYD - Cumulative impacts related to hydrology and water quality (regarding flooding due to sea level rise).

Finding: The JPB hereby makes findings (a)(1), (a)(2) and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: For future coastal flooding resultant from increased SLR, additional portions of the Caltrain right of way could be affected by flooding. Mitigation Measure HYD-7 requires Caltrain to adopt and implement a sea level rise vulnerability assessment and adaptation plan and work with other local partners to identify and implement adaptation measures to protect people and structures. However, as noted in Section 3.9, *Hydrology and Water Quality*, at this time the feasibility of implementing all measures necessary to avoid future inundation associated with 100-year floods influenced by SLR is not known given that assessment of such solutions will be an ongoing, long-term, and multi-agency process. Consequently, because the PCEP would place additional people and structures in areas that could be affected by coastal flooding influenced by SLR and the determination of definitive mitigation to protect all parts of the Caltrain right of way and facilities is infeasible at this time, the PCEP's contribution to potential cumulative risks of flooding would be considerable.

The following measures mitigate this impact, but not to a less than significant level.

- HYD-4: Minimize floodplain impacts by minimizing new impervious areas for new TPFs or relocating these facilities
- HYD-5: Provide for electrical safety for all new TPFs subject to periodic or potential flooding
- HYD-7: Implement a sea level rise vulnerability assessment and adaptation plan

Given that effective coastal flooding mitigation requires the involvement of multiple parties beyond Caltrain, at this time it cannot be concluded that future flooding impacts on the Caltrain system would be fully avoided. Potential adaptation solutions could include flood levees, seawalls, elevated tracks, and/or minor track realignment. In most locations, new levees or seawalls would be optimally placed closer to the Bay or along tidal channels rather than directly along the Caltrain alignment given the need to protect other development subject to flooding between the Caltrain alignment and the Bay. At this time, the feasibility of implementing all measures necessary to avoid future inundation associated with 100-year floods influenced by SLR is not known given that assessment of such solutions will be an ongoing, long-term, and multi-agency process.

Four of the five alternatives analyzed in the FEIR would avoid placing new electrical infrastructure of the between San Jose and San Francisco (the fifth alternative involving the installation of the OCS using a factory train would not) which would avoid placing such new facilities at potential risk of future flooding with SLR. The reasons for rejecting the four alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Noise and Vibration

Significant Effect: NOI-1a - Expose sensitive receptors to substantial increase in noise levels (construction).

Findings: The JPB hereby makes findings (a)(1) and (a)(3) (described in Section 3.1 above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction would be required during the day and night in order to maintain Caltrain passenger service during construction. Although the measures specified in Mitigation Measure NOI-1a would generally reduce the construction noise levels, the measures would not necessarily guarantee that all sensitive residential receptors would not be exposed to noise levels exceeding the 80 dBA limit during the day or the 70 dBA limit at night. Specifically, given that construction must work around the operations of this active railroad line, it is probable that construction near some residential areas will have to be conducted at night to avoid disruption of passenger rail operations and to complete the project on schedule. Furthermore, at TPFs, a temporary sound wall may be effective, but in many cases (such as OCS pole installation) the nature of the construction work makes use of such sound walls infeasible.

The following measure mitigates this impact, but not to a less than significant level.

- NOI-1a: Implement Construction Noise Control Plan

Four of the five alternatives analyzed in the FEIR would avoid placing new electrical infrastructure at risk of future flooding with SLR. The fifth alternative involving the installation of the OCS using a factory train would not avoid placing such new facilities at potential risk of future flooding with SLR. The reasons for rejecting the four alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Significant Effect: CUMUL-11-NOI - Cumulative increase in noise or vibration (operational noise)

Finding: The JPB hereby makes finding (a)(2) and (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Mitigation Measure NOI-1a would require development and implementation of a noise control plan to reduce potential construction noise impacts, but would not necessarily reduce all noise impacts at all times during construction to a less than significant level, particularly with the likelihood of substantial night-time construction expected with the PCEP. Because there will be other projects in construction adjacent to the Caltrain right of way at the same time, the PCEP could result in a cumulatively considerable contribution to cumulative construction noise impacts. Even with mitigation measures identified below, these cumulative impacts could be significant and unavoidable.

Cumulative operational noise impacts were evaluated for both 2020 and 2040 scenarios with the combined effect of the Proposed Project, HSR trains (2040 scenario only), increases in freight service, and increases in other tenant passenger rail services (ACE, Capitol Corridor, AMTRAK, and Dumbarton Rail Corridor). Cumulative noise increases were found to increase noise levels in excess of FTA noise thresholds in 2020 at approximately one quarter of study locations and in 2040 at nearly all study locations if all rail increases come to fruition. With full Caltrain electrification (e.g. all EMUs between San Jose and San Francisco), then the Proposed Project would not contribute to cumulative increases in noise above existing levels. However, with continued operation of 25% remnant diesels, the Proposed Project would contribute to cumulatively significant noise increases above existing levels at a discrete number of locations (three in 2020 and four in 2040), but the amount of Caltrain's contribution is only 8 to 13 percent in 2020 and 3 percent in 2040, respectively.

Cumulative noise mitigation is proposed to consider a long-term program of noise reductions including multiple approaches such as building sound insulation, quiet zones and grade separations. Caltrain is responsible to pay for its fair-share portion of the mitigation for cumulative noise increase due to the Proposed Project per the mitigation in the EIR. Quiet zones may be adopted only by local jurisdictions (i.e., cities and counties), not by rail operators like Caltrain. As discussed in Section 4.1, *Cumulative Impacts*, in the Final EIR, this mitigation strategy would only apply where a local jurisdiction is willing to approve a quiet zone and where feasible at-grade crossing improvements are identified that meet the FRA requirements for quiet zones. Other mitigation options include grade separations and building insulation. As discussed in the FEIR, on its own, it is financially infeasible for Caltrain to implement grade separations as noise mitigation. Given the relatively small percent contribution, on its own the project's fair-share contributions are infeasible to fully mitigate the cumulative impacts to a less than significant level, and the mitigation will require the fair-share participation in costs of the other contributors to cumulative noise increases.

The following measures mitigate this impact, but not to a less than significant level.

- NOI-1a: Implement Construction Noise Control Plan
- NOI-1b: Conduct site-specific acoustical analysis of ancillary facilities based on the final mechanical equipment and site design and implement noise control treatments where required
- NOI-CUMUL-1: Implement a phased program to reduce cumulative train noise along the Caltrain corridor, as necessary to address future cumulative noise increases over FTA thresholds.

As to secondary environmental impacts of Mitigation Measure NOI-CUMUL-1, grade separations may nevertheless have substantial environmental impacts depending on their design and location, and their construction can be highly disruptive. Therefore, as a conservative assumption, their secondary environmental impacts such as traffic delays are assumed to be significant and unavoidable.

None of the five alternatives analyzed in the FEIR would avoid significant cumulative noise impacts. As shown in Table 4-11 in the FEIR, the No Project Alternative would have higher noise levels than the Proposed Project in both 2020 and 2040. The DMU Alternative would also have higher noise levels than the Proposed Project as shown in Table 5-9 and as discussed in Chapter 5, Alternatives in the FEIR. The Dual-Mode MU Alternative would have similar noise levels as the DMU Alternative when in diesel mode. The Tier 4 Diesel Locomotive Alternative would also have higher noise levels than the Proposed Project as shown in Table 5-10 and as discussed in Chapter 5, Alternatives in the FEIR. The Factory Train Alternative would have the same noise levels as the Proposed Project. Thus, all the action alternatives would also require cumulative noise mitigation and result in potentially significant secondary environmental impacts. Other alternatives were considered and screened out of the range of potentially feasible alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Transportation and Traffic

Significant Effect: TRA-1c - Conflicts or creates inconsistencies with local traffic plans or substantially disrupts future local traffic operations from Proposed Project operation in 2020

Finding: The JPB hereby makes finding (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Although the PCEP would reduce regional vehicle miles travelled which will help levels of service on arterials, highways and freeways, and city by city overall vehicle miles travelled (VMT), the PCEP would also affect local traffic operations along the Caltrain corridor in several ways. First, the number of trains would increase, increasing the number of gate down occurrences in comparison to the No Project scenario which would affect traffic at intersections near grade crossings. Second, the increased train service and added train capacity would increase ridership which would result in potential increases in traffic near Caltrain stations from the increased number of riders accessing the stations via vehicles.

The following measures mitigate this impact, but not to a less than significant level.

- TRA-1c: Implement signal optimization and roadway geometry improvements at impacted intersections for the 2020 Project Condition.

As discussed in Section 3.14 in the Final EIR, it is financially infeasible for Caltrain, on its own, to implement grade separations or major roadway reconfigurations to address localized traffic impacts at locations where the EIR mitigation would not reduce project impacts to a less than significant level as there is inadequate funding likely available to Caltrain for the project and inadequate funding available otherwise to Caltrain as a subsidized public railroad. Caltrain will continue to work with local, state, and federal partners in implementing grade separations over time (as it has done in the past) to find funding and to implement separation projects, but this will take many decades to implement and cannot be guaranteed at this time.

The No Project Alternative would have less localized traffic impacts due to lower ridership at the expense of worse conditions on arterials and regional roadways and overall higher VMT. The DMU Alternative, Dual Mode MU Alternative, and the Tier 4 Diesel Locomotive Alternative would likely have somewhat lower ridership due to inferior performance and/or inability to reach the TTC in the long-run which would mean less localized traffic also at the expense of worse conditions on arterial and regional roadways and overall higher VMT. This is a tradeoff of traffic impacts that JPB finds overriding considerations in favor of overall city by city VMT reduction and overall regional VMT reduction. The fifth alternative involving the installation of the OCS using a factory train would not) would have the same traffic impacts as the Proposed Project. The reasons for rejecting the five alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Significant Effect: CUMUL-14-TRA - Cumulative effects to transportation and traffic (localized traffic and freight service during operation)

Finding: The JPB hereby makes finding (a)(3) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The Draft EIR studied cumulative impacts with and without the PCEP at a total of 92 intersections along the Caltrain corridor. Of those intersections, there would be 39 locations where the PCEP would contribute considerably to significant localized cumulative traffic impacts. Cumulative mitigation includes signalization a minor roadway improvements. Proposed mitigation would reduce the PCEP's cumulative contribution to less than significant at all but 17 intersections. While grade separations are a technically feasible mitigation, as noted above it is financially infeasible for Caltrain to adopt a comprehensive program of grade separations as mitigation. However, in the long-term where funding becomes available and it is acceptable to local jurisdictions, Caltrain would support grade separations in the long run.

As to roadway major widenings or grade separations, the design and feasibility of such potential future mitigations are unknown and unstudied at this time, and, thus, the specific environmental impacts cannot be identified. Such major improvements will need to have their own environmental review as appropriate, as they can have substantial environmental impacts depending on their design and location and their construction can be highly disruptive and, thus, as a conservative assumption, their secondary environmental impacts are considered significant and unavoidable.

The PCEP could result in potential localized traffic and related noise impacts if freight diversion to trucks occurs. The actual potential for diversion of freight is considered low and the low levels of existing and future freight can likely be accommodated even with the changes in heights due to the PCEP OCS. Even if limited diversion of freight from trains occurs, it is not likely to result in significant secondary regional traffic, air quality or greenhouse gas emissions impacts because of the positive effects of the PCEP.
However, there is the potential for localized noise and traffic effects as a result of diverting some future increases in freight carried by rail to trucks because of changes in the lowered vertical height due to the OCS.

The following measures reduce these contributions, but not to a less than considerable level.

For Localized Traffic Operation

TRA-CUMUL-1: Implement a phased program to provide traffic improvements to reduce traffic delays near at-grade crossings and Caltrain stations

For Freight Service Operation
TRA-CUMUL-3: As warranted, Caltrain and freight operators will partner to provide Plate H clearance as feasible between San Jose and Bayshore

If use of a "neutral section" at the San Francisquito Bridge is not feasible, then Mitigation Measure TRA-CUMUL-3 would be limited to track lowering at the Lafayette Pedestrian Overpass (MP 43.65) to allow Plate H clearance to be able to access the Butterhouse Spur. The residual cumulative impact would be a future constraint on train equipment to existing freight heights from the Butterhouse Spur to Bayshore to Plate F+ (18.92') instead of the current possible Plate H (20.25') clearance. While it is not likely that freight will be diverted to truck modes due to this change, given that existing Plate H equipment is not used on this portion of the corridor, it is possible there might be a mode shift for some of the future freight growth. As discussed in Section 4, *Other CEQA – Required Analysis* of the FEIR, this would not be a significant regional traffic, air quality or GHG emissions cumulative impact, but might result in some localized noise or traffic impacts, depending on location of truck haul routes, timing, and intensity. This is considered a significant and unavoidable impact, primarily due to the effect on the San Francisquito Bridge. Due to the cost and environmental impact associated with replacement of the San Francisquito Bridge, it is considered infeasible for Caltrain to fully mitigate this minor lowering of vertical clearance heights by replacement of the bridge.

However, if Plate H clearance can be provided at the San Francisquito Bridge through use of a OCS "neutral section", then Mitigation Measure TRA-CUMUL-3 would require track lowering and/or neutral sections (if feasible) at additional locations to allow Plate H equipment operation from San Jose to Bayshore. In this scenario, Plate H clearance would be provided from San Jose to Bayshore, similar to that available today (but not utilized) and there would not be a potential for shift of freight from rail to truck modes and this impact would be mitigated to a less than significant level.

The No Project Alternative would have less localized traffic impacts due to lower ridership at the expense of worse conditions on arterials and regional roadways and overall higher VMT. The DMU Alternative, Dual Mode MU Alternative, and the Tier 4 Diesel Locomotive Alternative would likely have somewhat lower ridership due to inferior performance and/or inability to reach the TTC in the long-run which would mean less localized traffic also at the expense of worse conditions on arterial and regional roadways and overall higher VMT. The fifth alternative involving the installation of the OCS using a factory train would not) would have the same traffic impacts as the Proposed Project.

Four of the five alternatives analyzed in detail in the FEIR would avoid impacts associated with lowering vertical height clearances for freight trains (the Factory Train Alternative would have the same impact as the Proposed Project on vertical height clearances).

The reasons for rejecting the five alternatives analyzed in the FEIR are presented later in the section below *Findings Regarding the Alternatives*. Other alternatives were considered and screened out of the range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

Findings Regarding Significant Effects Mitigated to Less-Than-Significant Levels

The JPB has determined that, for the following effects, mitigation measures included in the FEIR will mitigate the effects of the PCEP to a less-than-significant level. The following identifies the pertinent mitigation measures by number and summary title. The full text of each of the mitigation measures cited below is found in the FEIR and that text is hereby incorporated by reference.

Aesthetics

Significant Effect: AES-2a - Substantially degrade the existing visual character or quality of the site and its surroundings (construction, the OCS, TPFs, and overbridge protection).[7]

Finding: The JPB hereby makes finding (a)(1) (described in Section 3.1 above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Installation of OCS poles and wires and vegetation clearance outside the right of way on industrial or commercial land would be consistent with the existing visual character. Installation of OCS poles and wires and vegetation clearance outside the right of way also would occur in residential areas and parks where visual quality can be moderate to high, depending on their individual setting. Construction activity in residential and park areas would be anomalous, and the visual character of such areas would be partially degraded during construction. The duration of OCS construction at any one location would be limited to the time necessary to install pole foundations and then later to install poles and string wires. The change in visual character would only occur for a limited period and the perception of the visual quality of such areas would not be altered once construction is complete.

The following measure mitigates this impact to a less than significant level.

- AES-2a: Minimize OCS construction activity on residential and park areas outside the Caltrain ROW

Mitigation Measure AES-2a would ensure that the duration of construction disruption and activities in areas of greater visual sensitivity would be limited by avoiding the use of such areas for access or staging areas and removing all construction equipment and materials immediately following completion of construction on such sites.

Significant Effect: AES-2b - Substantially degrade the existing visual character or quality of the site and its surroundings during Proposed Project operation

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Permanent impacts of the PCEP on visual character would result from 1) introduction of the new Traction Power Facilities (TPFs) inside and outside the Caltrain right of way, 2) OCS poles and wires, and 3) overbridge protection structures. (See separate discussion of tree removal impacts on visual aesthetics above).

[7] Note: See discussion above concerning the significant and unavoidable impact associated with tree removal on visual character.

The existing ROW is a long-standing active transportation corridor. The ROW is not a natural landscape feature; it contains train rails, warning signs and lights, overhead signal bridges, spur tracks, and the frequent presence of passenger trains and freight trains with their attendant visual features, engine noise, and horn noise at grade crossings. In some areas, the ROW includes elevated embankments and grade separations that can be substantial structures. In certain areas, such as Mountain View and Millbrae, other transit facilities such as VTA light rail and BART are adjacent to the JPB ROW. In certain areas, including in South San Francisco, in Redwood City, in Santa Clara and San Jose, there are extensive freight tracks and freight train movements. In many locations, there is existing overbridge fencing protection and fencing along the ROW. The Caltrain corridor is an active transportation corridor with intense activity and infrastructure that can be different from adjacent residential and commercial areas. The ROW has been an active transportation corridor for approximately 150 years and has operated as Caltrain commuter rail for decades. As a result, an intensity of transportation-related infrastructure and operations is the expected aesthetic character of the ROW. The addition of OCS poles and wires along the ROW will introduce a new linear visual feature, but not one that is out of character with an active transportation character.

Utility wires are a normal part of the ROW and the adjacent landscape and do not inherently compromise the visual character of adjacent areas. The addition of new poles and wires for the OCS along the Caltrain ROW would not be an unprecedented visual feature in areas with existing overhead poles and wires. As shown in the new visual simulations in the EIR along Alma Street in Palo Alto (Figure 3.1-9b) and along Ravenswood (Figure 3.1-19a) and Glenwood (Figure 3.1-19b) Avenues in Menlo Park, the addition of OCS poles and wires would not substantially change the visual character of views along these roadways toward the Caltrain ROW. The addition of new poles and wires for the OCS along the Caltrain ROW would not be an unprecedented visual feature in areas with existing overhead poles and wires. As shown in the new visual simulations in the EIR along Alma Street in Palo Alto and along Ravenswood and Glenwood Avenues in Menlo Park, the addition of OCS poles and wires would not substantially change the visual character of views along these roadways toward the Caltrain ROW. The poles and wires can be observed at grade crossings and when looking directly at the ROW, but then when shifting view laterally, the poles and wires are usually obscured from view by existing vegetation outside the ROW and/or other existing development.

The ROW is not readily observable from ground-level areas that are not directly adjacent to the ROW itself. The view of a long line of poles and wires shown in the visual simulations looking down the ROW, such as at Churchill Avenue in Palo Alto or Oak Grove in Burlingame is only available when crossing the ROW itself or at Caltrain stations and rarely from any other locations due to intervening vegetation and structures. From other viewpoints directly along the ROW, such as at residences with a clear view of the ROW, several poles and the immediately adjacent wires will be observable when looking at the ROW, but residences are usually setback somewhat from the ROW and intervening vegetation, fences or structures often obscure the view down the ROW except when standing right at the ROW fence itself. From streets that are not directly parallel to the ROW, it is difficult to see the ROW and will be difficult to readily observe the poles and wires due to intervening structures and vegetation. When considering the visual character of a city or a neighborhood, one must consider the full range of views available throughout daily activities and whether a new visual feature does or does not become a dominant feature that actually defines the character of an area. While the new OCS poles and wires will become part of the visual character of the Caltrain ROW itself (consistent with its current transportation intense character), and will affect certain immediate views from directly adjacent residential, commercial and park areas, the new OCS poles and wires will, over time become more of a background condition to the visual character, like the existing utility poles and wires shown in the new simulations in Menlo Park and Palo Alto.

While poles and wires themselves would not inherently result in a significant change in visual character of an existing transportation corridor for the reasons noted above, depending on design of the poles in particular, they might become more readily observable instead of blend into the background. For example, if the OCS poles were to have a shiny steel finish, this would make the poles stand-out due to sun glare on the finish, which would make them abnormally obvious and would not more readily become part of the long-range background.

Thus, although the OCS poles and wires alone would not necessarily result in a significant aesthetic impact, unusually vivid OCS pole designs or colors could result in more overtly obvious changes in visual character that would not help the system to fade into the background as one moves away from the Caltrain ROW and that would be considered a significant effect on visual character.

The following measures mitigate this impact to a less than significant level.

- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers
- CUL-1d: Implement design commitments at historic railroad stations

Mitigation Measure AES-2b contains specific provisions for OCS pole design, TPFs, and overbridge protection structures to ensure that infrastructure will be designed in a manner that allows these features to blend with the surrounding built and natural environments as much as possible. Mitigation Measures CUL-1d, which requires specific design commitments by station and ensures that OCS poles recede into the visual landscape as much as feasible, would avoid potential impacts on historic rail stations.

Significant Effect: AES-4a - Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Some of project construction would be accomplished at night. Artificial lighting onto the worksite could result in "spill over" light or glare in adjacent residential areas.

The following measure mitigates this impact to a less than significant level.

- AES-4a: Minimize spill over light during nighttime construction.

Under Mitigation Measure AES-4a, the JPB will require the project contractor to ensure that construction crews working at night to minimize spill over light or glare in adjacent residential areas.

Significant Effect: AES-4b - Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area during operations

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The TPFs and OCS facilities have the potential to cause minor increases in glare. While not substantial in most instances, this glare would reinforce the industrial character of the electrical infrastructure and would have a significant impact on sensitive receptors at residences or parks along the Caltrain right of way. Installation of new nighttime lighting may be required for new TPFs for

security purposes and could result in significant visual impacts if this lighting spilled outside of the site boundaries, creating a new source of nuisance lighting or glare to adjacent sensitive viewers.

The following measures mitigate these impacts to a less than significant level.

- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers.
- AES-4b: Minimize light spillover at TPFs.

Mitigation Measure AES-2b would reduce glare associated with TPFs and OCS facilities to a less-than-significant level by requiring paint color treatment to reduce glare and the visual obviousness of new facilities. Mitigation Measure AES-4b mandates specific lighting design features that will minimize light spillover.

Significant Effect: CUMUL-1-AES – Cumulative impact on visual aesthetics during construction.

Finding: The JPB hereby makes finding (a)(1) (described in above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: As described in Section 3.1, *Aesthetics*, of the FEIR, the character of the areas adjacent to the Caltrain corridor vary from residential to commercial to industrial and includes a number of park areas as well. Cumulative construction would be most out of character in residential and park areas and less out of character in commercial and industrial areas or in transportation corridors. Where construction activities are present for an extended period of time in or directly adjacent to residential or park areas, there could be a temporarily significant aesthetic impact.

Installation of new nighttime lighting may be required for new TPFs for security purposes and could result in significant visual impacts if this lighting spilled outside of the site boundaries, creating a new source of nuisance lighting or glare to adjacent sensitive viewers.

The following measures mitigate these impacts to a less than significant level.

- AES-2a: Minimize OCS construction activity on residential and park areas outside the Caltrain ROW.
- AES-4a: Minimize spill over light during nighttime construction.

Mitigation Measure AES-2a will minimize the PCEP's temporary impacts on residential and park areas outside the Caltrain right of way. Although other cumulative projects may also result in a temporary change of visual character of areas adjacent to the Caltrain right of way during construction, with the recommended mitigation measure, the PCEP's contribution to cumulative temporary changes in visual character would be less than considerable.

Mitigation Measure AES-4a mandates specific lighting design features that will minimize light spillover and thereby avoid a cumulatively considerable contribution.

Air Quality

Significant Effect: AQ-2a - Violate any air quality standard or contribute substantially to an existing or projected air quality violation during Proposed Project construction.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: PCEP construction has the potential to create air quality impacts through the use of heavy-duty construction equipment, construction worker vehicle trips, and truck hauling trips. Maximum daily NO_X emissions generated in 2017 and 2018 would exceed the Bay Area Air Quality Management District's (BAAQMD's) significance threshold. Emissions would result primarily from offroad equipment and haul truck trips. In addition, fugitive dust emissions would result from grading associated with the traction power substations and the switching and paralleling stations.

The following measures mitigate these impacts to a less than significant level.

- AQ-2a: Implement BAAQMD basic and additional construction mitigation measures to reduce construction-related dust
- AQ-2b: Implement BAAQMD basic and additional construction mitigation measures to control construction-related ROG and NO_X emissions
- AQ-2c: Utilize clean diesel-powered equipment during construction to control construction-related ROG and NO_X emissions

Mitigation Measures AQ-2a and AQ-2b outline the BAAQMD's basic and advanced construction mitigation measures for exhaust and fugitive dust emissions. As demonstrated by the modeling undertaken for the FEIR, Mitigation Measure AQ-2c will reduce NO_X emissions and requires offroad equipment to be rated Tier 3 or higher (FEIR, Chapter 3.2, *Air Quality*, Impact AQ-2a).

Significant Effect: AQ-3 - Cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The BAAQMD has identified project-level thresholds to evaluate criteria pollutant impacts (see Table 3.2-4 of the FEIR). In developing these thresholds, BAAQMD considered levels at which project emissions would be cumulatively considerable. The criteria pollutant thresholds presented in Table 3.2-4 of the FEIR therefore represent the maximum emissions the Proposed Project may generate before contributing to a cumulative impact on regional air quality.

The following measures mitigate these impacts to a less than cumulatively considerable level.

- AQ-2a: Implement BAAQMD basic and additional construction mitigation measures to reduce construction-related dust
- AQ-2b: Implement BAAQMD basic and additional construction mitigation measures to control construction-related ROG and NO_X emissions
- AQ-2c: Utilize clean diesel-powered equipment during construction to control construction-related ROG and NO_X emissions

As discussed under Impact AQ-2a, construction emissions associated with the PCEP would be reduced to below thresholds BAAQMD's by Mitigation Measures AQ-2a, AQ-2b, and AQ-2c. Therefore, they would avoid a cumulatively considerable contribution.

Significant Effect: CUMUL-2-AQ – Cumulative effects on air quality.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: During construction of the cumulative projects listed in Table 4-3 and the overall growth shown in Table 4-1 of the FEIR, criteria pollutants that could impact air quality in the San Francisco air basin would be emitted. Construction of the cumulative projects may emit criteria pollutants singularly that could exceed the allowable threshold for criteria pollutants in the basin or could exceed these thresholds for the combined effect of cumulative construction that occurs at the same time. Therefore, the cumulative projects would have a significant cumulative impact on air quality due to construction.

From an operational perspective, the PCEP would substantially improve both local and regional air quality. Reductions in Caltrain system criteria pollutant emissions compared with existing (2013) conditions would range from 66 to 86 percent in 2020 and more for 2040 with full electrification. Toxic air contaminant health risks along the Caltrain corridor between San Jose and San Francisco due to train emissions would be reduced by 87 percent in 2020 and by 100 percent in 2040 with full electrification compared to existing conditions.

The following measures mitigate these impacts to a less than significant level.

- AQ-2a: Implement BAAQMD basic and additional construction mitigation measures to reduce construction-related dust
- AQ-2b: Implement BAAQMD basic and additional construction mitigation measures to control construction-related ROG and NO_X emissions
- AQ-2c: Utilize clean diesel-powered equipment during construction to control construction-related ROG and NO_X emissions

In the Bay Area, all discretionary projects evaluate their construction air quality emissions and usually compare them to the BAAQMD's construction daily or annual thresholds for criteria pollutants. The BAAQMD's thresholds are designed so that if all projects meet those thresholds, then regionally construction would not have a significant effect on regional air quality. The PCEP will not exceed any BAAQMD thresholds, therefore it will make a less than considerable contribution for construction. For operations, the PCEP will reduce criteria pollutants relative to existing and No Project conditions and thus would have a beneficial contribution.

Biological Resources

Significant Effect: BIO-1a: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service during Proposed Project construction.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The Caltrain right of way is primarily a disturbed urban rail corridor with only limited biological resources. For the most part, the PCEP would disturb areas of a ruderal and

previously disturbed character with limited potential for special-status species. The overall scale of potential disturbance would be limited because the PCEP construction within the Caltrain right of way would primarily consist of installing OCS poles with a limited permanent footprint for pole foundations (the OCS poles would be 1 to 2 feet in diameter). For the TPFs within the right of way, the overall footprint would be only 0.8 acres and most of the TPFs in the ROW are in areas that are previously disturbed. For the two TPSs outside the right of way, the overall footprint would be only 1.4 acres and both traction power substations would be in highly urbanized areas with limited habitat value. Special-status plant species have the potential to occur in undeveloped areas with suitable habitat, namely areas that support natural land cover. As noted in Appendix G of the Draft EIR, such areas are only found in limited portions of the Caltrain right of way, which is dominated by disturbed and ruderal conditions. Where suitable habitat occurs, project construction would have the potential to result in direct take of special-status plant species through crushing and indirect take of special-status plant species through habitat modification or loss, if they are actually present.

Project construction would not directly affect streams and thus would not directly affect aquatic species. However, the PCEP does have the potential to release pollutants into storm drain systems and directly into the drainages themselves. These pollutants would degrade the physical conditions of the water features and could result in direct or indirect mortality of Central California steelhead, other aquatic and partially aquatic species (i.e., San Francisco garter snake, western pond turtle, California tiger salamander, and California red-legged frog,), and species that depend on aquatic prey (i.e., great blue heron and snowy egret). Releases of pollutants could also result in habitat loss. Releases of contaminants from construction equipment and supplies could affect the creeks passing under the project corridor; however, implementation of the Storm Water Pollution Prevention Plan (SWPPP) for the PCEP and the mitigation measures specified below would avoid and reduce the amount of runoff into the creeks during construction as required by the CWA Section 401 Permit that would need to be obtained prior to Project initiation. Implementation of the PCEP's SWPPP is expected to avoid impacts on aquatic habitat in the drainages crossed by the Proposed Project and consequently, on central coast steelhead. Details of the Proposed Project's SWPPP are further explained in Section 3.9, *Hydrology and Water Quality,* of the FEIR.

Although the potential to encounter special-status species is low, construction activities and related effects would still have potential to disturb habitat and individual San Francisco garter snake, western pond turtle, California tiger salamander, California red-legged frog, pallid bat, hoary bat, fringed myotis, western burrowing owl, northern harrier, white-tailed kite, American peregrine falcon, saltmarsh common yellow throat, purple martin, and other nesting birds.

The following measures mitigate these impacts to a less than significant level.

- BIO-1a: Implement general biological impact avoidance measures
- BIO-1b: Implement special-status plant species avoidance and revegetation measures
- BIO-1c: Implement California red-legged frog and San Francisco garter snake avoidance measures
- BIO-1d: Implement western pond turtle avoidance measures
- BIO-1e: Implement Townsend's big-eared bat, pallid bat, hoary bat, and fringed myotis avoidance measures
- BIO-1f: Implement western burrowing owl avoidance measures
- BIO-1g: Implement northern harrier, white-tailed kite, American peregrine falcon, saltmarsh common yellowthroat, purple martin, and other nesting bird avoidance measures

- BIO-1h: Conduct biological resource survey of future contractor-determined staging areas
- BIO-1i: Minimize impacts on Monarch butterfly overwintering sites
- BIO-1j: Avoid nesting birds and bats during vegetation maintenance

Under Mitigation Measures BIO-1a and BIO-1h, all sensitive habitat and wetland areas would be identified for avoidance during project design where feasible. Mitigation Measure BIO-1b would ensure that impacts on the species of special status plants that may be found on the site are minimized through surveys, avoidance where feasible, and specific performance standards for revegetation if necessary. Mitigation Measures BIO-1c through BIO-1g include species-specific requirements and performance standards to ensure that the project will not adversely affect those species with the potential to be on site. No known Monarch butterfly overwintering sites are found within the project area. Implementation of Mitigation Measure BIO-1i would avoid disrupting overwintering sites should any be found prior to construction.

Significant Effect: BIO-1b: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service during Proposed Project operation.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: With the OCS, there would be a need for vegetation maintenance to ensure safe clearances are provided between vegetation and energized elements of the OCS in the ESZ. Vegetation clearance activities occur today under existing conditions to maintain a clear accessway for trains, but the level of vegetation clearance in the future would be larger given the OCS clearance needs. Thus, there would be an increased potential to disturb nesting birds and bats due to annual vegetation maintenance.

The following measure mitigates this impact to a less than significant level.

- BIO-1j: Avoid nesting birds and bats during vegetation maintenance

Mitigation Measure Bio-1j would ensure that impacts on nesting birds and bats would be less than significant by prescribing specific requirements to avoid impacts.

Significant Effect: BIO-2a: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations during Proposed Project construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The Caltrain right of way is primarily a disturbed urban rail corridor with only limited biological resources. The PCEP would impact areas of riparian vegetation, wetlands and sensitive natural communities during construction but routine project mitigation would reduce these impacts to a less-than-significant level.

The following measures mitigate these impacts to a less than significant level.

BIO-1a: Implement general biological impact avoidance measures
BIO-1b: Implement special-status plant species avoidance and revegetation measures
BIO-1h: Conduct biological resource survey of future contractor-determined staging areas
BIO-2: Implement serpentine bunchgrass avoidance and revegetation measures
BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan

No project features would be constructed within any stream or riparian areas. However, construction of the PCEP could result in removal of some riparian trees and other riparian vegetation where necessary for electrical safety clearances. The implementation of Mitigation Measure BIO-1a would further identify sensitive habitat during Project design and require avoiding such sensitive habitats during construction as feasible. However, removal of riparian vegetation may still be necessary in order to provide electrical safety clearances. Mitigation Measure BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan (see discussion below) would require replacement of removed trees or other riparian vegetation as close to the source of impact as possible, which would result in replacement of riparian trees/vegetation along any areas of disturbed riparian habitat. With these measures, impacts on riparian trees and vegetation would be less than significant.

There is a small area (0.2 mile) of the project alignment in San Jose south of the proposed location of PS7 at Communications Hill that the *Santa Clara Valley Habitat Plan* maps as serpentine bunchgrass grassland. Serpentine bunchgrass grassland is a sensitive natural community designated by CDFW because the community often supports rare plant and wildlife species. In this area, the only proposed PCEP activities would be installation of OCS poles and wires adjacent to the existing tracks. It is unknown whether or not there is actual serpentine bunchgrass grassland in the area adjacent to the existing tracks.. Mitigation Measures BIO-1a and BIO-1b would apply to this area and would require minimization, avoidance, and revegetation if special-status plants are identified in this area, which would address rare plants that may occur within this vegetation community. Implementation of Mitigation Measures BIO-2 and BIO-1h would ensure that impacts to serpentine bunchgrass grassland would be less than significant.

Significant Effect: BIO-3: Have a substantial adverse effect on federally protected waters or wetlands as defined by Section 404 of the Clean Water Act or state waters or wetlands through direct removal, filling, hydrological interruption, or other means

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: A few potentially jurisdictional state and federal waters and wetlands occur within the project corridor. If construction were to take place within those areas, construction could disturb or result in the loss of waters or wetlands.

The following measures mitigate these impacts to a less than significant level.

- BIO-1a: Implement general biological impact avoidance measures
- BIO-1h: Conduct biological resource survey of future contractor-determined staging areas
- BIO-3: Avoid or compensate for impacts on wetlands and waters
- HYD-1: Implement construction dewatering treatment

Mitigation Measures BIO-1a and BIO-1h would require JPB to identify wetlands and waters during Project design and avoid such sensitive habitats during construction, where feasible. It should be feasible to avoid all waters and wetlands along the entire Caltrain right of way for OCS pole installation, but if permanent loss any waters/wetlands is necessary, then Mitigation Measure BIO-3 would apply.

For potential construction staging areas within the right of way, potential wetlands or waters were identified at nine different potential staging areas. Potential construction staging areas outside the right of way have not yet been identified but may contain waters or wetlands. Mitigation Measures BIO-1a, BIO-1h, and BIO-3 would apply to all staging areas containing waters or wetlands. With the implementation of Mitigation Measures BIO-1a, BIO-1h, and BIO-3, direct impacts on waters and wetlands would be less than significant overall.

Regarding indirect effects, the JPB will develop and implement the required SWPPP, as described in Section 3.9, *Hydrology and Water Quality* of the FEIR. In addition, Mitigation Measure HYD-1 will address any indirect water quality impacts on wetlands related to dewatering that may occur during construction.

Significant Effect: BIO-5a: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance during Proposed Project construction.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Trees that are located along or within 10 feet of the energized elements of OCS alignment would need to be removed or pruned in order to provide adequate safety clearance from the energized elements of the OCS. It is ordinary JPB maintenance practice to comply with California Public Utility Commission requirements by pruning trees and other mature vegetation from adjacent properties that lean into or hang over the Caltrain right of way and pose a potential hazard to safe train operations. The tree maintenance program would need to be expanded to provide the new clearance around the OCS.

The majority of the trees and vegetation that would require removal or pruning are eucalyptus, oleander, and other windrow species; some coast live oaks and other native and horticultural species would also need to be removed or pruned. Table 3.3-4 of the FEIR provides a profile of the estimated trees to be removed, by city. As discussed in Appendix F, *Tree Inventory and Canopy Assessment*, of the EIR, some of the trees to be removed or pruned are designated heritage trees in local tree ordinances. PCEP construction would likely require removal of approximately 1,000 trees and pruning of an additional 3,200 trees for the OCS alignment and electrical safety zone (and up to 2,200 trees removed and 3,600 trees pruned under worst-case assumptions). Project mitigation would require tree avoidance, minimization, and/or replacement.

The following measures mitigate these impacts to a less than significant level.

- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan

Mitigation Measure BIO-5 contains specific requirements for final tree surveys, avoidance, protective fencing of trees that are not to be removed, tree and root pruning, tree replacement, and maintenance and monitoring of all replanted trees to assure their survival and/or remedial replanting in case they do not survive. Pursuant to that mitigation measure, JPB will avoid and/or minimize impacts on trees along the right of way by locating OCS poles and alignment to minimize tree removal and pruning where consistent with safety, operations, and maintenance requirements. Options to reduce impact include removing trees

only as necessary to provide adequate safety clearance; locating OCS poles and alignment to minimize tree removals; and use of center poles, two-track cantilever poles, portals, or offset insulator poles, and where consistent with operational and safety requirements. Where tree removal is unavoidable after implementation of avoidance and minimization measures, then the JPB will replace trees in accordance with the performance standards in Mitigation Measure BIO-5.

Significant Effect: BIO-6a: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: There are no adopted habitat conservation plans (HCPs) or natural community conservation plans (NCCPs) for the project area in San Francisco or San Mateo Counties. There is an adopted HCP/NCCP in Santa Clara County (the *Santa Clara Valley Habitat Plan* or SCVHCP) that covers a portion of the project area from just south of the Santa Clara Station to the southern end of the project area several miles south of Tamien Station. The PCEP is not specifically a covered activity in the SCVHCP; thus, the SCVHCP requirements may not apply to the PCEP.

Within the SCVHCP plan area, the only project facilities would be the OCS, TPS2, and PS7. The SCVHCP has a fee payment system to compensate for impacts on covered species habitat. All three TPS2 options and PS7 would be in areas mapped by the SCVHCP as urban land cover and, thus, development of these sites would be consistent with the SCVHCP and require no land cover fee payment. The TPS2 Option 1 site consists of a ruderal grass field surrounded by industrial development but is within the burrowing owl survey and fee zone of the SCVHCP. The TPS2 Options 2 and 3 sites are both in developed areas and would not be subject to any fee or compliance with the SCVHCP. A small portion (0.2 mile) of the project alignment south of PS7 is mapped as serpentine bunchgrass grassland and is within Landcover Fee Zone A and the Serpentine Fee zone. Another small portion (0.4 mile) immediately south of the grassland area is mapped as urban park land, although there is no park within the Caltrain right of way, and is within Land Cover Fee Zone B. The OCS poles would be placed along the railroad alignment, which is mostly previously disturbed and thus OCS pole construction would have very limited impacts on covered species habitat. It is unclear if the PCEP would or would not be subject to fees if the SCVHCP is determined to cover the Proposed Project.

The following measure mitigates these impacts to a less than significant level.

- BIO-6: Pay *Santa Clara Valley Habitat Plan* land cover fee (if necessary)

At this time, it is unknown whether or not the Proposed Project is covered by the SCVHCP and thus whether JPB could obtain Endangered Species Act (ESA) coverage for the portions of the PCEP within the SCVHCP area. If not covered by the SCVHCP, JPB would obtain a separate authorization under the federal and state ESAs from the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) as necessary to address any potential take of federally or state-protected species and thus would mitigate for those effects separately from the SCVHCP.

Incidental take authorization from either USFWS or CDFW is a discretionary action granted at the end of an intensive permitting process involving site-specific study, collaborative development of conservation plans, and implementation of the specific requirements set out in those plans. The JPB cannot undertake any activity that would result in the "take" of a species protected under the federal or state ESA without prior approval of an incidental take permit from the USFWS or CDFW, or both, depending upon the

affected species. The provisions of the incidental take permit would be enforced on JPB by the USFWS and/or CDFW.

If separate authorization under the ESAs is necessary, then Mitigation Measure BIO-6 would not be required. If it is determined that JPB could address impacts within the SCVHCP area through the Plan, then Mitigation Measure BIO-6 would be required and would impose SCVHCP requirements on the PCEP.

Significant Effect: CUMUL-3-BIO: Cumulative effects on biological resources

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: As described in Section 3.3, *Biological Resources* of the FEIR, the PCEP could have significant impacts to special-status species, riparian habitats or other sensitive natural communities, protected wetlands or waters and to trees along the Caltrain right of way during construction, unless mitigated.

While increased train traffic would occur with HSR operations and the PCEP, operational conditions are not expected to be significantly different from pre-project conditions relative to biological resources. Routine tree maintenance would be conducted along the Caltrain right of way for all areas where OCS clearance is required, but these activities would be similar to existing maintenance practices albeit they would be conducted in more expansive areas and more frequently than at present. Where development occurs on existing vacant sites, there could be increases in the stormwater runoff which could degrade water quality in surface waters downstream of the Caltrain right of way corridor and affect aquatic species. However, current water quality regulations implemented through the countywide stormwater NPDES permits requires treatment of stormwater runoff for substantial new projects precisely to manage the cumulative impact on water quality of new development in the corridor.

- BIO-1a: Implement general biological impact avoidance measures
- BIO-1b: Implement special-status plant species avoidance and revegetation measures
- BIO-1c: Implement California red-legged frog and San Francisco garter snake avoidance measures
- BIO-1d: Implement western pond turtle avoidance measures
- BIO-1e: Implement Townsend's big-eared bat, pallid bat, hoary bat, and fringed myotis avoidance measures
- BIO-1f: Implement western burrowing owl avoidance measures
- BIO-1g: Implement northern harrier, white-tailed kite, American peregrine falcon, saltmarsh common yellowthroat, purple martin, and other nesting bird avoidance measures
- BIO-1h: Conduct biological resource survey of future contractor-determined staging areas
- BIO-1i: Minimize impacts on Monarch butterfly overwintering sites
- BIO-1j: Avoid nesting birds and bats during vegetation maintenance
- BIO-2: Implement serpentine bunchgrass avoidance and revegetation measures
- BIO-3: Avoid or compensate for impacts on wetlands and waters
- HYD-1: Implement construction dewatering treatment

- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan
- BIO-6: Pay *Santa Clara Valley Habitat Plan* land cover fee (if necessary)

With implementation of Mitigation Measures BIO-1a through BIO-1h (special-status species), BIO-2 (sensitive natural communities), BIO-3 (wetlands and waters), BIO-5 (tree avoidance, minimization, and replacement) and BIO-6, the PCEP's project-level impacts on biological resources due to construction would be reduced to a less-than-significant level. The PCEP construction would not occur in pristine areas, but, rather, in a developed rail corridor; thus, impacts would be to remnant biological resources within that context. Given that context, with mitigation, the PCEP's residual construction impacts would be limited in scale and extent. Consequently, PCEP construction, with mitigation, would make a less than considerable contribution to any potential cumulative impacts on biological resources.

As described in Section 3.3, *Biological Resources* of the FEIR, the PCEP could have significant impacts to nesting bird or bat species during tree maintenance along the Caltrain right of way if not mitigated. However, with implementation of Mitigation Measure BIO-1j, impacts due to disruption of bird nesting or bat roosting would be reduced to a less-than-significant level. Therefore, the PCEP would not contribute to cumulative operational impacts.

Cultural Resources

Significant Effect: CUL-1 - Cause a substantial adverse change in the significance of historic built resources pursuant to Section 15064.5

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: There is the potential that the PCEP could result in a change to the significance of archaeological and historic built resources (considered "historical resources," as defined under CEQA). The known historic built resources in the Historical Study Area, which includes the Caltrain right of way, one parcel on either side of the traction power facility sites and areas along the right of way needed for OCS poles and/or vegetation clearance for electrical safety, are listed in Table 3.4-2 of the FEIR. The PCEP would result in potentially significant impacts to some of the identified historic properties unless mitigated.

The PCEP has four different potential impacts on Railroad Tunnels 1 through 4 in San Francisco: notching of the interiors of the tunnels to provide clearance for the OCS infrastructure above freight and passenger trains; removal of a portion of the decorative stone portals outside the tunnels when notching; installation of OCS infrastructure in the tunnel lining; and track lowering for vertical clearance. All potentially significant impacts on the tunnels could be mitigated to a less-than-significant level, with the exception of the impact on the decorative portal of Railroad Tunnel 4.

The Proposed Project would install OCS poles and wires adjacent to seven of eight historically significant railroad stations. Due to the location of poles and OCS in relation to seven of eight stations, impacts would be less than significant. At the eighth station, Diridon Station, the OCS would be placed on the passenger platforms and extend through the existing umbrella sheds used as passenger shelters. Because these shelters are a contributing feature of this NRHP-listed station, impacts at this location would be significant, but can be mitigated through mitigation identified below.

The following measures mitigate these impacts to a less than significant level.

- CUL-1a: Evaluate and minimize impacts on structural integrity of historic tunnels
- CUL-1b: Minimize impacts on historic decorative tunnel material
- CUL 1c: Install project facilities in a way that minimizes impacts on historic tunnel interiors
- CUL-1d: Implement design commitments at historic railroad stations
- CUL-1f: Implement historic bridge and underpass design requirements
- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan

Mitigation Measures CUL-1a through CUL-1c would mitigate impacts on the historic Railroad Tunnels in San Francisco by requiring design features that will minimize the changes to the tunnels such they are not adverse. Mitigation Measure CUL-1d contains station-specific design standards for pole installation that will mitigate potential impacts at the Millbrae, Burlingame, Atherton, Menlo Park, Palo Alto, Santa Clara (station and tower), and Diridon stations. Mitigation Measure CUL-1f contains specific design standards to mitigate the potential impacts to nine historic bridges/underpasses by ensuring that the power system supports are not attached to the historic fabric of these bridges/underpasses, thereby avoiding adverse impacts on their historic integrity and visual appearance. Mitigation Measure BIO-5 will avoid a significant impact to "El Palo Alto" tree from minor pruning necessary to keep tree branches out of the San Francisquito Bridge truss. The measure stipulates that a Tree Avoidance, Minimization, and Replacement Plan (including specific attention to minimization of effects on El Palo Alto) will be developed by a certified arborist in consultation with the City of Palo Alto Urban Forester. Mitigation Measure BIO-5 also includes measures to require replanting with eucalyptus for any necessary replantings associated with the historic Burlingame Francard Grove.

Significant Effect: CUL-2 - Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Table 3.4-1 of the FEIR presented the 21 identified archaeological resources— 19 prehistoric, one multi-component, and one historic-era archaeological— in or potentially in the PCEP's Archaeological Study Area. Additionally, documentary research identified three archaeologically sensitive zones: the area between Easton Creek and the east bank of San Mateo Creek identified as the "Hamilton shell mound sensitive zone"; the vicinity of the Third Mission Santa Clara [CA-SCL-30/H]; and the Native American burial ground at Tamien Station [CA-SCL-690]. Because all areas of potential ground disturbance have not been surveyed for cultural resources, some portions of the Archaeological Study Area, as well as some areas outside of the Archaeological Study Area where OCS poles and wires would be placed partially outside the existing Caltrain right of way, and where vegetation maintenance would be required within 10 feet of the OCS pole alignment for electrical safety, are sensitive for archaeological resources. Therefore, there is a potential to encounter heretofore unidentified buried cultural resources and potential ground disturbance from construction

The following measures mitigate these impacts to a less than significant level.

- CUL-2a: Conduct an archaeological resource survey and/or monitoring of the removal of pavement or other obstructions to determine if historical resources under CEQA or unique archaeological resources under PRC 21083.2 are present

- CUL-2b: Conduct exploratory trenching or coring of areas where subsurface project disturbance is planned in those areas with "high" or "very high" potential for buried site
- CUL-2c: Conduct limited subsurface testing before performing ground-disturbing work within 50 meters of a known archaeological site
- CUL-2d: Conduct exploratory trenching or coring of areas within the three zones of special sensitivity where subsurface project disturbance is planned
- CUL-2e: Stop work if cultural resources are encountered during ground-disturbing activities
- CUL-2f: Conduct archaeological monitoring of ground-disturbing activities in areas as determined by JPB and SHPO

If specific prehistoric, ethnographic, and/or historic archaeological resources are identified within the proposed disturbance areas as a result of Mitigation Measures CUL-2a through CUL-2d, then the evaluation and treatment of such resources will be conducted according to the measures set forth in Mitigation Measure CUL-2e. Under Mitigation Measure CUL-2e, if the find is determined to be potentially significant, the archaeologist, in consultation with the Native American representative, shall develop a treatment plan that could include site avoidance, capping, or data recovery. Mitigation Measure CUL-2f provides for the additional monitoring of project operations within recorded site boundaries to ensure that previously undiscovered resources are properly assessed and treated. Implementing these measures would reduce this impact to a less-than-significant level.

Significant Effect: CUL-3: Disturb any human remains, including those interred outside of formal cemeteries

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: There is the potential that the PCEP could disturb human remains, including those interred outside of formal cemeteries. There are two known archaeological resources that are known to contain human remains: the vicinity of the Third Mission Santa Clara [CA-SCL-30/H], and the Native American burial ground at Tamien Station [CA-SCL-690]). Previous investigations indicate that CA-SCL-30/H has been determined eligible to the NRHP, and CA-SCL-690 has been recommended eligible; however, neither has been listed. Some portions of the Archaeological Study Area, and within those areas outside of the Archaeological Study Area established for OCS pole placement and vegetation maintenance, are sensitive for archaeological resources, including human remains; and since there is a potential to encounter heretofore unidentified buried cultural resources, including human remains, potential ground disturbance from construction could result in a significant impact on such resources.

The following measures mitigate these impacts to a less than significant level.

- CUL-3: Comply with state and county procedures for the treatment of human remains discoveries

Implementing Mitigation Measure CUL-3 would reduce this impact to a less-than-significant level by requiring that any human remains and related items discovered shall be treated in accordance with the requirements of Section 7050.5(b) of the California Health and Safety Code and, if determined to be of Native American origin, pursuant to the provisions of Section 5097.98(a)-(d) of the California Public Resources Code.

Significant Effect: CUMUL-4-CUL: Cumulative effects on cultural resources

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings:
The following measures mitigate these impacts to a less than significant level.

- CUL-1a: Evaluate and minimize impacts on structural integrity of historic tunnels
- CUL-1b: Minimize impacts on historic decorative tunnel material
- CUL-1c: Install project facilities in a way that minimizes impacts on historic tunnel interiors
- CUL-1d: Implement design commitments at historic railroad stations
- CUL-1e: Implement specific tree mitigation considerations at two potentially historic properties and landscape recordation, as necessary
- CUL-1f: Implement historic bridge and underpass design requirements
- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan
- CUL-2a: Conduct an archaeological resource survey and/or monitoring of the removal of pavement or other obstructions to determine if historical resources under CEQA or unique archaeological resources under PRC 21083.2 are present
- CUL-2b: Conduct exploratory trenching or coring of areas where subsurface project disturbance is planned in those areas with "high" or "very high" potential for buried site
- CUL-2c: Conduct limited subsurface testing before performing ground-disturbing work within 50 meters of a known archaeological site
- CUL-2d: Conduct exploratory trenching or coring of areas within the three zones of special sensitivity where subsurface project disturbance is planned
- CUL-2e: Stop work if cultural resources are encountered during ground-disturbing activities
- CUL-2f: Conduct archaeological monitoring of ground-disturbing activities in areas as determined by JPB and SHPO
- CUL-3: Comply with state and county procedures for the treatment of human remains discoveries

As discussed in Section 3.4, *Cultural Resources* of the FEIR, the implementation of Mitigation Measures CUL-1a through CUL-1f would reduce the PCEP's effects on historic tunnels, stations, and underpasses along the Caltrain right of way below the level of significance, with the exception of San Francisco Tunnel 4. Mitigation Measure BIO-5 would reduce the PCEP's effects on the historic El Palo Alto tree and the historic Francard Grove. While other cumulative projects may have significant impacts on the same historic resources affected by the PCEP and their impact may or may not be mitigable, the PCEP's residual impacts on these resources after PCEP mitigation would be minimal, except at Tunnel 4 where the PCEP would result in an individual impact. Therefore, the PCEP's potential contribution to cumulative impacts on historical resources due to construction would be less than considerable.

As discussed in Section 3.4, *Cultural Resources*, the implementation of Mitigation Measures CUL-2a, CUL-2b, CUL-2c, CUL-2d, CUL-2e, and CUL-2f would reduce the PCEP's effects on archaeological resources along the Caltrain right of way to a less-than-significant level. While other cumulative projects may have significant impacts on the same archaeological resources affected by the PCEP, the PCEP's residual impacts on these resources after PCEP mitigation would be minimal. Therefore, the PCEP's potential contribution to cumulative impacts on archaeological resources due to construction would be

less than considerable. As discussed in Section 3.4, *Cultural Resources*, the PCEP would have no impact on cultural resources during operations. Therefore, there would be no cumulative cultural resource impacts resulting from PCEP operation, and the PCEP would make no contribution to any impact.

Electromagnetic Fields and Electromagnetic Interference

Significant Effect: EMF-2 - Substantially increase electromagnetic interference along the Corridor

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The main sources, or generators, of transient EMI disturbances from electrification would be switching currents produced by switching loads, relays, power controllers, and switch mode power supplies associated with operation of the OCS or the TPFs. High-current electronic switches and controls are capable of producing transient signals that can be transmitted along the power supply network to other electronic systems. Magnetic fields would also be generated by paralleling and switching stations, as well as traction power substations. These fields could affect the signal systems of the freight rail, BART, SCVTA and/or affect highly sensitive electronic equipment, such as certain medical imaging equipment.

The following measure mitigates this impact to a less than significant level.

- EMF-2: Minimize EMI effects during final design, Monitor EMI effects during testing, commission and operations, and remediate substantial disruption of sensitive electrical equipment

Mitigation Measure EMF-2 will require that EMI be further assessed on a site-specific basis during final project design to ensure avoidance of significant EMI effects above baseline conditions. As explained in Chapter 3.5, *Electromagnetic Fields and Electromagnetic Interference*, of the FEIR under Impact EMF-2, there is ample evidence that electrified trains can operate harmoniously with freight trains on the same line without adversely affecting the signal systems of the freight rail or other users. Existing technical solutions, such as those employed for electromagnetic compatibility along the Northeast Corridor in the United States or in Europe, are available to be employed for this project.

In addition to the mitigation measure, the PCEP includes mitigating features in its design. As described in FEIR Chapter 2, *Project Description*, the PCEP will protect the existing railroad signal system, the grade crossing system, and the Positive Train Control system from electromagnetic interference created by the 25kv AC system by:

- designing the catenary system using proven solutions that minimize the effect of EMI;
- providing sufficient shielding for electronic equipment;
- installing specialized components, such as filters, capacitors, and inductors; and
- ensuring that the electric vehicles are designed with a frequency that does not interfere with the frequency of the grade crossing warning system.

Significant Effect: CUMUL-5-EMF - Cumulative increase in electromagnetic fields or electromagnetic interference

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The concern with EMFs is potential health risks to receptors along the Caltrain right of way. As described in Section 3.5, *Electromagnetic Fields and Electromagnetic Interference*, the PCEP's EMF levels along the Caltrain right of way were estimated at up to 41 milliGauss (mG). With full electrification, EMF levels for Caltrain electrified service could increase by perhaps 25 percent. The EMF levels along the fenceline for Blended Service should be well below the threshold used in the PCEP FEIR of 833 mG. Thus, the PCEP would make a less than considerable contribution to potential health risks associated with EMFs.

The concern with EMI is potential interference with sensitive electrical equipment along the Caltrain right of way due to increased EMF levels. As explained above, before mitigation, the PCEP could result in EMI to adjacent freight and transit system signal systems and perhaps to some adjacent sensitive equipment in other settings.

The following measure mitigates this impact to a less than significant level.

- EMF-2: Minimize EMI effects during final design, Monitor EMI effects during testing, commission and operations, and remediate substantial disruption of sensitive electrical equipment

Mitigation Measure EMF-2 and elements of the PCEP design eliminate any potential significant effects associated EMI interference. As a result, the project would not contribute to any cumulative interference.

Geology and Soils

Significant Effect: GEO-1 - Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Strong ground shaking would be experienced along the PCEP line during an earthquake. During an earthquake, TPFs and OCS poles could be subject to liquefaction effects (such as foundation failure or settlement), if they are constructed on liquefiable soils and not properly designed for such soils.

The following measure mitigates this impact to a less than significant level.

- GEO-1: Perform a site-specific geotechnical study for traction power facilities

The PCEP would be located in a seismically active area and must, therefore, be constructed in accordance with the California Building Code. The California Building Code establishes standards intended to permit structures to withstand seismic hazards. To this end, the Code sets standards for excavation, grading, earthwork construction, fill embankments, expansive soils, foundation investigations, liquefaction potential, and soil strength loss. Additionally, Mitigation Measure GEO-1 would require the JPB to conduct site-specific geotechnical investigations for TPFs, the results of which will be used in the design specifications for the proposed TPF structures. Adherence to applicable building code requirements and implementation of Mitigation Measure GEO-1 would minimize potential construction and operational impacts of the proposed Project due to seismic ground shaking, seismic-related ground failure (including liquefaction), and landslides.

Significant Effect: GEO-3 - Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the Project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Underlying soils at the various TPF locations are prone to geologic hazards such as liquefaction and subsidence. Where construction of proposed TPFs and OCS poles is planned within areas with compressible and collapsible soils (as mentioned above), the structures would be susceptible to damage due to ground settlement from the weight of the structures or the addition of water in the form of irrigation or concentrated runoff.

The following measure mitigates this impact to a less than significant level.

- GEO-1: Perform a site-specific geotechnical study for traction power facilities

The PCEP must be constructed in conformance with the California Building Code. The Code sets standards for excavation, grading, earthwork construction, fill embankments, expansive soils, foundation investigations, liquefaction potential, and soil strength loss. Additionally, Mitigation Measure GEO-1 would require the JPB to conduct site-specific geotechnical investigations for TPFs, the results of which will be used in the design specifications for the proposed TPF structures. Adherence to applicable building code requirements and implementation of Mitigation Measure GEO-1 would minimize potential construction and operational impacts of the proposed Project due to unstable soils.

Significant Effect: GEO-4 - Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Expansive soils are typically composed of clays and can undergo a volume change with changes in moisture content. They have tendencies to expand and soften when wet and to harden when dry. If not properly considered prior to the construction of structures, this expansive behavior can damage foundations and other building components.

The following measure mitigates this impact to a less than significant level.

- GEO-4a: Identification of expansive soils
- GEO-4b: Mitigation of expansive soils

Mitigation Measures GEO-4a and GEO-4b would be implemented where construction of proposed TPFs and OCS poles are planned atop soils composed of clay or silty clays, which are expansive soils with high shrink-swell potential. The mitigation measures would ensure that soils are tested by a qualified geotechnical engineer and engineering geologist, and requisite actions are taken such as removing and replacing any expansive soils, or incorporating design features into foundations, in order to avoid this impact.

Significant Effect: CUMUL-6-GEO - Cumulative exposure of people or structures to geologic or seismic hazards or destruction of unique paleontological/geologic resources

Finding: The JPB hereby makes finding (a)(1) (described in Section 3.1 above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: New transportation, residential, commercial and other facilities and services could increase exposure of people or structures to geologic, seismic and soil hazards could result in a significant cumulative impact. The project area is likely to experience a strong seismic activity and geologic instability (e.g., soil liquefaction or collapse) that could damage structures or expose people to greater risks of loss of life and injury. In addition, there could be cumulative exposure due to construction in areas of expansive soils.

The following measure mitigates this impact to a less than significant level.

- GEO-1: Perform a site-specific geotechnical study for traction power facilities
- GEO-4a: Identification of expansive soils
- GEO-4b: Mitigation of expansive soils

Implementation of Mitigation Measures GEO-1, 4a, and 4b would eliminate the PCEP's exposure to unacceptable risks of geologic, seismic and soil hazards. Therefore, the PCEP's contribution to the increase of exposure to these hazards would be less than considerable.

Hazards and Hazardous Materials

Significant Effect: HAZ-2 - Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Typical construction-related hazardous materials would be used during construction of the proposed Project, including gasoline, diesel, oil, other vehicle-related fluids, paints, solvents, and metals. It is possible that any of these substances could be released during construction activities. The proposed Project TPF locations lie within areas that are highly industrialized and commercial in nature. Contaminants of concern along the Caltrain right of way include arsenic, lead, and total petroleum hydrocarbons. Consequently, construction activities, including dewatering operations, could encounter soil and/or groundwater contamination. Operational activities would generate hazardous material waste due to the use of lubricants, solvents, and other materials.

The following measures mitigate this impact to a less than significant level.

- HAZ-2a: Conduct a Phase II Environmental Site Assessment prior to construction
- HAZ-2b: Implement engineering controls and best management practices during construction

Mitigation Measures HAZ-2a and HAZ-2b require that, prior to construction, the potential presence of contaminants in soil and groundwater will be investigated using conventional drilling, sampling, and chemical testing methods. Based on the chemical test results, a mitigation plan will be developed to establish guidelines for the disposal of contaminated soil and discharge of contaminated dewatering effluent, and to generate data to address human health and safety issues that may arise as a result of

contact with contaminated soil or groundwater during construction. JPB will be required to provide a copy of this plan to the Department of Toxic Substances Control for review and approval prior to starting work on the PCEP. These measures, along with standard requirements for construction and operation, as discussed in Section 3.8, *Hazards and Hazardous Materials* and Section 3.9, *Hydrology and Water Quality* (discussion of SWPPP) of the FEIR will avoid the potential for significant effect.

Hazardous waste generated by PCEP operations would be managed according to all applicable regulatory requirements, which would minimize the exposure risk to all Caltrain personnel and the surrounding environment. Additionally, proposed PCEP infrastructure will be constructed with engineering controls to limit and contain releases and spills, thus further minimizing the potential for operational impacts.

Significant Effect: HAZ-4 - Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Due to the extent of the project corridor, construction of some of the TPFs and portions of the OCS would be surrounded by numerous sites found in various environmental databases.

The following measures mitigate this impact to a less than significant level.

- HAZ-2a: Conduct a Phase II Environmental Site Assessment prior to construction
- HAZ-2b: Implement engineering controls and best management practices during construction

Industrial, commercial and agricultural facilities that deal with storage, use, and disposal of hazardous materials within all proposed construction areas are required to comply with all appropriate federal, state and local regulations, such as the regulations discussed Section 3.8.1.1, *Regulatory Setting*, of the FEIR to ensure safety of the surrounding public and environment. Additionally, implementation of Mitigation Measures HAZ-2a and HAZ-2b, would further minimize potential impacts from sites included in hazardous materials databases by undertaking the study necessary to characterize the hazard and the engineering controls and management practices necessary to avoid the hazard.

Significant Effect: HAZ-6 - Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction activities at grade crossings could potentially interfere with an adopted emergency response plan or emergency evacuation plan by increasing traffic congestion and vehicle wait time. As discussed in Section 3.14, *Transportation and Traffic*, of the FEIR the PCEP would result in significant increases in traffic delays at a number of at-grade crossings along the Peninsula corridor due to increased gate-down time during peak hours, as well as impacts on traffic near some of the Caltrain stations.

The following measure mitigates this impact to a less than significant level.

- TRA-1a: Implement construction road Traffic Control Plan

During project construction, implementation of a Traffic Control Plan (Mitigation Measure TRA-1a) discussed in Section 3.14, *Transportation and Traffic*, would minimize obstructions at crossings, which would help to ensure continued emergency access to the various TPF project sites and nearby properties. The traffic plans would include construction truck marshaling to prevent construction traffic congestion to and from the project sites.

Emergency response times are a function of the conditions between the responder base location and the incident location overall, not only a function of conditions at any one point along the response path. As discussed in Section 3.14, *Transportation and Traffic*, if the FEIR the PCEP would substantially reduce overall vehicle miles traveled in the Peninsula corridor, which would improve congestion on a broad general basis. Most of the vehicle miles traveled reductions would be during peak hours, which is especially important in reducing congestion. This broad-based congestion improvement (approximately 235,000 miles per day in 2020 and 619,000 miles per day in 2040, compared with No Project Conditions) is expected to more than offset the localized effects on at-grade crossings and near Caltrain stations and result in a net improvement (compared with No Project Conditions) in the emergency response times and in the ability to evacuate constrained areas by vehicle.

Significant Effect: CUMUL-8-HAZ - Cumulative effects related to hazards and hazardous materials

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: During construction of cumulative projects, people could be exposed to a risk to human health and spillage of hazardous materials such as gasoline, oil paint and solvents could. Water quality contamination could occur from accidental spillage of hazardous materials and mixture of contaminated water with non-contaminated water. Excavation activities could expose construction crew members to hazardous materials that could pose a risk to health and safety.

During cumulative project construction, there may be temporary obstruction of access and egress from construction sites and on adjacent roads due to construction. Such obstruction would affect the ability of emergency responders to timely reach their destinations and impede the ability to evacuate constrained areas in the event of an emergency. Where one or more cumulative projects would be in construction at the same time in the same area, there could be cumulative impacts on emergency response or evacuation capacity.

Release of and exposure to hazardous materials during operation of cumulative projects could result in a cumulative significant impact. Because both HSR service and the PCEP would involve electrically powered trains, spills of diesel petroleum products would not occur during operation. However, operation of HSR service and the PCEP would involve handling of hazardous materials including batteries in EMUs, fluids in transformers and other electrical equipment, and maintenance materials and cleaning fluids.

Operation of the other cumulative projects would also involve the use and handlings of petroleum and other hazardous materials including during maintenance.

The following measures mitigate this impact to a less than significant level.

- HAZ-2a: Conduct a Phase II Environmental Site Assessment prior to construction

- HAZ-2b: Implement engineering controls and best management practices during construction
- TRA-1a: Implement construction road Traffic Control Plan

Compliance with local, state and federal regulations for handling of materials and implementation of the mandatory Stormwater Pollution prevention Plan will address impacts associated with construction handling of petroleum and other materials. For encountered contamination, the PCEP would require implementation of Mitigation Measures HAZ-2a and HAZ-2b, which require preconstruction investigation of potentially contaminated areas and appropriate containment, handling and disposal of any encountered contaminated soil and groundwater. Thus, the PCEP's contribution to any potential cumulative impact related to hazardous materials during construction would be reduced to a less-than-considerable level.

As discussed in Section 3.8, *Hazards and Hazardous Materials*, of the FEIR the PCEP could have such effects if an emergency occurs at the time when the PCEP construction limits access to the Caltrain right of way or at at-grade crossings. As described in Section 3.14, *Transportation and Traffic*, of the FEIR Mitigation Measure TRA-1a will require the preparation of a traffic control plan to help ensure continued emergency access to Caltrain right of way, at-grade crossings, and all nearby properties. Caltrain would coordinate with local public works departments, local emergency providers, and Caltrans in the development of the traffic control plan to specifically address emergency response concerns. Potential issues associated with multiple projects in construction at the same time may be addressed through development of the traffic control plan. Thus, with mitigation, the PCEP's contribution to a potential cumulative impact related to emergency response or evacuation would be less than considerable.

The operational use and handling of hazardous materials is highly regulated by local, state, and federal requirements that are applicable universally. Therefore, routine operation and maintenance of the cumulative projects is not likely to have a significant cumulative impact from the release of or exposure to hazardous materials. There is always the possibility of an unforeseen accident involving petroleum or other hazardous materials, but local, state, and federal regulations also specify operating procedures to minimize the potential for such accidents and remedial response necessary in the event of such accidents or spills to contain and cleanup hazardous material releases.

Hydrology and Water Quality

Significant Effect: HYD-1a - Violate any water quality standards or WDRs, or otherwise substantially degrade water quality

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction grading and utility excavations at proposed TPF sites could result in a short-term increase in the sediment load in stormwater during rainfall events. Installation of OCS poles would require soil excavation, which would potentially result in substantial soil disturbance, and could also increase sediment loads into nearby waterways. Additional sediment sources created during construction include soil stockpiles and soil tracked across construction areas, debris resulting from the installation of OCS pole foundations, erosion in areas where vegetation is cleared for OCS pole and catenary system placement, and soil transported by wind (from dry, exposed excavated areas). Although sediment from erosion is the pollutant most frequently associated with construction activity, other pollutants of concern are toxic chemicals from heavy equipment or construction-related materials.

The following measure mitigates this impact to a less than significant level.

- HYD-1: Implement construction dewatering treatment, if necessary

Because the PCEP would disturb more than 1 acre of land, a SWPPP would be required as part of compliance with the NPDES Construction General Permit. The purpose of a SWPPP is to reduce the amount of construction-related pollutants that are transported by stormwater runoff to surface waters. The SWPPP would emphasize standard temporary erosion control measures to reduce sedimentation and turbidity of surface runoff from disturbed areas with the project area and other best management practices to prevent and minimize the potential for other pollutants of concern to enter waterways. As discussed in Section 3.9, *Hydrology and Water Quality* of the FEIR, use of non-potable water (i.e., from wastewater reclamation facilities and permitted groundwater wells) for dust control would not present a health or safety hazard if used in accordance with applicable State Department of Health, State Water Resources Control Board, Regional Water Quality Control Board, and City Departments of Health and Public Works orders, standards and regulations.

Construction dewatering in areas of shallow groundwater could be required during excavation required to install OCS poles and possibly during utility relocations and installation. In the event groundwater is encountered during construction, dewatering would be conducted according to methods and performance standard described in Mitigation Measure HYD-1. Coverage under the Construction General Permit typically includes dewatering activities as authorized non-stormwater discharges provided that dischargers prove the quality of water to be sufficient and not affect beneficial uses. However, the San Francisco Bay Regional Water Quality Control Board will need to be notified if dewatering will occur and the contractor may be subject to dewatering requirements in addition to what's outlined in the Construction General Permit, including discharge sampling and reporting.

Significant Effect: HYD-2 - Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: As the OCS poles would have foundations 15 to 20 feet below ground surface (bgs), groundwater would be encountered in areas where the groundwater table is less than 15 feet bgs. In addition, utility relocation and installation may also encounter shallow groundwater. Shallow groundwater may be encountered in the vicinity of San Francisco Bay in San Francisco, San Mateo, and Santa Clara Counties. Impacts on groundwater would be limited to areas with high groundwater tables where construction-related dewatering would occur on a temporary, short-term (during construction) basis. There would also be potential to encounter groundwater during excavation in areas where depth to groundwater is unknown. In the event groundwater is encountered during construction, temporary dewatering would be conducted locally.

The following measure mitigates this impact to a less than significant level.

- HYD-1: Implement construction dewatering treatment, if necessary

Given the limited area of construction activity associated with the OCS foundation augering and potential utility relocations/installations, potential groundwater dewatering volumes would be limited and, thus, the PCEP would not substantially deplete groundwater supplies. In addition, groundwater within the project area is not a large source of water supply, one reason which is that much of it is saline due to the proximity to the San Francisco Bay. The PCEP would comply with the Construction General Permit and

other related requirements, and, if dewatering is necessary, would also implement the methods and performance standard described Mitigation Measure HYD-1. Provided that the water is of sufficient quality or can be treated on-site, this measure will require water to be discharged to the storm drain system or other water bodies and thereby kept within the local groundwater basin.

Significant Effect: HYD-4 - Place housing within a 100-year flood hazard area, or place structures that would impede or redirect flood flows within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or FIRM or other flood hazard delineation map

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Overall, potential significant impacts are only expected at the TPFs located within 100-year floodplains.

As discussed in Section 3.9, *Hydrology and Water Quality* of the FEIR, PS3 Option 1 is located in a part of Burlingame subject to flooding, likely because of backwater effects from Mills Creek and/or Easton Creek which are located north of PS3 Option 1. PS3 Option 1 would be located about 1,000 feet south of Easton Creek and 2,500 feet south of Mills Creek. Easton Creek is deficient in capacity and results in flooding of residential and industrial areas during a moderate rainstorm and medium to high tides. Mills Creek experiences frequent flooding during moderate rain storms due to undersized box culverts under Rollins Road and U.S. Highway 101. In addition, the low elevation of the Mills Creek embankment causes overtopping of the creek during moderate rain storm events. The PS3 area is within the southern edge of the inundation area along the Caltrain right of way due to these two creeks and thus would not redirect flood flows. PS3 Option 1 would be approximately 40 feet by 80 feet (3,200 square feet, or <0.1 acre) and would be located in a previously cleared and graded area. As a result, the amount of infiltration at PS3 Option 1 is likely minimal. Given the small size of PS3 Option 1, and its location on the edge of the inundation zone on a previously graded area with limited existing infiltration, it is considered unlikely that PS3 Option 1 would contribute significantly to flooding.

PS6 (both options) is located in an area shown as within the current 100-year floodplain. The area of flooding is shown as an elongated area of flooding along the Caltrain right of way itself. PS6 (Option 2) is located in an existing paved area; placement at this location would have no impact on flooding. PS6 (Option 1) is located in an unpaved area and thus, as discussed above for PS3, the addition of a small amount of impervious space is unlikely to contribute significantly to flooding, but Mitigation Measure HYD-4 would apply to the PS6 (Option 2) location to minimize the potential to contribute to flooding.

TPS2, Option 3 would be located at CEMOF in an area that is partially a parking lot and partially a graded dirt lot that is surrounded entirely by developed buildings and pavement. Flooding in this area appears to be local flooding, possibly due to a lack of adequate drainage to the Guadalupe River or issues with the Howard Street outfall (the river is approximately 1,500 feet to the east of the potential TPS2 location). TPS2, Option 3 would be approximately 150 feet by 200 feet (30,000 square feet, or 0.7 acre) and would be located in a previously cleared and graded and partially paved area. As a result, the amount of infiltration at this potential location for TPS2 is likely minimal. In addition, as a backwater area, TPS2 would not redirect or block flood flows. Nevertheless, the increase in impervious space could contribute to expanded localized flooding. Mitigation Measure HYD-4 would apply to this location in order to minimize the potential to contribute to flooding potential.

The following measure mitigates this impact to a less than significant level.

- HYD-4: Minimize floodplain impacts by minimizing new impervious areas for new TPFs or relocating these facilities

Mitigation Measure HYD-4 contains site-specific performance standards that would reduce impacts at these locations to a less-than-significant level by further reducing the potential of these TPFs to contribute to localized flooding. Mitigation Measure HYD-4 is also recommended at TPFs not located within 100-year floodplains to minimize downstream flooding impacts, but is not required due to less- than-significant impacts relative to impacts on downstream flooding for these locations.

Significant Effect: HYD-5: Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Several of the new TPFs are proposed within 100-year floodplains. Given the electrical equipment contained in new paralleling stations and traction power substations, flooding would pose electrical safety risks to these facilities and to any people near the facilities if flooding were to contact energized equipment.

Numerous levees are located along the San Francisco Bay shoreline and along certain creeks to protect various residential, commercial and industrial areas from coastal and riverine flooding. Levees can fail due to earthquakes or storm events, if not properly maintained or reinforced to withstand potential stresses. In the event of levee failure, there could be flooding of several areas of the existing Caltrain alignment beyond those included in the current 100-year floodplain. This existing flooding potential due to levee failure would not be changed by the Proposed Project; however, the PCEP would introduce new electrical facilities that could be damaged or result in electrical safety risks in the event of flooding.

In the event of dam failure, portions of the existing Caltrain right of way could be inundated. This existing flooding potential due to dam failure would not be changed by the PCEP; however, the PCEP would introduce new facilities that could be damaged or result in electrical safety risks in the event of flooding.

The following measure mitigates this impact to a less than significant level.

- HYD-5: Provide for electrical safety for all new TPFs subject to periodic or potential flooding

If these facilities are not relocated outside of the 100-year floodplain or at previously paved areas pursuant to options in Mitigation Measures HYD-4, then Mitigation Measure HYD-5 will provide for the safety of these new facilities by requiring Caltrain to place all new electrical equipment on elevated pads above expected flood depths and/or protect such equipment with flood barriers. If equipment cannot be designed so that flood waters cannot contact the equipment, then sealed or capped moisture-resistant components are required. In addition, Caltrain shall develop emergency response procedures to provide electrical safety including system shutdown during projected flood events.

Significant Effect: CUMUL-9-HYD: Cumulative impacts related to hydrology and water quality (excluding flooding related to sea level rise).

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to construction hydrology and water quality effects, and flooding aspects other than those related to sea level rise.

Facts in Support of Findings: The PCEP could have construction effects on water quality due to construction runoff or dewatering that could combine with cumulative projects in construction at the same time that could affect downstream cumulative water quality. Application of all state and federal requirements for stormwater control would help to control cumulative construction effects. The PCEP also includes some TPFs located within the 100 year floodplain which, in combination with cumulative developments could affect floods and flows in watersheds affected by cumulative projects.

The following measure mitigates the PCEP's contribution to these effects to a less than considerable level.

- HYD-1: Implement construction dewatering treatment, if necessary
- HYD-4: Minimize floodplain impacts by minimizing new impervious areas for new TPFs or relocating these facilities
- HYD-5: Provide for electrical safety for all new TPFs subject to periodic or potential flooding

Mitigation Measure HYD-1, in addition to Construction NPDES requirements would limit PCEP contributions to construction period water quality effects to a less than considerable levels. Mitigation Measures HYD-4 and HYD-5 would limit PCEP contributions to cumulative flooding impacts by limiting the amount of new impervious space and by providing for facility protection for TPS subject to flooding.

Land Use and Recreation

Significant Effect: LUR-4: Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: A number of parks and open spaces are located adjacent to the Caltrain right of way. Under the PCEP, vegetation clearance for safety purposes may be necessary at four park locations where the electrical safety zone would extend outside the current Caltrain right of way and one location where the park is partially on the Caltrain right of way. This vegetation removal could have an effect on park uses, park lands and park aesthetics.

Operationally, the PCEP would only potentially adversely affect adjacent parks in relation to aesthetics and vegetation maintenance. PS7 would be adjacent to Kurte Park in San Jose. At this location, the prevailing views northward from the park are of the grasslands on Communications Hill, a few scattered trees and the railroad right of way. Although the PS7 facility would be small (40 by 80 feet), it would be an anomalous industrial facility in a view largely dominated by grassland features As discussed in Section 3.1, *Aesthetics* of the FEIR this is considered a significant aesthetic impact.

As discussed above, vegetation maintenance inside the Caltrain right of way is an existing activity. While the area of vegetation maintenance would move outward to the edge of the right of way, after initial vegetation removal for construction, the maintenance activity should be roughly similar to existing vegetation maintenance. Thus, temporary noise of vegetation maintenance inside the Caltrain right of way would have less-than-significant impacts on adjacent or nearby parks. Where vegetation maintenance is required within the electrical safety zone in the four parks described above, it would be more intrusive than vegetation maintenance than on the Caltrain right of way itself. Because the areas of maintenance would be outside the areas of active park use and maintenance would occur for a limited period of time in

any one year, vegetation maintenance would have a less-than-significant impact on park lands and park uses.

The following measure mitigates this impact to a less than significant level.

- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan
- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers

Mitigation Measure BIO-5 would require replacement of any removed trees, and it is feasible to replace the visual screening function of trees that exists today in a way that is compatible with PCEP design. Thus, with mitigation, the loss of park vegetation would be a less-than-significant impact.

Mitigation Measure AES-2b would require planting of trees between the park and PS7 to visually screen the lower portions of the new paralleling station and require aesthetic treatment to help the facility blend in with surroundings. With this mitigation, aesthetic impacts at this location would be less than significant. With Project Variant 1, PS7 would be located farther north than its current proposed location and would not be visible from Kurte Park and there are no other parks in the close vicinity to the PS7 variant locations.

Significant Effect: CUMUL-10-LUR - Cumulative effects related to land use and recreation

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Cumulative construction impact analysis focused on temporary impacts on existing land uses and recreation. Operational impact analysis addressed potential division of communities, land use policy/plan consistency, and direct/indirect changes in recreational facilities.

The following measures mitigate this impact to a less than significant level.

- BIO-5: Implement Tree Avoidance, Minimization, and Replacement Plan
- AES-2b: Aesthetic treatments for OCS poles, TPFs in sensitive visual locations, and Overbridge Protection Barriers

The PCEP would be constructed within the Caltrain right of way, with the exception of the two TPSs (except for TPS2, Option 3 which is in the right of way) and potentially for the PS7 Variant locations, limited areas where the OCS alignment would be outside the Caltrain right of way, and areas where the electrical safety zone would extend outside the Caltrain right of way and require vegetation clearance. Construction within the Caltrain right of way would not displace other land uses outside the right of way.

As discussed in Section 3.10, *Land Use and Recreation*, the TPS location options, with the exception of TPS2 Option 2 and TPS2 Option 3, are vacant parcels surrounded by industrial or commercial areas. TPS2 Option 2 would displace existing industrial use and parking currently on the site; however, there are numerous alternative locations for industrial use in the vicinity. TPS3 Option 3 would be in a parking lot/open area at the CEMOF that is used for parking and as a laydown area. The construction of the OCS poles would primarily occur within the Caltrain right of way; however, in some locations the OCS poles would be erected on adjacent commercial, industrial and residential land. Some tree removal or pruning may be necessary on areas outside the Caltrain right of way, which could disrupt existing land uses. Temporary staging and access could also result in use of vacant lots inside and outside of the Caltrain

right of way, but would not result in new land uses that might be inconsistent with adjacent land uses. PS7 Variant A and B would be partially or entirely located on Caltrans-owned land, but not in any area used for active support of SR 87.

As discussed in Section 3.1, *Aesthetics* of the FEIR construction activity in residential and park areas would be anomalous, and the visual character of such areas would be partially degraded during construction. The duration of OCS construction at any one location would be limited to the time necessary to install pole foundations and then later to install poles and string wires. The change in visual character would only occur for a limited period and the perception of the visual quality of such areas would not be altered once construction is complete. To ensure that the duration of construction disruption and activities are limited in areas of greater visual sensitivity, Mitigation Measure AES-2a would be implemented to avoid using residential or park areas for access or staging areas, to minimize the duration of construction activity in such areas (to the extent feasible) and to remove all construction equipment and materials immediately following completion of construction on such sites. Because the disruption of existing land uses during construction would be temporary, would not ultimately result in a conversion of land use (except at TPS2 Option 2, for which there are ample industrial sites for the displaced use and TPS3 Option 3 for which alternative sites can be identified for parking and laydown areas within the Caltrain right of way) and because Mitigation Measure AES-2a would ensure that disruption to individual residential areas or park areas is minimal, the contribution of PCEP's construction to the cumulative significant impact on land use and recreation would be less than considerable.

As described in Section 3.10, *Land Use and Recreation* of the FEIR the PCEP would not physically divide existing communities. The OCS poles and wires would add additional infrastructure in the Caltrain right of way but would not physically impede access across the Caltrain right of way. There may be increased delays at some at-grade crossings, but the delays would be temporary and would not physically divide communities on either side of the Caltrain right of way. Thus, the contribution of the PCEP's operation to any potential cumulative impacts related to physically dividing a community would be less than considerable.

As described in Section 3.10, *Land Use and Recreation* the majority of the PCEP, including OCS poles and wires, the paralleling stations, and the switching station would be located within the existing Caltrain right of way and would, therefore, not impact adjacent land use plans. The PCEP would result in several inconsistencies with local plans and policies, specifically, at the location of TPS1 Option 2, and at locations where the OCS alignment and electrical safety zone would be outside rail or road right of way. However, the PCEP would not displace existing or potential future development (except the existing industrial/warehouse use, which can be readily absorbed at other San Jose industrial sites, at the TPS2 Option 2 site) and, thus, would not result in significant secondary environmental impacts as a result of the inconsistencies with local land use plans and policies.

At TPS1, Option 3 there is a pending hotel application under evaluation by the City of South San Francisco for which an EIR will be released in 2015. If approved and constructed, then construction of TPS1 at this location may be in conflict with the hotel, depending on the remaining developable land at the site. As described in Section 3.11, *Noise* of the FEIR there are noise impacts of locating a TPS at this site adjacent to an existing hotel but mitigation would lower the potential noise impact to less than significant. Similarly, if the new hotel is built and there were still remaining land at the site for a TPS, then the noise mitigation would still apply. If the hotel is built, the costs of land acquisition would increase, and may be a consideration for Caltrain in deciding on which potential site to locate the TPS. An additional option, Option 4 was added by Caltrain at the request of the City of South San Francisco in order to increase the options for Caltrain as Option 3 may be more conflicted in the future than in 2013 at the start of the CEQA process.

PS4, Options 1 and 2 would be located within an area envisioned for Transit Oriented Development and a Transit Center and associated improvements as part of the Hillsdale Station Area Plan. As concluded in Section 3.10, *Land Use and Recreation* these two options would require minor reconfiguration of the plan, but would not hinder the ability to develop transit oriented development overall, provide a Transit Center, or relocate the Caltrain Hillsdale Station and thus development would not be displaced from the site. PS4, Option 3 would not require the minor reconfiguration.

SWS Option 1 would be located adjacent to, but not in an area proposed for mixed residential/commercial/light industrial use in the Redwood Triangle portion of the North Fair Oaks Community Plan. Because SWS, Option 1 is outside of the plan area, it would not displace any potential other land uses in the plan area. The mixed-use development can be fully realized within the plan area. Thus, contribution of the PCEP operation to any potential cumulative impacts related to land use policy or plan conflicts (and resultant secondary physical impacts on the environment) would be less than considerable.

Where Blended Service passing tracks are proposed outside the Caltrain right of way, they could affect park or open space directly adjacent the Caltrain right of way. Based on Table 3.10-2 in Section 3.10, *Land Use and Recreation* of the FEIR all of the five preliminarily identified passing track locations would be adjacent to parks. The design of passing tracks is unknown and, thus, no definitive conclusion can be made about whether any parks would actually be affected or not. However, pursuant to the mandatory requirements of Section 4(f) of the Department of Transportation Act of 1966, CHSRA will first consider options for avoiding park impacts in design of any passing tracks. If park impacts cannot be avoided, then Section 4(f) requires mitigation to provide additional park space so that no overall loss of park space and recreational opportunities results.

As described in Section 3.10, *Land Use and Recreation* of the FEIR the PCEP may require tree removal at Broadway-Arguello Park (Redwood City), Holbrook-Palmer Park (Atherton) and at Peers Park (Palo Alto). Mitigation Measure BIO-5 requires replacement of removed trees and, as discussed in Section 3.10, *Land Use and Recreation*, it is feasible to replace trees removed at parks at the parks themselves to maintain their visual screening function from the Caltrain right of way without loss of substantial portions of the parks. Given that Blended Service improvements or other cumulative transportation projects would be required to avoid and/or mitigate for park impacts per the Section 4(f) requirements, other cumulative projects are unlikely to affect parks, and the PCEP's park impacts would be mitigated, cumulative impacts are likely to be mitigable to a less than significant level. Given the project-level mitigation described above, the PCEP's contribution to any potential cumulative impacts would be less than considerable with mitigation.

Noise and Vibration

Significant Effect: NOI-1b: Expose sensitive receptors to substantial increase in noise during operation

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Operational train noise impacts would include both a decrease in train noise, because EMUs are quieter than corresponding diesel locomotives, and an increase in train noise, primarily during peak hours due to the Proposed Project's increase in Caltrain service.

In addition to the noise generated by the proposed Caltrain passenger rail operations, the electrical traction power substations and ancillary facilities would generate stationary noise. Operational noise levels were calculated in order to predict the total PCEP noise levels with the ambient noise at the receptors, accounting for both changes resulting from EMU train operations (where TPFs are located near the Caltrain right of way) and the new ancillary facility stationary noise sources.

Before mitigation, the noise analysis results indicate that the operation of TPS1 Option 3 and PS5, Option 2 would result in an increase in ambient noise levels exceeding FTA moderate impact criteria at noise sensitive receptors.

The following measure mitigates this impact to a less than significant level.

- NOI-1b: Conduct site-specific acoustical analysis of ancillary facilities based on the final mechanical equipment and site design and implement noise control treatments where required

Operational train noise impacts would include both a decrease in train noise, because EMUs are quieter than corresponding diesel locomotives, and an increase in train noise, primarily during peak hours due to the PCEP's increase in Caltrain service. As shown in Table 3.11-15 of the FEIR, there are no study locations where noise increase would exceed the FTA moderate impact or severe impact level. Therefore, PCEP operations would have a less-than-significant impact along the Caltrain corridor.

Implementation of Mitigation Measure NOI-1b, would reduce the impacts related to one TPF facility (TPS1, Option 3) and one PS facility (PS5, Option 2) to a less-than-significant level through compliance with specific performance criteria, site design treatments, and or equipment reconfiguration/relocation that would reduce noise below thresholds levels.

Significant Effect: NOI-2a: Expose sensitive receptors to substantial increase in ground-borne vibration levels from proposed operations

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Given that the closest structures are less than 25 feet from the Caltrain right of way, it is possible that construction activities involving vibratory hammer or vibratory compactor/roller operations occurring at the edge of or slightly outside of the current right of way could result in vibration damage. If vibratory pile piling is conducted less than 25 feet from buildings or vibratory rolling/compacting conducted less than 15 feet from buildings, then damage from construction vibration may occur which would be a significant impact. A particular area of concern would be pile driving near historic station structures along the Caltrain right of way.

The following measure mitigates this impact to a less than significant level.

- NOI-2a: Implement Construction Vibration Control Plan

With implementation of Mitigation Measure NOI-2a, vibration impacts would be avoided or minimized. If building damage does occur due to construction, then repairs would be made or compensation provided.

Residents and other sensitive receptors located within the annoyance distances identified in Table 3.11-17 of the FEIR could be significantly annoyed due to construction vibration. The effect would be more acute with equipment with high vibration potential, such as vibratory hammers or vibratory compactor/rollers.

Mitigation Measure NOI-2a would result in the use of alternative construction techniques or timing when in proximity to residences and other sensitive receptors, thereby avoiding this impact.

Significant Effect: CUMUL-11-NOI - Cumulative increase in noise or vibration

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Cumulative vibration impacts from construction would primarily result from simultaneous construction of different projects in the same location at the same time; however where construction occurs in quick succession in the same area, there could also be a cumulative impact due to the extended duration of construction disruption. Cumulative operational vibration effects would occur due to the increase in the number or vibration events along the project corridor due to the combined increases in passenger and freight rail transit through the corridor.

The following measures mitigate this impact to a less than considerable level.

Construction

- NOI-2a: Implement Construction Vibration Control Plan

Operation

- NOI-CUMUL-2: Conduct project-level vibration analysis for Blended System operations and implement vibration reduction measures as necessary and appropriate for the Caltrain corridor

Mitigation Measure NOI-2a will avoid substantial vibration impacts from the PCEP during construction. Given this mitigation and the fact that vibration levels due not accumulate (like noise levels can) the PCEP would not contribute considerably to cumulative construction vibration impacts.

Mitigation Measure NOI-CUMUL-2 includes a range of feasible options, including any pertinent measures identified in Table 4-14 in the FEIR, to reduce the cumulative vibration impacts from cumulative operations. Thus, Mitigation Measure NOI-CUMUL-2 would reduce the PCEP's contribution to a less-than-significant level.

Public Services and Utilities

Significant Effect: PSU-2 - Exceed wastewater treatment requirements of the applicable Regional Water Board

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The PCEP would potentially generate substantial amounts of wastewater during dewatering activities during sub-grade excavation for OCS pole installation and excavation for electrical ductbank installation or utility relocations.

The following measure mitigates this impact to a less than significant level.

- HYD-1: Implement construction dewatering treatment, if necessary

Mitigation Measure HYD-1 requires treatment to receiving water quality standards, including those of any receiving wastewater system. This will reduce the impact to a less-than-significant level.

Significant Effect: PSU-8 - Construction activities would result in a substantial disruption to utility service systems

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Known existing utilities within the Caltrain right of way and around TPFs are identified in Tables 3.13-2 and 3.13-3 of the FEIR. Constructing OCS pole foundations, overhead facilities, TPSs, the switching station, and paralleling stations would have the potential to encroach upon existing overhead utilities and utilities that run underground longitudinally within or along the right of way.

The following measures mitigate this impact to a less than significant level.

- PSU-8a: Provide continuous coordination with all utility providers
- PSU-8b: Adjust OCS pole foundation locations
- PSU-8c: Schedule and notify users about potential service interruptions

The JPB would coordinate with all utility providers and local jurisdictions during the design phase of the PCEP to confirm the location of all subsurface and overhead utilities so that effective design treatments and construction procedures can be developed to avoid adverse impacts on existing utilities and prevent disruptions in service.

There is low to moderate potential for the PCEP facilities to affect underground utilities that cross the Caltrain right of way, and pole placement can generally be modified to avoid them. Underground utilities would be relocated if required to accommodate the installation of OCS and TPS equipment and facilities. Underground utilities and longitudinally running utilities would be avoided to the extent possible by design modifications.

Overhead utility conflicts would be avoided by raising the existing utility wires over OCS wires or relocating them under the tracks pursuant to federal, state and local code requirements. If relocation of overhead wires were required, a taller pole would be installed. Pursuant to CPUC General Order 95 and other CPUC requirements, adequate separation and clearance would be provided between the new OCS facilities and other overhead electrical overhead transmission facilities where overhead utilities can be accommodated. Some overhead utility crossings will have to be relocated underground. If relocation underground is required, the overhead wires will be removed once the underground service is established. In most cases, the JPB has reserved the right to have utilities relocated if they interfere or conflict with planned railroad facilities. In the event that a longitudinal or transverse utility line is in conflict with a proposed electrification facility, the utility owner would be requested to relocate it. If the responsibility for utility relocations lies with the JPB, then the utility relocation would be included as part of PCEP construction.

The JPB will give each utility owner advance warning of the PCEP to provide time to plan for relocation to minimize disruptions. No interference with existing utility service is anticipated during installation of connections to existing high-voltage power transmission facilities because the utility would put customer loads on alternate feeders during the connection activity.

In addition to the above PCEP provisions, Mitigation Measure PSU-8a would require that the JPB continuously coordinate with utility providers from preliminary engineering through final construction to ensure that potential conflicts are identified and disruption is minimized. As prescribed in Mitigation Measure PSU-8b, if unanticipated underground utilities are discovered, OCS pole foundations will be adjusted to avoid them. Additionally, Mitigation Measure PSU-8c would require that any short-term, limited service interruptions would be scheduled well in advance and appropriate notification provided to users.

Significant Effect: PSU-9 - Construction activities would result in the construction of new utility facilities or expansion of existing utility facilities, the construction of which could cause significant environmental effects

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Certain utilities crossing the right of way at the locations of the two TPSs, along the ductbank connections from the TPSs to the Caltrain right of way or along the route of electrical connections between the PG&E substations and the TPSs may need to be relocated. There would also be potential impacts due to the installation of transmission lines from PG&E to the TPSs. In addition, increased electrical demand of the PCEP could require PG&E to install additional facilities.

The following measure mitigates this impact to a less than significant level.

- PSU-9: Require application of relevant construction mitigation measures to utility relocation and transmission line construction by others

Mitigation for utility line relocations is available to reduce construction period impacts to a less-than-significant level. Where the JPB is responsible for the utility relocation, relocation is considered part of the PCEP and all mitigation applicable to the PCEP would apply to JPB-initiated utility relocations. Utility owners will in most cases be the responsible party for completing the utility relocation. In those instances and pursuant to Mitigation Measure PSU-9, the JPB will require the same construction mitigation measures identified in the FEIR for OCS construction to be applied to utility relocation efforts by the utility owner within the Caltrain right of way or on Caltrain owned property. Outside the right of way, the JPB would recommend the mitigation measures to the relevant city or county jurisdiction in their permitting for the relocation effort.

Relocation of existing underground utilities is a low-order probability, but may occur. For any underground utility relocations that may be necessary, the construction activity would involve excavation and removal of the existing underground facility and placement of the utility in an alternative alignment compatible with PCEP features. Temporary construction impacts would be associated with air quality, noise, soil disturbance, potential dewatering, and traffic and can also be addresses through the construction mitigation measures identified in the PCEP's FEIR and pursuant to Mitigation Measure PSU-9, the JPB will require their application within the Caltrain right of way (and recommend them for use outside the right of way).

PG&E will be requested to provide power connections from its existing substations to the two proposed TPSs. All the potential TPS sites are located relatively close to their source PG&E substation. Construction impacts for new overhead lines would be similar to the construction impacts described throughout the PCEP's FEIR for OCS installation and would include temporary air quality, noise, soil disturbance, and traffic effects, but the effects would be limited to the area of the overhead line itself.

Temporary construction impacts for underground ductbank installation would be associated with air quality, noise, soil disturbance, potential dewatering, and traffic. In both cases, construction impacts will be addresses through the construction mitigation measures identified in the PCEP's FEIR, and, pursuant to Mitigation Measure PSU-9, the JPB will require their application for construction within the Caltrain right of way and recommend them for use by PG&E outside the right of way.

Under the PCEP, use of EMUs for approximately 75 percent of Caltrain's fleet for service between San Francisco and San Jose would increase electricity demand. As described in FEIR Section 2.3.7.3, *Energy Consumption*, Section 4.5, *Energy*, and Impact PSU-9 in Section 3.13, there does not appear to be any need for additional PG&E transmission line facilities upstream of the PG&E substations that would connect to the TPSs.

Significant Effect: CUMUL-13-PSU - Cumulative impacts related to public services and utilities

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: During construction, cumulative projects could disrupt utility service systems in a planned or unplanned manner. Standard construction practices and regulations require construction contractors to identify and avoid unplanned disruptions to utilities and to work with utility owners to coordinate construction to avoid damage and utility outages. However, there would remain a small potential for multiple utility disruptions due to construction activities resultant from cumulative projects that occur at the same time.

Construction of the cumulative projects would generate solid waste. Construction waste would include soils from grading and excavating activities, construction and demolition material, and other solid waste. Cumulative growth in the region will also result in increased solid waste generation.

Operation of cumulative projects could increase demands for additional utility infrastructure including water supply, electrical supply and natural gas supply. New transportation projects, including Blended Service, BART Silicon Valley extension, and extension of light-rail systems would increase cumulative demand for electricity. Land use projects and general regional growth will increase water, electricity, and natural gas demands. The cumulative demands for utility service could result in the need for additional utility infrastructure including electricity generation plants and transmission facilities, development of additional water supplies and distribution infrastructure as well as additional natural gas supply and transmission. Depending on where the new infrastructure is required, this could result in significant impacts on the environment during construction of such new facilities.

The following measure mitigates this impact to a less than significant level.

- PSU-8a: Provide continuous coordination with all utility providers
- PSU-8b: Adjust OCS pole foundation locations
- PSU-8c: Schedule and notify users about potential service interruptions
- PSU-9: Require application of relevant construction mitigation measures to utility relocation and transmission line construction by other

As discussed in Section 3.13, *Public Services and Utilities* of the FEIR earth moving activities for the installation of the OCS poles, and TPFs could temporarily disrupt utility service systems. However, with the implementation of Mitigation Measures PSU-8a, PSU-8b, and PSU-8c, which require JPB

coordination with all utility providers, adjustment of OCS pole locations (as necessary to minimize utility conflicts), and scheduling and notification requirements, the PCEP would minimize potential disruptions to utilities and thus would make a less than considerable contribution to any potential cumulative impacts during construction.

As described in Section 3.13, *Public Service and Utilities* of the FEIR the only solid waste expected to result from project construction would be soil resulting from grading and excavation associated with construction of TPFs and OCS foundations as well as general packaging and other materials associated with construction materials and construction workers. Any uncontaminated soil that is not reused onsite would be recycled in accordance with the various state and local ordinances governing recycling. Contaminated soil would be disposed at facilities approved to receive such soil, as discussed in Section 3.8, *Hazards and Hazardous Materials* of the FEIR. While there are long-term concerns for landfill capacity by 2040, as explained in the EIR for *Plan Bay Area*, 12 of the current 17 major landfills in the Bay Area will still be open through 2020, including the Guadalupe Sanitary landfill and Kirby Canyon Landfill (both in Santa Clara County). Other construction waste is expected to minimal and readily handled by existing landfill facilities in the region, which have ample remaining capacity for such material in the aggregate. Thus, while long-term growth in the region will require the construction of additional landfill by 2040 to accommodate future solid waste, the Proposed Project's contribution to any cumulative impacts on landfill capacity would be less than considerable.

As discussed in Section 3.13, *Public Services and Utilities* of the FEIR the PCEP will require the relocation of some existing utilities crossing the Caltrain right of way or along the location of the ductbanks connecting the TPSs to the Caltrain right of way and will also require construction of electrical transmission connections from PG&E substations to the two TPSs. The relocation of these utilities or the construction of electrical transmission connections could result in secondary environmental impacts. Thus, the PCEP could contribute to cumulative demands for new utility infrastructure relative to the local utility relocations and the local transmission facility extensions. Under Mitigation Measure PSU-9, the JPB will work with utility owners and local jurisdictions to apply the relevant applicable mitigation identified for construction in the PCEP FEIR when conducting local utility relocations or local transmission line extensions made necessary by the PCEP. With this mitigation, the PCEP would make a less-than-considerable contribution to any potential cumulatively significant utility infrastructure demands.

As discussed in Section 3.13, *Public Services and Utilities* of the FEIR the PCEP is not expected to result in increased demand for police, fire, school, or other public facilities compared with existing conditions because the PCEP would not result in population growth and would not fundamentally change conditions of the Caltrain right of way in a way that increases demand for public services. For these reasons, the contribution of the PCEP to any potential cumulatively significant on public service demands that might result in the need for construction of additional public service facilities would be less than considerable.
As discussed in Section 3.13, *Public Services and Utilities* of the FEIR, with the PCEP, normal EMU operations would not result in substantial new generation of solid waste above that associated with the servicing of diesel locomotives today. Similarly, maintenance of the OCS and TPFs would not involve the generation of large amounts of solid waste. There would be a minor increase in solid waste production associated with the Proposed Project from increased ridership (e.g., disposable coffee cups, newspaper), but the volumes of waste would not be substantial relative to landfill capacity. Therefore, PCEP operations would result in a less-than-significant solid waste generation and would make a less-than-considerable contribution to any potential cumulatively impacts on landfill capacity.

Transportation and Traffic

Significant Effect: TRA-1a: Substantially disrupts existing or future traffic operations during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The following construction activities could require temporary closures of travel lanes or road segments, which would reduce the vehicle capacity of the roadway segments, disrupt the traffic flow, and potentially increase vehicle delays on the roadway segments:

- Installation of OCS wires may require lane or road closures at at-grade crossing when the wires are installed across the roads.
- Installation of overbridge protection barriers may require one-lane closures on the side of the road the barriers are installed.
- Installation of the transmission line or underground conduit between the PG&E substations and the TPS and between the TPS and the Caltrain ROW or utility relocations may require lane or road closures when the work is conducted across public roadways.

The following measure mitigates this impact to a less than significant level.

- TRA-1a: Implement construction Road Traffic Control Plan

Implementation of Mitigation Measure TRA-1a would reduce the temporary construction impact on roadway traffic to a less-than-significant level by requiring preparation and implementation of a road traffic control plan that will include specific measures to minimize impacts on transit service, roadway operations, emergency responses, pedestrian and bicycle facilities, and public safety.

Significant Effect: TRA-2a - Disrupts existing or planned transit services or facilities during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: During the construction, installation of OCS poles and wires would require the use of on-track equipment in many locations. The majority of the work could be accomplished during the nighttime using single-track access; however, some portions of the work would require some multiple track shutdowns and could only be installed by using complete weekend outages, requiring suspension of passenger service, to increase working efficiency and reduce public safety risks. Although most of the on-track work would be conducted during nighttime hours with occasional service shutdowns occurring during weekends, the construction impact on Caltrain passengers (or ACE, Capitol Corridor, or Amtrak trains between Santa Clara and San Jose) that take trains at night or on the weekend is considered significant.

In addition, construction strategies to improve construction efficiency with minimizing construction impacts are included in the PCEP as shown in Chapter 2, *Project Description*, Table 2-5, of the FEIR. Strategies that could potentially disrupt Caltrain service and affect Caltrain passengers and the connecting transit services include revising the Caltrain schedule, reducing the span of Caltrain's service day, reducing the number of trains, shutting down service for specific weekends, and closing a station temporarily during construction. Although specific strategies have yet been determined, any of the

strategies, if selected, would result in temporary significant impacts on Caltrain passengers and the connecting transit services.

The following measures mitigate this impact to a less than significant level.

- TRA-1a: Implement construction road Traffic Control Plan
- TRA-2a: Implement railway disruption control plan

Implementation of Mitigation Measure TRA-2a would reduce the temporary construction impact on rail passenger and freight service disruption to a less-than-significant level by minimizing the duration of potential disruption to service during construction. This measure requires Caltrain, among other things, to:

- Limit number of simultaneous track closures within each immediate vicinity, with closure time frame limited as much as feasible for each closure, unless bypass tracks are available.
- Provide safety measures for rail services to transit through construction zones safely.
- Require contractors to coordinate with rail dispatch to minimize disruption of rail service in the corridor.
- Where feasible, limit closure of any tracks for construction activities to off-peak periods and weekends, when service is less frequent or late night, when no passenger service is scheduled.
- Where feasible, maintain acceptable service access for passenger and freight service.
- Where one open track cannot be maintained for passenger or freight use, limit multi-track closures to one location at a time, as much as feasible
- Where multi-track closures result in temporary elimination of transit rail service, work with local and regional transit providers to provide alternative transit service around the closure area including increased bus and shuttle service.
- Where multi-track closures result in temporary elimination of freight rail service, work with Union Pacific and freight users to schedule alternative freight service timing to minimize disruption to freight customers.
- Provide advance notice of all construction-related track closures to all affected parties. Provide advance notice to transit riders of any temporary disruption in transit service.
- Where temporary cessation of freight rail service is necessary due to multi-track closures and would result in substantial diversion to truck modes, Caltrain or its construction contractor shall coordinate with local jurisdictions and freight operations to determine preferred truck routes to minimize the effect on local traffic conditions.
- Construction in and adjacent to BART facilities will be coordinated in advance and during construction with BART including any necessary BART safety monitors. If construction would result in any potential service disruption, Caltrain or its construction contractor shall coordinate with BART to avoid the disruption and/or minimize the extent and duration of disruption and provide information to commuters on alternative transit options during the disruption.
- Caltrain and/or its construction contractor shall coordinate with Union Pacific in advance and during any potential disruption to freight operations and/or Union Pacific facilities. Union Pacific's emergency access will be maintained throughout construction.

Construction impact on roadway transit services could be potentially significant when temporary lane or road closures are required on roadway segments, bridges, and at-grade crossings that are used by transit services. Implementation of Mitigation Measure TRA-1a would reduce the temporary construction impact on roadway transit services to a less-than-significant level by ensuring access through the work zones.

Significant Effect: TRA-3a - Disrupts existing or planned pedestrian facilities during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction impact on pedestrian facilities related to closure of at-grade crossings when installing OCS infrastructure or when relocating utilities could be significant when temporary sidewalk or walking path closure is required.

The following measure mitigates this impact to a less than significant level.

- TRA-1a: Implement construction road Traffic Control Plan

Mitigation Measure TRA-1a would reduce the temporary construction impact to a less-than-significant level through the following requirements:

- Provide advance notice of all construction-related street closures, durations, and detours to local jurisdictions, emergency service providers, and motorists.
- Provide safety measures for vehicles, bicyclists and pedestrians to transit through construction zones safely.
- Limit sidewalk, bicycle, and pedestrian walkway closures to one location within each vicinity at a time, with a closure time frame limited as much as feasible for each closure unless alternative routings for pedestrian and bicycle transit are available.

Significant Effect: TRA-3b - Disrupts existing pedestrian facilities, interferes with planned pedestrian facilities, or conflicts or creates inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards from Proposed Project operations

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Increased ridership under the PCEP would cause increased pedestrian volumes at pedestrian facilities surrounding Caltrain stations. The existing facilities are capable of accommodating increased pedestrian volumes at all stations with the exception of the Fourth and King Station in San Francisco. The PCEP would contribute to increased pedestrian activity from 2020 until DTX/TTC infrastructure is completed and trains are routed through the Fourth and King Station.

The following measure mitigates this impact to a less than significant level.

- TRA-3b: In cooperation with the City and County of San Francisco, implement surface pedestrian facility improvements to address the Proposed Project's additional pedestrian movements at and immediately adjacent to the San Francisco 4th and King Station

Pedestrian facility flow and safety improvements will be implemented pursuant to Mitigation Measure TR-3b to allow the orderly movement of pedestrians, bicyclists, private vehicles, buses, and shuttles

around the Fourth and King Station. This measure will commit the JPB to cooperating with the City and County of San Francisco in preparing a pedestrian access study for the station and the JPB to implementing its fair share of pedestrian improvements as recommended by the study. In addition, the measure identifies the following potential surface improvements to pedestrian facilities:

- Widened curb waiting areas and added pedestrian bulbouts where high levels of demand cannot be accommodated by existing facilities.
- A pedestrian "scramble" at the intersection of 4th and Townsend Streets. A pedestrian scramble is an intersection that is striped and designed to allow pedestrians to cross diagonally in all directions during an all-way red signal at which all motor vehicles are stopped.
- Signalization improvements for both 4th and Townsend and 4th and King intersections. While a pedestrian scramble is not likely to be feasible at the intersection of 4th Street and King Street due intersection size, traffic volumes, and SMFTA at-grade transit operations, all-way pedestrian signals at existing crosswalks are potentially feasible.
- Widened crosswalks to increase pedestrian volumes and improve pedestrian sidewalk widths on the immediate approaches to the intersections of 4th and Townsend and 4th and King Streets, as appropriate and feasible.
- Pedestrian safety countermeasures, such as pedestrian barriers and improved signage, as necessary to address safety issues that are directly related to increased pedestrian volumes at station access points.

Significant Effect: TRA-4a - Substantially disrupts existing bicycle facilities or interferes with planned bicycle facilities during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Construction impact would be significant on bicycle facilities when temporary shoulder or road closures are required on roadway segments, bridges, and at-grade crossings with bicycle lanes or high bicycle traffic.

The following measure mitigates this impact to a less than significant level.

- TRA-1a: Implement construction road Traffic Control Plan

Implementation of Mitigation Measure TRA-1a would reduce the temporary construction impact to a less-than-significant level through the following requirements:

- Limit number of simultaneous street closures and consequent detours of transit and vehicular traffic within each immediate vicinity, with closure time frame limited as much as feasible for each closure, unless alternative traffic routings are available.
- Provide advance notice of all construction-related street closures, durations, and detours to local jurisdictions, emergency service providers, and motorists.
- Provide safety measures for vehicles, bicyclists and pedestrians to transit through construction zones safely.
- Limit sidewalk, bicycle, and pedestrian walkway closures to one location within each vicinity at a time, with a closure time frame limited as much as feasible for each closure unless alternative routings for pedestrian and bicycle transit are available.

Significant Effect: TRA-4b - Substantially disrupts existing bicycle facilities or interferes with planned bicycle facilities; or conflicts or creates substantial inconsistencies with adopted bicycle system plans from Proposed Project operations

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The PCEP may increase future demand for bicycle facilities however, most plans in the study area account for increased bicycle volumes through added bicycle infrastructure.

The following measure mitigates this impact to a less than significant level.

- TRA-4b: Continue to improve bicycle facilities at Caltrain stations and partner with bike share programs where available, using the guidance in the Caltrain's Bicycle Access and Parking Plan

Mitigation Measure TRA-4b would require Caltrain to continue implementation of its current planning improve bicycle facilities at Caltrain stations using the guidance provided in Caltrain's *Bicycle Access and Parking Plan.* Over time, Caltrain will use these guidelines to meet potential increased demand for such facilities.

Significant Effect: TRA-5a - Results in inadequate emergency vehicle circulation and/or access

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: The PCEP could have a temporary impact on emergency vehicle access if an emergency occurs at the time when project construction requires temporary access or egress limitations.

The following measure mitigates this impact to a less than significant level.

- TRA-1a: Implement construction road Traffic Control Plan

Mitigation Measure TRA-1a will require the preparation of a traffic control plan to help ensure continued emergency access to Caltrain right of way, at-grade crossings, and all nearby properties. Caltrain will coordinate with local public works department, local emergency providers, and Caltrans in the development of the traffic control plan to specifically address emergency response concerns.

Significant Effect: TRA-7a - Results in a change in freight rail service such that resultant diversions to truck or other freight modes would result in significant secondary impacts during construction

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings: Installation of OCS poles and wires would require the use of on-track equipment in many locations. Work could be accomplished during the nighttime using single-track access in many cases. However, some portions of the work would likely require some multiple track shutdowns at night which could result in temporary suspension of freight service in constrained areas.

The following measure mitigates this impact to a less than significant level.

- TRA-2a: Implement railway disruption control plan

Mitigation Measure TRA-2a would reduce the temporary construction impact on freight service disruption to a less-than-significant level by minimizing the duration of potential disruption. The measure includes the following specific provisions to minimize freight service disruption:

- Limit number of simultaneous track closures within each immediate vicinity, with closure time frame limited as much as feasible for each closure, unless bypass tracks are available.
- Provide safety measures for rail services to transit through construction zones safely.
- Require contractors to coordinate with rail dispatch to minimize disruption of rail service in the corridor.
- Where feasible, limit closure of any tracks for construction activities to off-peak periods and weekends, when service is less frequent or late night, when no passenger service is scheduled.
- Where feasible, maintain acceptable service access for passenger and freight service.
- Where multi-track closures result in temporary elimination of freight rail service, work with Union Pacific and freight users to schedule alternative freight service timing to minimize disruption to freight customers.
- Provide advance notice of all construction-related track closures to all affected parties. Provide advance notice to transit riders of any temporary disruption in transit service.
- Where temporary cessation of freight rail service is necessary due to multi-track closures and would result in substantial diversion to truck modes, Caltrain or its construction contractor shall coordinate with local jurisdictions and freight operations to determine preferred truck routes to minimize the effect on local traffic conditions.
- Caltrain and/or its construction contractor shall coordinate with Union Pacific in advance and during any potential disruption to freight operations and/or Union Pacific facilities. Union Pacific's emergency access will be maintained throughout construction.

Significant Effect: CUMUL-14-TRA - Cumulative effects to transportation and traffic

Finding: The JPB hereby makes finding (a)(1) (described above), as required by PRC 21081 and stated in State CEQA Guidelines Section 15091, with respect to the above identified effect.

Facts in Support of Findings:

The FEIR determines that the following aspects of project impacts would contribute to cumulative transportation impacts before mitigation, each of which are discussed in turn below:

- Construction disruption of traffic, transit, or freight
    - As discussed in Section 3.14, Transportation and Traffic of the FEIR, installation of the OCS poles and construction of the TPFs would not generally disrupt existing transportation systems or transit operations except in limited circumstances. However, construction at the at-grade crossings to install OCS infrastructure and to update grade crossing warning devices would result in temporary roadway closures (as well as bike and pedestrian crossings where present).
    - Where OCS infrastructure needs to be installed at the Millbrae Station shared by Caltrain and BART or in San Francisco at 16th Street where Muni plans to install Muni OCS infrastructure

for the re-routing of the 22-Fillmore Trolley Bus, there is the potential for temporary disruption of other transit systems. There is also the potential to disrupt freight service operations during construction.

  - The PCEP could temporarily obstruct access and egress from construction sites and on adjacent roads due to construction. Such obstruction would affect the ability of emergency responders to timely reach their response destinations and/or impede the ability to evacuate constrained areas if the emergency occurs at the time when PCEP construction is temporarily limiting access to or egress from the Caltrain right of way or at at-grade crossings along the Caltrain right of way (e.g., when changing grade-crossing warning devices).

- Transit System Operations (concerning the Muni 22 Fillmore Trolley)
  - SFMTA is proposing to re-route the 22-Fillmore electric trolley bus from its current route crossing over the Caltrain right of way at 18th Street to an at-grade crossing at 16th Street. The installation of the direct current 600-volt OCS for the electric trolley bus at 16th Street creates a conflict with the proposed installation of the 25 kVA alternative current OCS as part of the PCEP.
- Pedestrian and Bicycle Facilities during operations
  - Cumulative projects could also affect pedestrian walkways and bike paths that cross the Caltrain right of way or are directly adjacent to the Caltrain right of way. Blended Service improvements would have the greatest potential to affect such facilities if passing tracks are proposed outside the Caltrain right of way. The PCEP, in combination with other cumulative projects may also increase future demand for bicycle facilities however, most plans in the project area account for increased bicycle volumes through added bicycle infrastructure.
  - However, at the San Francisco 4th and King station, the PCEP in combination with the central Subway and other transit expansion could result in exceedance of pedestrian capacity on surface accessways to the station.

The following measures mitigate these impacts to a less than considerable level.

Construction

- TRA-1a: Implement construction road Traffic Control Plan
- TRA-2a: Implement railway disruption control plan

Transit Systems

- TRA-CUMUL-2: Implement technical solution to allow electric trolley bus transit across 16th Street without OCS conflicts in cooperation with SFMTA

Pedestrian and Bicycle Facilities

- TRA-1c: Implement signal optimization and roadway geometry improvements at impacted intersections for the 2020 Project Condition
- TRA-3b: In cooperation with the City and County of San Francisco, implement surface pedestrian facility improvements to address the Proposed Project's additional pedestrian movements at and immediately adjacent to the San Francisco 4th and King Station
- TRA-4b: Continue to improve bicycle facilities at Caltrain stations and partner with bike share programs where available, using the guidance in the Caltrain's Bicycle Access and Parking Plan

Caltrain will coordinate with all affected transit operations to avoid and minimize the duration and extent of any potential disruption. With the implementation of mitigation measures identified in Section 3.14, *Transportation and Traffic* and listed above, the PCEP would minimize potential disruptions to transportation facilities and transit services. Thus, with mitigation, PCEP construction would make a less-than-considerable contribution to any potential cumulative impacts on transportation facilities and systems.

Mitigation Measure TRA-1a will require the preparation of a traffic control plan to help ensure continued emergency access to Caltrain right of way, at-grade crossings, and all nearby properties during construction. Caltrain will coordinate with local public works department, local emergency providers, and Caltrans in the development of the traffic control plan to specifically address emergency response concerns. Any potential issues associated with multiple projects in construction at the same time can be addressed in the traffic control plan. Thus, with mitigation, the PCEP's contribution to a potential cumulative impact related to emergency response or evacuation would be less than considerable.

In order to manage the conflict to allow the SFMTA project and the PCEP to both go forward, Mitigation Measure TRA-CUMUL-2 is proposed. With implementation of this mitigation, both projects would be able to proceed and provide their improved transit benefits and the PCEP would not make a considerable contribution to any conflict with SFMTA plans.

The PCEP would add increased pedestrian volume to existing pedestrian facilities due to increased ridership. The existing pedestrian facilities have been evaluated and are capable of accommodating an increase in pedestrian traffic with the exception of pedestrian facilities around the San Francisco Fourth and King Station. Future planned pedestrian facilities are designed around the PCEP's existing alignment. Planned pedestrian facilities will be constructed to accommodate Caltrain's existing alignment. Therefore the PCEP would not contribute to cumulative impacts on pedestrian facilities at locations other than the Fourth and King Station.

As discussed in Section 3.14, *Transportation and Traffic* of the FEIR, the PCEP would only contribute to this impact between when the PCEP begins operations in 2020 and when DTX/TTC becomes operational. At that point, with ridership shifting to TTC, the PCEP would no longer have a considerable contribution to pedestrian usage because the PCEP's contribution would be less than under No Project conditions. Mitigation Measure TRA-3b (discussed in Section 3.14, *Transportation and Traffic*) would require the JPB and the City and County to plan for and implement necessary pedestrian facility improvements to the Fourth and King Station and adjacent pedestrian facilities in City street rights-of-way. Implementation of this mitigation measure would reduce the PCEP's contribution to this cumulative impact to a less than significant level.

Mitigation Measure TRA-4b, in Section 3.14, *Transportation and Traffic* of the FEIR would require Caltrain to continue implementation of its current planning to improve bicycle facilities at Caltrain stations over time to meet potential increased demand for such facilities. Thus, with mitigation, the PCEP would not contribute considerably to any significant cumulative impacts on bicycle facilities.

Findings Regarding the Alternatives

As required by CEQA, a discussion of possible alternatives to the PCEP, including the No-Project Alternative, was included in the FEIR. With adoption of the PCEP, the JPB makes the following findings to support its rejection of the five alternatives. Other alternatives were considered and screened out of the

range of alternatives analyzed in the EIR for the reasons discussed in Section 5.4.3 of the FEIR, which is hereby incorporated by reference.

As noted above, Section 15091 (a)(3) of the State CEQA Guidelines describes that one of the findings that a lead agency can make concerning significant project impacts is that specific economic, legal, social, technological, or other considerations, make infeasible the project alternatives identified in the Final EIR. In the Final EIR, Chapter 5, Alternatives, the alternatives were screened for technical, logistical, and financial feasibility, but the alternatives were not evaluated for all economic, legal, social or other considerations that make up the broader definition of "feasibility" in Section 15091 (a)(3). Thus, the use of the term "infeasible" in the findings below concerning the alternatives is more expansive than reference to "feasible" in Chapter 5 of the Final EIR, which was limited to technical, logistical and financial feasibility. An alternative may have been determined to be technically, logistically, and financially "feasible" in the Final EIR and still ultimately be concluded by the JPB to meet the definition of "infeasibility" per Section 15091 (a)(3) when all considerations are taken into account. The term "infeasible" in the findings below uses the broader definition in Section 15091 (a)(3), which is consistent with case law interpreting this provision of CEQA. The determination of infeasibility "involves a balancing of various 'economic, environmental, social, and technological factors.'" (*City of Del Mar v. City of San Diego* (1982) 133 Cal.App.3d 401, 417). Where there are competing and conflicting interests to be resolved, the determination of infeasibility "is not a case of straightforward questions of legal or economic feasibility," but rather, based on policy considerations. (*Cal. Native Plant Society v. City of Santa Cruz* (2009) 177 Cal.App.4th 957, 1001-02). "[A]n alternative that is impractical or undesirable from a policy standpoint may be rejected as infeasible." (*Id*. at p. 1002, citing 2 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act, (Cont.Ed.Bar 2010) section 17.29, p. 824).

No-Project Alternative

Findings: The JPB hereby finds that this alternative is ultimately rejected as infeasible for the following reasons.

Facts in Support of Findings:

The No-Project Alternative would not substantially improve increase ridership and increase service levels. This does not achieve the PCEP's objective to that effect.

The No-Project Alternative would not meet the project's objective to reduce train engine noise. The No-Project Alternative would increase noise levels at up to 41 out 49 study locations compared to the Proposed Project (FEIR, pg. 5-10). Four locations would have lower noise than existing (2013) levels but only due to completion of unrelated grade separations. In contrast, the Proposed Project would lower noise levels at 36 out of 49 study locations compared to existing conditions.

The No-Project Alternative would not meet the project's objective to improve regional air quality and reduce GHG emissions. The No-Project Alternative impedes the improvement of Bay Area air quality by continuing the use of diesel locomotives. Although the eventual replacement of existing diesels with Tier 4 diesel locomotives will reduce criteria air pollutant emissions in the future under the No-Project Alternative, they will not avoid emissions to the extent provided by the PCEP (FEIR, page 5-6). Continued efforts to expand transit ridership are baseline assumptions of the State Implementation Plan (SIP) relative to improving air quality to meet federal and state standards (Bay Area Air Quality Management District, *Bay Area Ozone Attainment Plan*, October 24, 2001). The No-Project Alternative

would fail to provide increased transit opportunities and will thereby impede the SIP's ability to meet air quality improvement goals.

Caltrain electrification is identified as a project to be funded as part of the *Plan Bay Area* (*Plan Bay Area*, page 90) adopted by the Metropolitan Transportation Commission (MTC). This plan includes the Bay Area's "Sustainable Communities Strategy" for actions needed to meet the greenhouse gas (GHG) emissions reduction target set by the California Air Resources Board under Senate Bill 375 of 2008. Because the new Tier 4 diesel locomotives are more powerful than the existing diesel locomotives, they would consume more fuel than the existing diesels they are replacing and thus GHG emissions would increase compared to existing conditions (FEIR, page 5-9). Also, the No-Project Alternative would not result in the substantial reductions in regional vehicle miles travelled (VMT) forecast to result from the Project (FEIR, page 11). The No Project Alternative would therefore obstruct attainment of GHG reductions and would be inconsistent with the Sustainable Communities Strategy.

The No-Project Alternative would be in conflict with the DTX and TTC projects because it would only provide for continued diesel train operations rather than the electrified operations anticipated by those projects. Diesel trains could not traverse the San Francisco tunnels that are a part of those projects. This would make infeasible full service connections between Caltrain, the San Francisco transit system, and the BART system that will be provided by the TTC. This conflicts with MTC's adopted *Plan Bay Area* (*Plan Bay Area* - Table 19: MTC Resolution 3434 Project Status, Page 79; Key Transit and Road Improvements, page 90).

The No-Project Alternative would require the JPB to forgo $705 million in state financing authorized by SB 1029 (Ch. 152, Stats. of 2012). The 2012 Budget Act provides these funds as part of the "blended service" portion of the high speed rail system for electrification of the Caltrain line for its future co-use by high speed rail. This would conflict with JPB policy, as reflected in the JPB's Capital Improvements Program that anticipates electrification of the line and in the Memorandum of Understanding entered into with the California High Speed Rail Authority and jurisdictions on the San Francisco Peninsula (FEIR, Section 1.2, *Project History*).

The No-Project Alternative would also not provide electrical infrastructure compatible with high speed rail operations. This conflicts with an objective of the project.

For all of the foregoing reasons, and any of them individually, the No-Project Alternative is determined to be infeasible.

DMU Alternative

Findings: The JPB hereby finds that this alternative is determined to be infeasible for the following reasons.

Facts in Support of Findings:

The DMU Alternative would increase ridership and service but not as well as the Proposed Project due to inferior acceleration performance as well as an inability to reach TTC via the DTX and thus would only partially meet the project objective to increase ridership and service (FEIR, page 5-15).

The DMU Alternative would meet the objective of increasing revenue (but not as well as the PCEP due to lower ridership) but not the objective of reducing operating fuel costs. Although the increased train

service under this alternative would increase revenue, this alternative would also increase diesel fuel consumption compared with No Project conditions[8] as shown in the FEIR Table 5-2, which would increase operating fuel costs.

The DMU Alternative would increase noise levels at up to 44 out 49 study locations compared to the No Project Conditions (FEIR, pg. 5-10) and at 40 locations compared to existing conditions (FEIR, Volume III, Appendix C) compared to the Proposed Project which would lower noise levels at 36 out of 49 study locations compared to existing conditions. Therefore, this alternative would conflict with the project objective of reducing noise emanating from trains.

The DMU Alternative would improve air quality conditions relative to existing conditions (FEIR, Table 5-6). The DMU Alternative would have lower criteria pollutant emissions of ROG, CO, and PM10 than No Project conditions, but higher NOx emissions (FEIR, Table 5-6). Compared to the Proposed Project, the DMU Alternative would have substantially higher NOx emissions as well (FEIR, Table 5-6). The DMU Alternative would have lower GHG emissions than existing conditions and No Project conditions, but substantially higher GHG emissions than the Proposed Project (FEIR, Table 5-8). Thus, the DMU Alternative would not meet the objective of improving regional air quality *and* GHG emissions as well as the Proposed Project.

The DMU Alternative would increase noise levels at up to 44 out 49 study locations compared to the No Project Conditions (FEIR, pg. 5-10) and at 40 locations compared to existing conditions (FEIR, Volume III, Appendix C) compared to the Proposed Project which would lower noise levels at 36 out of 49 study locations compared to existing conditions. Therefore, this alternative would conflict with the project objective of reducing noise emanating from trains.

The DMU Alternative would be in conflict with the DTX and TTC projects because it would not provide for the electrified train operations anticipated by those projects. Diesel trains could not traverse the San Francisco tunnels that are a part of those projects. This would make infeasible full service connections between Caltrain, the San Francisco transit system, and the BART system that will be provided by the TTC. This conflicts with MTC's adopted *Plan Bay Area* (*Plan Bay Area* - Table 19: MTC Resolution 3434 Project Status, Page 79; Key Transit and Road Improvements, page 90).

The DMU Alternative would require the JPB to forgo $705 million in state financing authorized by SB 1029 (Ch. 152, Stats. of 2012). The 2012 Budget Act provides these funds as part of the "blended service" portion of the high speed rail system for electrification of the Caltrain line for its future co-use by high speed rail. This would conflict with JPB policy, as reflected in the JPB's Capital Improvements Program that anticipates electrification of the line.

The DMU Alternative would also not meet the project's objective to provide electrical infrastructure compatible with high-speed rail. No such infrastructure would be built under this alternative.

For all of the foregoing reasons, and any of them individually, the DMU Alternative is determined to be infeasible.

[8] In general, DMUs are more fuel efficient than diesel locomotives for consists of five cars or fewer but less fuel efficient for consists longer than five cars. The PCEP includes six-car consists to accommodate approximately 600 passenger seats per train to meet ridership demands. Thus, an eight-car DMU was assumed to accommodate a similar level of passengers. Among many other considerations described in Chapter 5, *Alternatives*, train length and fuel efficiency are two reasons that a DMU option is not as favorable for the Caltrain service as EMUs would be.

Dual-Mode Multiple Unit Alternative

Findings: The JPB hereby finds that this alternative is ultimately rejected as infeasible for the following reasons.

Facts in Support of Findings:

While the Dual-Mode Multiple Unit Alternative would increase ridership and revenue, it would not reduce operating fuel cost (FEIR, Table 5-4). Although the increased train service under this alternative would increase revenue, this alternative would also increase diesel fuel consumption compared with existing conditions which would increase operating costs.

Presuming the Dual Mode MU Alternative would have similar train noise as the DMU Alternative, it would increase noise levels at up to 44 out 49 study locations compared to the No Project Conditions and at 40 locations compared to existing conditions compared to the Proposed Project which would lower noise levels at 36 out of 49 study locations compared to existing conditions. Therefore, this alternative would conflict with the project objective of reducing noise emanating from trains.

Presuming the Dual-Mode MU Alternative in diesel mode would have similar emissions to the DMU Alternative, it would improve air quality conditions relative to existing conditions, have lower criteria pollutant emissions of ROG, CO, and PM10 but higher NOx emissions than No Project conditions. Compared to the Proposed Project, the Dual Mode MU Alternative would have substantially higher NOx emissions as well. The Dual-Mode Alternative would have lower GHG emissions than existing conditions and No Project conditions, but substantially higher GHG emissions than the Proposed Project. Thus, the Dual Mode MU Alternative would not meet the objective of improving regional air quality *and* GHG emissions as well as the Proposed Project.

The Dual-Mode Multiple Unit Alternative would electrify only portions of the Caltrain line. This would conflict with MTC's adopted *Plan Bay Area* (*Plan Bay Area* - Table 19: MTC Resolution 3434 Project Status, Page 79; Key Transit and Road Improvements, page 90) which anticipates electrification of the entire line and connection to the TTC and DTX.

The Dual-Mode Multiple Unit Alternative would require the JPB to forgo $705 million in state financing authorized by SB 1029 (Ch. 152, Stats. of 2012). The 2012 Budget Act provides these funds as part of the "blended service" portion of the high speed rail system for electrification of the Caltrain line for its future co-use by high speed rail. This would conflict with JPB policy, as reflected in the JPB's Capital Improvements Program that anticipates electrification of the line.

The Dual-Mode Multiple Unit Alternative would not meet the project's objective to provide electrical infrastructure compatible with high-speed rail. OCP would be installed only in areas adjoining stations and for access to the TTC and DTX. Most of the line would remain without electrification.

For all of the foregoing reasons, and any of them individually, the Dual-Mode Multiple Unit Alternative is determined to be infeasible.

Tier 4 Diesel Locomotive (T4DL) Alternative

Findings: The JPB hereby finds that this alternative is ultimately rejected for the following reasons.

Facts in Support of Findings:

The T4DL Alternative would support increased ridership which would increase operating revenue but would not reduce operating fuel cost. This Alternative would likely have lower ridership due to inferior acceleration performance which could affect the number of stops and/or overall transit times. In the long run, ridership would be lower than the PCEP because this alternative could not reach the TTC through the DTX. Although the increase in train service under this alternative would increase revenue, this alternative would also increase diesel fuel consumption compared with existing conditions which would increase operating costs (FEIR, Table 5-4 and page 5-40). This alternative would not meet the project objective to reduce operating fuel costs.

This alternative would have greater engine noise compared to existing conditions and the No Project Alternative (FEIR, page 5-45). Compared to existing conditions, this alternative would increase noise levels at 38 out of 49 study locations, while lowering noise levels at 9 locations (FEIR, Table 5-10). In contrast, the Proposed Project would lower noise levels at 36 locations, while increasing noise levels at only 4 locations compared to existing conditions. Therefore, this alternative would conflict with the objective of reducing noise emanating from trains.

While the T4DL Alternative would improve air quality conditions relative to existing conditions (FEIR, Table 5-6). In 2020 and 2040, the T4DL single-head alternative would have lower criteria pollutant emissions than the No Project conditions. In 2020, the T4DL double-head alternative would have lower ROG, CO, and PM10 but higher NOx emissions than No Project conditions while in 2040 it would have lower criteria pollutant emissions than the Proposed Project (FEIR, Table 5-6). Compared to the Proposed Project, in 2020 and 2040 the T4DL Alternative would have substantially higher NOx emissions (FEIR, Table 5-6). In 2020 and 2040, the T4DL Alternative, single head variant would have lower GHG emissions than existing conditions and No Project conditions, but substantially higher GHG emissions than the Proposed Project (FEIR, Table 5-8). In 2020, the T4DL Alternative, double head variant would have higher GHG emissions than existing conditions but lower than No Project conditions, but substantially higher GHG emissions than the Proposed Project (FEIR, Table 5-8). Thus, the DMU Alternative would not meet the objective of improving regional air quality *and* GHG emissions as well as the Proposed Project.

The T4DL Alternative would be in conflict with the DTX and TTC projects because it would not provide for the electrified train operations anticipated by those projects. Diesel trains could not traverse the San Francisco tunnels that are a part of those projects. This would make infeasible full service connections between Caltrain, the San Francisco transit system, and the BART system that will be provided by the TTC. This conflicts with MTC's adopted *Plan Bay Area* (*Plan Bay Area* - Table 19: MTC Resolution 3434 Project Status, Page 79; Key Transit and Road Improvements, page 90), which anticipates full electrification of the line and connections to the TTC and DTX.

The T4DL Alternative would require the JPB to forgo $705 million in state financing authorized by SB 1029 (Ch. 152, Stats. of 2012). The 2012 Budget Act provides these funds as part of the "blended" portion of the high speed rail system for electrification of the Caltrain line for its future co-use by high speed rail. This would conflict with JPB policy, as reflected in the JPB's Capital Improvements Program that anticipates electrification of the line.

The T4DL Alternative would not meet the project's objective of providing electrical infrastructure compatible with high-speed rail.

For all of the foregoing reasons, and any of them individually, the T4DL Alternative is determined to be infeasible.

Electrification with OCS Installation by Factory Train Alternative

Findings: The JPB hereby finds that this alternative is not adopted for the following reasons.

Facts in Support of Findings:

The Factory Train is a new construction method being used for OCS installation for the first time in the United Kingdom in 2014. While it has the potential to lower construction time and cost, it could increase the intensity of construction disruption at night while shortening the duration of OCS construction. This alternative would not avoid any significant impacts of the Proposed Project, including any of the significant unavoidable impacts of the Proposed Project. As such, there is no requirement to adopt the Factory Train alternative in order to reduce significant unavoidable impacts of the Proposed Project.

Overriding Considerations

Introduction

CEQA requires decision-makers to balance the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve a project. If the specific economic, legal, social, technological or other benefits of the project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered acceptable (State CEQA Guidelines 15093). In this case, the lead agency must state in writing the specific reasons to support its action. This "statement of overriding considerations" shall be supported by substantial evidence in the record, shall be included in the record of the project approval, and should be mentioned in the notice of determination. Pursuant to Section 15093 of the CEQA Guidelines, a Statement of Overriding Considerations has been prepared for the project.

Significant Unavoidable Impact Summary

The FEIR identifies a number of significant, unavoidable impacts that would result from implementation of the PCEP as summarized below

- *Construction*
  - Cultural Resources – As described in the FEIR, Section 3.2, *Cultural Resources*, due to tunnel modifications necessary to provide heights for Caltrain and existing freight rail cars, the modifications to historic San Francisco Tunnel 4 may be significant and unavoidable even with mitigation.
  - Noise—As described in the FEIR, Section 3.11*, Noise and Vibration*, although project mitigation would reduce noise in many locations, given nighttime construction it may not always be possible to reduce construction noise to a less-than-significant level.
- *Operations*
  - Aesthetics—As described in the FEIR, Section 3.1*, Aesthetics,* although project mitigation would reduce tree removal/trimming effects in many locations, it may not always be possible to replace trees in locations that would avoid significant changes in localized visual character at individual parcels affected by tree removal/pruning. As described in Section 4.1, *Cumulative Impacts*, the Proposed Project would also contribute considerably to cumulative effects on local visual character, relative to tree removals/pruning.
  - Hydrology and Water Quality - As described in the FEIR, Section 3.9, *Hydrology and Water Quality*, the Caltrain ROW, including new Proposed Project facilities may be subject to future

flooding associated with sea level rise. Although project mitigation may be able to reduce the potential impacts of future flooding on the Proposed Project, given that effective coastal flooding mitigation requires the involvement of multiple parties beyond Caltrain, at this time it cannot be concluded that future flooding impacts to the Caltrain system will be fully avoided. As described in the FEIR, Section 4.1, *Cumulative Impacts*, this would also be considered a potential considerable contribution to a significant cumulative impact. As described in the FEIR, Section 3.9, *Hydrology and Water Quality,* given the *Ballona Wetlands* decision, it is unknown whether or not the impacts of sea level rise on a project are properly considered significant impacts under CEQA and thus this EIR discloses this impact for disclosure purposes in case they are.

- Noise—As described in the FEIR, Section 4.1, *Cumulative Impacts*, with cumulative passenger (HSR, ACE, CCJPA, DRC, Amtrak) and freight rail increases along the Caltrain corridor there would be significant noise increases affecting sensitive receptors. Where mitigation is not feasible to reduce the Proposed Project's noise contribution, the Proposed Project would also contribute to cumulative noise impacts at a number of locations.
- Transportation and Traffic: As described in the FEIR, Section 3.14, *Transportation and Traffic*, although project mitigation would reduce localized traffic impacts at a number of affected locations, it would not be feasible to reduce all localized traffic impacts with mitigation. As described in the FEIR, Section 4.1, *Cumulative Impacts*, the Proposed Project would also have a considerable contribution to a significant cumulative impact on localized traffic conditions, even with mitigation, and a potentially significant cumulative impact related to localized traffic and noise resulting from the diversion of limited amounts of freight from rail to truck modes (although diversion of freight to trucks is an unlikely impact).

Statements of Fact in Support of Overriding Considerations

The JPB hereby finds that the following social, legal, environmental and economic benefits of the Proposed Project outweigh the significant unavoidable impacts for the following reasons. These benefits, viewed both individually and collectively, outweigh the significant unavoidable adverse effects of implementing the PCEP:

- The PCEP would have far superior performance compared to existing diesel locomotives and compared to the other action alternatives (FEIR Table 5-1 and Figure 5-1). EMU's superior performance would maximize Caltrain's ability to increase service stops and/or travel times to support increased projected ridership demand. The increased peak hour and daily service allows Caltrain to serve more riders to meet growing ridership demand better than under existing conditions and better than achievable with any of the action alternatives. Increased ridership would also help to increase Caltrain's operating revenue.
- Increasing and modernizing Caltrain service will better serve growth in employment and housing projected in San Francisco, in the San Francisco Peninsula cities between San Francisco and San Jose, and in San Jose.
- The PCEP would lower operating fuel costs compared to both existing conditions and all the action alternatives analyzed in the FEIR (FEIR Table 5-4).
- The PCEP would reduce the generation of criteria air pollutants along the Caltrain Corridor and in the San Francisco Bay Area, including ozone precursors (ROG and NOx), carbon monoxide, and fine

particulates, which would improve public health for the community and help the Bay Area to achieve air quality goals for attainment. The PCEP would have substantially lower criteria pollutant emissions than any of the action alternatives analyzed in the FEIR (FEIR Table 5-6).

- The State has adopted AB-32, the Global Warming Solutions Act of 2006, which seeks to make a first step in reducing GHG. The long-term effects of climate change, if unchecked, could have substantial adverse effects on the economy, health, welfare and natural heritage of the San Francisco Peninsula and elsewhere. The JPB, in adopting the PCEP, desires to modernize the Caltrain system in a way that contributes most substantially to reducing greenhouse gas emissions to support California, national, and global efforts. The PCEP would have substantially lower GHG emissions than under existing conditions and compared to all of the action alternatives analyzed in the EIR (FEIR Table 5-8).
- The PCEP would reduce noise levels at most locations along the project route compared to existing conditions thus benefiting residences and other sensitive receptors affected by current train noise. The PCEP would have lower overall noise levels than the non-electrification alternatives analyzed in the EIR (FEIR Table 5-9 and 5-10).
- The State has adopted SB 375 and MTC adopted Plan Bay Area in 2013 in accordance with SB 375 which seek to lower vehicle miles travelled and associated greenhouse gas emissions among other goals. The PCEP supports SB 375 and Plan Bay Area both in terms of lowering VMT and associated emissions, but also in terms of supporting the plans of the communities along the Caltrain Corridor in promoting transit-oriented development.
- The benefit of lowered vehicle miles traveled along the entire San Francisco Peninsula and in every city along the project route overall (FEIR Table 3.14-15 and Table 4-16) outweighs the adverse effects of localized traffic increases at certain locations near grade crossings and Caltrain stations. Caltrain will continue to work with local, regional, state and federal partners to promote grade separations along the Caltrain Corridor as funding become available over time.
- The PCEP would be consistent with and supportive of the Downtown Extension (DTX)/Transbay Transit Center (TTC) project allowing better integration of transit services at the TTC between MUNI, BART, Caltrain, and other transit providers.
- The PCEP would be consistent with JPB policy, as reflected in the JPB's current and past strategic plans that anticipate and prioritize electrification of the line.
- While the PCEP does not include high-speed rail service, the PCEP would include electrical infrastructure compatible with future high-speed rail service proposed to connect Southern California and Northern California via a route that includes the Caltrain Corridor. The PCEP would be consistent with state financing authorized by SB 1029 (Ch. 152, Stats. of 2012). The 2012 Budget Act provides these funds as part of the "blended" portion of the high speed rail system for electrification of the Caltrain line for its future co-use by high speed rail.
- In June 2012, the Bay Area Council Economic Institute prepared a white paper called, *The Economic Impact of Caltrain Modernization*[9]. This white paper concluded that there would be considerable short-term and long-term economic benefits for the state and the region related to Caltrain electrification. There would be new construction jobs, California's gross state project would increase, state and local tax collections would increase, and property values near Caltrain could increase by $1

[9] Bay Area Council Economic Institute. 2012. The Economic Impact of Caltrain Modernization. Available: http://documents.bayareacouncil.org/caltrainecon.pdf.

billion. The City of Palo Alto also retained Economic & Planning Systems, Inc. (EPS) in June 2011[10] to evaluate the economic and property value impacts of Caltrain Electrification. This study also found that there would be a positive economic impact associated increased property values.

[10] Economic & Planning Systems. 2011. The Economic Impacts of Caltrain Electrification in Palo Alto. EPS #20119. June 7. Available (as part of City Council Agenda packet for June 23, 2011): http://www.cityofpaloalto.org/civicax/filebank/documents/27665.

Attachment C
August 16-17, 2023
Reference 2.2c.(3)

NOTICE OF DETERMINATION

To: Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

From: California Transportation Commission
Attn: Cherry Zamora
1120 N Street, MS 52
Sacramento, CA 95814
(916) 654-4245

Subject: Filing of Notice of Determination in compliance with Section 21108 of the Public Resources Code.

Project Title: Peninsula Corridor Electrification Project

2013012079	Stacy Cocke	(650) 730-7262
State Clearinghouse Number	**Lead Agency Contact Person**	**Area Code/Telephone**

Project Location (include county): The project is located on the Caltrain corridor from the current northern terminus station in San Francisco to the Tamien Station in San Jose. This corridor is located in San Francisco, San Mateo, and Santa Clara counties.

Project Description: The project will electrify the Caltrain Corridor from San Francisco's 4th and King Caltrain Station to south of the Tamien Caltrain Station, convert diesel-hauled trains to Electric Multiple Unit trains, and increase service to up to six Caltrain trains per peak hour per direction. Operating speed will be up to 79 miles per hour, which is what it is today.

This is to advise that the California Transportation Commission has approved the above-described
(_ Lead Agency/ **X** Responsible Agency)
project on August 16-17, 2023, and has made the following determinations regarding the above-described project:

1. The project (_X__will/ ___will not) have a significant effect on the environment.
2. __X__A Final Environmental Impact Report and Addenda were prepared for this project pursuant to the provisions of CEQA.
   ____A Mitigated Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures (_X_were/__were not) made a condition of the approval of the project.
4. Mitigation reporting or monitoring plan (_X__was / ___was not) adopted for this project.
5. A Statement of Overriding Considerations (X was / __was not) adopted for this project.
6. Findings (_X_were/ ___were not) made pursuant to the provisions of CEQA.

The above identified documents with comments and responses and record of project approval are available to the General Public at: 1250 San Carlos Ave, San Carlos, CA 94070

TANISHA TAYLOR		Executive Director California Transportation Commission
Signature (Public Agency)	*Date*	*Title*

Date received for filing at OPR:

Project Location Map

Peninsula Corridor Electrification Project