Caltrain Short-Range Transit Plan: FY2018-2027

Adopted by Peninsula Corridor Joint Powers Board

June 6, 2019

Caltrain Short Range Transit Plan - Fiscal Years 2018 to 2027

Draft Plan Submitted to the Metropolitan Transportation Commission March 2019. Final Plan adopted by the Peninsula Corridor Joint Powers Board and submitted to the Metropolitan Transportation Commission in June 2019.

Federal transportation statutes require that the Metropolitan Transportation Commission (MTC), in partnership with state and local agencies, develop and periodically update a long-range Regional Transportation Plan (RTP), and a Transportation Improvement Program (TIP) which implements the RTP by programming federal funds to transportation projects contained in the RTP. In order to effectively execute these planning and programming responsibilities, MTC requires that each transit operator in its region which receives federal funding through the TIP, prepare, adopt, and submit to MTC a Short Range Transit Plan (SRTP).

ACKNOWLEDGEMENTS

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Abbreviations and Acronyms

ACE	Altamont Corridor Express
ADA	Americans with Disabilities Act
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
CalMod	**C**altrain Modernization Program
CARB	California Air Resources Board
CBTP	Community Based Transportation Plan
CCTV	Closed-circuit Television
CEMOF	Central Equipment and Maintenance Facility
CHSRA	California High Speed Rail Authority
CIP	Capital Improvement Program
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CPUC	California Public Utilities Commission
District	Sam Mateo County Transit District
EMU	Electric Multiple Unit
FEIR	Final Environmental Impact Report
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FY	Fiscal
Hz	Hertz
IBEW	International Brotherhood of Electrical Workers
JPA	Joint Powers Authority
JPB	Peninsula Corridor Joint Powers Board
kV / KWh	kilovolt / kilowatt-hour
LAP	Language Assistance Plan

LCTOP	Low Carbon Transportation Operations Funding
LEP	Limited English Proficient
MAP-21	Moving Ahead for Progress in the 21st Century Act
MOU	Memorandum of Understanding
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Railway
NTD	National Transit Database
NTSB	National Transportation Safety Board
OCS	Overhead Contact System
PCEP	Peninsula Corridor Electrification Project
PLA	Project Labor Agreement
PTC	Positive Train Control
SB	Senate Bill
SCCTD	Santa Clara County Transit District
SFMTA	San Francisco Municipal Railway
SMCTA	San Mateo County Transportation Authority
SOGR	State of Good Repair
SRA	State Rail Assistance
SRTP	Short Range Transit Plan
STP	Surface Transportation Program
TASI	TransitAmerica Services, Inc.
TIRCP	Transit and Intercity Rail Capital Program
TPS	Traction Power Substations
TSA	Transportation Security Administration
TSP	Transit Sustainability Project
TVM	Ticket Vending Machine
VTA	Santa Clara Valley Transportation Authority
YOE	Year of Expenditure

E. Executive Summary

The following document is a full update of the Caltrain 10-Year Short Range Transit Plan (SRTP) for fiscal years (FY) 2018-2027 produced by the Peninsula Corridor Joint Powers Board (JPB), the entity that owns and operates the Caltrain commuter rail service. The Executive Summary provides an introductory summary of the SRTP, discussing Caltrain's major programs and challenges and highlighting the 10-year operating plan and 10-year capital improvement program (CIP).

Policy Context

This SRTP follows a set of guidelines prescribed by the Metropolitan Transportation Commission (MTC). SRTPs serve as a management and policy document for Caltrain, as well as a means of providing FTA and MTC with the information necessary to meet regional fund programming and planning requirements. It provides an overview of the transit system, goals and performance measures, information on service and system evaluation, and the JPB's operating and capital investment plan across a 10-year planning horizon. This document complies with SRTP requirements per MTC Resolution No. 4276, the Commission's most recently-adopted (2017) resolution for SRTPs at the time of developing this document for Caltrain.

Relationship to the Caltrain Business Plan

It is important to note that this is the first update to the SRTP that MTC has required Caltrain to produce since 2015. In spring of 2019, the agency completed this updated SRTP while simultaneously proceeding with development of the Caltrain Business Plan, an effort to establish a long-range service vision for the railroad. The extensive planning process for the Caltrain Business Plan commenced in 2018 and is anticipated to be completed by the end of 2019. Once adopted by the Caltrain Board of Directors, the Business Plan will largely supersede this SRTP and will serve as the record of Caltrain's plans going forward. The completed Caltrain Business Plan will identify a service vision for the railroad through 2040, including train service patterns, infrastructure needs, and estimated costs and outcomes. Overall, it will identify a broader range of choices, services, investments, and changes available to Caltrain. It will also include a business case for the service vision and an implementation plan for achieving it.

Overall, this SRTP reflects a baseline, "stay the course" approach to Caltrain's future – both in terms of the services and projects described as well as the projections of revenues and costs. This update to the SRTP was required to be completed before the process for developing the Caltrain Business Plan could be

concluded. Therefore, this document serves to meet MTC's requirements by providing an update to Caltrain's 2015 SRTP; it is consistent with existing Board-adopted plans and policies as well as the agency's most recently published information on capital and operating plans as of spring 2019, including the JPB's FY2020 Operating Budget. This SRTP's 10-Year Capital Improvement Plan represents the unconstrained needs of the railroad from FY2020 forward; however, each year, the JPB must adopt a fiscally constrained capital budget, including a $45 million capital budget for FY2020.

Caltrain Modernization

Both the SRTP and the Caltrain Strategic Plan are structured around the Caltrain Modernization Program (CalMod). Collectively, CalMod encompasses the delivery of a $1.98 billion package of infrastructure projects to the Caltrain system by FY2022. The CalMod program is codified and funded through a 9-party Memorandum of Understanding that was signed by the JPB, the California High Speed Rail Authority (CHSRA), MTC, and other regional entities in 2012, as well as a 7-party supplement signed in 2016. This project is also included in the MTC Regional Transit Expansion Program (Resolution 3434) that was adopted in 2001 and amended in 2008.

By FY2022, the Caltrain Modernization Program will electrify and upgrade the performance, operating efficiency, capacity, safety, and reliability of Caltrain's commuter rail service through the delivery of several key projects. This project includes the electrification of the existing Caltrain corridor between San Francisco and San Jose (also known as PCEP, the Peninsula Corridor Electrification Project) and the replacement of a majority of Caltrain's diesel trains with high-performance electric trains called Electric Multiple Units (EMUs).

Operational Challenges

Today, Caltrain operates a total of 92 diesel locomotive-hauled trains per day on the weekdays between San Francisco and San Jose with limited service further south to Gilroy. Over the 10-year timeframe addressed in the SRTP, Caltrain will expand its service to 114 trains per weekday day using a mixed fleet of diesel locomotive-hauled rolling stock and new EMU trains. This shift poses both a tremendous opportunity and challenge that underlies the agency's operational planning across the coming 10 years.

Caltrain has experienced rapid ridership growth and many of its peak-hour trains currently operate near, at, or above their seated capacity. Meeting growing customer demand while maintaining a high standard

of safe, reliable, and comfortable service is the preeminent operational challenge over the time horizon of the SRTP. It is anticipated that this challenge will be especially acute during the primary electrification construction period (through FY2021) when Caltrain will need to maintain reliable service in the midst of a corridor-wide construction project. Caltrain will also need to ensure its operational integrity by evolving its organization to operate and maintain an expanded, electrified system.

Operating Plan and Budget

The 10-year Operating Plan assumes Caltrain will operate a 92-train weekday schedule with its current service pattern through FY2022 with only minor schedule modifications. In FY2022, following the implementation of the Peninsula Corridor Electrification Project, Caltrain will significantly modify its weekday service, adding 22 additional trains per day and increasing service frequencies during the commute periods and the midday hours. This service plan is discussed in more detail in Chapter 4.

The 10-year Financial Plan shows a deficit in FY2019 through FY2027, with operating and maintenance costs exceeding revenues from fares, partner contributions, and other sources. This occurs because Caltrain does not have a dedicated source of funding and has an on-going structural deficit in its operating budget. Caltrain is currently developing strategies to balance the annual budget through FY2027 and will comprehensively evaluate a variety of factors that influence the system's operating deficit. These factors and strategies include: fare policy and pass programs, a potential three-county sales tax ballot measure, increased member agency contributions, increased state funding, and cost containment strategies.

Capital Improvement Plan

Caltrain's 10-year CIP is a $3 billion program focused on maintaining the JPB's assets in a state-of-good repair (SOGR), enhancing the reliability of the system, and delivering electrified service from San Francisco to San Jose by FY2022. Revenue sources included in the CIP reflect Caltrain's reasonable expectation of funding levels. Caltrain will, however, continue to work with its funding partners to solidify the Caltrain 10-year CIP funding plan. Among other options, Caltrain will explore both traditional (e.g., grants) and innovative funding strategies including the possibility of new public and private partnerships.

1 Overview of the Transit System

This chapter provides an overview of the Caltrain system, including: governance, staffing, fare structure, the revenue fleet, and a description of existing services and station facilities.

1.1 Brief History

Railroad service along the San Francisco Peninsula has a long history and has existed, in some form, since 1863. The railroad line, one of the oldest in California, was first proposed in 1851 to connect the booming trade center of San Francisco and the first state capitol of California, San Jose. By October 1863, regular service began between San Francisco and Mayfield (now the California Avenue Station in Palo Alto). The construction of the line to San Jose was completed in January 1864, and two trains began operating daily between San Francisco and San Jose.

Prior to the JPB's current ownership, passenger rail ridership on the Peninsula was at its peak in the mid-1940s, when more than 9.54 million patrons rode the train annually. However, as the cost of operating the Peninsula Commuter Rail Service increased and the number of riders began to decline, the former Southern Pacific Railroad began to phase out its less patronized trains and, by the mid-1970s sought to discontinue passenger rail service. After extended negotiations, Southern Pacific, the California Department of Transportation (Caltrans), and the three counties through which the Peninsula Commute Service operated (San Francisco, San Mateo, and Santa Clara counties) reached an agreement to preserve passenger rail service on the Peninsula. Beginning in 1980, Caltrans Rail Management and Rail Operation branches administered a purchase-of-service agreement with Southern Pacific under which Southern Pacific operated the service, but state and local government agencies subsidized and administered it. Besides contract administration, Caltrans' responsibilities included planning, marketing, customer service, engineering and design, fare and schedule setting, and performance monitoring. The commuter service was renamed Caltrain.

In 1987, representatives of the City and County of San Francisco, the San Mateo County Transit District ("District") and the Santa Clara County Transit District (SCCTD), now the Santa Clara Valley Transportation Authority (VTA), began the effort to create the Peninsula Corridor Joint Powers Board (JPB) to transfer administrative responsibility for Caltrain from the state to the local level. In July 1991, a Joint Powers

Agreement, signed by the three parties, stipulated the JPB membership and powers, specified financial commitments for each member agency, delegated the District as the managing agency, and detailed other administrative procedures.

The JPB purchased the 51.4-mile Caltrain right-of-way and perpetual trackage rights between San Jose and Gilroy (known as the Gilroy Extension) from Southern Pacific in December 1991 for a cost of $212 million. In July 1992, District personnel assumed the management and administration of the JPB, and the JPB assumed ownership of Caltrain, contracting with Amtrak as its operator. Commuter service from Gilroy began in 1992. Gilroy Extension service is provided on UP-owned track that is governed by a trackage rights agreement between UP and the Joint Powers Authority (JPA). This service has a different cost profile than JPA service between San Jose and San Francisco. The operating deficit for the Gilroy extension is paid by VTA, since this segment is located wholly within Santa Clara County.

In the 28 years that the JPB has owned Caltrain, ridership has increased nearly 150 percent. In 2002, Caltrain weekend service was suspended for two years to allow for construction of the CTX project. With new rolling stock and upgraded infrastructure, the Baby Bullet express service was initiated in June 2004 through support of MTC with the project's inclusion in the Regional Transit Enhancement Program (Resolution 3434). Following the start of express service, ridership immediately began to increase. However, within a year Caltrain was facing financial difficulties and decided to overhaul the entire schedule and offer more express service to attract additional riders, particularly those making longer trips. The re-invention of Caltrain occurred in August 2005 with a decrease of local trains in the peak and a doubling of express service to 22 Baby Bullet trains a day. Since that point, Caltrain has experienced a sustained ridership increase and now realizes an average weekday ridership of over 64,000 passengers.

The Caltrain system's evolution continues today as the corridor modernizes and prepares for future modernization and blended operations with CHSRA. In 2009, following voter approval of $9 billion to plan and construct the state's high-speed rail system, the Caltrain and the CHSRA began working in partnership to advance specific improvements and identify design alternatives supporting both high speed rail and modernized Caltrain service. Since then, plans for HSR service on the Peninsula Corridor have evolved to reflect the concept of a "blended system" where Caltrain and HSR trains primarily share Caltrain's existing tracks on a system that remains substantially within the existing Caltrain corridor. In 2012, MTC, CHSRA,

Caltrain, and six other San Francisco Bay Area funding partners established an agreement to support the blended system and to move forward with an early investment in the Caltrain Modernization Program. It is this early investment program that provides the funding for Caltrain's efforts to deliver modernized, electrified Caltrain service by FY2022.

1.2 Governance

The JPB is a joint powers authority created by agreement pursuant to Government Code Sections 6500 et seq. The three member agencies of this joint powers authority are: The City and County of San Francisco, the San Mateo County Transit District ("the District"), and VTA.

1.2.1 Board of Directors

The Peninsula Corridor Joint Powers Board includes representatives from San Francisco, San Mateo, and Santa Clara counties. The JPB consists of nine members, three from each county. The San Francisco representatives include an appointee from the Mayor's office, an appointee from the San Francisco County Board of Supervisors, and an appointee from the San Francisco Municipal Transportation Agency. The three San Mateo County representatives are all members of the District's Board of Directors, but three different appointing authorities designate a representative from the District's Board, as follows: the District Board; the San Mateo County Board of Supervisors; and the Cities Selection Committee of the Council of Mayors of San Mateo County. The Santa Clara County representatives include a member of the VTA Board of Directors appointed by that Board representing the City of San Jose or the County of Santa Clara; a member of the VTA Board of Directors appointed by that Board representing the County of Santa Clara or a city in Santa Clara County other than the City of San Jose; and the County's representative to the MTC, or if this person declines to serve, then the MTC appointee of the Cities Selection Committee, or if this person declines to serve, then a member of the VTA Board of Directors, as appointed by that Board.

JPB Directors do not have any terms as prescribed by the JPB; they serve at the discretion of their appointing authority. As of May 2019, the current members of the JPB board include:

- Cheryl Brinkman, appointed by San Francisco Municipal Transportation Agency
- Jeannie Bruins, representing MTC
- Cindy Chavez, representing Santa Clara County Board of Supervisors

- Ron Collins, appointed by City Selection Committee
- Devora "Dev" Davis, representing City of San Jose
- Gillian Gillett, Chair, appointed by San Francisco County Board of Supervisors
- Dave Pine, Vice Chair appointed by the San Mateo County Board of Supervisors
- Charles Stone, appointed by San Mateo County Transit District
- Shamann Walton, appointed by San Francisco County Board of Supervisors

1.2.2 Advisory Committees

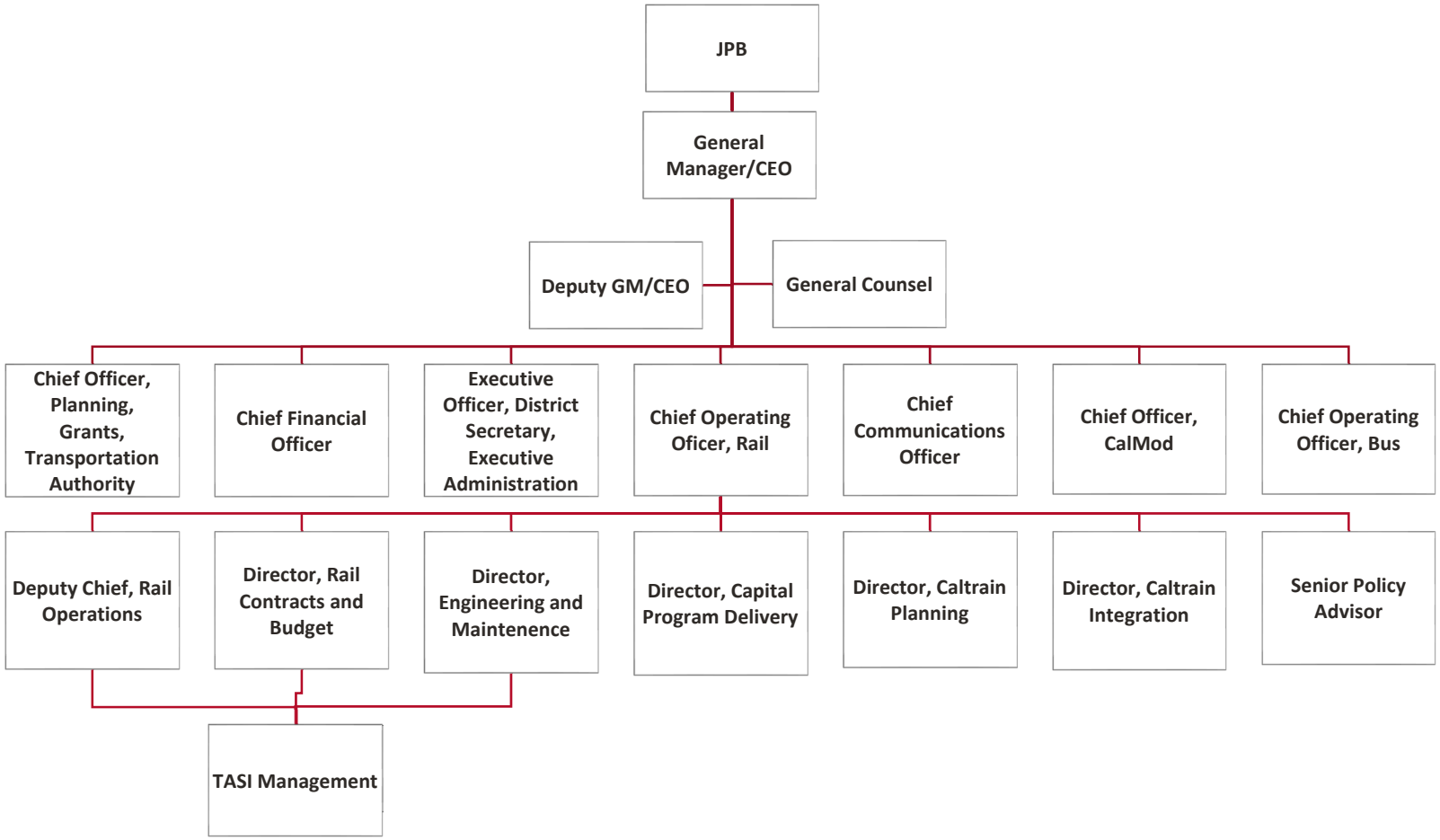
There are four standing advisory committees that offer the JPB and Caltrain management input on a regular basis. These are as follows:

- **The Citizens Advisory Committee** (CAC) is composed of nine volunteer members who serve in an advisory capacity to the tri-county policy board, provide input on the needs of current and potential rail customers, and review and comment on staff proposals and actions as requested by the Board.
- **The Bicycle Advisory Committee** (BAC) is a partnership composed of nine volunteer members and Caltrain staff. The BAC serves as the primary venue for the interests and perspectives of bicyclists to be integrated into the Caltrain planning processes. This group advises staff, bringing new ideas for discussion and helping guide Caltrain's future investments.
- **The Central Equipment Maintenance and Operations Facility (CEMOF) Monitoring Committee** is an advisory committee established by the San Jose City Council in cooperation with Caltrain. The primary responsibility of the committee members is to provide ongoing communication with the community regarding the operation of the maintenance facility located in San Jose.
- **The Caltrain Accessibility Advisory Committee (CAAC)** meets annually to discuss and advise JPB staff on policies, plans and procedures relating to the development, implementation and operation of Caltrain accessible transit services, and on compliance with the requirements of the American with Disabilities Act of 1990. The CAAC is organized by JPB's Accessible Transit Services staff. The JPB does not select members; all interested parties with accessibility interests are welcomed, so membership fluctuates with representatives from San Francisco, San Mateo, Santa Clara, and other Bay Area counties.

1.3 The Organization

The JPA creating the JPB designates the District as the Managing Agency of the JPB. The JPB has no direct employees. Instead, employees of the Managing Agency (the District) serve as staff to the JPB. Under this contractual arrangement, the CEO/General Manager of the District serves the JPB as its Executive Director. The Executive Director is supported by Chief Officers who oversee individual departments within the agency. See Figure 1-1 for the JPB Organizational Chart.

Figure 1-1: Joint Power Board Organizational Chart



1.3.1 Staffing

District staff provide administrative management for the Caltrain system, with departments providing staff support in engineering, finance, capital project development, project monitoring, planning, marketing, customer service, public and media relations, fare and schedule setting, human resources, contracts and procurement, performance monitoring, budget and grant administration, and public outreach. Most staff are based at administrative headquarters (Central Office) of the District located in San Carlos. The Central Office houses 737 full-time and part-time employees, some of whom are dedicated to Caltrain only. Several District employees perform part of their work for Caltrain from District bus storage and maintenance bases or CEMOF in San Jose. The agency operates on a Fiscal Year (FY) calendar from July 1 to June 30; for example, FY2019 encompasses July 1, 2018, to June 30, 2019.

The Rail Division is responsible for the day-to-day operation of Caltrain and provides direct oversight of the contract operator, TransitAmerica Services, Inc. (TASI). TASI began Caltrain operations on May 26, 2012, and the base portion of the contract expired on June 30, 2017. On February 2, 2017, the JPB exercised all five of the available one-year options, extending the term of the contract through June 30, 2022. TASI employees include both union and non-union staff. Currently, 11 labor unions represent workers associated with maintenance and operations of the rail service. These unions hold agreements with TASI. The TASI contract provides for Railroad management, dispatch, safety, operations and maintenance of track, signals, systems and vehicles. The contract also provides for construction support. As of January 2019, the total number of TASI employees was 509. Of these employees, 72 are classified at the management level and 455 are classified at the non-management level.

The JPB does not hold direct labor agreements with any railroad workers. In July of 2015, however, the JPB executed a project labor agreement (PLA) specifically for the Peninsula Corridor Electrification Project. The PLA was reached with the Building Trades Councils of the City and County of San Francisco, San Mateo County, Santa Clara and San Benito counties to govern the building and construction work to be performed under the design build contract for PCEP. The Board also adopted a Memorandum of Understanding (MOU) with the International Brotherhood of Electrical Workers (IBEW) Union, Local 1245, to govern the overhead electrification systems work to be performed under the design-build contract for PCEP. The agreement expires upon the JPB's filing of a Notice of Completion for PCEP.

1.4 Description of Services and Service Area

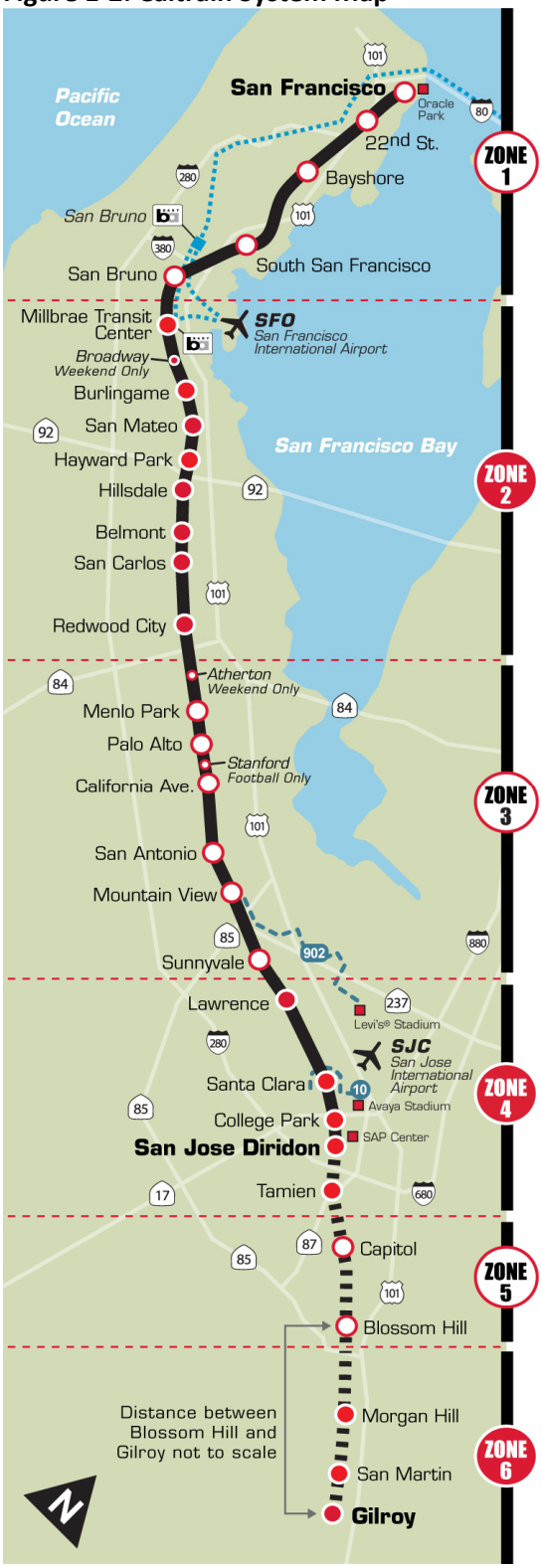
1.4.1 Rail Service

Caltrain provides inter- and intra-county commuter rail service along the San Francisco Peninsula Corridor, including San Francisco, San Mateo, and Santa Clara counties. The JPB operates Caltrain 365 days a year with reduced schedules on major U.S. holidays. The current weekday Caltrain operating schedule (effective April 1, 2019) is comprised of a mix of 92 express (Baby Bullet), limited, and local trains. Scheduled headways, or the time between arrivals of vehicles moving in the same direction at a station, vary by time of day, station, and service type. Overall, service is most frequent during the peak commute periods and is provided every hour in both directions during midday periods. Weekday Northbound service begins at 4:28 AM and ends at 12:05 AM. Weekday Southbound service begins at 4:55 AM and ends at 1:38 AM. Caltrain operates 28 trains on Saturday and 24 on Sunday, with service primarily composed of hourly local trains supplemented by two Baby Bullet trains in each direction per day. Saturday Northbound service begins at 7:08 AM and ends at 12:14 AM, while Southbound service begins at 8:07 AM and ends at 1:45 AM. Sunday's service span is more constrained, with Northbound service beginning at 8:11 AM and ending at 11:52 PM and Southbound service running from 8:07 AM to 11:22 PM.

Caltrain serves 32 stations along the 77.2-mile route between San Francisco and Gilroy, as illustrated in the system map presented in **Figure** 1-2. Gilroy Extension service is provided on UP-owned track that is governed by a trackage rights agreement between UP and JPA. This service has a different cost profile than JPA service between San Jose and San Francisco. On weekdays and weekends, the majority of trains operate between San Francisco and San Jose. On weekdays, three trains per weekday start in Gilroy during the morning commute period, and three terminate in Gilroy during the evening commute period. On weekends, trains operate exclusively between San Jose and San Francisco.

Twenty-three stations are served full-time. Weekend-only service is provided to Broadway and Atherton stations while the College Park Station is served by only four trains each weekday. The five stations on the Gilroy extension in southern Santa Clara County are served by six weekday trains per weekday during peak hours only. A shuttle bus serves passengers connecting between San Jose Diridon and Tamien on both Saturdays and Sundays from 10:07 AM to 10:17 PM.

Figure 1-2: Caltrain System Map



Source: Caltrain.com, 2019.

Caltrain currently operates three variants of commuter rail service:

- **Express service** (Baby Bullet service) provides a 60-minute trip between San Francisco and San Jose, with stops at six to eight stations, including terminal stations. Caltrain operates 22 Baby Bullet trains on weekdays (11 per direction) and four on weekend days (two per direction).
- **Limited service** includes trains operating a skip-stop or limited local service, stopping at approximately half of the stations between San Francisco and San Jose. Some limited trains operate in an iterative skip-stop pattern while others provide local service within a geographic segment of the corridor while operating as express trains in other areas. Run times for limited service are longer than that of Baby Bullets trains, averaging roughly 70 to 80 minutes. Caltrain operates a total of 42 limited service trains on weekdays and none on weekends.
- **Local service** trains stop at all stations and operate outside the weekday peak period only. Travel times for local trains between San Francisco and San Jose are approximately 90 minutes. Caltrain operates 26 local trains per weekday, 22 local trains on Saturdays, and 20 local trains on Sundays.

Given Caltrain's blend of services, the individual level of train service experienced by specific stations along the route is variable, especially during weekday peak periods. During the AM and PM peak periods, all stations receiving express service are served by at least one bullet train per an hour with headways ranging between 15 to 30 minutes. Some higher frequency "bullet stations" and terminals, including San Francisco, Palo Alto, and San Jose Diridon, are served by at least two bullet trains per hour. "Non-bullet" stations are served by limited and local trains at headways ranging between 30 minutes to 60 minutes during peak periods. During off-peak periods (early morning, midday, and after 7:00 PM), headways at all stations are generally about 60 minutes.[1]

Caltrain provides supplemental service to large special events along the corridor in the form of extra trains. Service to special events is monitored year-round and is periodically adjusted to meet passenger demand and operational conditions. Extra trains are provided for major events at Oracle Park (formerly AT&T Park) near the San Francisco Caltrain Station. The majority of extra service is provided to SF Giants home baseball games. In 2014, Caltrain began providing extra service to and from Mountain View Caltrain

[1] Full Caltrain schedules for weekday and weekends can be found at http://www.caltrain.com/schedules.html

Station before and after major events including SF 49ers football games at Levi's Stadium in Santa Clara. Extra trains also operate during annual events including Independence Day, New Year's Eve, Bay to Breakers, Gay Pride Weekend, and Fleet Weekend. Select regular local trains make stops at the Stanford Station before and after Stanford weekend home football games and the annual San Jose Earthquakes versus LA Galaxy Game at Stanford Stadium. San Jose Sharks Hockey post-game ridership is monitored departing from the San Jose Diridon Station. The last regular scheduled train may hold up to 15 minutes after a Sharks game. Event ridership for San Jose Earthquakes Soccer home games has been periodically monitored by Caltrain staff following the opening of Avaya Stadium near the Santa Clara Station in 2015. Beginning in 2019 with the planned opening of the Chase Center located between the San Francisco and 22nd Street Stations, service for the Golden State Warriors home basketball games is not yet determined and will be monitored.

1.4.2 Caltrain Shuttle Services

Caltrain shuttles provide critical first- and last-mile connections between Caltrain stations and major activity centers including employment centers. Caltrain sponsors and is directly involved in the administration of 26 shuttle routes serving 17 of its stations. These public shuttles operate fixed routes between Caltrain stations and employment sites and are free for Caltrain passengers. Shuttle service is adjusted periodically to account for changes in demand, job location, and train service patterns. Vehicles are replaced by the shuttle operator.

1.4.3 Other Shuttle Services

In the past decade, there has been substantial growth of private shuttle operations in the San Francisco Bay Area, especially private employer-provided regional shuttles that offer direct service to employment sites either from residential neighborhood stops, or from major transit hubs, including Caltrain stations. Major employers offering such services include several technology industry companies based throughout the San Francisco Bay Area.

1.4.4 Demand Responsive Services

Caltrain does not provide any demand-response services and paratransit service is not a direct responsibility of the agency. Paratransit services in the Caltrain service area are provided by the local transit agencies in each county — SFMTA, SamTrans, and VTA. The services for each county are as follows:

- San Francisco County: The San Francisco Municipal Railway (Muni) contracts with a paratransit broker to manage their paratransit service. The paratransit broker contracts with van and taxi companies to provide transportation.
- San Mateo County: SamTrans contracts with Redi-Wheels to provide paratransit service to Americans with Disabilities Act (ADA)-eligible patrons in San Mateo County. The service is provided 365 days per year along the Caltrain service corridor.
- Santa Clara County: VTA ACCESS Paratransit provides paratransit service in most of the urban areas in Santa Clara County. The service operates in the VTA service area (3/4-mile around bus and light-rail stops/station) seven days per week during the same hours of the day as VTA runs their light-rail trains and buses on regular, holiday, and Sunday routes.

Further details regarding the paratransit services provided by these agencies can be found in each respective agency's SRTPs.

1.4.5 Connecting Services

Caltrain has direct rail connections with each of the major transit operators along its route, including Muni, San Francisco Bay Area Rapid Transit (BART), VTA, Altamont Corridor Express (ACE), and Amtrak's Capitol Corridor and Coast Starlight. Caltrain connects with the Muni N-Judah and T-Third light rail lines at the San Francisco terminal at 4th and King. Both lines operate on the surface along the Embarcadero, then travel under Market Street in the upper level of the Muni/BART subway, providing connections to the remaining Muni light rail lines as well as to the BART system. The N-Judah continues into San Francisco's western neighborhoods, while the T-Third serves the east and southeast waterfront of San Francisco.

Caltrain connects directly with BART at the Millbrae Station. This connection provides service to the San Francisco International Airport as well as to other locations throughout the BART system. Caltrain connects directly to the VTA light rail system at three locations: Mountain View Station (Mountain View-Winchester line), the San Jose Diridon Station (Mountain View-Winchester line), and Tamien Station (Alum Rock-Santa Teresa line).

Caltrain also connects with regional and interstate rail systems at the Santa Clara and San Jose Diridon Stations. ACE provides peak-hour commuter rail service from San Joaquin and Alameda counties to employment centers in the Santa Clara Valley. Amtrak's Capitol Corridor provides intercity rail service

between San Jose, Oakland, Sacramento, and Auburn, and Amtrak's long-distance Coast Starlight provides rail service between Los Angeles and Seattle.

In addition to these rail connections, Caltrain connects with local bus service provided by Muni, SamTrans, VTA, AC Transit, San Benito County Express, Monterey Salinas Transit, and Dumbarton Express (a consortium of AC Transit, BART, SamTrans, Union City Transit and VTA). Primary connecting stations include:

- San Francisco: Several Muni bus routes connect to the 4th and King, 22nd Street, and Bayshore Caltrain Stations. An Amtrak Thruway connecting bus service also serves the 4th and King Caltrain Station.
- Hillsdale, Belmont, San Carlos, Redwood City, Menlo Park, Palo Alto, Mountain View, Sunnyvale, Santa Clara and Gilroy: Each has five or more connecting bus transit lines operated by various public transit agencies serving that specific service area.
- San Jose Diridon: Five VTA bus lines, a light rail station and free Downtown Area Shuttle (DASH) shuttle, plus Monterey Salinas Transit to Monterey, Highway 17 Express bus service to Santa Cruz and Amtrak Thruway bus service to Santa Barbara. Private operators MegaBus and Greyhound also serve the San Jose Diridon Station.

Caltrain accommodates bicycles on-board and most stations have bicycle storage facilities available. See Section 1.8.6 for more information on the accommodation of bicycles.

1.5 Fare Structure

Like many other commuter rail systems around the nation, the Caltrain fare structure is zone-based. There is a base fare (currently $3.20 for adults using Clipper or $3.75 for those paying cash at a ticket vending machine) and a fee (currently $2.25 for adults) for each additional zone traveled. **Table** 1-1 shows Caltrain's current six-zone fare structure, in which trips of greater distances have higher fares. The last Caltrain fare increase took effect on October 1, 2017, when various adjustments to Caltrain's pass programs were made, the discounted 8-ride ticket was eliminated, and 25 cents was added to the base fare. It was the ninth time Caltrain adjusted its fares since 2005. In December 2018, the Board of Directors

adopted a Fare Policy for the first time in JPB history[2].

Caltrain operates a barrier-free proof-of-payment fare system, whereby riders must board trains with a valid fare and show proof of their fare when requested to do so by conductors during random spot checks on-board the trains. Passengers have three options for purchasing tickets:

- Paper tickets for day-of-travel can be purchased at ticket vending machines (TVMs) located at stations and on platforms, and include one-way tickets, day passes, and zone upgrades.
- Mobile ticketing is provided through a smart phone application, and one-way tickets, day passes, and zone upgrades can be purchased. Tickets cannot be purchased through mobile ticketing in advance for upcoming dates except for special events.
- The Clipper card, a regional reloadable fare payment card, can be used to pay for one-way travel with e-cash (cash value pre-loaded onto the card) and monthly passes. Clipper cards are also accepted on other Bay Area transit systems.

Table 1-1: Caltrain Fare Structure, Effective October 1, 2017

Zone	Stations	Ticket Type	Fare via Clipper Card	Fare via Ticket Machine
1	San Francisco 22nd Street Bayshore So. San Francisco San Bruno	Full Fare: One-way Day Pass Monthly Pass Eligible Discount: One-way Day Pass Monthly Pass	 $3.20 -- $96.00 $1.60 -- $48.00	 $3.75 $7.50 -- $1.75 $3.75 --
2	Millbrae Broadway Burlingame San Mateo Hayward Park Hillsdale Belmont San Carlos Redwood City	Full Fare: One-way Day Pass Monthly Pass Eligible Discount: One-way Day Pass Monthly Pass	 $5.45 -- $163.50 $2.60 -- $78.00	 $6.00 $12.00 -- $2.75 $6.00 --

[2] More information on the Caltrain Fare Study can be found on the Caltrain Website: http://www.caltrain.com/projectsplans/Plans/FareStudy.html

Zone	Stations	Ticket Type	Fare via Clipper Card	Fare via Ticket Machine
3	Atherton	Full Fare:		
	Menlo Park	One-way	$7.70	$8.25
	Palo Alto	Day Pass	--	$16.50
	Stanford	Monthly Pass	$231.00	--
	California Ave.	Eligible Discount:		
	San Antonio	One-way	$3.60	$3.75
	Mountain View	Day Pass	--	$8.25
	Sunnyvale	Monthly Pass	$108.00	--
4	Lawrence	Full Fare:		
	Santa Clara	One-way	$9.95	$10.50
	College Park	Day Pass	--	$21.00
	San Jose Diridon	Monthly Pass	$298.50	--
	Tamien	Eligible Discount:		
		One-way	$4.60	$4.75
		Day Pass	--	$10.50
		Monthly Pass	$138.00	--
5	Capital	Full Fare:		
	Blossom Hill	One-way	$12.20	$12.75
		Day Pass	--	$25.50
		Monthly Pass	$366.00	--
		Eligible Discount:		
		One-way	$5.60	$5.75
		Day Pass	--	$12.25
		Monthly Pass	$168.00	--
6	Morgan Hill	Full Fare:		
	San Martin	One-way	$14.45	$15.00
	Gilroy	Day Pass	--	$30.00
		Monthly Pass	$433.50	--
		Eligible Discount:		
		One-way	$6.60	$6.75
		Day Pass	--	$15.00
		Monthly Pass	$198.00	--

Source: Caltrain.com
Notes: Zone upgrades are $2.25 per zone for adults; Eligible discount $1.00 per zone (only available at ticket vending machine).

With regards to regular fare products, Caltrain offers one-way tickets, day passes (including the Caltrain + VTA Day Pass for customers traveling to/from Levi's Stadium or Great America in Santa Clara), monthly passes, and zone upgrade tickets. Monthly passes are only available on Clipper. An eligible discount is available for seniors, persons with disabilities, Medicare cardholders, and youth, offering 50 percent of the standard rate for all regular fare products, including monthly passes.

The Go Pass is Caltrain's deep discount pass program. The Caltrain Go Pass program allows companies,

educational institutions, and residential complexes ("participants") to purchase annual unlimited-ride passes for all eligible employees, residents, or students ("eligible users"). A Go Pass sticker is affixed to an approved identification badge and the user presents it on the train as proof of payment. The Go Pass is good for travel on Caltrain between all zones, seven days a week, for one low annual cost per user. The Go Pass is not available for purchase by individuals and does not cover parking at Caltrain stations or travel on other transit systems. The Go Pass is valid for a calendar year and expires on December 31 each year. The 2019 total cost of participating in the Go Pass program is the greater of $285 per eligible user or $23,940 each year. As of spring 2019, 125 businesses were actively participating in the program. Caltrain is participating in a Go Pass on Clipper Pilot Program to help transition Go Pass from stickers to a digital proof-of payment on a passenger's Clipper Card. Employees participating in the pilot must present their Clipper Card with the Go Pass loaded onto it rather than their ID badge with a Go Pass sticker as proof-of-payment on the train. Go Pass on Clipper Pilot Program began in January 2018 with three employer participants. In 2019, the program was expanded to another two employers.

1.5.1 Inter-Operator Fare Structures and Agreements

The concept behind Caltrain's inter-operator fare structures and agreements is to encourage ridership and transit connectivity through discounted fares for trips requiring transfers between operators or modes. The arrangements are as follows:

- VTA allows adult customers presenting a two-zone or greater Caltrain monthly pass and eligible discount riders with a valid monthly pass to receive a local fare credit on its bus and light rail services.
- SamTrans allows customers presenting a two-zone or greater Caltrain monthly pass to receive a local fare credit on its fixed-route buses.
- The Dumbarton Express allows customers presenting a two-zone or greater Caltrain monthly pass to receive a transfer credit of a local fare on its buses if boarding within two hours of first tagging on Caltrain.
- SFMTA allows customers who transfer to Muni within an hour of tagging off on Caltrain (using cash value or a monthly pass with a Zone 1 origin or destination), to automatically receive a 50-cent discount off the Muni adult cash value fare.

1.6 Revenue Fleet

The current Caltrain revenue fleet includes 29 diesel locomotives. At any given time, 20 of these are required for daily revenue service. Caltrain's fleet also includes 134 passenger cars. A summary of Caltrain's revenue fleet is presented in **Table** 1-2. A detailed inventory of the revenue fleet is presented in Appendix A.

Cars and locomotives operate in a bi-directional "push-pull" mode. Northbound trains are pushed by the locomotive in the rear and controlled from the "cab" passenger car at the front. Southbound trains are pulled by and controlled from the locomotive at the front. Within the passenger car fleet, there are two sub-fleets, bi-level Gallery cars and the newer design, low-floor Bombardier-made cars (within this category, there are three sub-fleets of Bombardier Cars detailed in Appendix A). Both Bombardier and Gallery cars are currently used for Baby Bullet trains and non-Baby Bullet trains (limited and local trains).

Twenty-six Caltrain stations are fully ADA accessible and all train sets are fully ADA-accessible and can accommodate at least two wheelchairs at a time. Caltrain's Gallery train sets have on-board wheelchair lifts and each Gallery consist has at least one wheelchair accessible car that can accommodate three wheelchairs. Caltrain's Bombardier train sets have up to six wheelchair accessible cars and use the accessible ramp ("Mini-highs") or a mobile platform wheelchair lift. Accessible stations also have a hand powered, mobile wheelchair lift that provides back-up to on-board train powered lifts. Mini-high platforms have been installed at the majority of stations to facilitate boarding and alighting for disabled patrons on and off of Bombardier train consists. The hand powered, mobile wheelchair lifts provide access to Bombardier consists at stations not equipped with mini-high platforms.

Table 1-2: Caltrain Fleet Inventory

Series	Quantity	Number of Seats	Year of Manufacture	Make
Locomotives				
F40 PH-2	5	N/A	1985	GM - EMD
F40PH-2-CAT	15	N/A	1985-1987	GM - EMD
F40 PH-2C	3	N/A	1998	Boise Locomotive
MP36PH-3C	6	N/A	2003	Motive Power
Passenger Cars				
Gallery Trailer	26	143	1985-1987	Nippon Sharyo
Gallery Trailer	16	148	1985-1987	Nippon Sharyo
Gallery Trailer	14	120	1999-2000	Nippon Sharyo
Gallery Cab (Bike)	10	108	1985-1987	Nippon Sharyo
Gallery Cab (Bike)	6	78	1999-2000	Nippon Sharyo
Gallery Cab (Bike)	21	97	1985	Nippon Sharyo
Bi-Level Trailer	5	137	1997	Bombardier
Bi-Level Trailer (Bike)	11	116	1997	Bombardier
Bi-Level Trailer	9	144	2002	Bombardier
Bi-level Trailer (Bike)	2	117	2002	Bombardier
Bi-level Trailer (Bike)	5	117	2001-2002	Bombardier
Bi-level Trailer (Bike)	2	118	2008	Bombardier
Bi-level Trailer (Bike)	1	127	2002	Bombardier
Bi-Level Trailer	6	140	2008	Bombardier

Source: JPB, 2019.
Note: Detailed fleet inventory included in Appendix A. Trains are assumed to retire 30 years past the manufacture date. Some trains have been overhauled to remain in service.

1.7 Work Locomotives and Non-Revenue Rolling Stock

The Caltrain non-revenue rolling stock is located in several different areas along the Caltrain right-of-way. Generally, cars are in serviceable condition but are necessarily free of defects. Caltrain's fleet of non-revenue rolling stock includes the following:

- 8 Flat Cars
- 3 Side Dump Cars
- 21 Ballast Hoppers
- 1 Gondola

- 2 Cabooses
- 1 Track Geometry Car
- 2 work locomotives

Detailed information on Caltrain's non-revenue fleet can be found in Appendix A.

1.1.1 Equipment and Facility Deficiencies

There are no equipment or facility deficiencies at this time. However, Caltrain's diesel fleet is approaching the end of its useful life and rolling stock rehabilitation is a major component of Caltrain's State of Good Repair Program (SOGR). The priority of Caltrain's Rolling Stock SOGR Program for the next 10 years includes the mid-life overhauls and major capital maintenance required to keep Caltrain's full diesel fleet running through implementation of PCEP by FY2022, as well as to keep a portion of the diesel fleet operating past FY2022 alongside the system's new, EMU trains. In addition, several new equipment and facility projects are planned for the upgrade to an electrified system, discussed in more detail in Chapters 5 and 6.

Caltrain's Transit Asset Management (TAM) Plan was developed during FY2018-2019.[3] The overarching goal of TAM is to ensure that a transit agency's assets are maintained and operated in a consistent, measurable SOGR. The TAM Plan is a document required by the Federal Transit Administration (FTA) per MAP-21 legislation for all agencies that receive federal funding, and it provides guideposts by which an agency can track progress toward a establishing a data-driven asset management program. TAM involves all activities related to maintaining physical assets, such as rolling stock, maintenance facilities, and rail infrastructure, in SOGR, in order to provide safer and more reliable public transit service. The current Plan reflects Caltrain's assets at the time of approval (September 2018). It is a living document and will continue to be updated by Caltrain staff to be consistent with future regulations or requirements.

1.8 Description of Existing Facilities

1.8.1 Administrative

As previously mentioned, almost all District staff are based at the administrative headquarters (Central

[3] Caltrain's TAM Plan is available at:
http://www.caltrain.com/Assets/planning/pdf/Transit+Asset+Management+Plan.pdf

Office) of the District located in San Carlos. Several District employees perform part of their work for Caltrain from District bus storage and maintenance bases and CEMOF in San Jose.

1.8.2 Maintenance and Fueling

Maintenance and inspection of the current fleet is done at CEMOF, located at the site of an old rail yard at Lenzen Avenue in San Jose. CEMOF began operations in 2007. Most maintenance is performed by contractor (TASI) employees. Daily inspections are also performed at the North Terminal (the railyard at the Caltrain 4th & King Station in San Francisco) and at the Gilroy Station. Overnight storage is available at North Terminal, CEMOF, Diridon, Tamien, and Gilroy.

CEMOF occupies a 20-acre site and includes a three-story maintenance shop, Central Control Facility, train washer, storage tracks, inspection pits and fuel storage. The maintenance shop has a wheel-truing machine, drop table and overhead cranes. The train washer water is treated and recycled. Two 800-foot long service and inspection pits allow daily inspection and routine service of trains. Approximately 150 maintenance and operation contract employees (from TASI) are based at the facility. With interior modifications, CEMOF will be able to accommodate the future electrified Caltrain fleet.

1.8.3 Vehicle Storage

Most vehicles are stored at the multi-track San Francisco north terminus platforms at 4th and King and in the yard and platforms at the CEMOF. Three train sets (consists) are stored overnight and on weekends at a small yard at the Gilroy Station. In addition, one or two trains are sometimes staged at the San Jose Diridon Station. Based on Caltrain's experience and analysis, the overnight storage capacity provided is adequate for the current fleet.

1.8.4 Station Facilities

Caltrain has 32 stations. Most stations and station buildings are owned by Caltrain. Exceptions are the Millbrae Intermodal Station (which is owned by BART), the Palo Alto Station (which is owned by Stanford University), and all stations including and south of Tamien Station (which are owned by VTA). Caltrain manages and collects fees at parking facilities it owns. Caltrain-provided parking is available at all stations except San Francisco and 22nd Street; parking is provided by VTA at stations south of the Tamien Station. Millbrae, Burlingame, San Carlos, Menlo Park, Palo Alto, Santa Clara, and San Jose Diridon are stations listed on the National Register of Historic Places. Caltrain does not maintain any park-and-ride services

aside from its on-site station parking. Station facilities are shown in **Table** 1-3.

1.8.5 Track and Rights-of-Way

Caltrain operates on a total of 77.2 miles of track from San Francisco to Gilroy. Caltrain owns 51.4 miles of this track, from the San Francisco Station to Control Point Lick south of the Tamien Station.

The JPB has the perpetual right of access to and from and use of the Gilroy Joint Facilities. The agreement between Union Pacific, which owns track from Tamien to Gilroy, and the JPB presently allows Caltrain to run not more than a total of 10 scheduled commuter trains between San Jose and Gilroy (five in each direction per day). Caltrain commuter trains are given priority and dispatched by UP on a mutually agreed upon schedule.

The railroad crosses 40 roads at-grade between San Francisco and the San Jose Diridon Station. There are 30 at-grade road crossings between the San Jose Diridon Station and Gilroy Station. Within the Caltrain right-of-way, there are approximately 108 track miles of rail used in revenue service, 93.5 miles of which are main track 1 (northbound) and main track 2 (southbound). About 98 percent of all rail is continuously welded. Almost 89 percent is Rail Weight 136 RE and more than 65 percent has been laid since 1991.

1.8.6 Bicycle Facilities and Access

Caltrain provides more onboard bicycle storage capacity than any other commuter railroad in North America. Caltrain's "Bikes on Board" program began in 1992 and its scope and popularity have increased steadily since that time. In 2011, Caltrain trains were modified to be equipped with two bicycles cars, increasing overall bicycle carrying capacity by 30 percent. Since the last SRTP update in 2015, Caltrain added a third bike car to all Bombardier-manufactured train sets, increasing their capacity from 48 to 72 bikes. Each Caltrain train can now accommodate between 72 and 80 bicycles at a time depending on equipment type.

Caltrain does not charge fees to bring bicycles on-board, as it is legally precluded from doing so. Average daily bicycle boardings reached a historical high in 2015 with 6,207 bicycles on board daily. These boardings dipped slightly in the following years but began trending upwards again in 2017. Bicycle boardings increased slightly 2018 with a total of 5,919 bicycles boarding daily (a six percent increase

compared to the previous year). The popularity of Caltrain's Bikes on Board program creates capacity challenges when all the available slots on a bike car are filled and new cyclists are unable to board. When trains reach capacity, passengers intending to bring a bike on-board are asked by conductors to wait for the next train.

Facilities at individual stations are shown in **Table** 1-3. Cyclists who ride to Caltrain can also choose to store their bicycles at Caltrain stations rather than bring them on board. Caltrain and its partners provide a variety of racks, lockers, and shared access bicycle parking facilities at various stations, the majority of which are owned and administered directly by Caltrain. At some stations, however, facilities may be owned and operated by a local jurisdiction or other transit property. Bicycle racks and lockers at most Caltrain Stations. Most lockers are owned and operated by Caltrain and operate mechanically (using individually assigned keys). Newer, electronic lockers are available to Caltrain patrons at some stations, including Millbrae, San Mateo, Hayward Park, Hillsdale, Sunnyvale, and Tamien stations. Individual keyed and assigned bike lockers are owned and managed by Caltrain and are available at many stations for a fee of $33 for six-month reservations, plus a nominal key deposit charge.

In addition to racks and lockers, shared bicycle parking facilities are provided at 4th and King Station in San Francisco, Palo Alto, Mountain View, and Menlo Park. The San Francisco facility is owned by Caltrain and operated under contract by Bike Hub and opened in June 2007. The facility was constructed using a combination of federal, state, and local funds. It provides free attended bike parking for up to 230 bikes, relieving overcrowding of bikes onboard trains and a full-service retail bike shop. The Palo Alto facility is not owned by Caltrain but provides unattended, secure shared parking and is operated by Bike Hub. Located in the old baggage room within the station, Bike Hub provides 24-hour secure indoor bike parking for 96 bikes and requires membership for access. The Mountain View shared bike parking facility is owned by the City of Mountain View and provides unattended secure space for 52 bikes and requires registration with the City. The Menlo Park shared bike facility is owned by Caltrain and provides parking for 50 bikes and requires registration with the agency. Private companies permitted by individual cities offer bike share bikes at some stations, as indicated in **Table** 1-3.

In 2016, Caltrain began the planning process for the Caltrain Bike Parking Management Plan as part of the Bicycle Access and Parking Plan Implementation Strategy, which identified several challenges related to

bicycle parking and access in 2014. The objectives of the plan included identifying the mobility needs of bicyclist using the Caltrain system; defining customer service and financial performance measures for the Caltrain bike parking system; supporting capital planning activities related to current, planned and potential bike parking facilities; analyzing different management strategies and administrative options to improve the performance of Caltrain's bike parking system; and recommending a set of management and administrative reforms and strategies to optimize Caltrain's bike parking system.

After an extensive outreach effort to gather feedback on findings and draft plan from staff, advisory committees, and stakeholders, the Caltrain Bike Parking Management Plan was finalized and adopted by the Peninsula Corridor Joint Powers Board on November 2, 2017.[4] As part of the plan, a third-party vendor (yet-to-be selected) specializing in bike parking facilities and services will hold primary responsibilities for Caltrain's bike parking system.

[4] The final plan is available at:
http://www.caltrain.com/projectsplans/Plans/Bike_Parking_Management_Plan.html

Table 1-3: Overview of Amenities at Each Station Location

Station	Address	Car Parking Inventory (owner)	Bike Rack Spaces	Keyed Bike Locker Spaces	Other Bike Parking Facilities (capacity)	Bike Share Operators	Ticketing/Clipper Vending Machines
San Francisco	700 4th St., San Francisco	Street parking only (N/A)	0	0	Caltrain Bike Station operated by BikeHub (250)	FordGo Bike and Jump Bike	8 TVMs; 2 Clipper add-value machines
22nd Street	1149 22nd St., San Francisco 9410	Street parking only (N/A)	27	0	20 e-lockers managed by City of San Francisco.	FordGo Bike and Jump Bike	2 TVMs
Bayshore	400 Tunnel Ave., San Francisco 9413	38 spaces	18	8	N/A	None at this time.	3 TVMs
South San Francisco	590 Dubuque Ave., South San Francisco	32 spaces	18	40	N/A	None at this time.	2 TVMs
San Bruno	833 San Mateo Ave., San Bruno	201 spaces	8	16	16 BART-run on-demand electric lockers also available.	None at this time.	4 TVMs
Millbrae Transit Center	100 California Drive, Millbrae	189 spaces	24	28	24 BikeLink e-lockers owned by BART.	None at this time.	2 TVMs
Broadway	1190 California Drive, Burlingame	140 spaces	18	12	N/A	None at this time.	2 TVMs
Burlingame	290 California Drive, Burlingame	69 spaces	13	18	N/A	None at this time.	4 TVMs
San Mateo	385 First Ave., San Mateo	42 spaces	11	12	12 BikeLink e-lockers owned by City of San Mateo.	None at this time.	4 TVMs

Station	Address	Car Parking Inventory (owner)	Bike Rack Spaces	Keyed Bike Locker Spaces	Other Bike Parking Facilities (capacity)	Bike Share Operators	Ticketing/Clipper Vending Machines
Hayward Park	401 Concar Drive, San Mateo	211 spaces	18	4	4 BikeLink e-lockers owned by City of San Mateo.	None at this time.	4 TVMs
Hillsdale	3333 El Camino Real, San Mateo	462 spaces	18	12	12 BikeLink e-lockers owned by City of San Mateo.	None at this time.	2 TVMs
Belmont	995 El Camino Real, Belmont	389 spaces	18	24	N/A	None at this time.	4 TVMs
San Carlos	599 El Camino Real, San Carlos	250 spaces	48	36	N/A	None at this time.	4 TVMs
Redwood City	1 James Ave., Redwood City	558 spaces across 3 lots	18	50	N/A	None at this time.	4 TVMs
Atherton	1 Dinkelspiel Lane, Atherton	33 spaces	0	26	N/A	None at this time.	1 TVMs
Menlo Park	1120 Merrill St., Menlo Park	155 spaces	8	0	Shared access bike storage shed and secure indoor bike parking managed by BikeHub	None at this time.	4 TVMs
Palo Alto	95 University Avenue., Palo Alto,	291 spaces	178	94	Shared access facility and indoor parking owned by Stanford University, managed by BikeHub.	None at this time.	8 TVMs
California Ave.	101 California Ave., Palo Alto	169 spaces	33	42	N/A	None at this time.	3 TVMs
San Antonio	190 Showers Drive, Mountain View	199 spaces shared with housing development across the street	18	38	N/A	None at this time.	4 TVMs

Station	Address	Car Parking Inventory (owner)	Bike Rack Spaces	Keyed Bike Locker Spaces	Other Bike Parking Facilities (capacity)	Bike Share Operators	Ticketing/Clipper Vending Machines
Mountain View	600 W. Evelyn Ave., Mountain View	337 spaces	23	116	Shared access facility operated by City of Mountain View	None at this time.	4 TVMs
Sunnyvale	121 W. Evelyn Ave., Sunnyvale	499 spaces	18	71	16 day-use / bring your own lock lockers owned by Sunnyvale. Four BikeLink lockers owned by Caltrain.	None at this time.	4 TVMs
Lawrence	137 San Zeno Way, Sunnyvale	122 spaces	18	24	N/A	None at this time.	4 TVMs
Santa Clara	1001 Railroad Ave., Santa Clara	251 spaces	18	54		None at this time.	4 TVMs
College Park	780 Stockton Ave., San Jose	No parking available	0	0	N/A	None at this time.	1 ticket machine
San Jose Diridon	65 Cahill St., San Jose	669 spaces	16	48	N/A	FordGo	5 ticket vending machines, 1 Clipper add-value machine
Tamien	1355 Lick Ave., San Jose	302 spaces	18	18	10 On-demand electronic lockers available at VTA Transit Center	FordGo	2 TVMs
Capitol	3400 Monterey Hwy., San Jose	379 spaces	12	24	N/A	None at this time.	2 machines
Blossom Hill	5560 Monterey Hwy., San Jose	425 spaces	10	10	Bike lockers managed by VTA	None at this time.	1 ticket machine

Station	Address	Car Parking Inventory (owner)	Bike Rack Spaces	Keyed Bike Locker Spaces	Other Bike Parking Facilities (capacity)	Bike Share Operators	Ticketing/Clipper Vending Machines
Morgan Hill	17300 Depot St., Morgan Hill	551 spaces	12	30	Bike lockers managed by VTA	None at this time.	
San Martin	13400 Monterey Hwy., San Martin	159 spaces	N/A	N/A	N/A	None at this time.	2 TVMs
Gilroy	7150 Monterey St., Gilroy	460 spaces	13	30	Bike lockers managed by VTA	None at this time.	2 TVMs

Source: Calrain.com, Caltrain Bike Management Plan, 2017. Bike Parking Options by Station: http://www.caltrain.com/riderinfo/Bicycles/Bike_Parking_Options_By_Station.html
Note: This table reflects amenities in place at stations at the time of SRTP publication. Bike share and other micromobilty operators are privately operated and are not affiliated with JPB.

2 Goals, Objectives and Standards

2.1 Description and Process

This chapter presents Caltrain's goals, objectives, and standards. Caltrain's vision and guiding principles are articulated within the 2014 Caltrain Strategic Plan. Caltrain's strategic planning effort spanned a year-long period from 2013 to 2014 and included extensive public outreach through dedicated public meetings along the corridor as well as repeated presentations to advisory and governing bodies, which include the JPB, the Caltrain Citizen's Advisory Committee, Caltrain's Bicycle Advisory Committee, and local policy makers and interest groups. Caltrain also received and responded to numerous written comments during the development of the plan. The plan was adopted by the JPB in September of 2014 and supersedes Caltrain's previous, 2004 Strategic Plan. The vision and focus areas discussed below are pulled directly from Caltrain's 2014 Strategic Plan. This is the most recent version of vision and goals adopted by the Board of Directors. It has not changed since the last SRTP update in 2015. An updated Caltrain Strategic Plan is anticipated to be developed following the anticipated adoption of the Caltrain Business Plan in 2019. The process for updating the Strategic Plan will involve public outreach and will ultimately be presented to the Board of Directors for review and adoption.

Caltrain also monitors and reports on service performance as part of MTC's Transit Sustainability Project (TSP). The purpose of the TSP is to help improve transit performance and to attract more customers to the transit systems. To achieve this, MTC adopted the TSP final recommendations in 2012 as MTC Resolution 4060, establishing performance requirements for the seven largest transit operators in the region, including Caltrain. Under the terms of the TSP, each operator must achieve a five percent reduction in at least one of the following performance measures by 2017:

- Cost per revenue hour
- Cost per passenger
- Cost per passenger-mile

TSP metrics and outcomes are presented in Section 3.2.

2.2 The Caltrain Vision and Focus Areas

The 2004 Caltrain Strategic Plan identified five focus areas for Caltrain: service, infrastructure, regional

connectivity, partnerships with stakeholders, and financial sustainability. The 2014 Caltrain Strategic Plan identifies two additional focus areas for Caltrain: safety and social responsibility.

2.3 Vision

Caltrain's vision is to provide a safe, reliable, sustainable modern rail system that meets the growing mobility needs of the San Francisco Bay Area region.

2.4 Focus Areas

The Caltrain Strategic Plan identifies seven focus areas where Caltrain will make critical policy and business choices over the coming decade. Caltrain's overarching vision is supported by focus areas, goals and objectives within each level.

Focus Area 1: Safety

Ensure the safety and security of customers, employees and the public.

Ensuring the safety of every person who uses or interacts with the Caltrain system is the agency's top priority. To fulfill this focus area, Caltrain must pursue a coordinated set of safety practices and improvements which include coordinating with regulatory bodies, promoting a safety culture inside and outside of the organization, and making targeted investments to improve the safety of Caltrain's physical systems. The safety of the Caltrain system also includes guaranteeing the personal security of Caltrain's customers and employees through the deployment of security personnel and the design of facilities. Planning for and implementing a safe system is especially critical as Caltrain embarks on major changes to its infrastructure that include the installation of a new train control and signal system and system electrification by FY2022.

Goals & Objectives

A. Comply with safety and security regulations and best practices.
    1. Update and implement Caltrain's Safety and Security Program Plans.
    2. Coordinate safety through a consolidated cross-departmental group responsible for implementation of and compliance with safety initiatives.
    3. Maintain effective relations and interface with safety and security regulatory agencies (FRA,

FTA, CPUC, NTSB, TSA and Department of Homeland Security).

4. Support regulatory safety requirements of the new advanced signal system and electrified system.
5. Maintain close collaboration with local emergency response and law enforcement agencies and ensure continuity of rail safety training and emergency preparedness.

B. Promote a safety culture and awareness within and beyond the organization.
   1. Create an agency vision for safety, promote it through the Board and integrate it throughout the organization.
   2. Ensure personal commitments to safety from Board members, employees to contractors.
   3. Partner with local jurisdictions to protect the integrity of Caltrain's safetyprogram.
   4. Continue to expand public safety outreach and raise awareness of safety considerations.
   5. Foster public awareness of safety issues / regulations related to an electrified system

C. Invest in and maintain a safe system.
   1. Integrate safety assessment and certification into capital project planning and design.
   2. Implement Positive Train Control (PTC) as mandated by the FRA.
   3. Make targeted infrastructure investments and conduct routine preventative maintenance to improve public safety.
   4. Actively partner with communities to plan and advance grade separations.

D. Safeguard the security of Caltrain customers, employees, and the public.
   1. Expand security on trains, stations, and facilities.
   2. Integrate crime prevention through environmental design principles into system design.

Focus Area 2: Service

Grow and manage customer demand with expanded and enhanced service.

Caltrain attracts and retains customers by delivering a consistently high standard of service. In the near-term, Caltrain must address peak-hour crowding, operate a punctual and reliable service, and maintain a comfortable and clean environment on its trains. Looking forward, the electrification of the system and procurement of new vehicles for service beginning in FY2022 will provide a tremendous opportunity for Caltrain to update its services. Key challenges will include balancing rapidly growing ridership with customer desires for expanded onboard amenities and new service patterns — all while ensuring a reliable

and convenient travel experience. Finally, Caltrain must look beyond electrification and begin planning for customer needs and service improvements over the next few decades.

Goals & Objectives

A. Meet current and future customer mobility needs.
    1. Design service to maximize passenger throughput.
    2. Develop short-term strategies to increase peak-hour capacity.
    3. Manage peak-hour demand and utilize off-peak capacity.
    4. Provide expanded and modernized electrified service.
B. Be competitive with auto travel and support different travel markets.
    1. Maximize train capacity while addressing on-board accommodation of bicycles, luggage and passenger facilities.
    2. Link service levels to ridership, intermodal connections and land use.
    3. Balance demand for increased stops with overall end-to-end trip times.
    4. Seek opportunities to increase demand / expand services during off-peak times and at low ridership stations.
C. Operate a dependable and punctual service.
    1. Meet Caltrain's on-time performance standard.
    2. Strive for user-friendly / intuitive schedules.
    3. Provide real-time and user-friendly system information.
    4. Respond to service delays with prompt communications and contingency operations.
D. Provide a comfortable and convenient travel experience.
    1. Maintain Caltrain's cleanliness and comfort.
    2. Explore technological amenities (i.e. Wi-Fi, enhanced information, payment systems, and open source data application).
E. Invest in staff dedicated to public service.
    1. Attract and retain quality staff.
    2. Provide resources and tools to encourage excellence and innovation.
    3. Invest in professional development

Focus Area 3: Infrastructure and Rolling Stock

Maximize utilization of system infrastructure and rolling stock.

In order to deliver the services its customers need, Caltrain must plan for, build and maintain a complex system of rolling stock, equipment, structures and facilities. Maintaining all of these assets in a SOGR is one of the agency's foremost responsibilities and is fundamental to Caltrain's ongoing success. The Agency must invest its resources to protect and expand the capacity and reliability of the system while continuing to deliver capital upgrades. In addition to its own projects, Caltrain must also support the region and local communities as it works with the CHSRA to plan for a Caltrain / High Speed Rail blended system.

Goals & Objectives

A. Maintain a SOGR.

1. Adhere to industry and government guidelines for SOGR and asset management.
2. Develop and implement a life-cycle based preventative maintenance strategy.
3. Ensure timely implementation of the SOGR program with sufficient funding and resources.
4. Evolve organizational resources to maintain Caltrain's future electrified system infrastructure.

B. Invest in system reliability.

1. Incorporate flexibility and reliability into the design of capital investments and fleet management.
2. Make targeted investments to safeguard reliability during construction.
3. Develop transitional and long-term strategies to reduce station dwell time and achieve level boarding.

C. Expand capacity through timely investments.

1. Make short-term investments in rolling stock to address peak hour congestion.
2. Implement the advanced signal system (PTC) and PCEP.
3. Implement capital projects while maintaining revenue service.
4. Define post-electrification core system capacity improvements.
5. Preserve the corridor for current and future rail uses.

D. Support a blended Caltrain/High Speed Rail system in PCEP.

1. Ensure Peninsula corridor improvements accommodate High Speed Rail's use of the corridor.
2. Support CHSRA and the region in defining and implementing the blended system.

3. Address local community interests and concerns in the design and construction of the blended system.

Focus Area 4: Finance

Establish financial stability, minimize operating subsidy and fund system improvements.

To consistently deliver excellent services and projects, Caltrain needs financial stability. To achieve this, Caltrain strives to control its own costs and operate as efficiently as possible. The agency can also bolster its finances by maximizing the revenues it generates through operations and by exploring new sources of income. Ultimately, however, Caltrain is the only transit system in the Bay Area without a permanent, dedicated source of funding. To achieve financial stability for both its operating and capital needs, Caltrain must develop new, reliable sources of external funding.

Goals and Objectives

A. Efficiently deliver services and projects.

1. Monitor and meet MTC's Transit Sustainability Program cost efficiency targets.
2. Monitor and set Caltrain performance targets to drive increased efficiencies and guide investment decisions.
3. Continue annual cost containment strategies.

B. Maximize revenues.

1. Develop strategies to increase returns from existing revenue streams (e.g. fares, parking, concessions, advertising and leases).
2. Generate revenue through transit-oriented development.
3. Explore new revenue streams.

C. Stabilize and expand external funding sources.

1. Obtain a dedicated funding source for operations and maintenance.
2. Maintain current funding streams while seeking new sources.
3. Stabilize partnership contributions.
4. Support third-party funding strategies that align with Caltrain goals.
5. Develop funding strategy for long-term system improvements.

Focus Area 5: Transportation and Land Use

Serve as a critical element of the region's transportation and land use system.

Caltrain is a key link within a local, regional and statewide network of transportation systems. As part of this network, the agency must work with other transit operators and the region to ensure that is customers can transfer easily between different systems. Similarly, Caltrain can enhance the experience of its customers and the performance of its system by ensuring that riders have a wide variety of options to access its stations. Caltrain can also add value to its corridor by helping local jurisdictions plan for land uses that both support their community vision and contribute to ridership. Finally, Caltrain must plan for and support the Peninsula Corridor's role as part of a larger rail network, its ongoing accommodation of freight, Amtrak, Capitol Corridor, and the Altamont Commuter Express and its future use by high speed rail.

Goals and Objectives

A. Improve connectivity to local and regional transportation systems.

1. Explore mutually beneficial ways to plan and coordinate services with local transit providers.
2. Prioritize partnerships and efforts related to key intermodal stations including the Transbay Transit Center, Millbrae and San Jose Diridon.
3. Improve physical, electronic and web-based intermodal wayfinding and transfer information.
4. Participate in and influence regional initiatives related to the integration of fares and payment, information systems and marketing.

B. Improve multimodal station access.

1. Develop a station access plan based on the Caltrain Access Policy Statement.
2. Complement the Bikes on Board program by implementing the Caltrain Bicycle Access and Parking Plan.
3. Pursue strategies that enhance first- and last-mile connections to stations.

C. Encourage transit supportive development at and around stations.

1. Adopt a transit-oriented development policy.
2. Participate in and influence local station area planning efforts along the corridor.
3. Develop JPB real estate assets in a way that supports the system financially and operationally with local land use goals.

D. Integrate with California's statewide rail network.

1. Support implementation of the Caltrain/HSR blended system in the Peninsula corridor with consideration of local community interests and concerns.
2. Continue to accommodate freight and passenger tenants whose operations are compatible with Caltrain and blended system service.
3. Partner with CHSRA, TJPA and the region, define roles and responsibilities, and implement the blended system.

Focus Area 6: Partners and Stakeholders

Build partnerships with government agencies, stakeholders, and the public.

Caltrain operates in three counties and 19 cities, serving a diverse population of customers and engaging with many different stakeholder groups. As Caltrain conducts its business it must always treat its stakeholders and partners consistently and fairly, ensuring open communication and providing venues for interaction and input. Encouraging participation from its partners, stakeholders and the public help Caltrain deliver better projects and services and ensure the integrity of its process. Whether partnering with cities to enhance stations or working with local employers to improve services, strengthening partnerships can help Caltrain and the region achieve new goals.

Goals and Objectives

A. Build relationships with openness and fairness.

1. Clearly and consistently articulate JPB goals and seek opportunities to pursue mutually beneficial initiatives.
2. Seek and provide venues to facilitate discussions with government agencies, external groups and the community.
3. Apply a consistent approach in time and resource management to support multiple stakeholder initiatives.

B. Cultivate effective external participation.

1. Ensure timely public and external involvement through well-defined planning processes.
2. Explore and utilize non-traditional venues to maximize public participation.
3. Improve public access to agency data to encourage participation and inform stakeholder dialogue.

C. Strengthen partnerships by pursuing common goals.

1. Partner with cities to ensure that Caltrain stations are safe, clean, functional and active community spaces.
2. Increase Board participation to explore new areas of common interest to build and strengthen partnerships with employers, developers, grass roots and community groups.
3. Successfully implement joint projects through a clear understanding of roles and responsibilities.

Focus Area 7: Social Responsibility

Conduct business in a socially responsible way.

Whether building a new facility, procuring energy for its trains or planning its services, Caltrain must hold itself to a high standard of social responsibility. This means fulfilling all civil rights obligations and ensuring that services are provided without regard for race, color or national origin and that the system is equally accessible to persons of all abilities. More broadly, Caltrain must ensure that it serves a market that is socially and economically representative of all the Peninsula Corridor's communities and that the benefits and impacts of its projects and services are distributed equitably. Social responsibility also means minimizing Caltrain's environmental footprint by implementing sustainable business practices and planning for a system that has a positive environmental impact on the environment.

Goals and Objectives

A. Fulfill civil rights regulations.

1. Comply with federal ADA requirements and Title VI (Civil Rights) requirements.
2. Work with FTA to facilitate the timely review and enactment of regulations.

B. Minimize Caltrain's environmental footprint.

1. Implement and expand environmentally sustainable business practices (i.e. sustainable procurement, construction policies, and facility and transportation operations).
2. Promote environmental stewardship through the development of Caltrain policies.
3. Improve regional air quality and reduce greenhouse gas emissions by electrifying and modernizing the railroad.

C. Provide an inclusive and equitable system.

1. Pursue markets that are socially, geographically and economically representative of all Peninsula corridor communities.

2. Strive for an equitable distribution of system benefits and project impacts throughout the corridor.
3. Evaluate geographic, social and economic equity in service planning and policy decisions (i.e. fare structure).

3 Service and System Evaluation

3.1 Performance Standards

Caltrain monitors a range of performance metrics related to system performance. Table 3-1 shows Caltrain's performance standards and goals for on-time performance, customer satisfaction and farebox recovery. These performance metrics and standards are sourced from Board adopted policies on overall performance, customer satisfaction, and farebox recovery. Caltrain's Strategic Plan identifies the development and monitoring of additional performance measurements as a priority mechanism for implementing the Strategic Plan's policies.

Table 3-1: Caltrain Performance Standards and Goals

Performance Indicator	Target
Overall Performance	≥95%
Overall Customer Satisfaction	4.0 on a scale of 5.0
Farebox Recovery Goal Range	≥65%

Source: JPB, 2019.

3.2 Transit Sustainability Project

Caltrain performance metrics related to a range of metrics, including on-time performance, customer satisfaction and farebox recovery are discussed in more detail in Chapter 3. In addition to these metrics, Caltrain also monitors and reports on its performance as part of MTC's Transit Sustainability Project (TSP). MTC initiated the TSP in January 2010 to address operating and capital shortfalls experienced by transit operators in the nine-county San Francisco Bay Area. The purpose of the TSP is to help improve transit performance and to attract more customers to the transit systems. To achieve this, MTC adopted the TSP final recommendations in 2012 as MTC Resolution 4060, establishing performance requirements for the seven largest transit operators in the region, including Caltrain. Under the terms of the TSP, each operator must achieve a five percent reduction in at least one of the following performance measures by 2017:

- Cost per revenue hour
- Cost per passenger
- Cost per passenger-mile

The five percent real reduction is measured against the highest reported costs between FY2008 and FY2011 for one of the three performance measures listed above. These reductions must be maintained, thereafter limiting any further growth to the Consumer Price Index. Caltrain adopted TSP targets in 2013 and reports annually on performance measure progress. Beginning in FY2019, MTC now links the operating and capital funds it administers to the achievement of TSP targets. **Table** 3-2 shows the five percent reduction target for each measure compared to the baseline and highlights performance for FY2015, FY2016, and FY2017. Note that all cost metrics are shown in 2011 dollars.

These metrics show that Caltrain fulfills its TSP obligations with strong ridership growth contributing to substantial reductions in cost per passenger and cost per passenger mile. Caltrain will continue to work to control costs and improve efficiency to achieve further reductions in all three of its TSP metric categories.

Table 3-2: Caltrain TSP Performance (FY2015-FY2017)

Metric	Baseline	5 percent Reduction Target	FY2015	FY2016	FY2017
Cost per service hour	$496.40	$471.58	$535.38	$499.49	$497.12
Cost per passenger	$8.18	$7.77	$5.48	$5.56	$5.79
Cost per passenger mile	$0.32	$0.30	$0.22	$0.21	$0.27

Source: JPB Transit Sustainability Program Reporting Update to MTC, 2018.
Note: Costs displayed in FY2011 dollars. Costs shown are for Commuter Rail service only and do not include Caltrain shuttles services.

3.2.1 Caltrain TSP Strategies

In addition to setting baseline targets, Caltrain adopted and submitted a TSP Strategic Plan in March 2013 that described how the targets would be achieved. Caltrain has implemented several strategies in the past to improve financial performance which include the following:

- Operating Costs
  - Fuel Hedging program.
  - Administrative cost control measures.
  - Staffed ticket office closures.
- Service Modifications
  - Introduction of Baby Bullet in 2004.
  - Reinvention of service in 2005.

- Implementation of Weekend Baby Bullet service.
- Reduced service in the off-peak.
- Addition of peak-hour service in response to ridership growth.

As part of the TSP Strategic Plan, Caltrain will implement the following strategies to meet the TSP reduction targets with a focus on efficiency and ridership:

- Implement SOGR and reliability projects.
- Support transit-oriented development.
- Support station access planning and implementation.
- Provide real-time information for customers.
- Electrify Caltrain and improve service.
- Explore increasing off-peak ridership

3.3 Performance Evaluation

Table 3-3 shows six years of system performance data from FY2013 through FY2017. Metrics shown include data reported by Caltrain to the National Transit Database (NTD) as well as key indicators tracked internally by the agency. Figures on the subsequent page highlight trends within specific metrics for further discussion. As discussed in the last SRTP update, Caltrain service levels fluctuated with service reductions in FY2010 and FY2011 as prompted by the Great Recession and Caltrain's associated financial crisis. Changes to revenue miles and revenue hours shown in **Table** 3-3 reflect this reduction and subsequent restoration of service over the FY2010 to FY2013 period.

Caltrain's performance over the past five years has been shaped by the system's dramatic ridership increase. Since the end of the Great Recession, Caltrain ridership has continued to increase without any major net service changes on Caltrain's part and has instead been driven by changing demographics and economic conditions in the agency's service area as well as the continued popularity of Caltrain's core commuter service. Between 2013 and 2017, Caltrain experienced a 14 percent increase in annual ridership. A slight decrease in ridership occurred between FY2016 and FY2017. However, peak ridership during this time period continued to increase. This overall five-year increase was not as large as the increase reported in the last SRTP from FY2009 to FY2014 (38 percent). Overall, the general trend of increased ridership has led to increased revenues and improved Caltrain performance across a range of financial and service metrics, including reduced costs per passenger and passenger mile as well as

increases in the number of passengers carried per unit of service. Overall, Caltrain's operating costs have increased since FY2013. Increasing costs are driven by factors including the increased demands of a higher ridership and increased labor costs, primarily from TASI contracts.

Table 3-3: Five-Year Caltrain Performance Trends (FY2013-FY2017)

Performance Measure	Target / Goal	FY2013	FY2014	FY2015	FY2016	FY2017	2-year change	5-year change
Operating Costs and Fare Revenue (in 1000s)								
Total Operating Costs (YOE$) [a]		$101,992	$109,420	$115,404	$116,322	$127,310	9%	25%
Total Operating Costs (constant 2011 dollars) [b]		$96,017	$101,257	$104,057	$102,056	$108,038	6%	13%
Farebox Revenue		$68,767	$74,846	$83,351	$86,959	$92,429	6%	34%
System Usage								
Annual Ridership [c]		16,427,450	17,759,504	18,995,161	18,355,641	18,648,850	2%	14%
Average Weekday Ridership [d]		54,934	59,340	63,852	62,444	64,248	4.2%	17%
On-time Performance								
On-time Performance (end-to-end) [e]	≥95%	95%	91.20%	92.20%	90.30%	89.50%	-1%	-6%
Customer Satisfaction								
Customer Satisfaction (out of 5) [f]	4	4.04	4.05	3.93	4.01	4.05	1%	0.1%
Service Provision								
Revenue Miles (passenger car) [c]		6,694,842	6,775,525	6,841,557	7,215,731	7,336,383	2%	10%
Revenue Hours (passenger car) [c]		191,019	192,572	194,362	204,318	217,327	6%	14%
Annual Passenger Miles [c]		357,919,061	389,288,711	475,150,143	488,208,148	406,014,878	-17%	13%
Cost Effectiveness								
Farebox Recovery Ratio	>65 percent	67.4%	68.5%	72.2%	74.8%	72.6%	3%	8%
Operating Cost per Revenue Hour (YOE $)	$471.58	$533.94	$567.68	$593.76	$569.32	$585.80	3%	10%
Operating Cost per Revenue Hour (constant 2011 dollars)		$502.66	$525.81	$535.38	$499.49	$497.12	0%	-1%
Operating Cost per Passenger (YOE $)		$6.21	$6.16	$6.08	$6.34	$6.83	8%	10%

Performance Measure	Target / Goal	FY2013	FY2014	FY2015	FY2016	FY2017	2-year change	5-year change
Operating Cost per Passenger (constant 2011 dollars)	$7.77	$5.84	$5.70	$5.48	$5.56	$5.79	4%	-1%
Operating Cost per Passenger Mile (YOE $)		$0.28	$0.28	$0.24	$0.24	$0.31	32%	10%
Operating Cost per Passenger Mile (constant 2011 dollars)	$0.30	$0.27	$0.26	$0.22	$0.21	$0.27	27%	-1%
Operating subsidy, per passenger		$2.47	$1.72	$1.50	$1.41	$1.43	1%	-42%
Operating subsidy, per passenger mile		$0.11	$0.08	$0.06	$0.05	$0.07	23%	-42%

Sources and Notes:

(a) Federal Transit Administration (FTA) National Transit Database (NTD). Shown in Year of Expenditure (YOE) dollars, 2013-2017.

(b) Federal Transit Administration (FTA) National Transit Database (NTD). Shown in constant FY2011 dollars, 2013-2017.

(c) Federal Transit Administration (FTA) National Transit Database (NTD). Fiscal Year End Submittal, 2013-2017

(d) Federal Transit Administration (FTA) National Transit Database (NTD), 2013-2017.

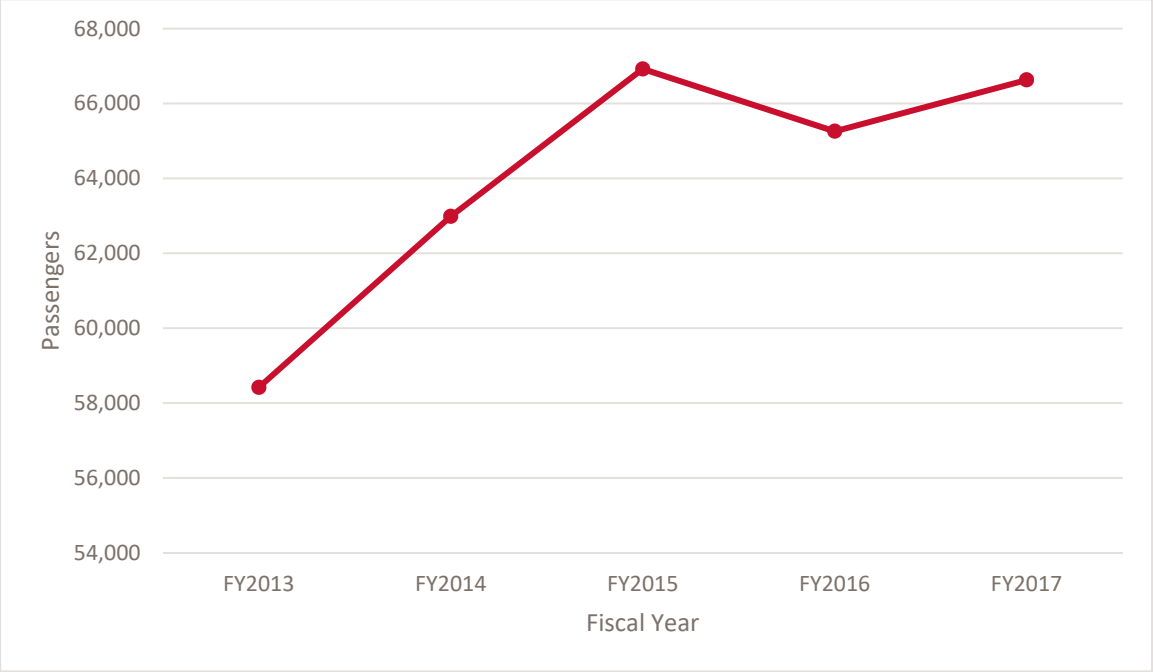
(e) Daily Operations Reports, 2013-2017.

(f) **Caltrain Customer Satisfaction Surveys, 2013-2017. Available at** http://www.caltrain.com/about/statsandreports/Surveys.html

3.3.1 Average Weekday Ridership

Caltrain's average weekday ridership has increased steadily since FY2013 and the railroad now carries nearly 14 percent more passengers annually. Increases in ridership are the combined result of economic growth and demographic changes in the Caltrain service area as well as the continued success of Caltrain's core commuter rail service and ongoing marketing efforts to expand the railroad's customer base. Although a slight decrease in ridership occurred between FY2016 and FY2017, peak period ridership continued to increase at about 2.5 percent (traditional peak riders are defined as northbound in the morning and southbound in the afternoon). Average weekday ridership trends between FY2013 and FY2017 are shown in **Figure** 3-1.

Figure 3-1: Average Weekday Ridership, 2013-2017

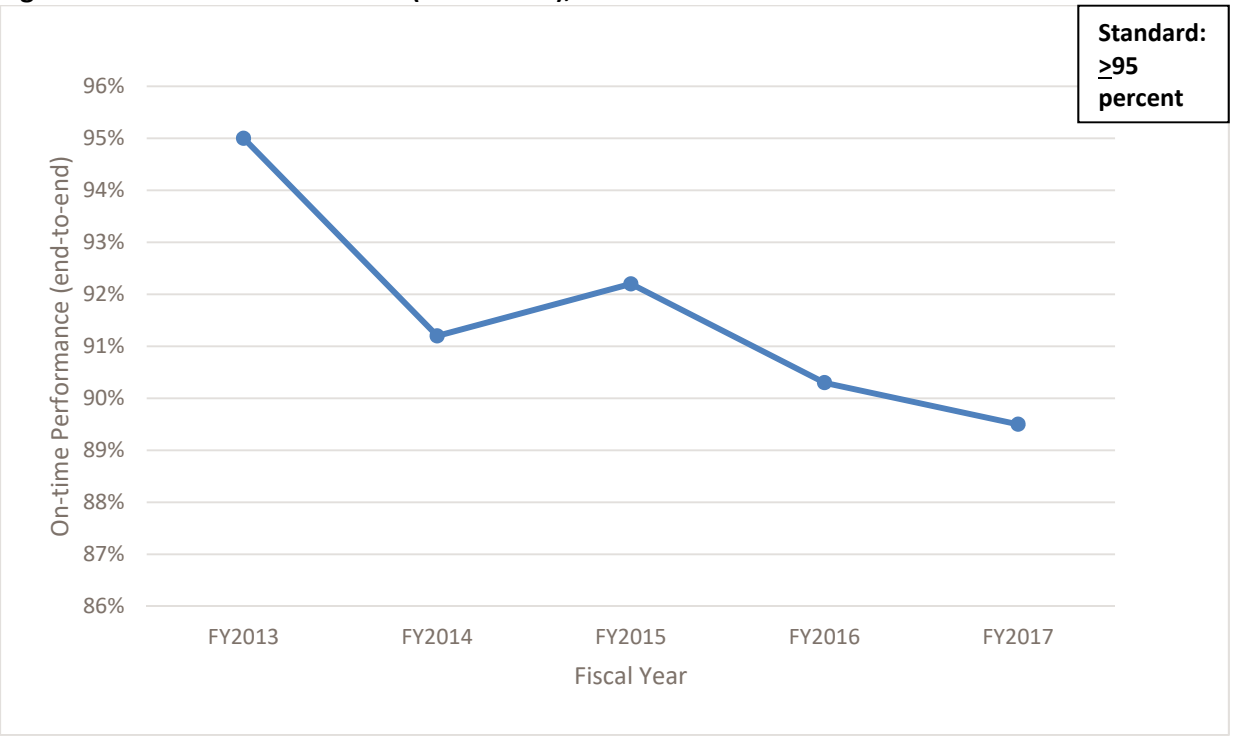


Source: National Transit Database, 2013-2017.

3.3.2 On-Time Performance and Customer Satisfaction

Caltrain's on-time performance has declined slightly over the period between FY2013 and FY2017. Causes for the decline include increasing rates of mechanical failure associated with aging diesel rolling stock, as well as peak-period increases in dwell times at stations associated with rapidly increasing patronage. Caltrain monitors on-time performance closely and will periodically consider minor schedule adjustments to improve performance. In response to this monitoring, Caltrain adjusted the weekday and weekend timetable in 2017 to enhance operations efficiency and reliability as well as accommodate the PCEP construction windows. On-time performance trends for the past five years (2013-2017) are shown in **Figure 3-2.**

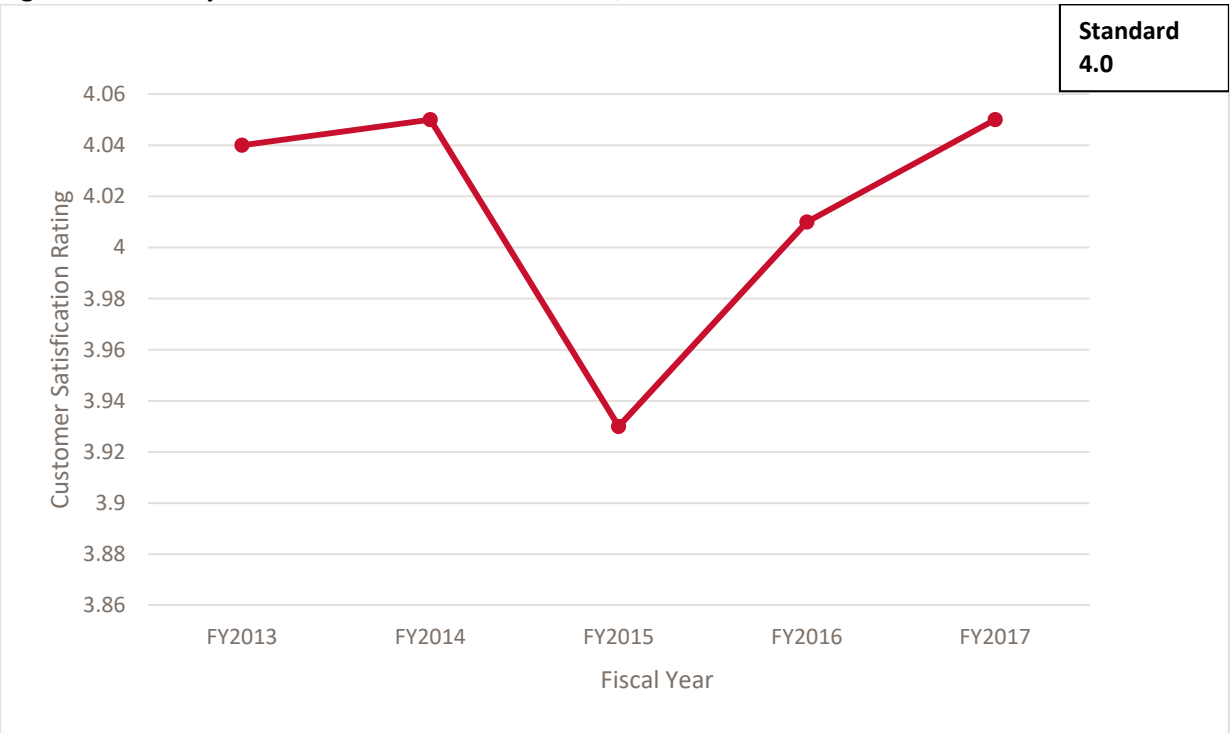
Figure 3-2: On-Time Performance (End-to-End), FY 2013-2017



Source: Caltrain Daily Operations Reports, 2013-2017.

Caltrain conducts an annual customer satisfaction survey to assess how well the service and its contract operator are meeting customer needs. Since 2013, overall customer satisfaction with the Caltrain system has generally remained high, scoring at or above an average of "4" on a 1 to 5 scale in all years except for 2015. Results of the customer satisfaction survey from 2013-2018 are shown in **Figure** 3-3.

Figure 3-3: Surveyed Overall Customer Satisfaction, FY2013-2017

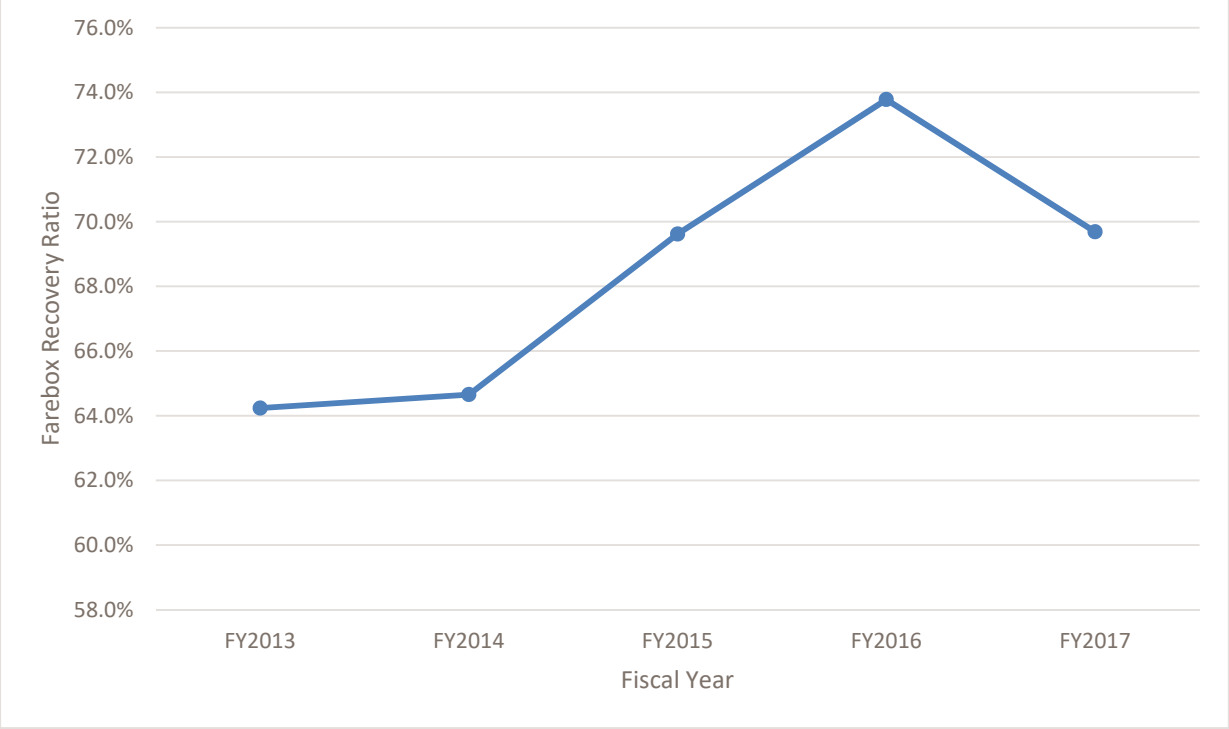


Source: Caltrain Customer Satisfaction Surveys, 2013-2017.

3.3.3 Farebox Recovery Ratio

Shaped by fare changes and increasing ridership, Caltrain's farebox recovery ratio has increased substantially since 2009. In December of 2018, the JPB adopted a farebox recovery rate goal of 65 percent as part of the Caltrain Fare Policy (an increase from the previous 45 percent - 65 percent goal). Farebox recovery ratio trends for 2013-2017 are shown in **Figure** 3-4.

Figure 3-4: Farebox Recovery Ratio, FY2013-2017

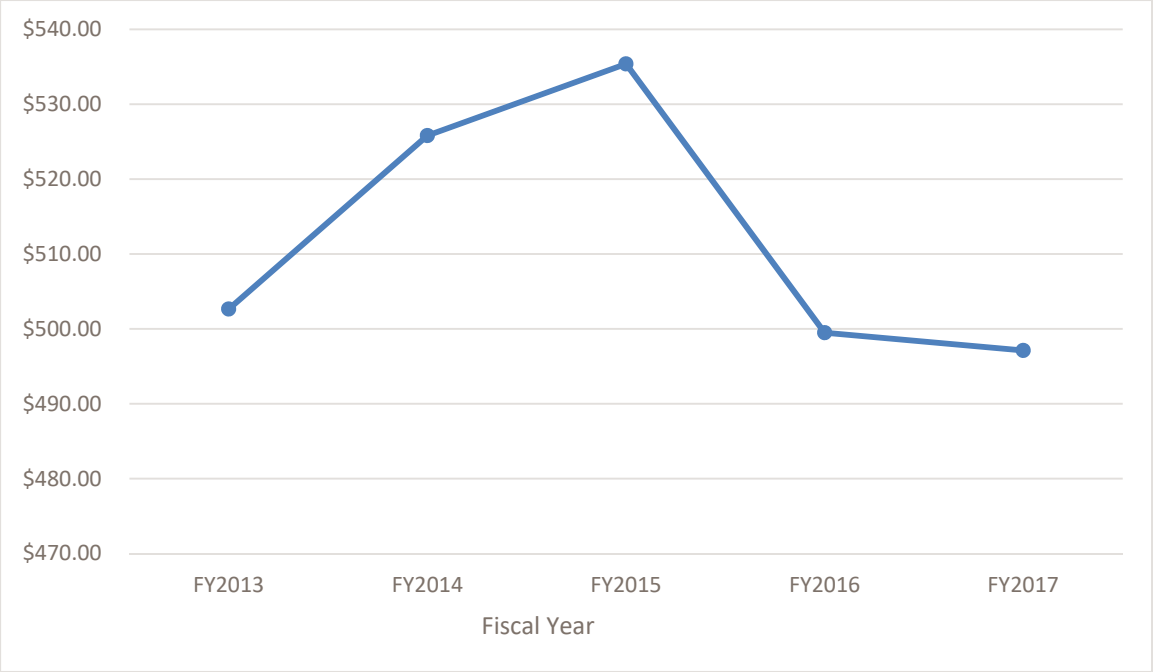


Source: JPB, 2019

3.3.4 Operating Costs per Revenue Hour

Caltrain's operating cost per revenue hour increased between 2013 and 2015, but has steadily declined starting in 2016. The initial increase can be attributed to the transition in Caltrain's operator contract (from Amtrak to TASI) as well as increasing costs as ridership grew sharply. **Figure** 3-5 shows operating cost per revenue hour in constant 2011 dollars to align with the target reduction goal established by Caltrain in MTC's Transit Sustainability Program. Caltrain seeks to control and reduce operating costs using the strategies discussed in Chapter 4.

Figure 3-5: Operating Costs Per Revenue Hour, FY2013-2017 (in 2011 dollars)

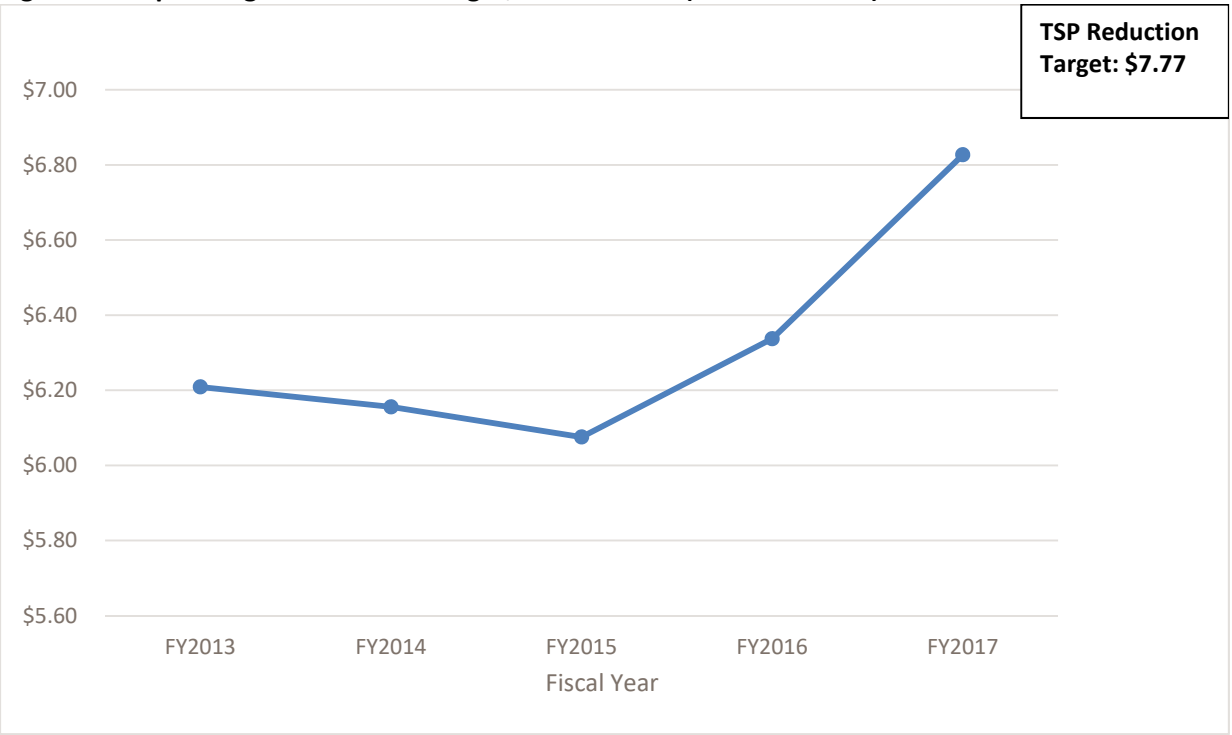


Source: Federal Transit Administration (FTA) National Transit Database (NTD). Fiscal Year End Submittal, 2013-2017.

3.3.5 Operating Costs Per Passenger

While operating costs per revenue hour have increased, Caltrain's operating cost per passenger has fluctuated, as a function of service levels remaining constant while ridership fluctuated between 2015 and 2017. **Figure** 3-6 shows operating costs per passenger in 2011 dollars, demonstrating that Caltrain is on track to fulfill its TSP reduction target in this performance category.

Figure 3-6: Operating Costs Per Passenger, FY2013-2017 (in 2011 dollars)

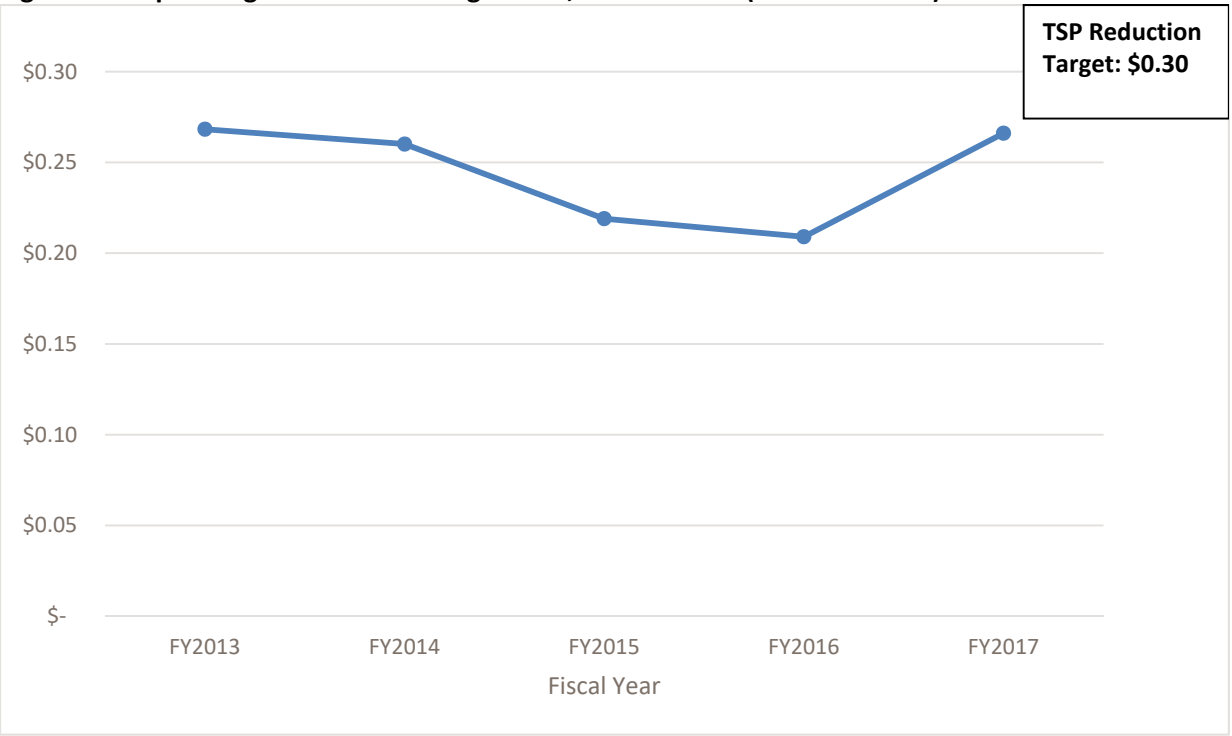


Source: Federal Transit Administration (FTA) National Transit Database (NTD). Fiscal Year End Submittal, 2013-2017.

3.3.6 Operating Costs Per Passenger Mile

Since 2013, passenger miles have steadily increased while ridership fluctuated slightly between 2015 and 2016. Similar to operating costs per passenger, this performance measure has also fluctuated in response to ridership trends. **Figure** 3-7 shows operating costs per passenger in 2011 dollars, demonstrating that Caltrain is on track to fulfill its TSP reduction target in this performance category.

Figure 3-7: Operating Costs Per Passenger Mile, FY2013-2017 (in 2011 dollars)



Source: Federal Transit Administration (FTA) National Transit Database (NTD). Fiscal Year End Submittal, 2013-2017.

3.4 Equipment and Facility Deficiencies

There are no equipment or facility deficiencies at this time. However, several new equipment and facility projects are planned for the upgrade to an electrified system.

3.5 Community-Based Transportation Plans

Caltrain participates in the Community Based Transportation Plan (CBTP) process as requested by cities and congestion management agencies within the Caltrain service area. While several cities along the Caltrain corridor have recently developed CBTPs, no Caltrain projects were included in the plans. CBTPs along the Caltrain corridor include:

- San Francisco
- Bayview Hunters Point
- San Mateo
- Bayshore
- East Palo Alto
- North Central San Mateo
- San Bruno/South San Francisco
- Santa Clara
- Gilroy

3.6 Paratransit Services

Paratransit services in the Caltrain service area are provided through the local transit agencies in each county including SFMTA, SamTrans and VTA. Paratransit service is not a direct responsibility of Caltrain. For more information, see Section 1.4.4.

3.7 Title VI Report Summary

Caltrain's Title VI Compliance Program was updated and approved by the JPB Board in November 2016. The Title VI Program included a Language Assistance Plan (LAP) for Limited English Proficient (LEP) populations, a Public Participation Plan aimed at engaging minority and low-income riders, a Major Service Change Policy, and the Service Standards and Policies. LEP efforts included new training materials for front-line employees assisting limited-English proficient customers; an "I Speak" card which included Caltrain's 22 Safe Harbor Languages The program also included two Equity Analyses conducted on fare changes performed in FY2015 and FY2016. The Title VI program also includes the public engagement efforts on the Title VI elements that were undertaken prior to the program adoptions. The next update to the Title VI Program will be submitted by November of 2019.

During the 2016 Triennial Review of PCJPB, a deficiency was found with USDOT requirements for Title VI. The Caltrain's Language Assistance Plan (LAP) indicates that staff will be trained in the Title VI program and the implementation of language assistance measures identified in the LAP. At the time of the review, Caltrain had not provided this training to agency or operating contractor staff that have direct access to the public. The corrective action was to provide the FTA evidence that Caltrain and contractor staff were provided LAP training as outlined in the LAP as well as evidence that LAP training would be conducted in accordance with Caltrain's Title VI program in the future within 90 days from the date of the final report.

3.8 FTA's Triennial Review Summary

The FTA Triennial Review site visit was conducted on March 22 through 24, 2016 with the final report issued on May 27, 2016. The review concentrated primarily on procedures and practices employed by Caltrain during the three years prior to the review. Based on the review, Caltrain was found to be deficient in seven of the 17 Triennial Review areas, specifically: Financial Management and Capacity, Technical Capacity, Maintenance, Title VI, Procurement, Disadvantaged Business Enterprise (DBE) and Drug Free Workplace and Alcohol Program. All deficiencies have been addressed to the satisfaction of the FTA as documented in their closeout letter to the JPB received on April 8. 2019. The deficiencies and corrective actions implemented by Caltrain are shown in

Table 3-4.

Table 3-4: FTA Triennial Review Summary of Deficiencies and Corrective Actions

Review Area	Deficiency	Corrective Action	Open Date	Close Date
Financial Management and Capacity	Unresolved internal, state, or local audit findings.	The grantee must submit evidence to the FTA regional office of the resolution of the outstanding FMO review finding: Inadequate Monitoring and Self-Assessment of Internal Controls.	5/27/16	6/24/16
	Ineligible expenses charged to grant.	The grantee should document and work with the FTA Regional Office to reimburse FTA for ineligible indirect or overhead expenses charged to grants. The grantee must also submit to the FTA Regional Office procedures for ensuring that the proper indirect rates will be charged to grants.	5/27/16	2/14/18
Technical Capacity	Inadequate oversight of subrecipient/third-party contractor/lessees.	The grantee must submit procedures and a staffing plan to the FTA regional office to monitor other entities with responsibility for meeting FTA requirements.	5/27/16	12/30/16
Maintenance	Late vehicle preventive maintenance.	The grantee must submit to the FTA regional office procedures for completing preventive maintenance inspections on time. The grantee must submit to the FTA regional office a monthly report signed by the chief executive officer or other senior management designee on its preventive maintenance results until the data demonstrate it has conducted at least 80 percent of its preventive maintenance on time for three consecutive months.	5/27/16	10/13/16
Title VI	Lacking a language assistance plan.	The grantee must provide the FTA RCRO with evidence of PCJPB and contractor staff training as outlined in the LAP as well as evidence that LAP training will be conducted in accordance with PCJPB's Title VI program in the future.	5/27/16	9/28/16
Procurement	No contract administration system.	The grantee must provide the FTA regional office with documentation of an adequate contract administration system. The grantee must submit revised contract administration procedures and evidence of staff training on the new procedures.	5/27/16	7/26/16

Review Area	Deficiency	Corrective Action	Open Date	Close Date
	Insufficient documentation to support change orders.	The grantee must submit to the FTA regional office procedures for completing change orders and evidence of training on these procedures. For the next change order, the grantee must also submit documentation that the required process was implemented.	5/27/16	11/7/16
	Lacking required cost/price analysis.	The grantee must provide the FTA regional office documentation that it has updated its procurement process to include performing a detailed cost and price analysis for every procurement action including contract modifications and evidence of training on this requirement. For the next procurement, the grantee must also submit documentation that the required process was implemented.	5/27/16	7/26/16
	No verification that excluded parties are not participating.	The grantee must submit to the FTA regional office evidence of training on the requirement to check the SAM.gov website prior to awarding contracts. For the next procurement, the grantee must also submit documentation that the required process was implemented.	5/27/16	7/26/16
Disadvantaged Business Enterprise (DBE)	DBE policy not updated.	The grantee must submit an update of its DBE program to the FTA RCRO for approval.	5/27/16	9/28/16
	DBE uniform reports do not include required information.	The grantee must submit to the FTA RCRO procedures for including all applicable FTA funded contracting activity, including the activity of subrecipients, in future reports and inform the RCRO of the implementation of these procedures with the submission of the next semi-annual report. This must include submission of supporting documentation demonstrating how procurement records reconcile with DBE reports.	5/27/16	9/29/16
Drug Free Workplace and Alcohol Program	Drug and/or alcohol program vendors not properly monitored.	The grantee must submit to the FTA regional office procedures for monitoring drug and alcohol program vendors along with evidence of implementation.	5/27/16	8/18/16

Source: FY 2016 Triennial Review Closeout, FTA (2019)

4 Operating Plan and Budget

This chapter presents Caltrain's 10-year operating plan (**Table** 4-1) and the underlying assumptions behind these projections. Since the last SRTP update in 2015, JPB now has a better understanding of capital and operating needs associated with PCEP since key contracts have been since been awarded. These updates are reflected in both **Table** 4-3 (Operating Plan) and Table 5-1 (CIP). It is important to note that the Operating Budget presented in this SRTP reflects a baseline approach to Caltrain's future, in terms of services and projects described as well as projections of revenues and expenses. It is consistent with the JPB's Operating Budget for FY2020. The Caltrain Business Plan, anticipated to be completed in 2019, will identify a broader range of choices, services, investments, and changes available to Caltrain. Once adopted, the Business Plan will largely supersede this SRTP and will serve as the record of Caltrain's plans going forward.

4.1 Service Plan

Caltrain expects to operate a 92-train weekday schedule with its current service pattern through FY2021 with only minor schedule modifications. In FY2022 following the implementation of PCEP, Caltrain will significantly modify its weekday service. The discussion below and **Table** 4-1 on the following page describe how Caltrain's service will change over the coming 10 years.

The service plan presented in **Table** 4-1 assumes the implementation of PCEP and the start of mixed diesel and electric operations in FY2022 ("mixed-fleet service"). Within the time horizon of this SRTP (FY2022-FY2027) Caltrain will operate a mixture of electrified service using EMUs and diesel service using existing diesel rolling stock. The service plan described here is based on the prototypical schedule for mixed-fleet service included in the Final PCEP Environmental Impact Review (FEIR) adopted in January 2015. At the time of publishing this SRTP, the public outreach process for developing the final schedule for mixed-fleet service was still in process. The schedule will continue to be refined and finalized over the next few years and will be detailed in future SRTP updates.

4.1.1 Weekday Service

Caltrain currently operates a weekday peak period maximum of five trains per hour per direction. As shown in **Table** 4-1, upon electrification of the Caltrain corridor in FY2022, weekday service will increase

from 92 train runs to 114 runs per day (six trains per hour per direction in the weekday peak period), using a mixture of both EMU consists and diesel consists. Service south of Tamien Station (the southern limit of the PCEP project area) will be provided using diesel equipment that will operate as through-trains onto the main Caltrain corridor between San Jose and San Francisco. During the weekday peak, Caltrain will operate six trains per peak hour per direction, instead of five. The EIR's prototypical schedule anticipates that two of these six trains will continue to operate as Baby Bullet runs, while the remaining four will provide limited-stop service. During the midday period, the prototypical schedule includes all-stop trains at an increased frequency of every 30 minutes. Evening service is assumed to remain as an hourly all-stop service.

During the 10-year timeframe of this SRTP, Caltrain will continue to operate Gilroy service much as it does today. With the start of mixed-fleet revenue service in FY2022, Caltrain will also continue to operate six daily diesel trains serving the Gilroy Extension (three northbound trains during the AM peak and three southbound trains during the PM peak). While a final service plan for mixed-fleet operations will be developed over the coming years, the prototypical schedule assumes that diesel trains serving Gilroy will be operated as through-trains north of San Jose.

Weekday ridership is anticipated to grow throughout the 10-year period analyzed in the SRTP. Between FY2019-2022, a conservative ridership growth rate of 1 to 2 percent is projected based on recent trends (discussed in more detail in Chapter 3). Ridership is expected to grow more rapidly at 4.5 percent in FY2022, 7.5 percent in FY2023, and 6 percent in FY2024 as the introduction of increased service and added train stops induces new ridership with the start of electrified service. Following this growth in ridership, a return to a 1.4 percent ridership growth is projected between FY 2025 through FY2027.

Table 4-1: Caltrain 10-Year Service Plan

Metric	FY2018	FY2019	FY2020	FY2021	FY2022*	FY2023	FY2024	FY2025	FY2026	FY2027
Trains per Day	92	92	92	92	92 / 114	114	114	114	114	114
Trains per Hour	5	5	5	5	5 / 6	6	6	6	6	6
Diesel Trains (per peak direction per hour)	5	5	5	5	5 / 2	2	2	2	2	2
EMU Trains (per peak direction per hour)	0	0	0	0	0 / 4	4	4	4	4	4
Revenue Service Hours (by train)	38,570	38,570	38,570	38,570	38,570 / 41,770	41,770	41,770	41,770	41,770	41,770
Revenue Service Miles (by train)	1,356,758	1,356,758	1,356,758	1,356,758	1,356,758/ 1,707,200	1,707,200	1,707,200	1,707,200	1,707,200	1,707,200

Note: *Implementation of PCEP and the start of mixed electric and diesel fleet revenue service will begin in Q4 of FY2022. This is represented in the FY2022 column as follows: anticipated service level for Q1 – Q3 of FY2022 / anticipated service level for Q4 of FY2022 (e.g., 92 trains will operate in Q1-Q3 / 114 trains will operate in Q4).
Sources: PCEP Financial Plan to FTA for the Core Capacity Investment Grant Program, Appendix B. JPB, 2016.

4.1.2 Weekend Service and Special Event Service

Caltrain's current weekend service includes 24 Saturday trains and 20 Sunday trains. Most of these trains provide local, all-stop service every 90 minutes. Caltrain also operates four Baby Bullet express trains per direction on both Saturday and Sunday. Following the implementation of PCEP in FY2022, the prototypical schedule assumes that Caltrain will continue to provide the same weekend service levels that it does today; on weekends, 36 Saturday and 32 Sunday trains will be provided as hourly all-stop service supplemented by four express-service trains per weekend day.

Special event service is not anticipated to change significantly between FY2018-FY2027. From FY2018-FY2027, Caltrain anticipates that it will continue its practice of providing regular special event service for baseball games at the Giant's ballpark at China Basin as well as service to the Mountain View Station to support select events at Levi's Stadium in Santa Clara. Additionally, Caltrain will provide special service to select events that generate sufficient ridership. With the planned opening in autumn 2019 of the Chase Center, located between the San Francisco and 22nd Street Stations, service for the Golden State Warriors home basketball games is still to be determined and will be monitored.

4.2 Caltrain-Sponsored Shuttle Service

Caltrain-sponsored shuttle operations are largely constrained by grant funding availability. Typically, a sponsor, such as a major private employer, underwrites at least 25 percent of the cost of the service, with the Bay Area Air Quality Management District (BAAQMD) and/or the San Mateo County Transportation Authority (SMCTA) providing limited year-to-year discretionary grant funds for some services. Caltrain subsidizes the balance of costs. As shown in Table 4-2, Caltrain shuttle ridership declined in FY2016 and FY2017 due to reductions in routes subsidized. Caltrain-sponsored shuttles carried an average of 2,289 riders per weekday in FY2018 – a decrease from the prior three years. Ridership was also impacted on a number of Caltrain-contracted routes during FY2018 due to an ongoing service provider operator shortage, which continues to be a challenge in 2019.

The 10-Year Shuttle Service Plan is shown in Table 4-2. Shuttle ridership is projected to stabilize in FY2019 and FY2020 and grow steadily through FY2027. Basic assumptions for this service plan are:

- Number of routes or vehicles held constant from FY2019 onwards.

- Private sponsorship, BAAQMD, and TA funds will continue to be available at a constant rate through FY2027.

Table 4-2: Caltrain Shuttle 10-year Service Plan

Fiscal Year	Number of Routes (Peak Vehicles)	Revenue Miles	Revenue Hours
2015	32 (36)	604,010	51,785
2016	28 (32)	566,542	50,513
2017	26 (33)	559,835	54,033
2018	26 (30)	562,506	53,130
2019	25 (29)	511,500	47,000
2020	25 (29)	511,500	47,000
2021	25 (29)	511,500	47,000
2022	25 (29)	511,500	47,000
2022	25 (29)	511,500	47,000
2024	25 (29)	511,500	47,000
2025	25 (29)	511,500	47,000
2026	25 (29)	511,500	47,000
2027	25 (29)	511,500	47,000

Source: Federal Transit Administration (FTA) National Transit Database (NTD), 2015-2018.
Notes: Totals exclude Stanford Marguerite ridership and expenses as the service is excluded from NTD reporting. Operating expenses from FY21 onward are subject to change due to new shuttle call for projects expected in FY2021 and increased vacancy due to lower commercial driver availability.

4.3 Caltrain Operating Budget

Caltrain's 10-year Operations Financial Plan with past actuals (three-year retrospective) is presented in **Table** 4-3. This 10-year Operations Financial Plan is consistent with the JPB's Operating Budget for FY2020. The 10-year Operations Financial Plan shows a deficit in FY2019 through FY2027 as the result of expenditures exceeding revenues from fares, partner contributions, and other sources. This occurs because Caltrain, unlike many other transit systems, does not have access to a dedicated source of funding to pay for the portion of its operating costs not covered by fare revenue. Over the time horizon of the 10-year Operations Financial Plan, the absolute annual amount of this funding gap is projected to increase as rail service increases in FY2022 with the start of electrified service.

Caltrain is currently developing strategies to balance the annual budget through FY2027. Over the next several years, Caltrain will comprehensively evaluate a variety of factors that influence the system's

operating deficit including:

- Fare policy and pass programs
- Additional state funding
- JPB Member contributions
- Cost containment strategies
- The potential for securing dedicated operating funds through a three-county sales tax ballot measure.[5]

4.3.1 Operating Budget Assumptions

Caltrain's 10-Year Operations Financial Plan (FY2019-FY2027) shown in **Table** 4-1 is based on the major assumptions summarized below for three main categories: service levels, revenue, and expenses.

4.3.1.1 Service Level Assumptions

See **Table** 4-1 for a summary of Caltrain's 10-year service plan assumptions. Additional detail and explanation on service level assumptions are below:

FY2019-FY2022: Key service assumptions prior to PCEP implementation

- No increases in service hours.
- Slight changes to schedule, as needed, to accommodate PCEP construction windows.

FY2022 - FY2027: Key service assumptions for after PCEP implementation

- In FY2022, PCEP will begin revenue service with EMU vehicles and Caltrain will increase the level of service it provides. Caltrain will add 22 additional trains per day with an overall increase in service levels from 92 weekday trains to 114 weekday trains.
- Caltrain's operating budget will increase as a result of increased costs for PCEP in positive train control and utilities due to increased electricity costs, partially offset by lower rail operator costs and diesel fuel costs, discussed in more detail in Section 4.3.1.3.

[5] In 2017, SB 797, authored by State Senator Jerry Hill, granted authority to present a ballot measure before the voters. A three-county sales tax ballot measure could be a potential source of funds for Caltrain, but exact applications of these funds have not yet been determined nor has a ballot measure been placed before the voters of Santa Clara, San Mateo, and San Francisco counties.

4.3.1.2 Revenue/Sources of Funds

Below is a summary of revenue sources for the Operating Plan.

Operating Revenue:

- Fare revenue grows annually as a function of increasing overall ridership as discussed in Section 4.1.1.
- No fare increases are assumed between FY2019-FY2027.
- Fare elasticity is assumed to be -0.2 based on the Caltrain Fare Study (2017).[6]
- Parking revenues are anticipated to increase in conjunction with ridership for electrification in FY2022-FY2024 as discussed in Section 4.1.1.
- Other revenues including rental income, advertising, earned interest and other income are anticipated to increase at 2.5 percent per year based on historical trends.

Contributions:

- Operating grants primarily include State Transit Assistance Funds as shown. The State Transit Assistance (STA) revenue is generated from the statewide sales tax on diesel fuel and is allocated to the region's transit operators by formula. The formula allocates funds on the basis of population, amount of passenger fares and local support revenues collected by transit operators.
- JPB Member Agency Contributions are shown to remain constant between FY2020 and FY2027. Member agencies negotiate contributions each fiscal year, and it is subject to change. This is a potential future opportunity to increase funding for the projected operating deficits.
- Under the terms of the JPA, each JPB member contributes towards Caltrain operating expenses, and each share is proportionate to the boardings at stations in each county. During the 2000s, JPB member contributions to the operating budget consistently totaled over $35 million (in year of expenditure dollars) peaking at nearly $40 million in FY 2010. Following the Great Recession, contributions were constrained by the reduced budgets of individual member agencies. With the Bay Area's economy now fully recovered, updated analysis from the FFGA Financial Plan (2016) indicates that there is financial capacity to restore member contributions to a level closer to their

6. More information on the Caltrain Fare Study can be found on the Caltrain Website: http://www.caltrain.com/projectsplans/Plans/FareStudy.html

historic norm.

4.3.1.3 Expenses/Uses of Funds

Below is a summary of expenses for the 10-year Operating Plan.

Contracted Operating Expenses (Operating and Maintenance):

- Underlying contractor operating costs are expected to increase 4 percent per year based on the terms of Caltrain's existing contract with TASI.
- Significant anticipated additions and reductions to operating costs include:
  - Added costs related to maintenance of the PTC system starting in FY2019.
  - Added costs related to the maintenance of PCEP infrastructure including the wayside traction power facilities and overhead catenary system starting in FY2022.
  - Added costs related to the maintenance of 133 EMU vehicles beginning in FY2022.
  - Added costs related to additional crews required to provide increased service level in FY2022.
  - Reduced maintenance costs realized through the retirement of a portion of the diesel fleet in FY2022.

Other Operating Expenses

- Underlying fuel prices are anticipated to increase an average of 3 percent per gallon per year after FY2020.
- Underlying electricity prices are anticipated to increase an average of 3.5 percent per kilowatt-hour (kWh) per year.
- All other operating expenses listed in Table 4-3 are anticipated to increase between 2 to 4 percent per year.
- Security services are anticipated to increase by about 5 percent per year. Caltrain's Safety and Security Program encompasses: security guard services along the Caltrain system (including operating facilities and various train stations), transit police services (contracted through the San Mateo County Sheriff's Department), CFR 49 Part 273 Public Transportation Agency Safety Program, Transit America Safety monitoring, First Responder services, OSHA/Cal OSHA compliance, and Operation Life Saver programming and education.[7]

[7] For more information on Operation Lifesaver, a national Rail Safety Education organization, visit https://oli.org/.

Administrative Expenses

- Wages and benefits are projected to increase by 3.5 percent per year. All other administrative expenses are projected to increase at 2.5 percent per year.
- Pension and other post-employment benefit (OPEB) costs are based on 2018 valuations and are included in the administrative costs.

Long-Term Debt Service

- The 10-year operating budget includes the current debt service schedule based on the 2019 debt issuance and refinancing.

Table 4-3: Caltrain 10-Year Operations Financial Plan with Past Actuals (YOE$, in Millions)

Program/Project	FY2016 Actual	FY2017 Actual	FY2018 Actual	FY2019*	FY2020*	FY2021*	FY2022*	FY2023*	FY2024*	FY2025*	FY2026*	FY2027*
REVENUES												
Farebox Revenue	87.0	92.4	97.1	103.5	106.0	107.5	112.3	122.0	129.7	131.5	133.4	135.3
Parking Revenue	5.0	5.8	5.6	5.5	5.5	5.5	5.6	5.7	5.8	5.8	5.8	5.8
Shuttles	2.2	2.1	2.2	2.0	2.5	2.6	2.7	2.7	2.8	2.9	3.0	3.1
Rental Income	1.8	1.9	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4
Other Income	0.7	3.1	2.2	2.2	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.9
Total Operating Revenue	**96.7**	**105.3**	**109.1**	**115.3**	**117.7**	**119.3**	**124.4**	**134.4**	**142.4**	**144.4**	**146.4**	**148.5**
Total Contributed Revenue	**25.9**	**26.6**	**26.4**	**30.9**	**37.0**	**37.0**	**37.0**	**37.0**	**37.0**	**37.0**	**37.0**	**37.0**
GRAND TOTAL REVENUE	**122.6**	**132.0**	**135.6**	**146.2**	**154.6**	**156.3**	**161.4**	**171.4**	**179.4**	**181.4**	**183.4**	**185.5**
EXPENDITURES												
Contract Operating/Maintenance	78.8	86.1	89.2	94.1	99.8	108.1	116.5	122.7	127.7	132.9	138.3	143.9
Shuttles Services	4.9	4.6	4.7	4.3	5.3	5.4	5.6	5.8	6.0	6.1	6.3	6.5
Fuel and Lubricants	8.3	8.6	10.3	10.8	11.0	11.3	9.6	3.2	3.3	3.4	3.5	3.6
Timetables and Tickets	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Insurance	0.0	7.1	1.2	5.8	4.5	4.7	4.9	5.4	5.8	6.1	6.4	6.7
Facilities/Equipment Maintenance	1.9	2.5	2.6	2.7	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.1
Utilities	2.0	2.0	1.9	1.9	2.1	2.2	4.5	11.2	11.6	12.0	12.5	12.9
Maint. Services: Building/Other	1.3	1.2	1.3	1.3	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9
Total Operating Expense	**97.4**	**112.2**	**111.4**	**120.9**	**128.7**	**137.0**	**146.4**	**153.9**	**160.1**	**166.4**	**173.0**	**179.8**
Total Administrative Expense	**20.5**	**20.4**	**21.6**	**24.6**	**24.4**	**25.2**	**26.1**	**27.1**	**28.0**	**28.9**	**29.8**	**30.7**
Long Term Debt Expense	**1.3**	**1.3**	**1.5**	**1.6**	**2.6**	**2.4**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**	**3.5**
GRAND TOTAL EXPENSE	**119.1**	**133.9**	**134.5**	**147.1**	**155.7**	**164.6**	**176.0**	**184.4**	**191.5**	**198.8**	**206.2**	**213.9**
NET SURPLUS/ (DEFICIT)	**3.5**	**(2.0)**	**1.1**	**(0.9)**	**(1.1)**	**(8.3)**	**(14.7)**	**(13.0)**	**(12.2)**	**(17.4)**	**(22.7)**	**(28.4)**

Program/Project	FY2016 Actual	FY2017 Actual	FY2018 Actual	FY2019*	FY2020*	FY2021*	FY2022*	FY2023*	FY2024*	FY2025*	FY2026*	FY2027*
REV. ENHANCEMENT/COST CONTAINMENT	-	2.0	-	0.9	1.1	8.3	14.7	13.0	12.2	17.4	22.7	28.4
REVISED NET SURPLUS/(DEFICIT)	3.5	-	1.1	-	-	-	-	-	-	-	-	-

Source: Comprehensive Annual Financial Reports (Audited Actuals, FY2016-2018); Projections (FY2019-2028), JPB, 2019.

Notes: Asterisk (*) indicates figures are projections. The 10-Year Operations Plan reflects a baseline approach to Caltrain's future. This 10-Year Operations Plan aligns with the JPB's FY2020 Operating Budget. The Caltrain Business Plan, anticipated to be completed in 2019, will identify a broader range of choices, services, investments and changes available to Caltrain.

5 Capital Improvement Program

This chapter presents Caltrain's 10-year CIP, which includes individual capital projects and the capitalized maintenance of existing assets (tracks and related infrastructures, systems, facilities and equipment). The CIP supports the operations and services set forth in the operating plan and budget described in Chapter 4 and provides the basis for requests for federal, state, and regional funding for capital replacement, rehabilitation, and expansion projects. The 10-year CIP is shown in Table 5-1. It reflects a baseline approach to Caltrain's next ten years, in terms of grant funds and applications to projects and other capital needs. While the capital budget that the JPB Board adopts each year is constrained to available funding, the 10-year CIP represents the unconstrained capital needs for Caltrain from FY2020 forward. The Caltrain Business Plan, anticipated to be completed in 2019, will identify a broader range of choices, services, investments and changes available to Caltrain. Once adopted, the Business Plan will largely supersede this SRTP and will serve as the record of Caltrain's plans going forward.

The following section provides additional detail on specific projects and programs encompassed within the CIP's larger program areas. A full inventory of the current Caltrain revenue fleet as well as replacement, rehabilitation, expansion, and non-revenue vehicle details can be found in Appendix A.

5.1 Capital Projects

The Caltrain 10-year CIP presented in this SRTP is a $3 billion program that is focused on maintaining a SOGR, implementing operational enhancements, and modernizing the Caltrain system. Major program areas and key capital projects within the Caltrain 10-year CIP are described below:

- **SOGR and Contingency:** This capital program includes the set of ongoing and specific rehabilitation and capitalized maintenance activities required to maintain Caltrain's existing and planned structures, facilities and rolling stock. It also includes costs associated with planning, programming, and development activities related to capital projects as well as an annual set- aside for unforeseen and emergency capital expenditures.
- **Safety/Security and Legal Mandates:** This program area concerns projects related to safety and security of Caltrain facilities and equipment, as well as legal mandates.
- **Peninsula Corridor Electrification Project:** PCEP includes the electrification of the corridor from San Francisco to San Jose and the procurement of new, electric-powered rolling stock (EMUs).

- **Caltrain Positive Train Control:** PTC includes the introduction of a new train control and signal system to comply with legal mandates.
- **Electrification Expansion Project:** This project includes the procurement of additional EMUs, improvements to Caltrain's wayside bike parking facilities, and improvements to Caltrain's Broadband infrastructure.
- **South San Francisco Improvement Project:** This project includes the reconstruction of the South San Francisco Station and the introduction of a new bicycle and pedestrian undercrossing.
- **25th Avenue Grade Separation Project:** This project in the City of San Mateo includes the reconstruction of the Hillsdale Station, as well as three new crossings under the Caltrain corridor, including 25th Avenue.

5.1.1 State of Good Repair and Contingency Program

Caltrain's SOGR and Contingency Program includes two main types of projects. Caltrain's support and contingency program includes capital program development and management costs associated with planning, programming, and development activities. These are needed to ensure development of accurate project scopes, cost estimates and implementation schedules, as well as the management of capital budget and programming processes, grant development, project and program controls, and capital program management systems. The contingency program includes an annual set-aside for unforeseen and emergency capital expenditures. Caltrain recently adopted the Transit Asset Management (TAM) Plan; see Section 1.7 for more information.

One of the primary goals of the CIP is to keep the railroad in a constant SOGR. As structures, facilities, and vehicles progress through and exceed their useful lives, they require rehabilitation and replacement. Caltrain's 10-year SOGR Program supports the safety, reliability, and performance of the system by ensuring that the railroad's assets function as intended and realize their full value. The SOGR Program is subdivided into the categories below and include projects that address the rehabilitation and replacement of specific systems.

- **Bridge and Civil Structure Replacement:** This program identifies those bridges or other major structures that have reached the end of their useful life or do not meet current seismic standards. Projects are identified through the JPB's annual bridge inspection program. The CIP includes funding for the rehabilitation and replacement of major civil structures over the coming 10 years.

- **Track Rehabilitation:** The scope of this ongoing annual project includes replacement of rails and points on an as-needed basis rail joint replacements; replacement of ties; placement of new ballast, minor repairs to structures, geometry inspections, weed abatement and graffiti removal.
- **Station Rehabilitation:** The system-wide station rehabilitation program is an annual project that rehabilitates various elements of passenger stations along the Caltrain right-of-way. Activities typically include: replacing passenger shelters, installing information display cases, replacing center track fence and repainting station amenities.
- **Signals and Communications:** The Signals and Communication SOGR category includes the servicing and maintenance of the existing signal system as well as the future capital rehabilitation of Caltrain's public address system.
- **Diesel Rolling Stock Rehabilitation:** Caltrain's diesel fleet is approaching the end of its useful life and rolling stock rehabilitation is a major component of Caltrain's SOGR Program. The Rolling Stock SOGR program includes the mid-life overhauls and major capital maintenance required to keep Caltrain's full diesel fleet running through electrification and to keep a portion of the diesel fleet operating past FY2022 alongside the system's new, electric multiple unit trains.
- **Ticket Vending Machine Rehabilitation** TVMs throughout the system will be rehabilitated and upgraded with Clipper fare collection equipment to help extend the useful life of the existing equipment.
- **EMU Rehabilitation and Maintenance:** Similar to the diesel rehabilitation program, the new EMU's will require systematic capital maintenance as the equipment begins to age. Specific maintenance needs will be developed in concert with the vehicle manufacturer, Stadler Inc., as part of the Caltrain modernization program currently underway.
- **Overhead Contact System (OCS)/ Traction Power Substations (TPS) SOGR:** With the conversion to an electrified system, Caltrain will establish a SOGR for the maintenance and rehabilitation of OCS and TPS components. While this program is in the process of being developed in concert with PCEP, it is anticipated individual components will be replaced based on their useful life or condition through routine inspections of the system. This SRTP assumes $500,000 per year in OCS/TPS maintenance in FY2026 and FY2027.

5.1.2 Safety/Security and Legal Mandates Program

Caltrain's Safety and Security Program includes three main types of projects related to safety/security and

legal mandates. The Caltrain safety and security program includes but is not limited to the installation or replacement of: right-of-way fencing, physical barriers at stations and key infrastructure, upgraded closed-circuit television systems (CCTV) at stations and Caltrain facilities, and camera systems on-board vehicles. With over 70 at-grade crossings along the Caltrain line between Gilroy and San Francisco, Caltrain has a robust program of annual grade crossing improvements to keep the crossings in a state of good repair and to incorporate the newest safety features. The legal mandates annual project is for various legal mandates that Caltrain must meet each year, ranging from storm water management to bridge load rating calculations.

5.1.3 Peninsula Corridor Electrification Project

PCEP includes a series of major capital investments in the Caltrain corridor that will electrify and upgrade the performance, operating efficiency, capacity, safety and reliability of Caltrain's commuter rail service. Scheduled to be implemented by FY2022, PCEP is a $1.98 billion project that consists of replacing 75 percent of Caltrain's diesel trains with EMUs for service between the 4th and King Street Station in San Francisco and the Tamien Station in San Jose. The project includes the installation of a new 25-kWh overhead contact system between San Jose and San Francisco to power the new EMUs. PCEP also included modifications to the Central Maintenance and Operations Facility (CEMOF) to provide for the maintenance of the new EMUs.

5.1.4 Positive Train Control

PTC is a complex signaling and communications technology to enhance the safety of the Caltrain system to prevent train-to-train collisions, and over-speed derailments. PTC is a federal mandate for railroads across the country in response to a preventable train-to-train collision in Southern California. Caltrain's PTC system will be fully operational by 2020.

5.1.5 Electrification Expansion Project

Caltrain's electrification expansion project includes three components, described below:

- **EMU Increase to All Seven-car Trains:** This project will exercise options on the JPB's existing contract with Stadler Inc. for the procurement of 37 additional EMUs to increase capacity of the electrified system and provide additional capacity Caltrain between San Jose and San Francisco. This EMU order will provide Caltrain with three additional seven-car EMU consists and will extend the existing order of 16 six-car consists to seven cars each by 2022.

- **Broadband Communications:** The project will install corridor wide broadband communications. The system will have several public and railroad-facing uses including "over the road" diagnostics during failure and regular maintenance events, remote downloading of passenger count information to enable tailoring of on-board capacity needs; faster PTC initialization times; and Wi-Fi for passengers and dynamic display of on-board information such as schedules, service disruptions, and special event information.
- **Wayside Bike Parking Improvements:** Caltrain will seek to enhance ridership and safeguard capacity on the electrified system by implementing a robust wayside bike parking program as defined through its recently adopted *Bicycle Parking Management Plan* (2017). It is essential that the agency provide a viable system of bike parking amenities at its stations as an attractive supplement and alternative to having passengers bring their bike on board the train.

5.1.6 South San Francisco Station Improvement Project

The purpose of the project is to rebuild a 1950s-era station that is at the end of its useful life and is deficient from an operational, passenger and ADA perspective. The new station will improve the Caltrain customer experience and safety in the station area, as well as provide connectivity between the east side and west side of the station for pedestrians and cyclists.

5.1.7 25th Avenue Grade Separation

The overall project will construct a two-track elevated structure, grade-separating the existing at-grade crossing at 25th Avenue in San Mateo, and also create two new grade separated crossings at 28th and 31st Avenues. The elevated structure will also necessitate the relocation of the existing Hillsdale Caltrain Station northward between 28th and 31st Avenues.

5.2 CIP Funding Assumptions

The CIP is assumed to be funded using sources expected to be available and/or committed over the 10-year period. These include federal, state and local funding that are reasonably expected to be programmed based on existing fund programming policies. In general, these funds are available to support rehabilitation and replacement projects to maintain the railroad in a SOGR and avoid a system of deferred maintenance. Local sales tax and other earmarked funding are also available to finance capacity expansion and other related improvements to the Caltrain system, as well as local access improvements.

Federal, state, and local match funds for capital improvements are assumed to remain at historical levels. It is assumed, per the JPA, that the three member agencies share equal thirds of local capital matching funds for system-wide improvement projects. Funds from San Mateo, Santa Clara, and San Francisco County sales tax measures are available to fund system-wide and county-specific projects included in each county's sales tax expenditure plans.

The following section provides detailed information about the funding sources used within the capital planning financial analysis. Changes in the financial assumptions, particularly regarding revenue growth and eligible uses of funds, may change the findings of the capital program's financial analysis. The revenues identified in the CIP are subject to member agency allocations and agreements, and regional and state programming policies.

5.2.1 State of Good Repair

Caltrain's near-term SOGR needs are driven by the timing of mid-life overhauls and engine rehabilitations within its fleet. All of these SOGR activities are important, necessary and will be completed. Caltrain has some ability, however, to prioritize and adjust the timing of individual SOGR activities within the FY2018-FY2027 time period based on the year-to-year availability of funds. Caltrain will prioritize immediately available funding to those SOGR activities that most directly support the safe, reliable operation of the system.

5.2.2 Peninsula Corridor Electrification Project

In May 2017, Caltrain achieved the final milestone to fund the Caltrain electrification project – execution of the Full Funding Grant Agreement (FFGA) with the Federal Transit Administration (FTA). With the finalization of this $647 million grant, Caltrain secured the last of financial commitments necessary to embark on this $1.98 billion project. The funding plan includes a mix of federal, state, regional and local funding sources.

5.2.3 Positive Train Control

The Caltrain PTC project will implement federally mandated rail safety technology that will help prevent train to train collisions, over-speed derailments, and movement of trains through improperly positioned switches. The current project budget is $291 million and is fully funded through federal, state and local sources.

5.3 Funding Sources

The following sources of funding are assumed as part of Caltrain's CIP and are shown in Table 5-1.

5.3.1 Federal Funding

Federal Transit Administration Formula Funding

The Federal Transit Administration provides funding to support mass transportation services to the public. The funding that Caltrain receives to finance capital projects includes Section 5307 urbanized area formula funds and Section 5337 SOGR grants. MTC establishes the policy for programming Sections 5307 and 5337 funds, which are the two major sources that Caltrain receives for transit capital replacement and rehabilitation projects. Sections 5307 and 5337 funds are allocated by formulas and MTC establishes the criteria to distribute funding in these two programs to eligible transit operators to ensure, first and foremost, that the existing system is replaced, rehabilitated, and maintained in good working order before any capacity expansion projects would be funded.

Urbanized Area Formula Funds (5307)

This funding program provides for the acquisition, construction, improvement, and maintenance of transit facilities and equipment. Resources are allocated to urban areas according to a formula and are usually matched on an 80 percent federal, 20 percent local basis.

State of Good Repair Program (5337)

This funding program provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a SOGR. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans. Caltrain receives a portion of these funds annually.

Capital Investment Grant Program Core Capacity Funding

FTA's Core Capacity program is part of its discretionary Capital Investment grant program. Eligible projects must expand capacity by at least 10 percent in existing transit corridors that are already at or above capacity or are expected to reach that point within five years. PCEP received a Full Funding Grant Agreement for $647 million from the Core Capacity program in FY2017.

Federal Highway Administration (FHWA) STP/ CMAQ

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) provides funding for Clean Air Act projects, State Implementation Plan Projects, and other projects that the Department of Transportation and the federal Environmental Protection Agency determine will help attain mandated air quality standards. Demonstration service projects are eligible for this funding source. MTC has used CMAQ funds to fund bus retrofit projects to install clean air emission devices on urban coaches. Funds are apportioned to every state based on the population in "non-attainment" areas, adjusted in line with the severity of the pollution. The Bay Area has been designated as one of these non-attainment areas.

The Surface Transportation Program (STP) provides funding for highways, bridges, transit capital, bicycle and car pool programs, and other multimodal uses. It provides flexible funding that may be used for transit capital projects, and intra-city and intercity bus terminals and facilities (MAP-21). This plan assumes that MTC will continue the current programming policy for STP and CMAQ funds as it is anticipated the funding needs for transit capital projects will continue to grow and will likely exceed the growth in funding availability.

Federal Railroad Administration

The Federal Railroad Administration (FRA) provides discretionary grants to develop safety improvements and encourage the expansion and upgrade of passenger and freight rail infrastructure and services throughout the nation. Caltrain has received grants to support PTC and the grade crossing improvements along the Caltrain right-of-way.

5.3.2 State Funding

Senate Bill 1

Senate Bill 1 (SB1), the Road Repair and Accountability Act of 2017, was signed into law on April 28, 2017. This legislative package invests $54 billion over the next decade to fix roads, freeways and bridges in communities across California and puts more dollars toward transit and safety. These funds will be split equally between state and local investments. There are several funding programs contained in SB1, including the SOGR: SB1's funding program for transit is the SOGR Program. This program provides funding of approximately $105 million annually to the State Transit Assistance (STA) Account. These funds are to be made available for eligible transit maintenance, rehabilitation and capital projects.

Transit and Intercity Rail Capital Program (TIRCP)

The TIRCP provides grants from the Greenhouse Gas Reduction Fund to fund transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems, to significantly reduce emissions of greenhouse gases, vehicle miles traveled, and congestion. A project must demonstrate that it will achieve a reduction in greenhouse gas emissions using the California Air Resources Board (CARB) quantification methodology.

State Rail Assistance (SRA)

State Rail Assistance provides the state's commuter and intercity rail agencies with dependable, annual revenue that can be invested in the most cost-effective manner to improve rail service including both operations and capital investments.

State Transit Assistance

State Transit Assistance, or STA, funds are generated by the sales tax on diesel fuel, and the amount of money available for transit agencies varies from year to year based on the ups and downs of diesel prices. The State allocates funds to transit operators based on their revenue and may be used by transit operators for both capital projects and transit operations.

High Speed Rail Funding

In 2012, the State allocated over $700 million to CalMod projects including $600 million in High Speed Passenger Train Bond Program funds (Proposition 1A) to the construction of the PCEP and $105 million in Proposition 1A connectivity funds to the implementation of PTC. In 2016, the CHSRA committed an additional $113 million to the PCEP, above and beyond the original $600 million commitment. In 2018, the CHSRA authorized over $70 million to help fund the 25th Avenue Grade Separation Project in the City of San Mateo.

Proposition 1B

This program provided both formula and competitive grant funds for several SOGR and enhancement projects. The Proposition 1B programs sunset in FY2016 and no additional funding is assumed beyond the funds that have already been programmed and shown in the CIP.

Low Carbon Transportation Operations Funding (LCTOP)

The LCTOP Program provides cap and trade funds on a formula basis to transit agencies to help fund transit projects and transit operations that reduce greenhouse gases. The JPB is allocating $9 million of its formula share of LCTOP funds to PCEP through FY2027.

Public Utilities Commission Programs

PUC 130 is a funding program administered by the California Public Utilities Commission (CPUC) for at-grade crossing safety improvements while PUC 190 is a funding program for rail grade separation projects. The JPB assumes funding from both of these state programs, based in part on historical grant amounts, and the relative ranking priorities of Caltrain projects established by the CPUC.

5.3.3 Local Funding Sources

The following sources of local revenues are assumed in the capital program. Most of the local sources have already been earmarked for specific projects in the expenditure plan of the respective county's sales tax measures.

Regional Bridge Tolls

The MTC provides a portion of bridge toll revenues for transit projects on or near bridge corridors that help to relieve bridge traffic and/or provide alternative public transit services. Bridge toll revenues apportioned to transit operators serve as state and local match for Caltrain and other operators to leverage federal capital funds. The first priority for matching funds is given to projects funded under the federal Section 5307 and 5337 programs. The MTC also provided $39 million in bridge toll funds to PCEP.

Member Agency Funds

Each of the three JPB members contributes an equal share of capital funds to support Caltrain CIP on an annual basis. The sources of funds per member varies based on the availability of local sales tax or bond funds. Aside from specific funding contributions for PCEP or other significant capital projects, each member contributed $7.5 million for the Caltrain annual capital program in FY2019. The amount of funding provided by each agency is negotiated annually based on capital needs. For the purpose of this SRTP, each member agency share is projected to remain at $7.5 million, adjusted annually for inflation.

Carl Moyer Funding/Bay Area Air Quality Management District

The Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program) is a state-funded discretionary program offering grants to reduce air pollution emissions from heavy-duty engines. The program is administered by BAAQMD, which awarded $20 million in funding to PCEP in 2015.

Table 5-1: **Caltrain 10-Year Capital Improvement Program (FY2018 – FY2027) ($FY2019)**

Program / Project	FY18 and Prior	FY2019	FY2020[3]	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	TOTAL
EXPENDITURES[1]											
State of Good Repair and Contingency	39,362	42,748	145,519	123,516	114,328	84,883	69,108	153,727	100,626	110,696	984,513
Safety/Security and Legal Mandates (Grade crossings, fencing, CCTV's)	3,130	1,700	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,830
Peninsula Corridor Electrification Project	735,000	460,000	477,000	252,000	56,000	-	-	-	-	-	1,980,000
Positive Train Control	202,392	89,308	-	-	-	-	-	-	-	-	291,700
Electrification Expansion Project[2]	3,000	34,000	-	111,180			55,460	-	-	-	203,640
South San Francisco Station Improvement Project	20,000	34,000	13,000	-	-	-	-	-	-	-	67,000
25th Avenue Grade Separation Project	51,380	66,810	46,810		-	-	-	-	-	-	165,000
Subtotal (Expenditures)	**1,054,264**	**728,566**	**683,329**	**487,696**	**171,328**	**85,883**	**125,568**	**154,727**	**101,626**	**111,696**	**3,704,683**
REVENUES											
Federal Other (FRA, FHWA)	22,520	23,180	-	-	-	-	-	-	-	-	45,700
FTA Funding (5309, 5307, 5337)	334,753	222,647	251,257	231,132	69,757	14,580	14,580	14,580	14,580	14,580	1,182,446
Local Funding (JPB Members and other Local Funds)	201,589	115,110	41,491	58,700	22,512	22,500	36,616	22,500	22,500	22,500	566,019
SMCTA (25th Ave and South San Francisco)	27,709	37,457	22,835	-	-	-	-	-	-	-	88,000
Regional (Bridge Tolls)	48,100	4,700	4,700	4,700	700	700	700	700	700	700	66,400

Program / Project	FY18 and Prior	FY2019	FY2020[3]	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	TOTAL
State (STA SOGR, STA, SRA, LCTOP, TIRCP, HSR)	419,594	325,472	254,987	107,910	2,050	3,050	44,394	3,050	3,050	3,050	1,166,607
Subtotal (Revenues)	**1,054,264**	**728,566**	**575,270**	**402,442**	**95,019**	**40,830**	**96,290**	**40,830**	**40,830**	**40,830**	**3,115,172**
NET SURPLUS/(DEFICIT)	**0**	**0**	**(108,060)**	**(85,254)**	**(76,309)**	**(45,053)**	**(29,278)**	**(113,897)**	**(60,796)**	**(70,866)**	**(589,511)**

Sources: PCEP Financial Plan to FTA for the Core Capacity Investment Grant Program, JPB 2016; Prior-year Caltrain capital budgets; Caltrain Transit Asset Management Plan, 2018.
Notes:
1. Expenditures and revenues shown in FY2019 dollars and do not include inflation. Assumed funding sources are based on historic funding levels provided by local, regional, state, and federal agencies. The 10-Year CIP reflects a baseline approach to Caltrain's future, in terms of grant funds and applications to projects and other capital needs. The Caltrain Business Plan, anticipated to be completed in 2019, will identify a broader range of choices, services, investments and changes available to Caltrain.
2. This line item (Electrification Expansion Project) includes 7-Car EMUs, wayside bike parking and Broadband.
3. This 10-Year Capital Improvement Plan represents the unconstrained needs of the railroad from FY2020 forward; however, the JPB must adopt fiscally constrained capital budgets each year, including a $45M capital budget for FY2020.

6 Other Improvements

6.1 Resolution 3434

There is one active Caltrain expansion project that was originally included under MTC Resolution No. 3434 in 2001 and has been carried through the Resolution's most recent update in 2008: The Caltrain Modernization Program (CalMod).[8] As noted in past SRTP updates, an additional JPB project, Caltrain Express Phase I (also known as the Caltrain Baby Bullet) was included in the original Resolution 3434 list of projects. This project has since been completed and was put into revenue service in June of 2004. Since the last SRTP update in 2015, the project formerly known as Caltrain Express Phase II has been separated into separate, smaller Capital projects included in the CIP presented in Chapter 4.

Since its inclusion in Resolution 3434, CalMod has achieved significant milestones and the project's scope, schedule and the funding needs have been redefined. The Electrification program now forms the foundation of the broader CalMod Program, a group of projects that will modernize Caltrain's infrastructure and services to address growing mobility needs in the corridor that do not preclude future High Speed Rail service.

CalMod includes projects that have funding plans in place and are moving actively towards implementation. The Program is defined through a 9-party Memorandum of Understanding (MOU) adopted in 2012 and the subsequent 7-party MOU in 2016 recognizing a specific, inter-related program of projects that support electrification of the Peninsula Corridor and facilitate implementation of high speed rail service. The MOU also provided a framework to assist project partners in seeking funds necessary to implement the electrification project and plan for the blended system with both Caltrain and High Speed Rail operating on the corridor.

CalMod includes: the Peninsula Corridor Electrification Project (PCEP), which includes both the electrification of the existing Caltrain corridor between San Francisco and San Jose, and the partial replacement of Caltrain's diesel trains with high-performance EMUs. The installation of PTC to address

[8] Referred to as "Caltrain Electrification" in MTC Resolution 3434, Attachment C.

federal mandates associated with the Rail Safety Improvement Act of 2008 has been separated from the CalMod project. As a result of the work over the last several years, the definition of the Resolution 3434 project should be revised to include elements associated with PCEP, described in the next section.

6.1.1 Peninsula Corridor Electrification Program

6.1.1.1 Project Purpose

PCEP will improve Caltrain system performance and expand the capacity of the system to provide enhanced service to a growing ridership. The project will also reduce noise and greenhouse gases and improve regional air quality. In addition to allowing for an improved and expanded Caltrain service, the infrastructure constructed through PCEP will not preclude future use of the Peninsula Corridor by California's High Speed Rail System.

PROJECT OVERVIEW

Project: Caltrain Electrification Program

Revenue Service Date: Calendar Year 2022 / FY2022

Miles of New/Enhanced Service: 51 miles

Mode: Electric passengertrains

Number of New Stations: None

Number of New Vehicles/Rolling Stock: Up to 96 EMUs

System Connectivity: Caltrain will continue to connect with Muni (San Francisco), BART (Millbrae), VTA (Mountain View, San Jose) and ACE and Amtrak (Santa Clara and San Jose Diridon).

6.1.1.2 Project Description

PCEP includes the electrification of a 51-mile stretch of JPB-owned right of way between San Francisco and San Jose. Specifically, the project includes the installation of 130 to 140 single-track miles of OCS for the distribution of electrical power to new electric rolling stock. The OCS will be powered from a 25 kilovolt (kV), 60 Hertz (Hz), single-phase, alternating current (AC) traction power system consisting of two TPSs, one switching station and seven paralleling stations.

PCEP also includes the procurement of up to 96 new EMU vehicles that will utilize this new infrastructure and replace a portion of Caltrain's aging diesel fleet. PCEP and PTC are separate efforts within CalMod, managed by different teams internally. Because PCEP only involves electrification of the Caltrain right of

way from San Francisco to a point approximately two miles south of Tamien Station, Caltrain's diesel-powered locomotives will continue to provide service between Gilroy and the San Jose Diridon Station with through service north to San Francisco.

6.1.1.3 Project Schedule

The JPB is pursuing an aggressive schedule to make PCEP a reality. The schedule below details the work completed to-date as well as upcoming major project milestones, including those associated with funding.

Table 6-1: Peninsula Corridor Electrification Program Schedule

Milestone	Milestone Description	Calendar Year Completed / Estimated Year of Completion
1	Federal Environmental Review / 35 percent Design	2009
2	9 Party Regional Funding MOU	2012
3	Board Action Contracting Method (Design-Build for electrification; Best Value for vehicles)	2013
4	Procurement of Owner's Team	2014
5	RFQ for Electrification and RFI for Vehicles	2014
6	State Environmental Review	2015
7	Approval of Entry into Core Capacity Program/Project Development	2015
8	Procure / Select Contractor Teams	Vehicles and infrastructure 2016 SCADA 2017 Tunnels 2018 CEMOF 2019
9	Design/Manufacture/Build/Test	CEMOF design 2018 CEMOF construction 2019 Tunnels design 2018 Tunnels construction 2019 SCADA design 2018 SCADA test and cutover 2020 Design of electrification system 2020 Build electric system, 2021 Infrastructure testing, 2021 Design of electric cars 2020 Manufacture EMUs 2022 EMU testing, 2022
10	Open for Revenue Service (all EMUs in service)	2022

Source: JPB, 2019

Notes: CEMOF = Centralized Equipment & Maintenance Facility. SCADA = Supervisory Control and Data Acquisition. Calendar years shown, not fiscal years.

The latest cost estimate for PCEP is $1.98 billion. A cost breakdown of the two project components is provided in Table 6-2. Table 6-3 provides a snapshot of the project estimate to complete from December 2018 to project completion. Project funding is broken down in **Table** 6-4.

Table 6-2: Peninsula Corridor Electrification Program Cost

Component	Scope	Current Cost (Millions)
Electrification Infrastructure	Design and construction of the electrified infrastructure including the OCS, substations, switching stations, paralleling stations and management reserve	$1,316
Purchase of EMUs	Purchase of up to 96 EMUs to replace Caltrain's fleet of aging fleet of rolling stock	$664
TOTAL		**$1,980**

Source: JPB, 2019
Note: Costs shown in YOE$

Table 6-3: Peninsula Corridor Electrification Program Estimate to Complete

Project Expenditures and Estimate to Complete	Amount (Millions)
Expended plus accrued through December 2018	$489
Estimate Through December 2019	$388
Planned Expenditures through December 2022	$1,103
TOTAL	**$1,980**

Source: JPB, 2019.

Table 6-4: Peninsula Corridor Electrification Program Funding by Source

Type	Funding Source	Project Component	Amount (Millions)
Federal	FTA Prior Funding	Environmental and PS&E	$15,678,000
Federal	FTA Formula Funds (Caltrain)	EMU vehicles	$315,000,000
Federal	CMAQ	Electrification PS&E	$4,000,000
Federal	Core Capacity	Electrification and EMUs	$647,000,000
State	Prop 1A High Speed	Electrification (No EMUs)	$600,000,000
State	High Speed Rail Non-Prop 1A	Electrification (No EMUs)	$113,000,000
State	TIRCP	EMU vehicles	$20,000,000
State	Prop 1B-Caltrain	Electrification	$8,000,000
State	Caltrain LCTOP	EMU vehicles	$9,000,000
Regional	Bridge Tolls	Electrification and EMUs	$39,400,000
Regional	Carl Moyer Program	Electrification Infrastructure (No EMUs)	$20,000,000
Local	VTA	Electrification and EMUs	$61,253,000
Local	SMCTA	Electrification and EMUs	$61,263,000
Local	SFCTA Prop K	Electrification and EMUs	$26,400,000
Local	SF GO Bonds	Electrification Infrastructure (No EMUs)	$31,240,000
Local	Previous Local Commitment	Electrification	$9,019,000
TOTAL			**$1,980,253,000**

Source: JPB, 2019
Note: Description of each funding source can be found in Section 5.3.

6.1.2 Title VI and Environmental Justice

See Section 3.7 for JPB's Title VI Summary.

In October 2013, the JPB also adopted the Caltrain Title VI Compliance Program that included new and necessary elements in order to comply with federal guidance related to Title VI and Environmental Justice contained in circular 4702.1B. Along with the newly adopted policies, this update included the development of a LEP Language Assistance Plan, a Public Participation Plan aimed at meaningful public involvement for minorities and low-income population, and two Equity Analyses that were conducted on fare changes in 2012 and 2013. The program also included a map-based station analysis of demographic characteristics adjacent to the Caltrain stations that can be used for outreach, community engagement, and station planning.

7 Appendix A: Caltrain Locomotive and Passenger Car Inventory

Table 7-1: Caltrain Fleet Configuration – Locomotives

Ref. No.	Unit No.	Manufacturer	Type	Year of Man.	Year Overhaul	Separate HEP	Year OH/ Replaced	Year of Retire	Horse Power	Weight	Mode
1	900	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
2	901	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
3	902	General Motors-EMD	F40PH-2	1985	1999	Gear Drive HEP	N/A	2022	3,200	260,000	DS
4	903	General Motors-EMD	F40PH-2	1985	1999	Gear Drive HEP	N/A	2022	3,200	260,000	DS
5	904	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
6	905	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
7	906	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
8	907	General Motors-EMD	F40PH-2	1985	1998	Gear Drive HEP	N/A	2022	3,200	260,000	DS
9	908	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
10	909	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
11	910	General Motors-EMD	F40PH-2	1985	1998	Gear Drive HEP	N/A	2022	3,200	260,000	DS
12	911	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
13	912	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
14	913	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
15	914	General Motors-EMD	F40PH-2	1985	1999	Gear Drive HEP	N/A	2022	3,200	260,000	DS
16	915	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
17	916	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS

Ref. No.	Unit No.	Manufacturer	Type	Year of Man.	Year Overhaul	Separate HEP	Year OH/ Replaced	Year of Retire	Horse Power	Weight	Mode
18	917	General Motors-EMD	F40PH-2	1985	1999	425 KW CAT	2005	2022	3,200	260,000	DS
19	918	General Motors-EMD	F40PH-2	1987	2000	425 KW CAT	2005	2022	3,200	260,000	DS
20	919	General Motors-EMD	F40PH-2	1987	2000	425 KW CAT	2005	2022	3,200	260,000	DS
21	920	Boise Locomotive Inc.	F40PH-2C	1998	N/A	425 KW CAT	2005	2034	3200	282,000	DS
22	921	Boise Locomotive Inc.	F40PH-2C	1998	N/A	425 KW CAT	2005	2034	3200	282,000	DS
23	922	Boise Locomotive Inc.	F40PH-2C	1998	N/A	425 KW CAT	2005	2034	3200	282,000	DS
	3										
24											
25	923	Motive Power Inc.	MP36PH-3C	2003	N/A	425KW CAT	2009	2035	3600	293,500	DS
26	924	Motive Power Inc.	MP36PH-3C	2003	N/A	425KW CAT	2009	2035	3600	293,500	DS
27	925	Motive Power Inc.	MP36PH-3C	2003	N/A	2035	2009	2035	3600	293,500	DS
28	926	Motive Power Inc.	MP36PH-3C	2003	N/A	2035	2009	2035	3600	293,500	DS
29	927	Motive Power Inc.	MP36PH-3C	2003	N/A	2035	2009	2035	3600	293,500	DS
30	928	Motive Power Inc.	MP36PH-3C	2003	N/A	2035	2009	2035	3600	293,500	DS
	6	SUBTOTAL									
	29	**TOTAL**									

Source JPB, 2019

Notes: DS =diesel; OH=overhaul; HEP =head and power parts. All vehicles are in fixed-route service and are heavy rail vehicles.

Table 7-2: Caltrain Fleet Configuration – Passenger Cars

Car No.	Manufacturer	Type	Year Manufactured	Year Overhauled	Seats (#)	Luggage Rack	ADA Lift	Toilet	Bikes	Weight	Anticipated Retirement Year	Mode
3800	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3801	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3802	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3803	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3804	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3805	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3806	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3807	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3808	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3809	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3810	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3811	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3812	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3813	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3814	Nippon-Sharryo	Trailer Car	1985	2002	142	Yes	No	No	0	118,000	2022	UN
3815	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3816	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3817	Nippon-Sharryo	Trailer Car	1985	2002	142	Yes	No	No	0	118,000	2022	UN
3818	Nippon-Sharryo	Trailer Car	1985	2002	142	Yes	No	No	0	118,000	2022	UN
3819	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3820	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3821	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3822	Nippon-Sharryo	Trailer Car	1985	2002	142	Yes	No	No	0	118,000	2022	UN
3823	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3824	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3825	Nippon-Sharryo	Trailer Car	1985	2001	142	Yes	No	No	0	118,000	2022	UN
3826	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3827	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN

Car No.	Manufacturer	Type	Year Manufactured	Year Overhauled	Seats (#)	Luggage Rack	ADA Lift	Toilet	Bikes	Weight	Anticipated Retirement Year	Mode
3828	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3829	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3830	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3831	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3832	Nippon-Sharryo	Trailer Car	1985	2001	108	No	No	No	40	118,000	2022	UN
3833	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3834	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3835	Nippon-Sharryo	Trailer Car	1985	2002	108	No	No	No	40	118,000	2022	UN
3836	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3837	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3838	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3839	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3840	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3841	Nippon-Sharryo	Trailer Car	1985	2002	148	No	No	No	0	118,000	2022	UN
3842	Nippon-Sharryo	Trailer Car	1987	2002	148	No	No	No	0	118,000	2022	UN
3843	Nippon-Sharryo	Trailer Car	1986	2001	148	No	No	No	0	118,000	2022	UN
3844	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3845	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3846	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3847	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3848	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3849	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3850	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3851	Nippon-Sharryo	Trailer Car	1986	2002	148	No	No	No	0	118,000	2022	UN
3852 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3853 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3854 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3855 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3856 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN

Car No.	Manufacturer	Type	Year Manufactured	Year Overhauled	Seats (#)	Luggage Rack	ADA Lift	Toilet	Bikes	Weight	Anticipated Retirement Year	Mode
3857 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3858 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3859 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3860 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3861 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3862 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3863 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3864 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
3865 ^	Nippon-Sharryo	Trailer Car	2000	N/A	120	No	Yes	Yes	0	122,000	2022	UN
66	SUBTOTAL											
4000	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4001	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4002	Nippon-Sharryo	Cab Car	1985	2000	97	No	No	Yes	40	125,000	2022	UN
4003	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4004	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4005	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4006	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4007	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4008	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4009	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4010	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4011	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4012	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4013	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4014	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4015	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4016	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4017	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN

Car No.	Manufacturer	Type	Year Manufactured	Year Overhauled	Seats (#)	Luggage Rack	ADA Lift	Toilet	Bikes	Weight	Anticipated Retirement Year	Mode
4018	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4019	Nippon-Sharryo	Cab Car	1985	2001	97	No	No	Yes	40	125,000	2022	UN
4020	Nippon-Sharryo	Cab Car	1985	2002	97	No	No	Yes	40	125,000	2022	UN
4021 ^	Nippon-Sharryo	Cab Car	1999	N/A	78	No	Yes	Yes	40	127,000	2022	UN
4022 ^	Nippon-Sharryo	Cab Car	2000	N/A	78	No	Yes	Yes	40	127,000	2022	UN
4023 ^	Nippon-Sharryo	Cab Car	2000	N/A	78	No	Yes	Yes	40	127,000	2022	UN
4024 ^	Nippon-Sharryo	Cab Car	2000	N/A	78	No	Yes	Yes	40	127,000	2022	UN
4025 ^	Nippon-Sharryo	Cab Car	2000	N/A	78	No	Yes	Yes	40	127,000	2022	UN
4026 ^	Nippon-Sharryo	Cab Car	2000	N/A	78	No	Yes	Yes	40	127,000	2022	UN
27	SUBTOTAL											
219	Bombardier	Trailer Car	2003	N/A	127	No	No	Yes	40	119,000	2033	UN
220	Bombardier	Trailer Car	2003	N/A	144	No	No	Yes	0	119,000	2033	UN
221	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
222	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
223	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
224	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
225	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
226	Bombardier	Trailer Car	2003	N/A	144	No	No	Yes	0	119,000	2033	UN
229	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
230	Bombardier	Trailer Car	2002	N/A	144	No	No	Yes	0	119,000	2032	UN
231	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
232	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
233	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
234	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
235	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
236	Bombardier	Trailer Car	2008	N/A	140	No	No	Yes	0	119,000	2038	UN
164	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
165	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN

Car No.	Manufacturer	Type	Year Manufactured	Year Overhauled	Seats (#)	Luggage Rack	ADA Lift	Toilet	Bikes	Weight	Anticipated Retirement Year	Mode
167	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
169	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
170	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
171	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
172	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
173	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
175	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
176	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
177	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
178	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
179	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
180	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	40	119,000	2027	UN
181	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
182	Bombardier	Trailer Car	1997	N/A	149	No	No	Yes	0	119,000	2027	UN
32	SUBTOTAL											
112	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	40	122,000	2032	UN
113	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
114	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
115	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
116	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
117	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
118	Bombardier	Cab Car	2002	N/A	114	No	No	Yes	Yes	122,000	2032	UN
119	Bombardier	Cab Car	2008	N/A	114	No	No	Yes	Yes	122,000	2038	UN
120	Bombardier	Cab Car	2008	N/A	114	No	No	Yes	Yes	122,000	2038	UN
9	SUBTOTAL											
134	**Fleet Total**											

Source: JPB, 2019

Notes: UN=unpowered; All vehicles are in fixed-route service and are heavy rail vehicles.

Table 7-3: Caltrain Fleet Configuration – Non-Revenue Vehicles

Ref. No.	Unit No.	Vehicle Type	Manufacturer	Make/ Model	Year of Man.	Year Overhauled	Remaining Service Years	Year of Retire	Mode
1	500	Locomotive	—	GP9	1959	1976	Currently out of service	N/A	DS
2	501	Locomotive	—	GP9	1959	1976	Currently out of service	N/A	DS
3	503	Locomotive	—	MP15DC	1974	—	—	—	DS
4	504	Locomotive	—	MP15DC	1974	—	—	—	DS
4	SUBTOTAL								
5	598	Caboose	—	—	1974	—	—	—	DS
6	599	Caboose	—	—	1974	—	—	—	DS
2	SUBTOTAL								
7	301	Flat Car	—	—	—	—	—	—	DS
8	302	Flat Car	—	—	—	—	—	—	DS
9	303	Flat Car	—	—	—	—	—	—	DS
10	304	Flat Car	—	—	—	—	—	—	DS
11	701	Flat Car	—	—	1975	—	—	—	DS
12	702	Flat Car	—	—	1975	—	—	—	DS
13	703	Flat Car	—	—	1975	—	—	—	DS
14	704	Flat Car	—	—	1975	—	—	—	DS
8	SUBTOTAL								
15	851	Gondola	—	E530	1976	—	—	—	DS
1	SUBTOTAL								
16	601	Ballast Hopper	—	—	1975	2000	—	—	DS
17	602	Ballast Hopper	—	—	1976	2000	—	—	DS
18	603	Ballast Hopper	—	—	1975	2000	—	—	DS
19	604	Ballast Hopper	—	—	1976	2000	—	—	DS
20	605	Ballast Hopper	—	—	1976	2000	—	—	DS
21	606	Ballast Hopper	—	—	1975	2000	—	—	DS
22	11309	Ballast Hopper	—	—	1957	—	—	—	DS
23	11315	Ballast Hopper	—	—	1957	—	—	—	DS
24	11341	Ballast Hopper	—	—	1957	—	—	—	DS

Ref. No.	Unit No.	Vehicle Type	Manufacturer	Make/ Model	Year of Man.	Year Overhauled	Remaining Service Years	Year of Retire	Mode
25	11362	Ballast Hopper	—	—	1954	—	—	—	DS
26	11369	Ballast Hopper	—	—	1954	—	—	—	DS
27	11379	Ballast Hopper	—	—	1954	—	—	—	DS
28	11542	Ballast Hopper	—	—	1971	—	—	—	DS
29	11573	Ballast Hopper	—	—	1971	—	—	—	DS
30	11579	Ballast Hopper	—	—	1971	—	—	—	DS
31	11583	Ballast Hopper	—	—	1978	—	—	—	DS
32	11604	Ballast Hopper	—	—	1978	—	—	—	DS
33	11612	Ballast Hopper	—	—	1978	—	—	—	DS
34	11654	Ballast Hopper	—	—	1978	—	—	—	DS
35	11706	Ballast Hopper	—	—	1978	—	—	—	DS
36	11723	Ballast Hopper	—	—	1978	—	—	—	DS
21	SUBTOTAL		—	—					
37	881	Side Dump	Difco	M110	1978	—	—	—	DS
38	882	Side Dump	Difco	M110	1978	—	—	—	DS
39	883	Side Dump	Difco	M110	1978	—	—	—	DS
3	SUBTOTAL								
40	—	Track Geometry Car	—	—	—	—	—	—	DS
1	SUBTOTAL								
38	**TOTAL**								

Source: JPB, 2019

Notes: DS=diesel powered. Em dash (—) indicates information not readily available. JPB has provided all the information available at this time and will strive to include more in the future SRTP drafts.

Vehicle Replacement/Expansion: EMUs for Electrified Service

Number of vehicle/vessels to be replaced/expanded: 133 EMU cars (96 replacement cars and 37 expansion cars)

Anticipated year of manufacture: 2019-2022

Year vehicle will be placed in service: 2022

Mode of Power: Electric

Seating capacity: To be determined, as the EMUs are still being designed

ADA-accessible: Yes

Fixed-guideway service: Yes

Estimated cost of replacement (per train set): $44.6M per train set

Sources of Funding: See Table 6-4 and Table 5.2