San Francisco County Transportation Authority

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Memorandum

Date: March 6, 2019

To: Transportation Authority Board

From: Eric Cordoba – Deputy Director for Capital Projects

Subject: 03/12/19 Board Meeting: Update on the Caltrain Modernization Program and Business Plan

RECOMMENDATION ☒ **Information** ☐ **Action**	☐ Fund Allocation
None. This is an information item.	☐ Fund Programming
SUMMARY	☐ Policy/Legislation
As required by the Funding Partners Oversight Protocol for Caltrain's Modernization Program, known as CalMod, the Director of Caltrain will present at the Board of Supervisors twice a year on the CalMod Program and answer questions regarding its status. The first of such presentations this calendar year will take place at this meeting, and will also include an update on Caltrain's Business Plan, which is currently under development. This memo is intended as a supplement to the attached presentation (Attachment 1).	☐ Plan/Study ☒ Capital Project Oversight/Delivery ☐ Budget/Finance ☐ Contract/Agreement ☐ Other:

BACKGROUND

The Caltrain Modernization Program or CalMod is a $2.26 billion suite of projects that will electrify and upgrade the performance, operating efficiency, capacity, safety, and reliability of Caltrain commuter rail service, while improving air quality. The Electrification Project, which is scheduled to be operational by 2022, has two components: electrification of the Caltrain line between San Jose and San Francisco, and purchase of electric multiple-unit vehicles to operate on the electrified railroad. The Caltrain Positive Train Control Project is scheduled to be operational by 2020.

The CalMod Program will improve system performance with faster, more reliable service while minimizing equipment and operating costs, and is critical to the long-term financial sustainability of Caltrain. The improvements will extend for 52 miles from San Francisco to San Jose and will also prepare the alignment for the future High-Speed Rail blended system. With the signing of the Full Funding Grant Agreement by the Federal Transit Administration (FTA) in 2017, Caltrain issued notices to proceed to its contractors for corridor electrification and purchase of electric trains.

Like any large capital project, the CalMod funding plan relies on contributions from multiple funding partners such as the three Joint Powers Board member counties (San Francisco, San Mateo, and Santa Clara), the Transportation Authority, the Metropolitan Transportation Commission and the California High Speed Rail Authority. Funding contributions were codified in a series of memorandums of agreement, one of which included an oversight protocol. The three Joint Powers Board counties have a local contribution of $80 million each to the $2.26 billion CalMod program. The

Transportation Authority has committed about $41 million primarily from the Prop K and One Bay Area Grant programs, and all but $4.9 million in Prop K funds have been allocated. The SFMTA has committed the remaining $39 million of San Francisco's local contribution from the Prop AA General Obligation Bond.

Caltrain Business Plan. With implementation of Positive Train Control and the Peninsula Corridor Electrification Program underway, Caltrain recognized the opportunity to articulate a long-term business strategy for the future of the system. The Caltrain Board discussed the initial concept for a Caltrain Business Plan in April 2017. The Caltrain Board reviewed a draft scope of work for the Business Plan in December 2017 and adopted a final Business Strategy and Scope of Work in February 2018. The Business Plan has been scoped to include long-range demand modeling, and service and infrastructure planning, as well as an organizational analysis and an assessment of Caltrain's interface with the communities it traverses. It is an extensive planning effort that includes outreach in multiple venues. The plan will be completed in 2019.

DISCUSSION

The paragraphs below provide a brief status update on the CalMod program, including Positive Train Control and the Peninsula Corridor Electrification Project. Representatives from the JPB will provide a brief update on these projects, as well as on the Caltrain Business Plan at the Board meeting.

Positive Train Control (PTC): On March 1, 2018, Caltrain awarded a $49.5 million contract to Wabtec Corporation for the completion of the PTC project, finalizing the transition from the contract with Parsons Transportation Group for Communications Based Overlay Signal System (CBOSS)/PTC, which was terminated on February 22, 2017 for non-performance. After evaluating all possible options, Caltrain staff concluded that they needed to abandon the CBOSS portion of the project and concentrate on the completion of the PTC portion if they were to meet the Federal Railroad Administration (FRA) deadline of December 2018, which led to the Wabtec award. Caltrain staff determined that approximately 80% of the work product of the CBOSS work already performed would be able to be repurposed for the PTC. In December 2018, Caltrain completed FRA's required statutory substitute criteria and submitted an Alternative Schedule request for FRA approval. The Alternative Schedule calls for full system certification by December 2020. Final approval of the Alternative Schedule was received from FRA in early January.

As of December 31, 2018, expenditures and accruals reached $225.09 million on the project, with work estimated at 70.25% complete. Wabtec continues the installation of on-board equipment, which is scheduled for completion in April 2019. It has completed Critical Features testing on the entire Caltrain property and punch list items are being addressed. Vehicle Acceptance Testing began on all PTC-installed locomotives and cab cars to ensure PTC equipment is functional under real-time track conditions. Field Integrated Testing is also underway. Wayside equipment audit and TASI (the contractor that operates the trains for Caltrain) training is also complete. Field verification and validation testing continues.

Peninsula Corridor Electrification Project (PCEP): In August 2016, Caltrain awarded the Design-Build Electrification contract to Balfour Beatty Infrastructure in the amount of $697 million. The contract was issued with a $108 million limited Notice to Proceed, pending execution of the FTA Full Funding Grant Agreement, which was delayed by three-and-a-half months. Having received the Full Funding Grant Agreement on May 23, 2017, Caltrain issued full Notice to Proceed on June 19, 2017.

As of January 31, 2019, expenditures on the PCEP reached $620,461.629, 31.33% of the $1.98 billion budget. Work is progressing on foundations, poles and cantilever arm installation for the overhead contact system. Work is also ongoing on the traction power substations and paralleling stations. The contractor for tunnel modifications is making good progress on the 100-year old San Francisco tunnels.

On September 6, 2016 Caltrain gave a limited Notice to Proceed to Stadler Rail for the $551 million Electric Multiple Units contract to design and fabricate 96 electric vehicles. After receipt of the Full Funding Grant Agreement, Caltrain issued the full NTP on June 1, 2017. In accordance with the Buy America provisions of the FTA funding, the vehicles are being manufactured in Salt Lake City. Major systems designs have been finalized and frozen to commence prototype testing and series production. Software-intensive systems, such as passenger information systems and train monitoring and diagnostic systems are scheduled for completion by fourth quarter or June 2019. Subsystem components (HVAC, propulsion, brakes, passenger seats, doors) manufacturing continues. First Article Inspections of initial production equipment are underway, with 38 of 69 First Article Inspections completed to date. Carshell fabrication continues. The first 10 car shells are undergoing installation of mounting brackets, conduits and thermal insulation at Stadlers' Salt Lake facility. 13 of 133 shells have been shipped from Switzerland to date. Revenue service demonstration is scheduled for August 2022.

Detailed CalMod monthly reports are provided to the Caltrain Board and are publicly available:

Peninsula Corridor Electrification Project reports:

http://www.caltrain.com/projectsplans/CaltrainModernization/CalMod_Document_Library.html#electric

Positive Train Control reports:

http://www.caltrain.com/projectsplans/CaltrainModernization/CalMod_Document_Library.html#ptc

We are cautiously optimistic that CalMod will be delivered on time and on budget. The primary risk items that we are monitoring include track access for both the PCEP and PTC, which is a factor for many capital projects that Caltrain is advancing, and differing site conditions that require pole and guy wire foundations to be relocated.

FINANCIAL IMPACT

None. This is an information item.

CAC POSITION

The CAC will be briefed on this information item at its March 27 meeting.

SUPPLEMENTAL MATERIALS

Attachment 1 – Caltrain update (presentation)

CALTRAIN UPDATE

SFCTA Citizens Advisory Committee March 2019

Caltrain CalMod

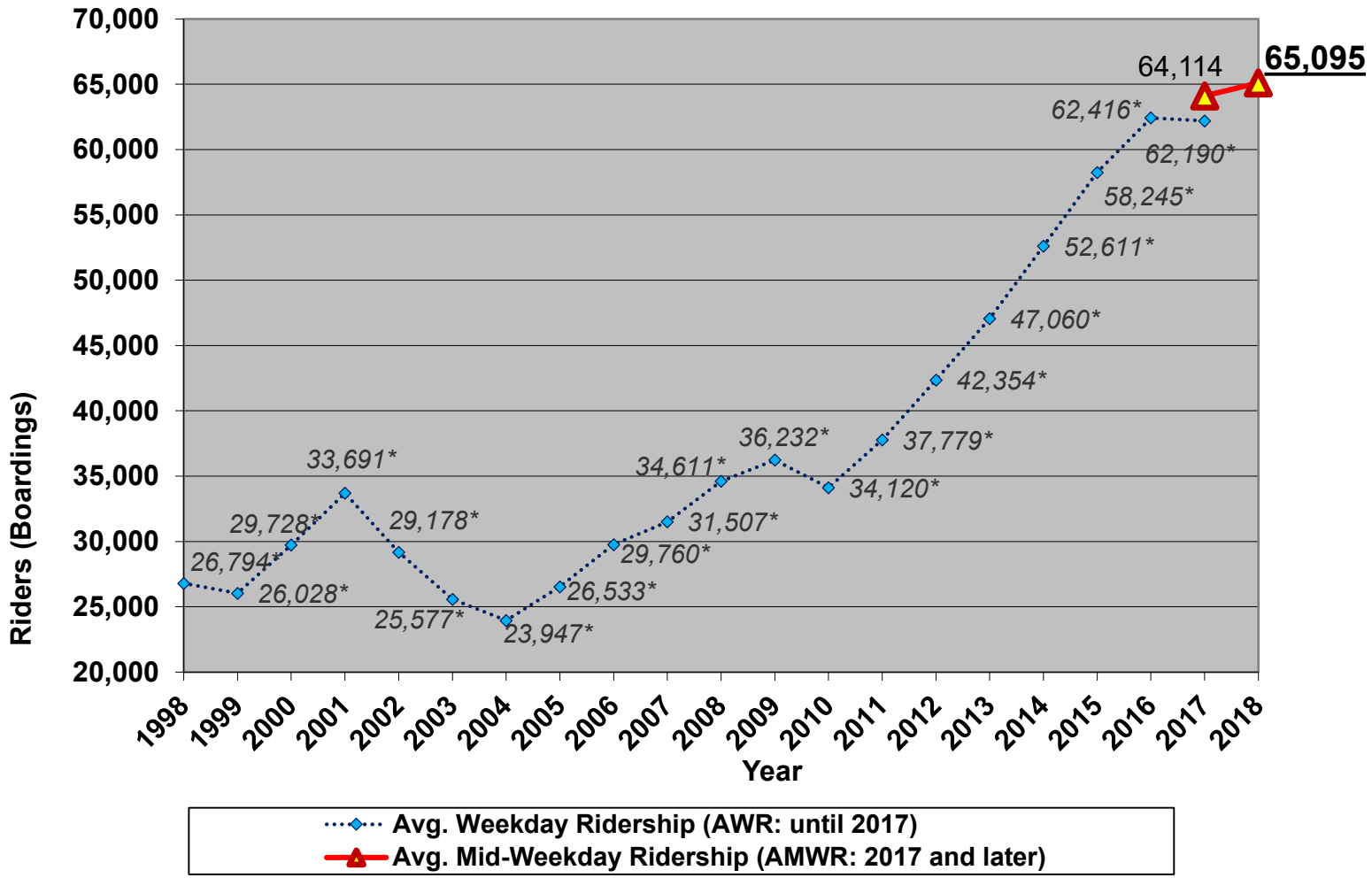
CALTRAIN SYSTEM

Caltrain owns (SF to SJ)

- 77 Miles, 32 Stations
- 92 Weekday Trains
- Tenants (Altamont Corridor Express, Capitol Corridor, Amtrak, Freight)

Union Pacific owns (SJ to Gilroy)

CalMod RIDERSHIP

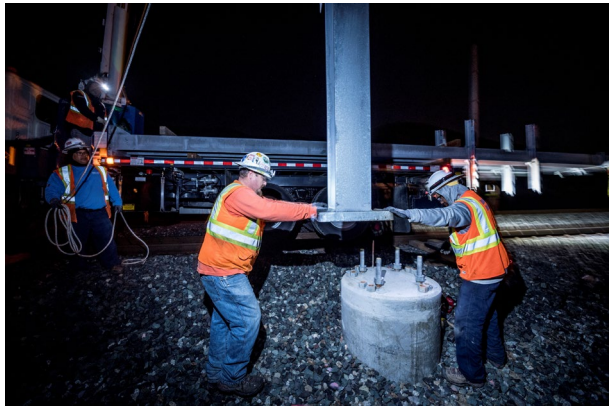


CalMod ELECTRIFICATION PROJECT

Area	Project	Service
51 miles San Francisco to San Jose (Tamien Station)	Electrification: • Overhead Wiring • Traction Power Facilities Electric Trains (EMUs) • 19 seven-car trainsets (133 cars)	Up to 79 mph Service Increase • 6 trains / hour / direction • More station stops / reduced travel time • Restore weekday Atherton & Broadway service Mixed-fleet service (interim period) Continue tenant service • Altamont Corridor Express, Capitol Corridor, Amtrak, Freight

Caltrain

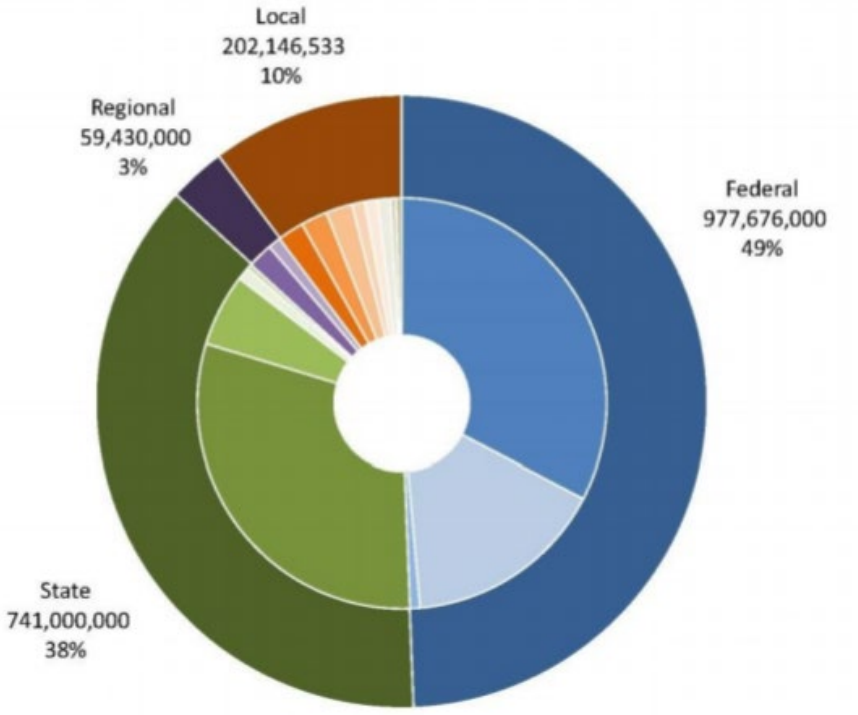
CalMod CONSTRUCTION / BUILDING ELECTRIC TRAINS

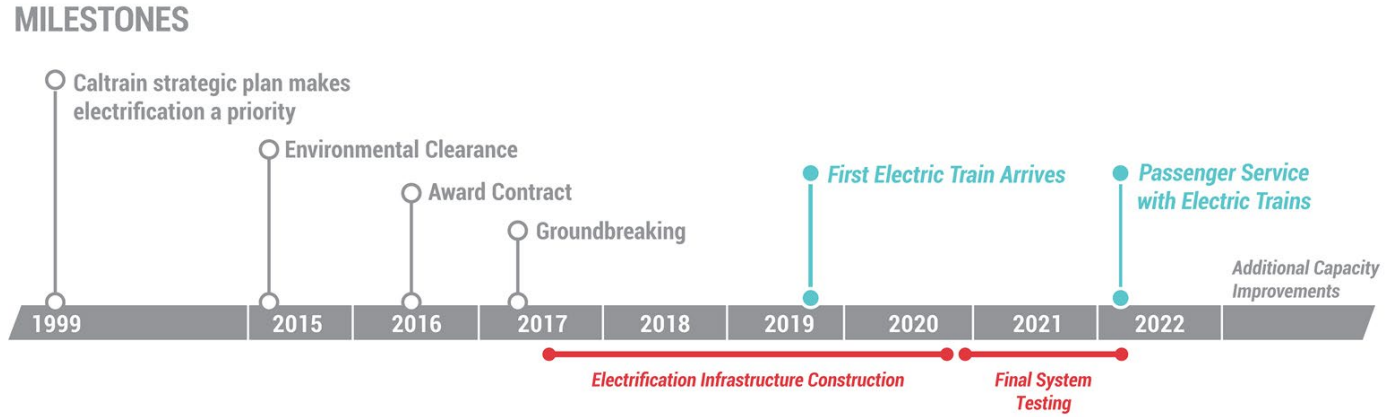


Over 600+ foundations, 300+ poles installed; 8 train cars at the new Utah facility

Caltrain

CalMod BUDGET ($1.98B) / SCHEDULE





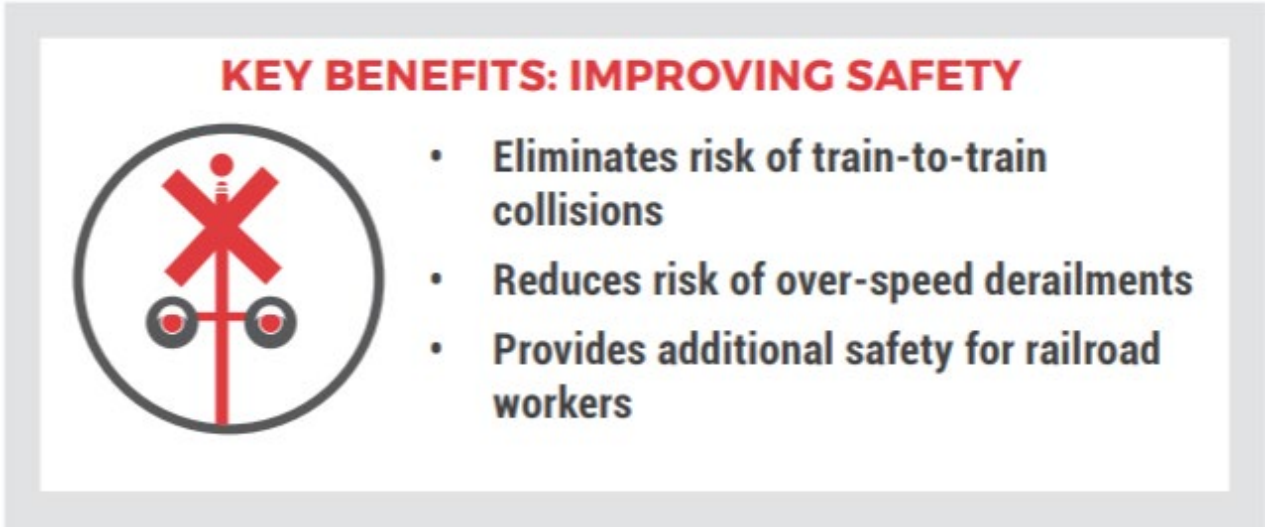
*Please keep in mind that testing and construction will overlap as each Segment will be tested individually, prior to final system testing.

SF Contribution, ~$60M

CalMod POSITIVE TRAIN CONTROL (PTC)

PROJECT OVERVIEW

- PTC is a complex signaling and communications technology that is designed to make commuter rail even safer.
- It is a federal mandate for railroads across the country to adopt PTC.
- Caltrain's PTC system will be fully operational by 2020.
- PTC serves as a redundancy that overlays with existing safety and signaling systems.



BUDGET

Prop 1A - State	$105,445
Prop 1B - State	$28,753
Federal	$90,446
Local	$55,609
Total	**$280,253**

Caltrain

Caltrain Business Plan

Project Update

July 2018 through January 2019

Caltrain

What is the Caltrain Business Plan?

What Addresses the future potential of the railroad over the next 20-30 years. It will assess the benefits, impacts, and costs of different service visions, building the case for investment and a plan for implementation.

Why Allows the community and stakeholders to engage in developing a more certain, achievable, financially feasible future for the railroad based on local, regional, and statewide needs.

What Will the Business Plan Cover?

Technical Tracks

Service

- Number of trains
- Frequency of service
- Number of people riding the trains
- Infrastructure needs to support different service levels

Business Case

- Value from investments (past, present, and future)
- Infrastructure and operating costs
- Potential sources of revenue

Community Interface

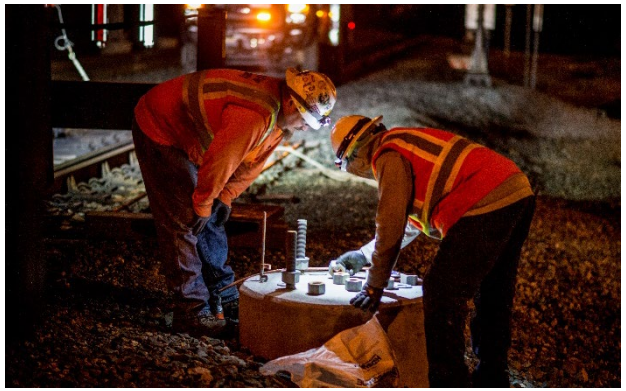
- Benefits and impacts to surrounding communities
- Corridor management strategies and consensus building
- Equity considerations

Organization

- Organizational structure of Caltrain including governance and delivery approaches
- Funding mechanisms to support future service

Where Are We in the Process?

Electrification is the Foundation for Growth with Plans for More



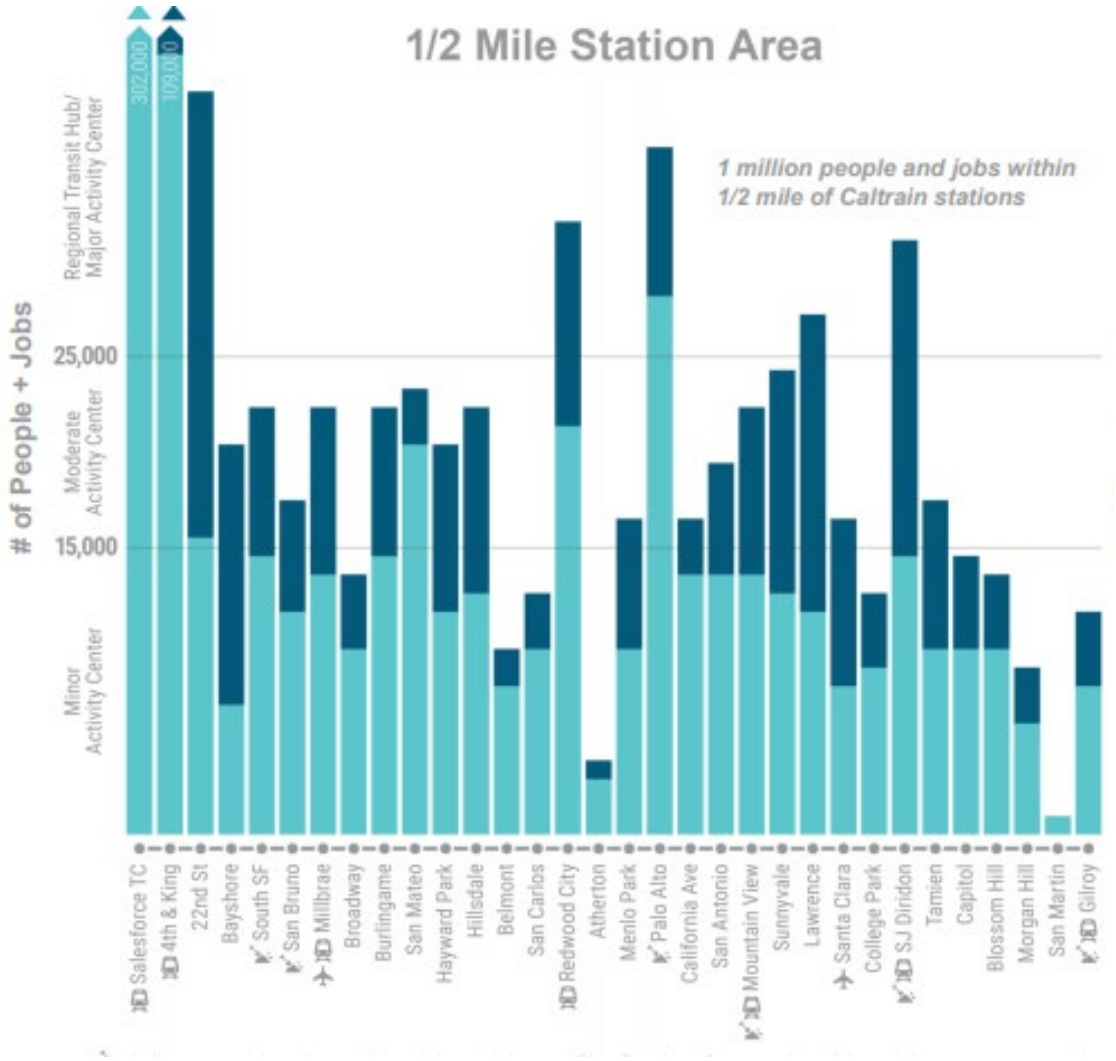
2040 Demand

The Caltrain corridor is growing

- By 2040 the corridor expected to add 1.2 million people and jobs within 2 miles of Caltrain (+40%)[1]
- 80% growth expected in San Francisco and Santa Clara Counties

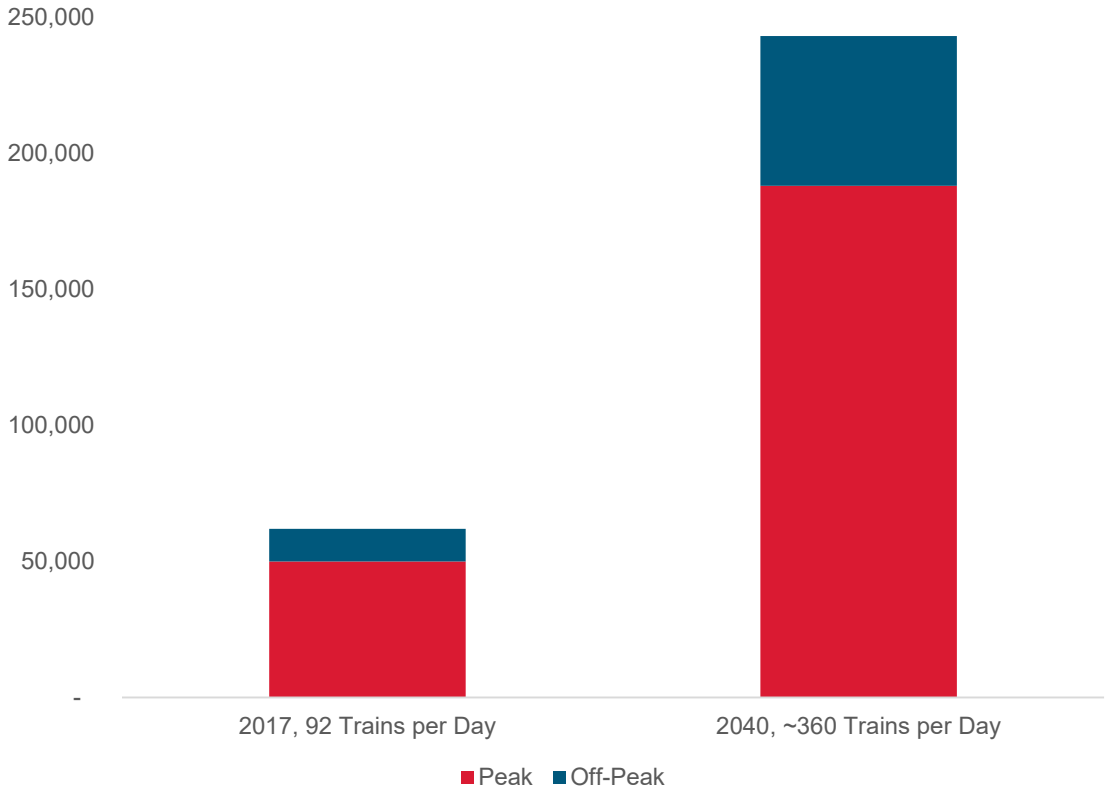
Major transit investments are opening new travel markets to Caltrain

- Downtown Extension and Central Subway
- Dumbarton Rail, BART to San Jose, and improvements to Capitol Corridor and ACE
- HSR and Salinas rail



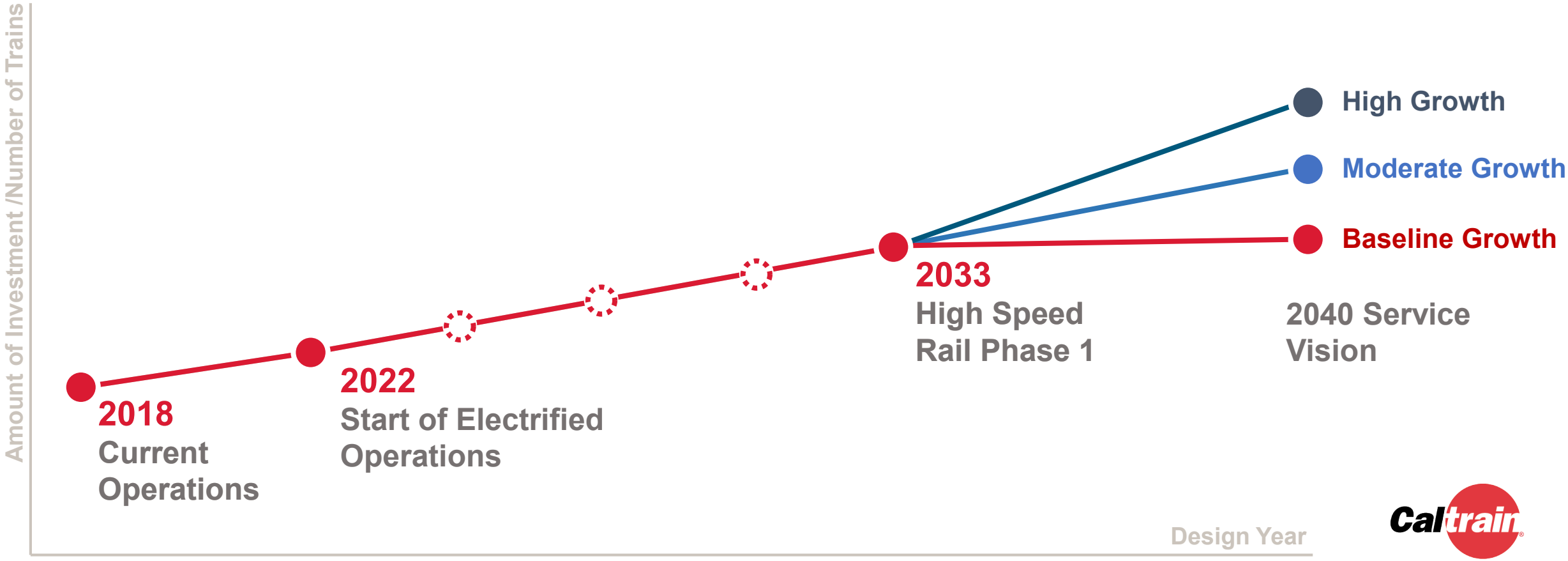
Exploring the Potential Long Term Demand for Caltrain Service

Using Plan Bay Area numbers for projected growth in jobs and housing, an unconstrained model run of high frequency, all-day BART-like service in the Caltrain corridor suggests that by 2040 there could be underlying demand for approximately 240,000 daily trips on the system

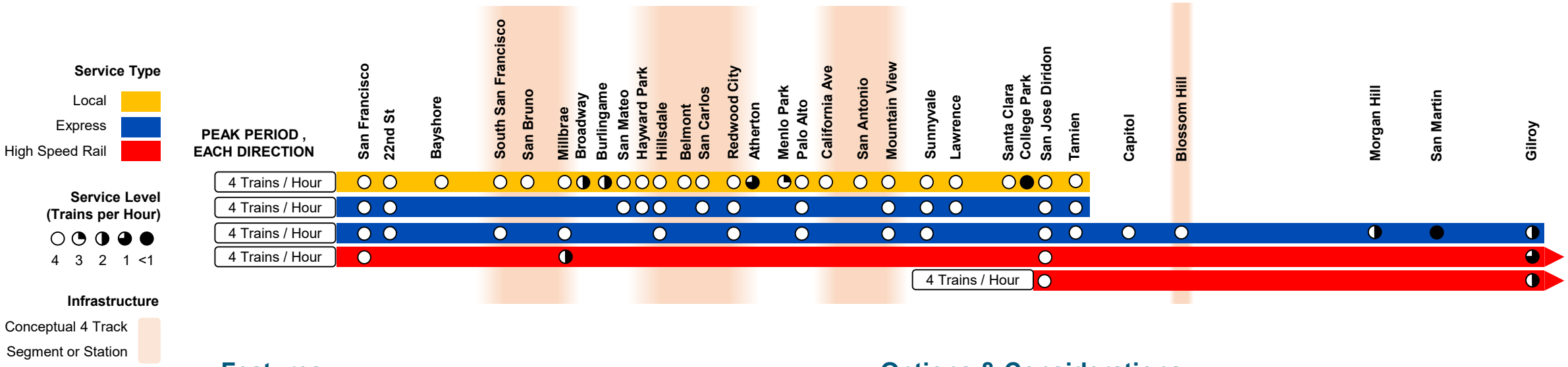


Description	2017: 92 Trains/Day	2040: ~360 Trains/Day
Daily	**62,000**	**240,000**
Peak	50,000	185,000
Off-Peak	12,000	55,000

Baseline Growth



High Growth Scenarios (12C +4HSR Trains)



Features

- Nearly complete local stop service – almost all stations receiving at least 4 TPH
- Two express lines serving major markets – many stations receive 8 or 12 TPH

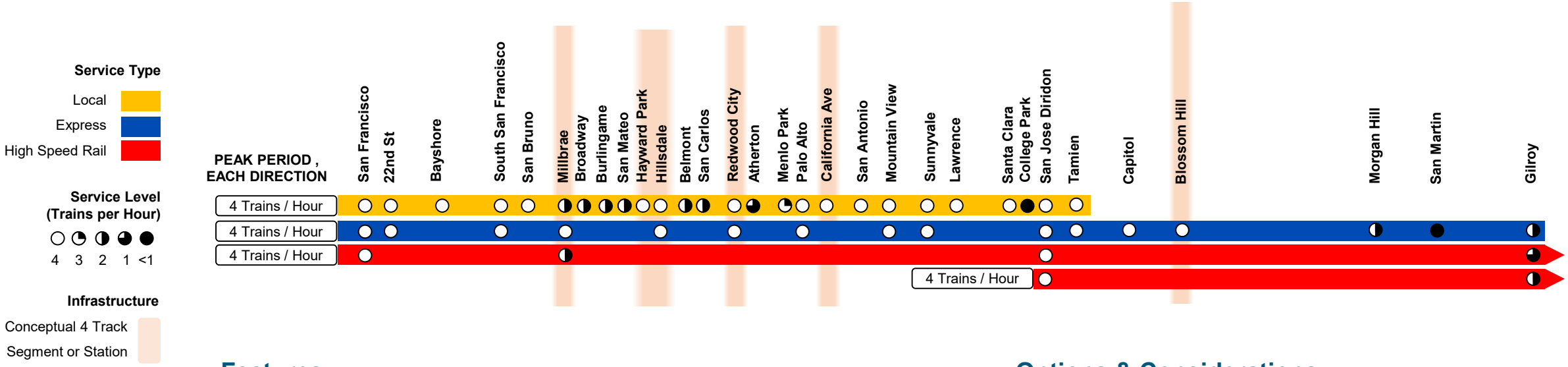
Passing Track Needs

- Requires up to 15 miles of new 4 track segments: South San Francisco to Millbrae, Hayward Park to Redwood City, and northern Santa Clara County between Palo Alto and Mountain View stations (shown: California Avenue to north of Mountain View)

Options & Considerations

- SSF-Millbrae passing track enables second express line; this line cannot stop north of Burlingame
- Tradeoff between infrastructure and service along Mid-Peninsula - some flexibility in length of passing tracks versus number and location of stops
- Flexible 5 mile passing track segment somewhere between Palo Alto and Mountain View
- Atherton, College Park, and San Martin served on an hourly or exception basis

Moderate Growth Scenario (8C + 4HSR Trains)



Features

- A majority of stations served by 4 TPH local stop line, but Mid-Peninsula stations are serviced with 2 TPH skip stop pattern
- Express line serving major markets – some stations receive 8 TPH
- Timed local/express transfer at Redwood City

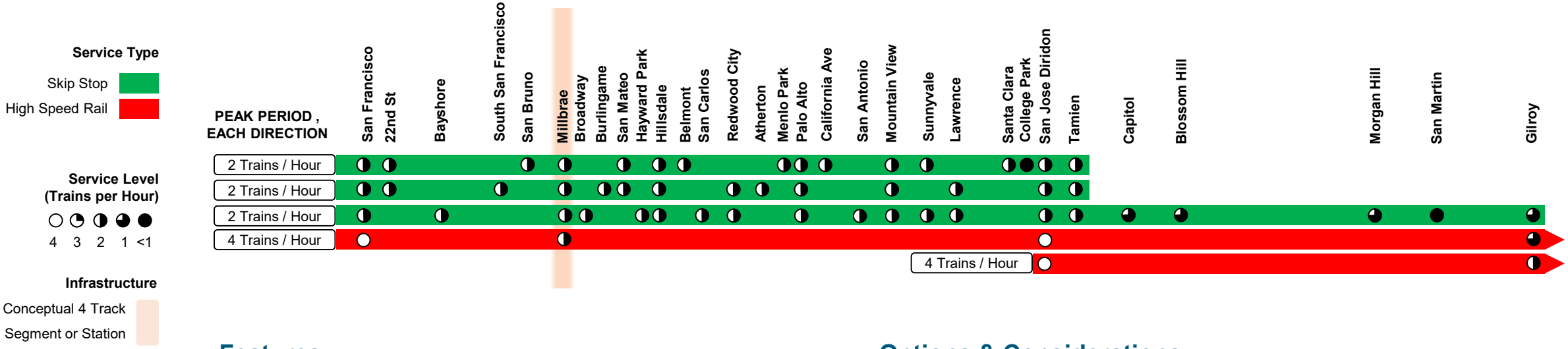
Passing Track Needs

- Up to 4 miles of new 4-track segments and stations: Hayward Park to Hillsdale, at Redwood City, and a 4-track station in northern Santa Clara county (Palo Alto, California Ave, San Antonio or Mountain View. California Ave Shown)

Options & Considerations

- To minimize passing track requirements, each local pattern can only stop twice between San Bruno and Hillsdale - in particular, San Mateo is underserved and lacks direct connection to Millbrae
- Each local pattern can only stop once between Hillsdale and Redwood City
- Atherton, College Park, and San Martin served on an hourly or exception basis

2040 Baseline Scenario (6C+4HSR Trains)



Features

- Blended service with up to 10 TPH north of Tamien (6 Caltrain + 4 HSR) and up to 10 TPH south of Tamien (2 Caltrain + 8 HSR)
- Three skip stop patterns with 2 TPH – most stations are served by 2 or 4 TPH, with a few receiving 6 TPH
- Some origin-destination pairs are not served at all

Passing Track Needs

- Less than 1 mile of new passing tracks at Millbrae associated with HSR station plus use of existing passing tracks at Bayshore and Lawrence

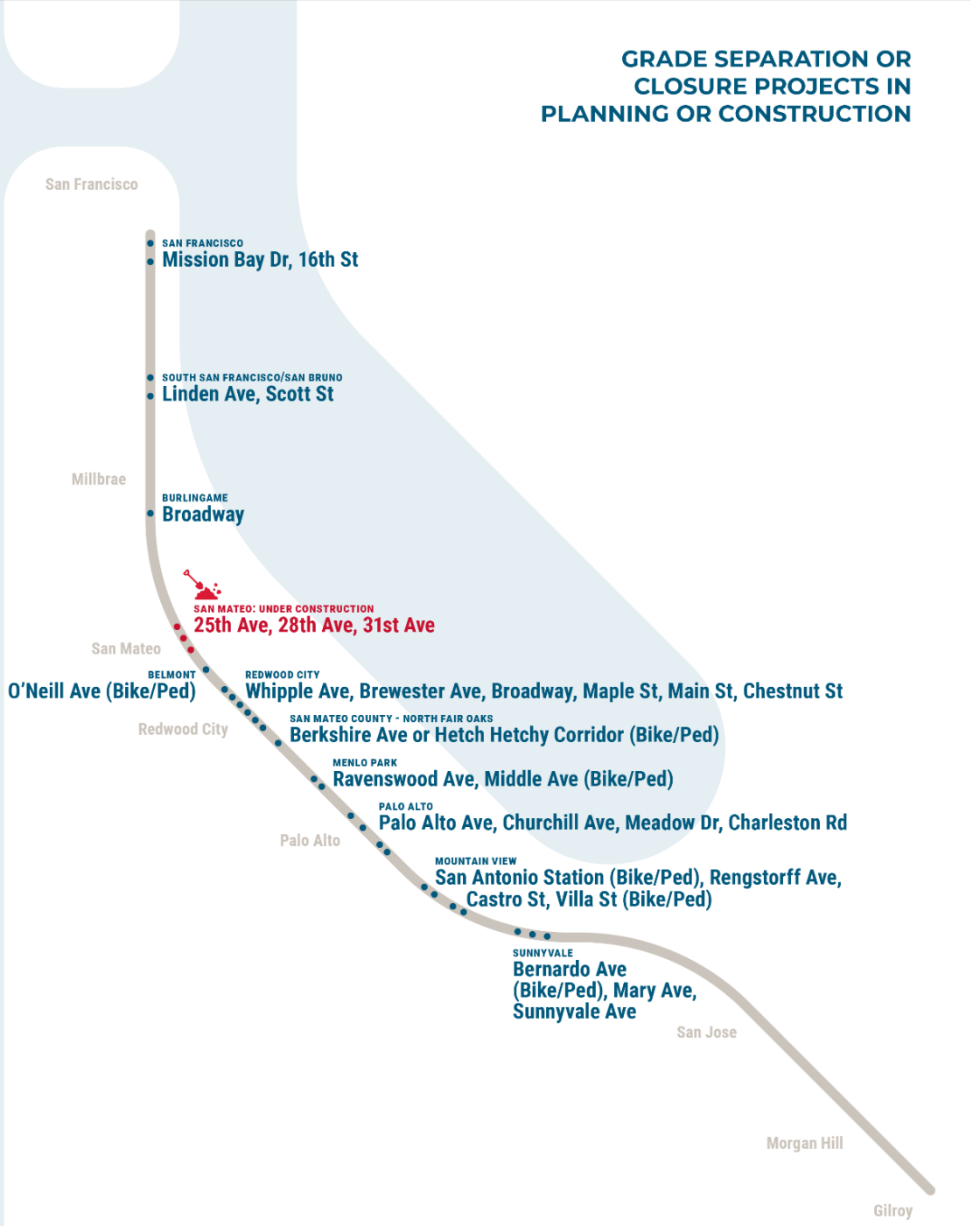
Options & Considerations

- Service approach is consistent with PCEP and HSR EIRs
- Opportunity to consider alternative service approaches later in Business Plan process

Grade Separations are Critical

All of the scenarios being considered involve significant increases in the number of trains per hour operating in the corridor

The Business Plan will consider the costs and challenges associated with grade separations and improvements to at-grade crossings as part of the overall plan



How do we Choose a Service Vision?

Choosing a long range “Service Vision” is not just about picking which service pattern looks the best- it requires evaluating which package of service and investments will deliver the best value to the corridor and the region

Service

This update describes different **illustrative** 2040 service concepts that underlie each Growth Scenario. The different concepts shown are not proposals or recommendations. They represent an indicative **range of options** for how Caltrain service could grow given different levels of investment in the corridor

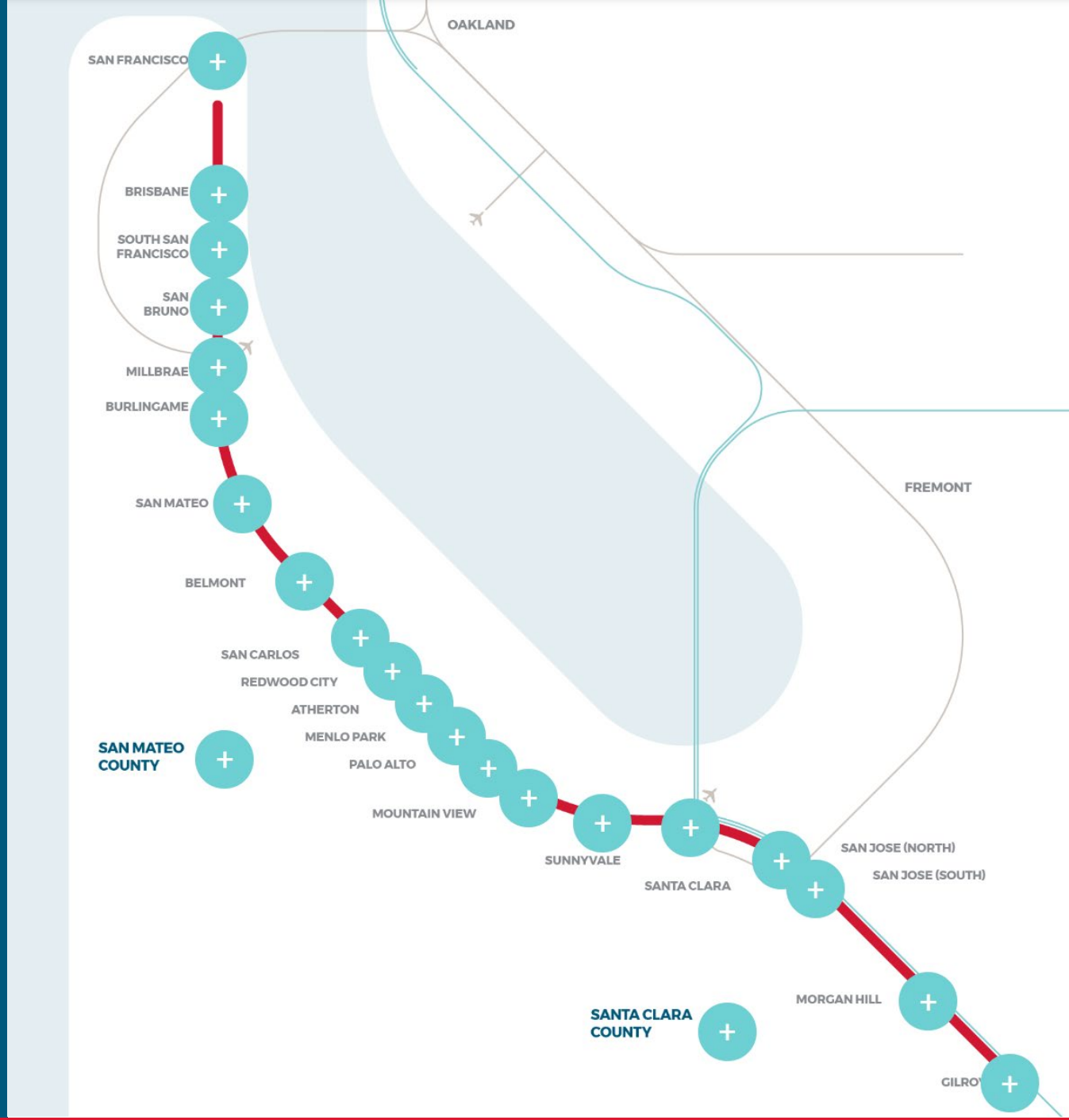
Business Case

During the spring of 2019 the Business Plan team will develop a detailed “Business Case” analysis for each of the different growth scenarios. The Business Case will quantify the financial implications and wider costs and benefits of each growth scenario

Business Plan Website is Up!

- Project timeline
- Project summary
- Corridor-wide factsheet
- Jurisdiction-specific factsheets
- Monthly presentations
- Glossary of key terms
- FAQs

www.caltrain2040.org



Outreach Activities to Date

July – December Timeline

	July	August	September	October	November	December
Local Policy Maker Group	●	●	●		●	●
City/County Staff Coordinating Group	●	●	●		●	●
Project Partner Committee	●	●	●	●	●	●
Community Interface Meetings (One Per Jurisdiction)			●	●	●	
Stakeholder Advisory Group				●		
Partner General Manager				●		
Website & Survey Launch					●	
Community Meetings (One Per County)					●	
Sister Agency Presentations					●	●

Outreach Activities to Date

July – December by the Numbers

Stakeholders Engaged

21
Jurisdictions

26
Public Agencies

39
Stakeholder Group Meetings

93
Organizations in Stakeholder Advisory Group

Public Outreach

18
Public Meetings and Presentations

1000+
Survey Responses

2,600
Website Hits

27,000
Social Media Engagements

Questions

- Caltrain Staff Available
- SFCTA Staff Available

FOR MORE INFORMATION

WWW.CALTRAIN.COM