

1.1 Overview

The Peninsula Corridor Electrification Project (PCEP or Proposed Project) consists of converting Caltrain from diesel-hauled to Electric Multiple Unit (EMU) trains for service between the Fourth and King Street terminus station in San Francisco and the Tamien Station in San Jose. Operating speed would be up to 79 mph, which would match the existing maximum speed.

By 2019, approximately 75 percent of the service between San Jose and San Francisco would be electrified, with the remaining 25 percent being diesel-powered. After 2019, diesel locomotives used for San Francisco to San Jose service would be replaced with EMUs over time as they reach the end of their service life. Because the Proposed Project only involves electrification of the Caltrain right-of-way (ROW) from San Francisco to a point approximately 2 miles south of Tamien Station, Caltrain's diesel-powered locomotives would continue to provide service between the San Jose Diridon Station and Gilroy.

The Proposed Project would require 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 system consisting of two traction power substations, one switching station and seven paralleling stations. These facilities are described in more detail in Chapter 2, *Project Description*.

1.2 Project History

The Proposed Project is part of a program to modernize operation of the Caltrain rail corridor between San Jose and San Francisco. In addition to corridor electrification, modernization involves the installation of an advanced signal system which is discussed further below. The Peninsula Corridor Joint Powers Board (JPB), which operates Caltrain, previously evaluated corridor electrification in a prior EIR, for which a draft was completed in 2004 and a final was completed in 2009. The JPB did not certify the Final EIR due to the need for resolution of issues regarding joint planning for shared use of the Caltrain corridor by Caltrain and future high-speed rail (HSR) service. The Federal Transit Administration (FTA) completed the final Environmental Assessment (EA) and adopted a Finding of No Significant Impact (FONSI) in 2009.

Since 2009, JPB, the California High-Speed Rail Authority (CHSRA), the California Legislature, the Metropolitan Transportation Commission (MTC), and other parties have worked together to develop a vision of a "blended system" whereby both Caltrain and HSR would use the existing Caltrain corridor on the San Francisco Peninsula. This vision for implementing Blended Service on the San Francisco Peninsula was included in the *Revised 2012 Business Plan* that the CHSRA Board adopted in April 2012 for the California High-Speed Rail System (CHSRA 2012) as well as the 2014 Draft Business Plan (CHSRA 2014).

1 JPB and CHSRA are committed to advancing a blended system concept, which was developed with
2 stakeholders interested in the corridor. The blended system would remain substantially within the
3 existing Caltrain ROW and would accommodate future HSR and modernize Caltrain service along
4 the Peninsula corridor by primarily utilizing the existing track configuration. The blended system
5 would be primarily a two-track system shared by Caltrain, HSR and existing tenant passenger and
6 freight rail operators.

7 Based on the blended system vision, the Caltrain Peninsula Corridor has been designated to receive
8 an initial investment of Proposition 1A bond funds that would benefit Caltrain and its modernization
9 program in the short term and HSR in the long run. JPB, CHSRA and seven other San Francisco Bay
10 Area agencies (City and County of San Francisco, San Francisco County Transportation Authority,
11 Transbay Joint Powers Authority, San Mateo County Transportation Authority, Santa Clara Valley
12 Transportation Authority, City of San Jose, and MTC) have approved a Memorandum of
13 Understanding (MOU) (*High Speed Rail Early Investment Strategy for a Blended System in the San
14 Francisco to San Jose Segment known as the Peninsula Corridor of the Statewide High-Speed Rail
15 System*) to pursue shared use of the corridor between San Jose and San Francisco to provide Blended
16 Service of both Caltrain commuter rail service and HSR intercity service (JPB 2012). The MOU
17 includes agency and funding commitments toward making an initial investment of approximately
18 \$1.5 billion in the corridor for purchasing and installing an advanced signal system, electrifying the
19 rail line from San Jose to San Francisco, and purchasing electrified rolling stock. The MOU also
20 conceptually outlines potential additional improvements needed beyond the first incremental
21 investment of \$1.5 billion to accommodate future HSR service in the corridor.

22 Corridor improvements identified in the MOU include the following:

- 23 • **Advanced Signal System (CBOSS PTC or CBOSS):** CBOSS stands for Communications Based
24 Overlay Signal System and PTC stands for Positive Train Control. This project would increase the
25 operating performance of the current signal system, improve the efficiency of at-grade crossing
26 warning functions, and automatically stop a train when there is violation of speed or route. This
27 project, which includes implementation of safety improvements mandated by federal law (i.e.,
28 the Rail Safety Improvement Act of 2008), has already been cleared environmentally,
29 installation is underway (including the fiber optics communications backbone), and CBOSS PTC
30 is scheduled to be operational by late 2015 as mandated by the Federal Railroad Administration
31 (FRA).
- 32 • **Corridor Electrification:** JPB decided to prepare this new EIR for the corridor electrification
33 due to the changes in existing conditions since the prior EIR analyses was conducted and to
34 update cumulative impacts analysis of Blended Service and other developments along the
35 corridor. Completion of a new EIR will also allow public agencies, stakeholders, the public and
36 decision makers the opportunity to review the Proposed Project's environmental effects in light
37 of current information and analyses. This EIR analyzes operation of up to six Caltrain trains per
38 peak hour per direction (an increase from five trains per peak hour per direction at present).
39 Electrification may be analyzed as a separate project under CEQA because it has independent
40 utility (providing Caltrain electrified service) and logical termini (station end points).
41 Electrification of the rail line is scheduled to be operational by late 2019.
- 42 • **Blended Service:** JPB, CHSRA, and the MOU partners have agreed on shared use of the Caltrain
43 corridor by up to six Caltrain trains per peak hour per direction and up to four HSR trains per

1 peak hour per direction.¹ Operation of more than two HSR trains per hour per direction would
2 require one set of passing tracks somewhere between San Jose and San Francisco. In concept,
3 Blended Service has been analyzed at operating speeds of 79 mph (the current maximum) to
4 110 mph². The operational feasibility of Blended Service has been studied but remains only at
5 the conceptual planning phase. The potential addition of HSR service to this corridor will be the
6 subject of a separate environmental review by CHSRA that will be undertaken subsequent to the
7 environmental process for the Proposed Project. Based on the current CHSRA *Revised 2012*
8 *Business Plan* (and the Draft 2014 Business Plan), Blended Service along the Caltrain corridor is
9 scheduled to commence sometime between 2026 and 2029.

10 1.3 Need for Project

11 Passenger trains have operated between San Jose and San Francisco since 1863. Caltrain is the
12 oldest commuter rail operation in the San Francisco Bay Area and the only commuter rail service
13 provided on the San Francisco Peninsula. It is operated by the JPB, a joint powers agency with
14 representation from San Francisco, San Mateo, and Santa Clara Counties. Caltrain provides service
15 between the South Bay and San Francisco including the Peninsula communities of San Jose (College
16 Park, Diridon, and Tamien Stations), Santa Clara, Sunnyvale (Sunnyvale and Lawrence Stations),
17 Mountain View, Palo Alto, Menlo Park, Atherton, Redwood City, San Carlos, Belmont, San Mateo (San
18 Mateo, Hillsdale, and Hayward Park Stations), Burlingame (Burlingame and Broadway Stations),
19 Millbrae, San Bruno, South San Francisco, and Brisbane (Bayshore Station) in Santa Clara and San
20 Mateo Counties, and the 22nd Street and the 4th and King Stations in the City and County of San
21 Francisco. Limited service is provided to College Park in San Jose and there is no weekday service to
22 the Atherton or Broadway Stations. There is also special service to Stanford on football game days.
23 In 1992, peak-period service was extended approximately 25 miles south of downtown San Jose,
24 creating a 77-mile-long Caltrain corridor, with new stops in South San Jose, Morgan Hill, San Martin,
25 and Gilroy.

26 The population of the Bay Area is increasing and, with it, traffic congestion. Commute traffic
27 between major employment centers in San Francisco, the San Francisco Peninsula, and the South
28 Bay is growing, and there has been a substantial increase in “reverse commute” trips from San
29 Francisco to Peninsula and South Bay locations over the past decade. Off-peak travel between San
30 Francisco and Peninsula and South Bay locations is also on the rise. Caltrain has experienced

¹ The CHSRA *2012 Business Plan: Ridership and Revenue Forecasting* (CHSRA 2012b) and the Draft 2014 Business Plan (CHSRA 2014) presume 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*, this EIR presumes up to 40 HST daily trains in 2040 based on CHSRA’s *Estimating High-Speed Train Operating and Maintenance Cost for the CHSRA 2012 Business Plan* (CHSRA 2012c). After 2040, which is the horizon for the cumulative impact analysis in this EIR, CHSRA may pursue additional daily service beyond the 40 daily trains assumed for the analysis in this EIR.

² As described in Section 4.1, *Cumulative Impacts*, the cumulative analysis in this EIR presumes speeds for Blended Service up to 110 mph because the blended system has been simulated by Caltrain at speeds of up to 110 mph and shown to be viable. In addition, CHSRA has confirmed that with speeds up to 110 mph, a 30-minute express travel time can be achieved between San Jose and San Francisco as required by Proposition 1A (CHSRA 2013). If it is determined to be necessary to analyze speeds greater than 110 mph in the future, additional simulations will be performed to understand the viability and implications of the 100 to 125 mph speed range identified by CHSRA in the 2012 Partially Revised Program EIR (CHSRA 2012d). If speeds beyond 110 mph are ultimately proposed by CHSRA for the Caltrain corridor, they will be evaluated in the separate environmental document for HST service on the San Francisco Peninsula.

1 increases in ridership as people seek alternate ways to meet these travel needs. Caltrain anticipates
2 continued increases in demand for its rail services over time. To meet that increasing demand, JPB
3 adopted the Rapid Rail Program and has already implemented additional three and four track
4 sections in certain portions of the corridor and introduced the Baby Bullet Service in 2004.

5 Weekday Caltrain ridership in 1992 reached approximately 21,100 passengers, more than half of
6 whom boarded or alighted at the Caltrain San Francisco terminus. By 2001, weekday Caltrain
7 ridership had increased to approximately 34,000 passengers, with 38 percent boarding or alighting
8 at the San Francisco terminus. Ridership dropped to approximately 27,000 daily passengers in 2003
9 as a result of declining economic conditions in the Bay Area, but rebounded to approximately 30,000
10 by 2004 following introduction of the Baby Bullet service. By 2008, average daily ridership reached
11 37,000 and, by 2013, average daily ridership had grown to approximately 47,000.

12 The following sections detail current and future transportation needs in the Caltrain corridor that
13 would be addressed by the Proposed Project.

14 **1.3.1 Current and Future Transportation Demand in the** 15 **Caltrain Service Area**

16 **1.3.1.1 Current and Future Employment in the Caltrain Corridor**

17 **Current San Francisco Downtown Area Employment.** Employment has continued to grow in San
18 Francisco. From 1990 to 2000, employment in San Francisco increased approximately 10.6 percent;
19 from 2000 to 2010, employment increased 3.9 percent. In 2010, the Downtown San Francisco
20 Priority Development Area (PDA) area had 315,570 employees, 56 percent of the total San Francisco
21 employment (Association of Bay Area Governments and MTC 2012). The Downtown San Francisco
22 PDA contains the downtown neighborhoods of Rincon Hill, Transbay, and mid-Market. It also
23 encompasses the Transit Center District, the Transbay Redevelopment Area, the Yerba Buena Center
24 area, Van Ness Avenue, Japantown along Geary Boulevard, and the broad corridor around the Muni J
25 line (Association of Bay Area Governments et al. 2013).

26 **Anticipated Future San Francisco Employment.** Based on Association of Bay Area Governments
27 (ABAG) 2013 Projections, employment is expected to increase by approximately 34 percent
28 between 2010 and 2040, with growth concentrated in a few areas (ABAG and MTC 2013). Between
29 2010 and 2040, the Downtown San Francisco PDA is projected to experience an increase in
30 employment of approximately 17 percent. Employment in the Mission Bay area is projected to grow
31 by almost 900 percent. Employment in the Transbay terminal area is projected to grow by almost
32 400 percent. These changes will shift the balance of downtown San Francisco employment
33 concentration somewhat southward, although the downtown area will retain its lead in all City
34 employment. ABAG anticipates that by 2040, this area will still contain approximately 49 percent of
35 citywide employment (ABAG and MTC 2012). The Proposed Project would terminate at the San
36 Francisco 4th and King Station; a substantial amount of the growth in San Francisco would occur
37 within walking distance to this station. Table 1-1 summarizes anticipated changes in San Francisco
38 employment by workplace location.

1 **Table 1-1. Anticipated Changes in San Francisco Employment 2010-2040**

Jurisdiction or Area Name	2010 Employment	% of Total	2040 Employment	% of Total	% Change 2010–2040
Downtown	315,570	55.5	368,140	48.5	16.7
Mission Bay	2,770	0.5	27,200	3.6	882.0
Transbay Terminal	7,950	1.4	37,660	5.0	374.0
Remainder of City	242,430	42.6	326,470	43.0	34.6
San Francisco Total	568,720	100.0	759,470	100.0	33.5

Source: ABAG and MTC 2012.

2
 3 **Current South Bay and Peninsula Employment.** In both 2000 and 2010, Santa Clara County, with
 4 its fast-growing, high-technology companies, had the greatest number of jobs of all Bay Area
 5 counties. From 2010 to 2012, San Mateo and Santa Clara Counties experienced employment
 6 increases of 7 and 6 percent, respectively.

7 **Future Peninsula Employment.** Between 2010 and 2040, San Mateo County employment is
 8 expected to grow by 29 percent, while Santa Clara County employment growth is forecast at 33
 9 percent. In 2040, Santa Clara County employment is expected to total 1.2 million jobs, 26 percent of
 10 total Bay Area employment. San Mateo County is expected to have 445,000 jobs in 2040.

11 The three counties of the Caltrain Peninsula Corridor are projected to have 2.4 million jobs in 2040,
 12 more than half of the employment in the Bay Area (ABAG and MTC 2013). Because of the
 13 constraining geography of the Peninsula, many of these jobs will be within a short distance of the
 14 Caltrain tracks. In addition, corridor travel demand is two-directional. In February 2013, morning
 15 peak-period Caltrain ridership (i.e., before 9:00 a.m.) was 60 percent northbound and 40 percent
 16 southbound. The reverse commute (i.e., southbound in the morning and northbound in the
 17 afternoon and evening) grew by 8.5 percent from 2012 to 2013 (Caltrain 2013).

18 **1.3.1.2 Characteristics of Work Trips in the Peninsula Corridor**

19 **Journeys to Downtown San Francisco Employment**

20 Year 2010 U.S. Census journey-to-work data indicate that approximately 14 percent of work trips to
 21 San Francisco come from San Mateo and Santa Clara Counties, while more than half come from San
 22 Francisco. San Francisco-originating work trips had the highest transit mode share (34 percent
 23 transit) of all Bay Area residence regions. In 2011, of the 265,164 San Francisco workers who
 24 commuted from outside of the City and County (of which 75,047 were from San Mateo County and
 25 9,570 were from Santa Clara County), 38 percent drove alone (U.S. Census 2013).

26 More San Mateo and Santa Clara county residents drove alone to jobs in San Francisco than San
 27 Francisco and East Bay residents. The Proposed Project would improve commuter rail service,
 28 making it more attractive to South Bay and Peninsula workers commuting to San Francisco.

29 **Journeys to South Bay and Peninsula Employment**

30 According to the 2006–2010 American Community Survey (ACS), relatively high proportions of San
 31 Mateo and Santa Clara county jobs are filled by county residents. Fifty-eight percent of San Mateo
 32 County workers reside within the county, while San Francisco and Santa Clara counties each

1 providing 12 percent of the San Mateo County workforce. Seventy-seven percent of Santa Clara
2 County jobs are filled by county residents, with 5 percent coming from San Mateo County and 2
3 percent from San Francisco (MTC and ABAG 2010).

4 Use of transit for work trips by Peninsula residents is much lower than for San Francisco residents.
5 According to the 2010 Census, only 2 percent of travel to work by Santa Clara County residents was
6 on public transit, compared with 33 percent of work trips on public transit by residents of San
7 Francisco. In San Mateo County, 8 percent of residents use public transit to get to work, a higher
8 percentage than in Santa Clara County, but well below that of San Francisco County. The high-tech
9 employment boom in the Caltrain corridor from San Jose to South San Francisco has, however,
10 increased the absolute demand for transit, if not the mode share.

11 Caltrain boardings in Santa Clara and San Mateo Counties are continuing to grow. From 2012 to
12 2013, boardings grew by 9 percent in San Mateo County and 13 percent in Santa Clara County. By
13 supporting improved Caltrain service—in concert with other transit improvements in the
14 Corridor—the Proposed Project would better serve the Peninsula-based and reverse commuter
15 ridership.

16 **1.3.1.3 Other Peninsula Travel Served by Caltrain**

17 Off-peak trips comprise approximately one-fifth of the person trips made in the region daily.
18 Caltrain provides an important off-peak travel service. From 2012 to 2013, midday off-peak
19 ridership increased by 24 percent. Weekend travel using Caltrain is also significant. In 2011,
20 weekend Baby Bullet trains were added as a pilot program. Due to their success, two Baby Bullet
21 trains run on weekends in each direction at present. In 2013, an estimated 13,846 passengers used
22 Caltrain on Saturdays for trips within the corridor; Sunday trips averaged 10,448 passengers
23 (Caltrain 2013).

24 **1.3.1.4 Influence of Changes in Gas Prices**

25 The long-term rise in gas prices has contributed to increased use of public transportation.
26 Commuting to work by automobile has decreased approximately 4 percent in Santa Clara and San
27 Mateo Counties from 2000 to 2010 in part due to increases in gas prices as well as traffic congestion
28 and other factors. Regional commuter transportation systems, including Caltrain, would be the
29 logical beneficiaries of a shift from private autos to public transportation, because these systems
30 accommodate the home-work trip. Home-work trips constitute the largest share of person trips and
31 they are the easiest trips to shift modes, assuming convenient origin-destination pairs. Should
32 gasoline prices remain at high levels over the long-term or increase further, increased Caltrain
33 ridership from this source would be reasonable to expect.

34 **1.3.2 Current and Future Roadway Congestion in the Caltrain** 35 **Corridor**

36 Economic growth and the corresponding demand for transportation services in the San Francisco
37 Bay Area have exceeded the region's ability to provide the needed roadway capacity. Existing
38 demand for north-south travel along the Peninsula via U.S. Highway 101 (U.S. 101) and Interstate
39 280 (I-280) regularly exceeds existing highway capacities and results in congestion that is
40 increasing in both frequency and duration. U.S. 101 is the most severely congested freeway through
41 the corridor (MTC 2009). Between San Francisco and San Jose, many roadway segments are at or

1 over capacity during the peak commute hour. Caltrans travel time and speed studies indicate that
2 major delays occur on both U.S. 101 and I-280. The peak congestion generally results from traffic
3 going into Silicon Valley in the morning and going out in the afternoon.

4 Based on Caltrans' most recent travel time and speed studies for 2008, the most congested highway
5 segment was U.S. 101 in Santa Clara County from Fair Oaks Avenue (Sunnyvale) to Oakland Road
6 (San Jose) during afternoon commute hours. Motorists on this 7-mile segment experienced a daily
7 delay of approximately 3,810 vehicle hours. The second most congested highway segment was U.S.
8 101 in San Mateo County from Whipple Avenue (Redwood City) to Hillsdale Boulevard (San Mateo)
9 during afternoon commute hours. Motorists on this 5-mile segment experienced daily delay of
10 approximately 2,440 vehicle hours. The third most congested highway segment was on the parallel
11 I-280 in Santa Clara County from Meridian Avenue (San Jose) to Wolfe Road (Cupertino) during
12 morning commute hours. Motorists on this 5-mile segment experienced daily delay of
13 approximately 2,120 vehicle hours. U.S. 101 in San Mateo County from Hillsdale Boulevard (San
14 Mateo) to 3rd Avenue (San Mateo) during morning commute hours was the fourth most congested
15 segment. Motorists experienced daily delay of approximately 1,580 vehicle hours on the 2-mile
16 segment.

17 Without future roadway improvements, congestion on corridor freeways is bound to worsen to the
18 point at which travel would partially divert to surface routes and the peak periods would spread
19 both into the midday and to later in the evening. Bottlenecks would continue to constrain movement
20 through the corridor. ABAG Projections 2013 indicates that job growth in the Bay Area is expected
21 to increase approximately 33 percent between 2010 and 2040 (ABAG and MTC 2013). The resultant
22 new transportation demand will lead to high levels of congestion that will take a toll on economic
23 development by constraining goods and people movements.

24 Opportunities to improve highway capacity are constrained by a number of factors, including
25 funding availability, the need for extensive and costly ROW acquisitions, and potentially adverse
26 environmental impacts, such as displacements of residences and businesses, and impacts on natural
27 resources and redesign of local roadways beyond the interchanges. For these reasons, substantial
28 capacity improvements to U.S. 101 and I-280 cannot be relied upon to fully address long-term travel
29 demands in the corridor. In this environment, Caltrain provides an essential and viable
30 transportation alternative to costly highway capacity expansion. By reducing trip times and
31 increasing transit ridership, the Caltrain Proposed Project would help to ease congestion on
32 Peninsula and South Bay freeways.

33 **1.3.3 Corridor Air Quality and Greenhouse Gas Emissions**

34 High rates of auto ownership and increasing vehicle miles of travel (VMT) have contributed to air
35 quality problems throughout California. Pollutants of concern include ozone (O₃); nitrogen oxides
36 (NO_x) and sulfur dioxides (SO₂) (precursors of smog); carbon monoxide (CO); and particulate matter
37 (PM). Greenhouse gases (including carbon dioxide, nitrous oxide and methane) are now a focus of
38 environmental planning in California because of their role in global climate change. Motor vehicles
39 are substantial contributors to the production of all of these pollutants.

40 The San Francisco Bay Area's air quality has improved in recent years, largely in response to
41 technological improvements in motor vehicles and fuels that are less polluting. The project study
42 area for air quality is within the San Francisco Bay Area Air Basin (SFBAAB), for which local air
43 quality conditions are regulated by the Bay Area Air Quality Management District (BAAQMD).

1 Despite this progress, the SFBAAB is still designated a nonattainment area for the 8-hour federal
2 standards for ozone and PM2.5 (particulate matter smaller than 2.5 microns in diameter), a
3 maintenance area for the federal CO standard, and an attainment/unclassified area for the federal
4 PM10, NO₂, SO₂, and lead standards. With respect to the California standards, the SFBAAB is
5 currently a serious nonattainment area for the 1-hour ozone standard, a nonattainment area for the
6 8-hour ozone, PM2.5, and PM10 standards, and an attainment area for all other standards.

7 A number of ambient air quality monitoring stations, maintained by BAAQMD, are located in the Bay
8 Area to monitor progress toward air quality standards attainment. Six BAAQMD monitoring stations
9 are on or near the Caltrain route. Chapter 3, Section 3.2, *Air Quality*, provides a summary of data
10 collected at these stations and a discussion of the total number of days that state and federal
11 ambient air quality standards were exceeded.

12 Because transportation is the major contributor to ozone precursors, increasing auto travel
13 threatens the area's improvement in air quality. Growing congestion will add to the potential
14 problems because of increased emissions of vehicles operating in stop-and-go traffic. Shifting
15 commuters and other travelers to higher occupancy modes is highly desirable as a means to
16 partially offset the effects on air quality produced by the growth in auto travel. Improved Caltrain
17 service offers the greatest potential for increased high-occupancy travel along the San Francisco
18 Peninsula, particularly in southern San Mateo County and Santa Clara County, the areas with the
19 most severe air quality problems in the corridor. Based upon projections of potential Caltrain use in
20 2020, approximately 234,000 VMT would be removed from corridor roadways daily as a result of
21 electrifying the Caltrain service (see Chapter 3, Section 3.14, *Transportation and Traffic*.)³

22 Equally important, the Proposed Project would substantially reduce diesel train emissions in the
23 Caltrain corridor and result in a net decrease in criteria air pollutant emissions, even taking into
24 account the indirect emissions associated with electricity consumption. The reduction of diesel
25 emissions would help to improve regional air quality and reduce the localized emissions of toxic air
26 contaminants associated with diesel particulate matter into the communities surrounding the
27 Caltrain ROW and stations, which would be a substantial local health benefit.

28 Most of the communities in the Peninsula Corridor have adopted climate action plans to lower their
29 community contributions of greenhouse gas emissions, with all seeking to lower transportation
30 emissions given that transportation is usually the largest source of such emissions in most areas. As
31 noted above, California has ambitious goals to reduce greenhouse gas emissions throughout the
32 state. By reducing vehicle travel on regional roadways and replacing diesel locomotives with cleaner
33 EMUs, the Proposed Project would also help Peninsula communities and California as a whole to
34 meet their goals for greenhouse gas reductions.

35 **1.3.4 Modernizing the Caltrain Service**

36 Improving the appearance and attractiveness of Caltrain to potential consumers has long been
37 suggested as a means of increasing ridership. Caltrain put new diesel locomotives and bi-level
38 passenger cars into service as part of the "Baby Bullet" express service program in 2004. Rider
39 response to this service has demonstrated the benefits of modernizing image, improving passenger
40 comfort, and reducing travel times between major origins and destinations. The increase in

³ With fully electrified service and the Downtown Extension to the Transbay Terminal, VMT would be reduced by approximately 618,000 VMT in 2040 (see Appendix I, *Ridership Technical Memorandum*).

1 ridership associated with the introduction of the Baby Bullet and new passenger cars suggests that
2 there is an unmet demand for rapid transit along the Peninsula corridor. The existing Caltrain
3 service cannot serve all Caltrain stations without a corresponding increase in travel time. With the
4 Proposed Project, additional stops could be added (optimized stops) without loss of travel times
5 and/or travel times could be reduced.

6 **1.3.5 Accommodating Future High-Speed Rail**

7 In June 2000, CHSRA issued its *Final Business Plan for Building a High-Speed Train System for*
8 *California*. This document recommended that the governor and state legislature prepare a state-
9 level program EIR and federal-level Environmental Impact Statement (EIS) for a statewide high-
10 speed train network. The Final Program EIS/EIR was completed in August 2005. The Caltrain
11 corridor is presented in the 2000 CHSRA Business Plan as an alignment for Bay Area access. In
12 addition, Proposition 1A identified San Francisco as the northern terminus for a bullet train from
13 Los Angeles to the Bay Area. CHSRA subsequently issued a program-level environmental analysis of
14 the Bay Area to Central Valley alignments that identified Pacheco Pass and the Caltrain alignment as
15 its preferred alternative.

16 An electrified Caltrain system would set the stage for an expanded modern regional electric train
17 service and a statewide HSR service. The Proposed Project facilities evaluated herein would be
18 designed to accommodate HSR service, as well as Caltrain service. The term “accommodate” is being
19 used in this case to mean that the Caltrain Proposed Project would install the same type of power
20 supply and distribution system proposed for the HSR system. Other improvements needed to enable
21 high-speed trains to use the Caltrain line would be evaluated in a separate environmental process.

22 Extension of Caltrain from its present 4th and King Streets terminus to the site of the Transbay
23 Terminal was evaluated in a separate environmental document, the Transbay Terminal/Caltrain
24 Downtown Extension/Redevelopment Project EIS/EIR, by FTA, the City and County of San
25 Francisco, the San Francisco Redevelopment Agency, and the JPB. The Final EIS/EIR was certified in
26 2004 and the Record of Decision on the EIS was issued in February 2005. The Transbay Terminal
27 project includes electrification of the Caltrain line from 4th and King Streets to the Transbay
28 Terminal. Subsequent addenda have been completed between 2005 and the present and a
29 Supplemental EIS/EIR is presently being prepared for certain limited proposed changes to the
30 design of the project.

31 **1.4 Purpose of Project**

32 The primary purposes of the Proposed Project are to improve train performance and reduce costs,
33 reduce long-term environmental impact by reducing noise and vibration, improve regional air
34 quality and reduce greenhouse gas emissions, and provide electrical infrastructure that would be
35 compatible with separate later use for Blended Service. An electrified Caltrain system would address
36 Peninsula commuters’ vision of an environmentally friendly and reliable service. Electrification also
37 is expected to help accommodate increased system ridership through improved system operations.

38 Electrification would modernize Caltrain and supports increased service levels and it offers several
39 advantages in comparison with existing diesel power use. These benefits serve the primary
40 purposes of the Proposed Project, as follows:

- 1 • **Provide electrical infrastructure compatible with high-speed rail:** An electrified Caltrain
2 system would set the stage for an expanded modern regional electric express service and for
3 future blended HSR service. While the Proposed Project would not include all infrastructure
4 necessary to implement HSR service in the corridor (such as HSR maintenance facilities, station
5 platform improvements, or passing tracks), the electrical infrastructure (such as overhead wire
6 systems) would accommodate future Blended Service.
- 7 • **Improve train performance, increase ridership and increase service:** The Proposed Project
8 envisions the use of EMUs, which are self-propelled electric rail vehicles that can accelerate and
9 decelerate at faster rates than diesel-powered trains, even with longer trains. With EMUs,
10 Caltrain could run longer trains without degrading speeds, thus increasing peak-period capacity.
11 Electrification performance would support increased peak service levels from the current five
12 trains per peak hour per direction to six with existing trackage.

13 A substantial portion of a Caltrain trip is spent accelerating and decelerating between stations
14 because of Caltrain's close-set station stops. For the same service profile of stops, EMUs can
15 provide travel time reductions. Alternatively, due to the time savings, additional stops could be
16 added without increasing existing total transit time from San Jose to San Francisco. Travel time
17 savings and/or additional stops are expected to stimulate additional Caltrain ridership.

- 18 • **Increase revenue and reduce cost:** Anticipated increased ridership would increase fare
19 revenues, and conversion from diesel to electricity would reduce fuel costs. These efforts would
20 substantially reduce but not eliminate the need for financial subsidy.
- 21 • **Reduce environmental impact by reducing noise emanating from trains:** Noise emanating
22 from the passage of electrified train sets is measurably less than diesel operations. With the
23 increases in peak and off-peak Caltrain service that are either under way or planned for
24 implementation during the next decades, electrification would be an important consideration
25 for reducing noise of train passersby and maintaining Peninsula quality of life. Train horns
26 would continue to be sounded at at-grade crossings, consistent with FRA and California Public
27 Utilities Commission (CPUC) safety regulations, whether or not electrification is pursued.
- 28 • **Reduce environmental impact by improving regional air quality and reducing
29 greenhouse gas emissions:** Electric operations would produce substantial reductions in
30 corridor air pollution emissions when compared with diesel locomotives, even when the
31 indirect emissions from electrical power generation are included in the analysis. In addition, the
32 increased ridership allowed by the Proposed Project would reduce automobile usage, thereby
33 resulting in additional air quality benefits. Electrically powered trains are more energy efficient
34 than diesel-electric trains. Reduced energy use also translates into reduced air emissions.
35 Reductions in air pollutant emissions represent long-term health benefits for Caltrain riders,
36 and for residents and employees along the Caltrain corridor. In addition, reduction of
37 greenhouse gas emissions with electrification would help California to meet its goals under AB
38 32, the 2006 Global Warming Solutions Act, as well as post-2020 state greenhouse gas emission
39 reductions goals.

1 **1.5 Environmental Review Process**

2 **1.5.1 California Environmental Quality Act**

3 CEQA applies to all discretionary activities proposed to be implemented by California public
4 agencies, including state, regional, county, and local agencies (California Public Resources Code
5 Section 21000 et seq.). CEQA requires agencies to estimate and evaluate the environmental impacts
6 of their actions, avoid or reduce significant environmental impacts when feasible, and consider the
7 environmental implications of their actions prior to making a decision. CEQA also requires agencies
8 to inform the public and other relevant agencies and consider their comments in the evaluation and
9 decision-making process. The State CEQA Guidelines are the primary source of rules and
10 interpretation of CEQA. (California Public Resources Code sections 21000 et seq.; 14 California Code
11 of Regulations (CCR) 15000 et seq.).

12 **1.5.2 Purpose of this EIR**

13 The purpose of the EIR is to provide the information necessary for the JPB to make an informed
14 decision about the Proposed Project, and to supply the information necessary to support related
15 permit applications and review processes.

16 This Draft EIR has been prepared in compliance with CEQA to achieve the following goals.

- 17 • Identify potential direct, indirect, and cumulative environmental impacts associated with the
18 Proposed Project.
- 19 • Describe feasible mitigation measures intended to avoid or reduce potentially significant
20 impacts to a less-than-significant level.
- 21 • Disclose the environmental analysis, including the potential project impacts and proposed
22 mitigation measures, for public and agency review and comment.
- 23 • Discuss potential alternatives to the Proposed Project that meet the purpose and need, are
24 feasible, and would avoid or reduce identified significant project impacts.

25 One of the purposes of CEQA is to establish opportunities for the public and relevant agencies to
26 review and comment on projects that might affect the environment. Scoping activities are discussed
27 below. The JPB will provide a public review period for this Draft EIR of 60 days from release of the
28 Draft EIR for comment.. The JPB will also conduct public meetings to receive comment during the
29 comment period. Once the public review period is complete, the JPB will prepare a Final EIR that
30 includes all the comments received on the Draft EIR, responses to all comments, and any necessary
31 revisions to the Draft EIR. CEQA requires the JPB decision-making body, the Board, to review and
32 consider the information in the EIR before making a decision on the Proposed Project.

33 **1.5.3 Scope and Content of the EIR**

34 Scoping refers to the process used to assist the lead agency (for the Proposed Project, the JPB) in
35 determining the focus and content of an EIR. Scoping solicits input on the potential topics to be
36 addressed in an EIR, the range of project alternatives, and possible mitigation measures. Scoping is
37 also helpful in establishing methods of assessment and in selecting the environmental effects to be
38 considered in detail.

1 **1.5.3.1 Notice of Preparation and Scoping Meeting**

2 The scoping process for this EIR was formally initiated on January 31, 2013, when the JPB submitted
3 the Notice of Preparation (NOP) to the California State Clearinghouse for distribution to state
4 agencies and to the San Francisco, San Mateo, and Santa Clara County Clerks for public posting.
5 The purpose of the NOP is to solicit participation from relevant agencies and from the public in
6 determining the scope of an EIR. The scoping period ended on March 18, 2013.

7 Public scoping meetings were held on February 27, 2013 at the Caltrain Office, February 28, 2013, at
8 Palo Alto City Hall, March 5, 2013 at VTA Headquarters, and March 7, 2013 at San Francisco City Hall
9 to provide an opportunity for attendees to comment on environmental issues of concern.

10 Written and oral comments received during the scoping process are on file at JPB offices (1250 San
11 Carlos Avenue, San Carlos, CA) and included in the scoping summary report in Appendix A.

12 **1.5.3.2 Resource Topics**

13 Consistent with Appendix G of the State CEQA Guidelines, this Draft EIR evaluates the potential
14 impacts of the Proposed Project for the following resource areas.

- 15 ● Aesthetics
- 16 ● Air Quality
- 17 ● Biological Resources
- 18 ● Cultural and Paleontological Resources
- 19 ● Electromagnetic Fields (EMF) and Electromagnetic Interference (EMI)
- 20 ● Geology, Soils, and Seismicity
- 21 ● Greenhouse Gas Emissions and Climate Change
- 22 ● Hazards and Hazardous Materials
- 23 ● Hydrology and Water Quality
- 24 ● Land Use and Recreation
- 25 ● Noise and Vibration
- 26 ● Population and Housing
- 27 ● Public Services and Utilities
- 28 ● Transportation and Traffic

29 The following topics are also analyzed in this DEIR.

- 30 ● Cumulative impacts
- 31 ● Significant unavoidable impacts
- 32 ● Significant irreversible changes in the environment
- 33 ● Growth inducement
- 34 ● Alternatives to the Proposed Project

1 Although agricultural and mineral resources are identified in Appendix G of the State CEQA
2 Guidelines, this EIR analysis does not include these topics because there would be no impact, as
3 described in Chapter 3.

4 **1.6 EIR Organization**

5 This DEIR is organized as described in the chapters and appendices listed below.

- 6 • Chapter 1, *Introduction*, includes a brief overview of the Proposed Project; an overview of the
7 environmental review process; and the scope, content and organization of the Draft EIR.
- 8 • Chapter 2, *Project Description*, includes a comprehensive description of the Proposed Project.
- 9 • Chapter 3, *Setting, Impacts, and Mitigation Measures*, includes an evaluation of the resource
10 topics outlined above. Each resource-specific section discusses the environmental setting,
11 impacts, and mitigation measures.
- 12 • Chapter 4, *Other CEQA-Required Analysis*, includes a discussion of cumulative impacts, significant
13 environmental impacts that cannot be avoided, significant irreversible changes in the
14 environment and growth-inducing impacts.
- 15 • Chapter 5, *Alternatives*, includes a description of the project alternatives considered, and
16 evaluation of several alternatives to the Proposed Project.
- 17 • Chapter 6, *Report Preparation*, includes a list of staff who contributed to preparation of the Draft
18 EIR.
- 19 • Chapter 7, *References*, includes a list of the printed references and personal communications
20 cited in the Draft EIR.
- 21 • Appendices
 - 22 A. *NOP and Scoping Summary Report*
 - 23 B. *Air Quality and Greenhouse Gas Analysis Technical Data*
 - 24 C. *Noise and Vibration Technical Report*
 - 25 D. *Transportation Analysis*
 - 26 E. *Cultural Resources Programmatic Agreement*
 - 27 F. *Tree Inventory and Canopy Assessment*
 - 28 G. *Biological Resources Information*
 - 29 H. *Land Use Information*
 - 30 I. *Ridership Technical Memorandum*

