San Francisco
County Transportation
Authority

1455 Market Street, 22ND Floor, San Francisco, California 94103 415-522-4800 info@sfcta.org www.sfcta.org

Memorandum

AGENDA ITEM 6

DATE: September 18, 2019

TO: Transportation Authority Board

FROM: Eric Cordoba – Deputy Director for Capital Projects

SUBJECT: 09/24/19 Board Meeting: Update on the Caltrain Modernization Program

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 attend a Board of Supervisors meeting twice a year to provide an update on the CalMod Program and answer questions regarding its status. With the concurrence of President Yee and Transportation Authority Chair Peskin, the first of these updates was provided at the March 12 Transportation Authority Board meeting and the second update will take place at the September 24 Board meeting. Caltrain staff will also provide 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

Caltrain Modernization Program (CalMod). 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. CalMod also includes the Positive Train Control (PTC) Project, which 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 remaining Prop K funds will be brought to the Board for allocation in October. The SFMTA has committed the remaining $39 million of San Francisco's local contribution from the Prop AA General Obligation Bond. Of this amount, SFMTA $14,661,000 remains to be allocated, with timing dependent on the next bond issuance and considering the project's cash flow needs.

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 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. Caltrain staff has completed the Long-Range Service Vision, which was presented to the Peninsula Corridor Joint Powers Board (PCJPB) for information at the August 1 meeting. The staff is recommending the Moderate Growth scenario under which peak service will consist of eight Caltrain and four High Speed trains per hour for a total of 12 trains per hour. It will require some passing tracks and station/platform modifications. It increases peak, off-peak and weekend service as well as service to Gilroy. The recommendation has the caveat that its implementation does not preclude the High Growth scenario of twelve Caltrain trains and four High Speer Rail trains per hour. We are supportive of the staff recommendation and have attached for reference the San Francisco Planning Department and our joint comment letter on the Long Range Service Vision and Organizational Assessment, two key deliverables from the Business Plan.

The Draft Organizational Assessment Report concludes that, while Caltrain is the most productive major US railroad as measured by the number of car-miles operated per employee and passenger-miles carried per employee, it is "significantly under resourced for

today's work output, let alone to address its upcoming transformation". The Business Plan will be completed in early 2020.

DISCUSSION

The paragraphs below provide a brief status update on the CalMod program, including Positive Train Control and the Peninsula Corridor Electrification Project.

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. Caltrain staff determined that approximately 80% of the work product for CBOSS 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, which was received in early January 2019. The Alternative Schedule calls for full system certification by December 2020.

The project is on track to meet the schedule. On September 7, 2019, Caltrain began operating PTC in revenue service on the mainline, and full interoperability to Gilroy is anticipated by December 2019. Caltrain anticipates submitting the final safety plan to FRA for final approval in the summer 2020.

As of July 31, 2019, expenditures and accruals reached $238.52 million on the $329.29 million project, with work estimated at 72.43% complete. Installations of onboard equipment on Caltrain locomotives and cab cars is complete, except for three locomotives that are off-property for overhauls. Acceptance Testing on all PTC-installed locomotives and cab have been completed on all the vehicles on-property. Only the three that are away for overhauls remain. Interoperability coordination with tenant railroads have begun, together with the implementation of the Key Exchange Server with hosted solution from ARINC. Wabtec also completed Test Procedure for Interoperability Lab and Field Testing with UPRR and commenced Interoperability Laboratory Testing with UPRR on August 12, 2019. The goal is to achieve Interoperability with UPRR by December of 2019. Subsequently, Caltrain will commence Interoperability Testing with all other tenants on Caltrain property to achieve interoperability requirements and commence PTC-governed operation by May 2020.

Peninsula Corridor Electrification Project (PCEP):

Electrification design-build contract: 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, which was followed by full Notice to Proceed on June 19, 2017. As of July 31, 2019, expenditures on the PCEP reached $743,894,528, 37.57% 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.

Overhead Contact System potholing, foundation, poles, and cantilever arm installation is

underway. Because of encountering multiple underground utilities, work is not proceeding linearly, causing production inefficiencies. Production over the previous month improved, indicating that the mitigation measures had been effective, but production was back down this month. We will continue to monitor this work closely. Work continues on the Traction Power Substations, Paralleling Stations and Signal System, as does fabrication and testing of signal houses. Design for Scott, Linden, 16th and Mission Bay grade crossings continues, together with coordination w/ Union Pacific Railroad (UPRR) for systemwide signal system design and utility relocations. The CPUC has approved the crossing designs for Auzerais, Virginia and two pedestrian crossings in Sunnyvale representing a good forward progress in advancing the consistent warning design. Design review coordination with local jurisdictions also continues.

Balfour Beatty Infrastructure is now forecasting substantial completion on April 16, 2022, a twenty-month delay, due to various reasons, but mainly delays in the design of the Consistent Warning Time aspect of the signals system at the at-grade crossings. However, the PCEP schedule shows a substantial completion date of December 31, 2021, four months earlier. This discrepancy between forecasts is a source of concern for the funding partners. The FTA will be hosting several schedule workshops between late September and October 2019 to review project status and to provide comments on the forecasted program schedule. We will be participating in those workshops.

Vehicles: On September 6, 2016 Caltrain gave a limited Notice to Proceed to Stadler Rail for the $551 million Electric Multiple Units (EMUs) 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. The EMUs are being manufactured by Stadler US at its new facility in Salt Lake City, Utah. Major systems designs have been completed except for passenger information systems, train monitoring and diagnostic systems, and passenger counting, which are scheduled for completion by fourth quarter of 2019. Final Design Review and First Article Inspection close-out continues. Prototype testing and series production is underway Subsystem components (HVAC, propulsion, brakes, passenger seats, doors) manufacturing continues. Carshell fabrication continues, with 21 of 133 shipped to date. Truck frame and passenger-side door systems are undergoing endurance testing. PTC onboard equipment is progressing on schedule.

Stadler has been slow in establishing its supply chain in the U.S. and the resulting shortage of parts has slowed car assembly. In particular, Seidenbacher, the supplier of numerous weldments and mounting frames that are on the critical path, has been overwhelmed with orders. Stadler is securing alternative suppliers to pick up shortfall.

Revenue service demonstration for the electrified railway is scheduled from January 2022 to May 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 (part of the JPB monthly agenda packet):

http://www.caltrain.com/about/bod/Board_of_Directors_Meeting_Calendar.html

Challenges and Opportunities: There are some challenges that may impact Caltrain's ability to deliver CalMod on time and on budget. The primary risk items that we are monitoring include:

1) Design and construction of grade crossing modifications that meets stakeholder and regulatory requirements, which may cost more than was budgeted and delay the revenue service date;

2) the extent of encountering multiple underground utilities and delays in resolving them may result in delays to the completion of the electrification contract and increases in program costs; and

3) track access for both the PCEP and PTC, which is also a factor for many other capital projects that Caltrain is advancing.

The funding partners held a workshop with Caltrain to address these and other issues. A follow-up meeting is scheduled for September 25.

FINANCIAL IMPACT

None. This is an information item.

CAC POSITION

There is no position as this is an information item. The CAC was briefed on the Caltrain Business Plan update at its September 4 meeting and the CAC will be briefed on the CalMod update at its September 25 meeting.

SUPPLEMENTAL MATERIALS

- Attachment 1 – Caltrain Business Plan and Caltrain Modernization update (presentation)
- Attachment 2 – Caltrain Long Range Service Vision and Organizational Assessment – San Francisco comment letter

Choosing a Long Range Vision

Caltrain Business Plan

Summer 2019

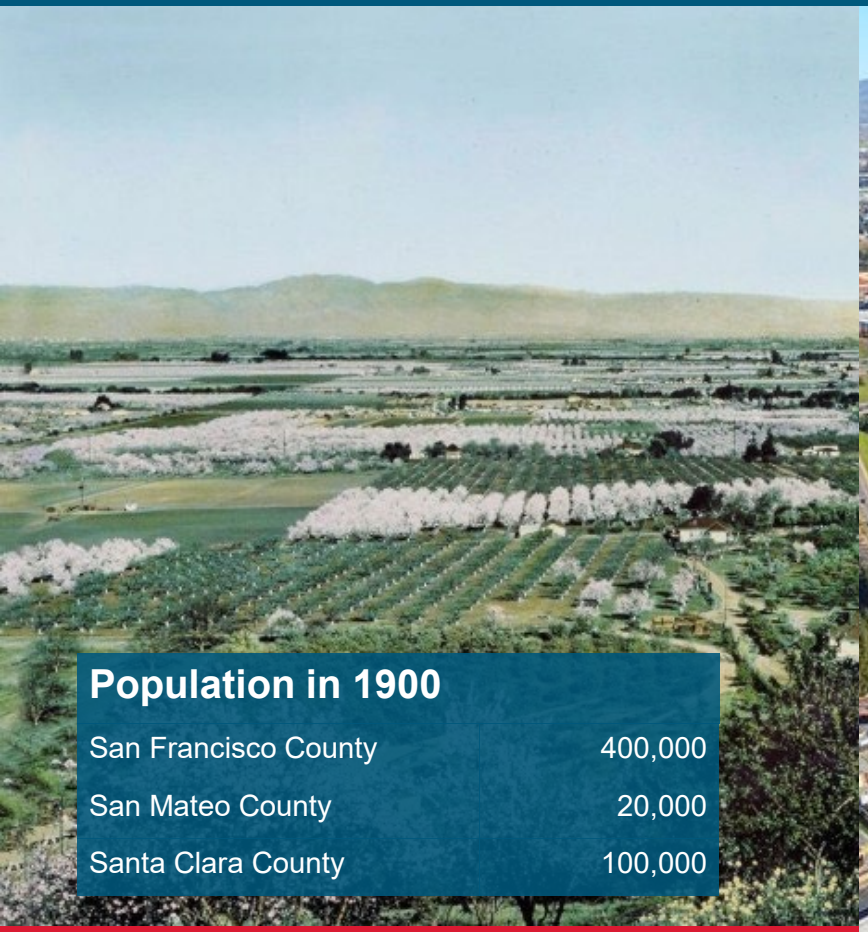
Caltrain

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.

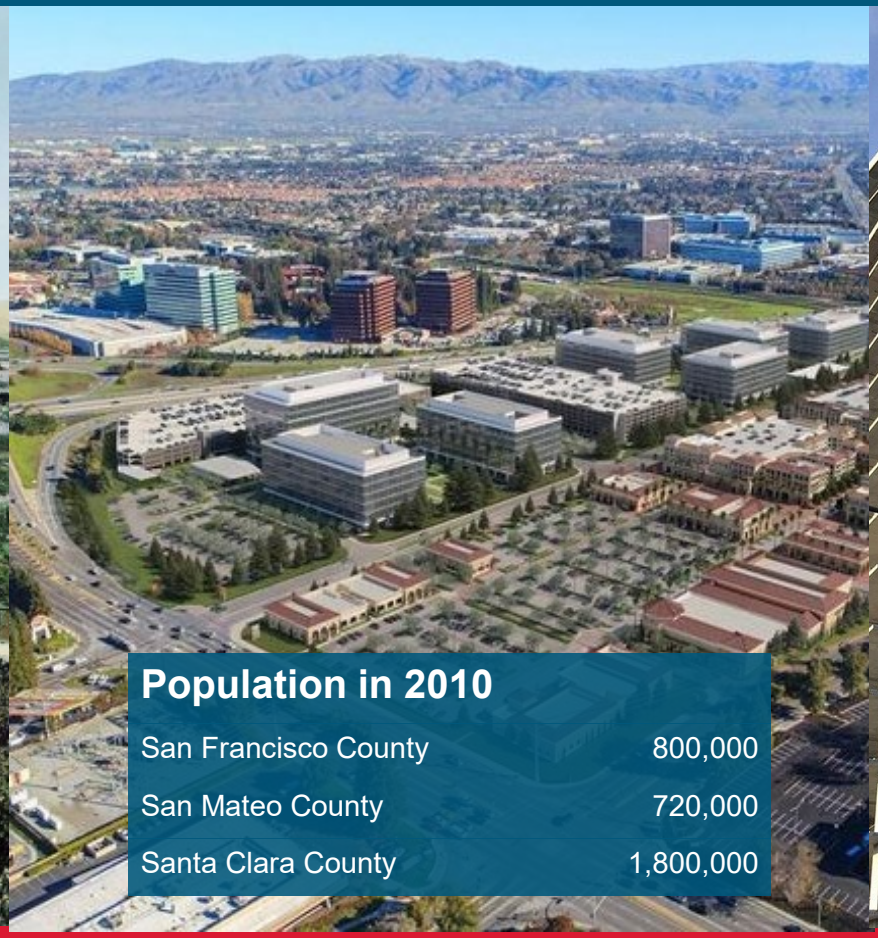
Why Allows the community and stakeholders to engage in developing a more certain, achievable, financially feasible future for the railroad based on local, regional, and statewide needs.

Caltrain is part of a dynamic corridor



Population in 1900

San Francisco County	400,000
San Mateo County	20,000
Santa Clara County	100,000



Population in 2010

San Francisco County	800,000
San Mateo County	720,000
Santa Clara County	1,800,000

Population in 2040

San Francisco County	1,170,000
San Mateo County	920,000
Santa Clara County	2,530,000

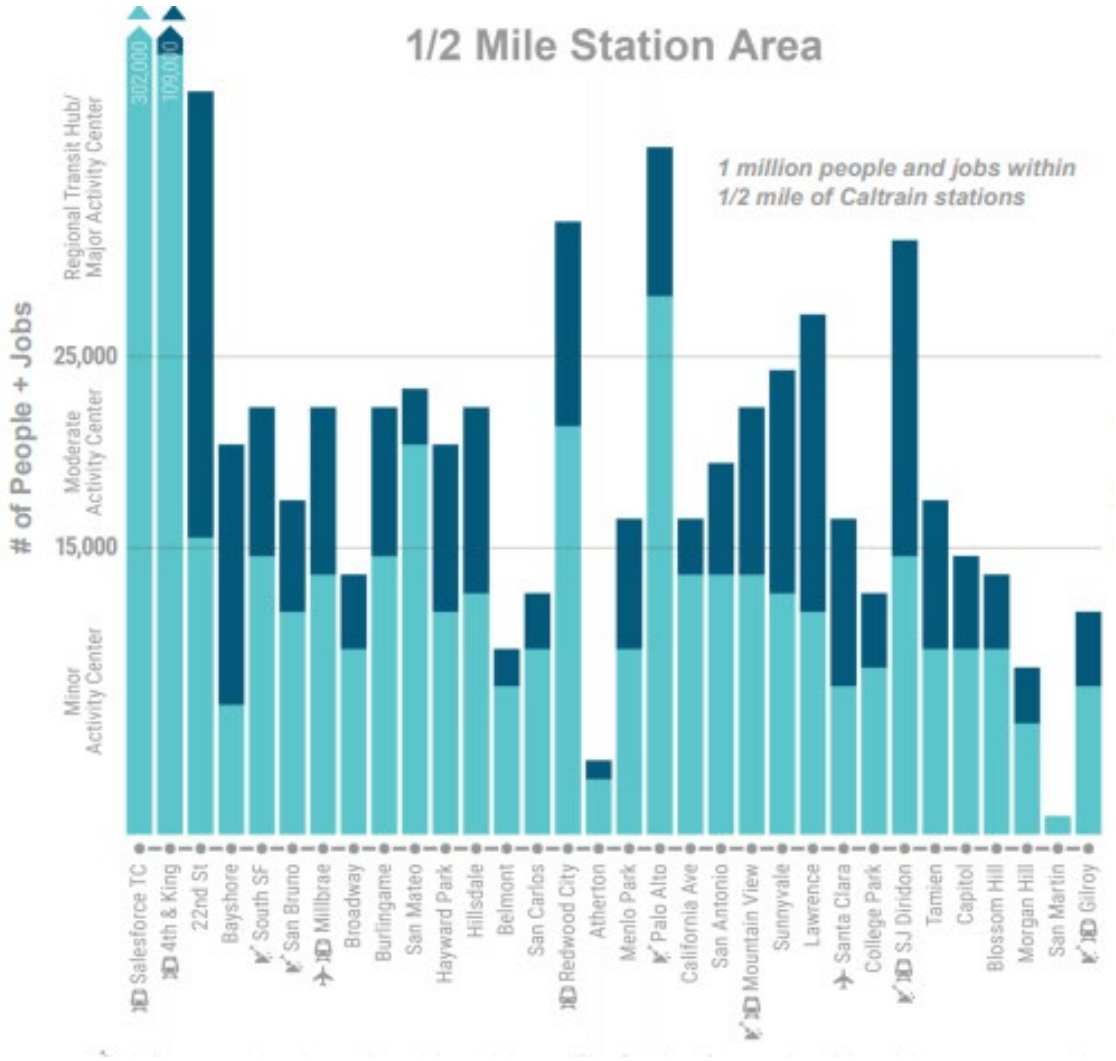
2040 Demand

The Caltrain corridor is growing

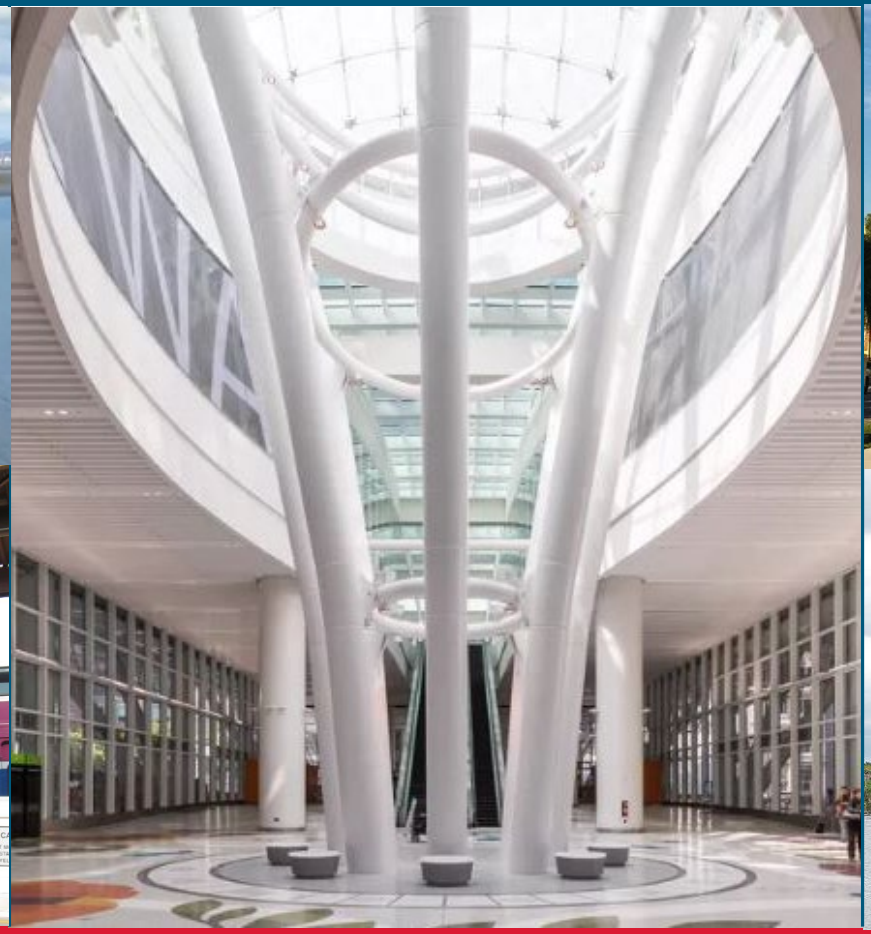
- By 2040 the corridor expected to add 1.2 million people and jobs within 2 miles of Caltrain (+40%)[1]
- 80% growth expected in San Francisco and Santa Clara Counties

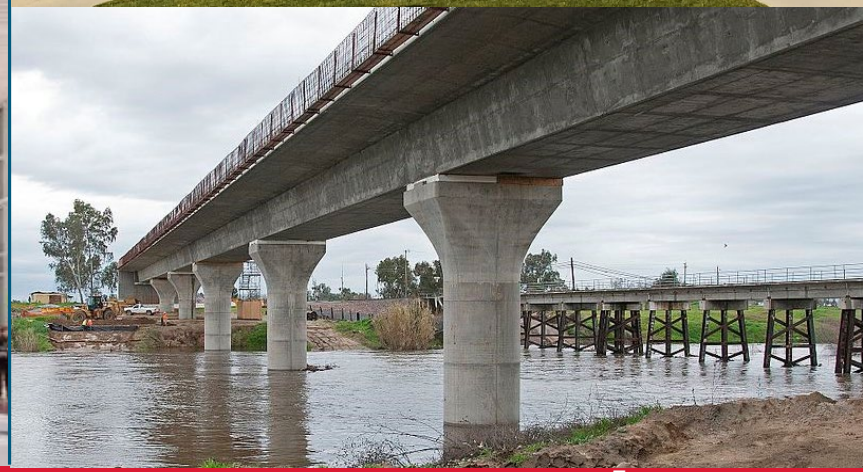
Major transit investments are opening new travel markets to Caltrain

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

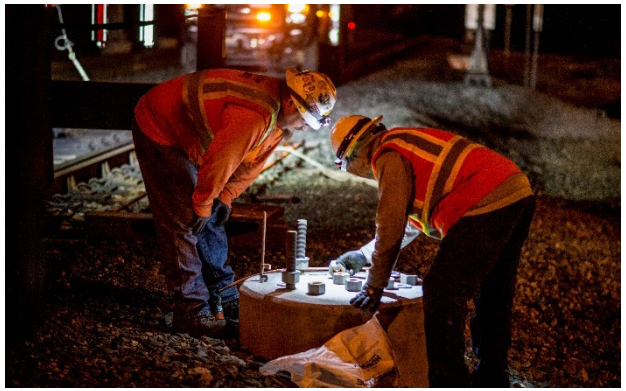


The future of rail in the Bay Area is still coming together, with many different plans and projects underway.





Caltrain will be the first, modern electrified railroad in California. The Vision we choose will shape the future of rail in the region and the state.



What does it mean for Caltrain to Choose a Long Range Vision?

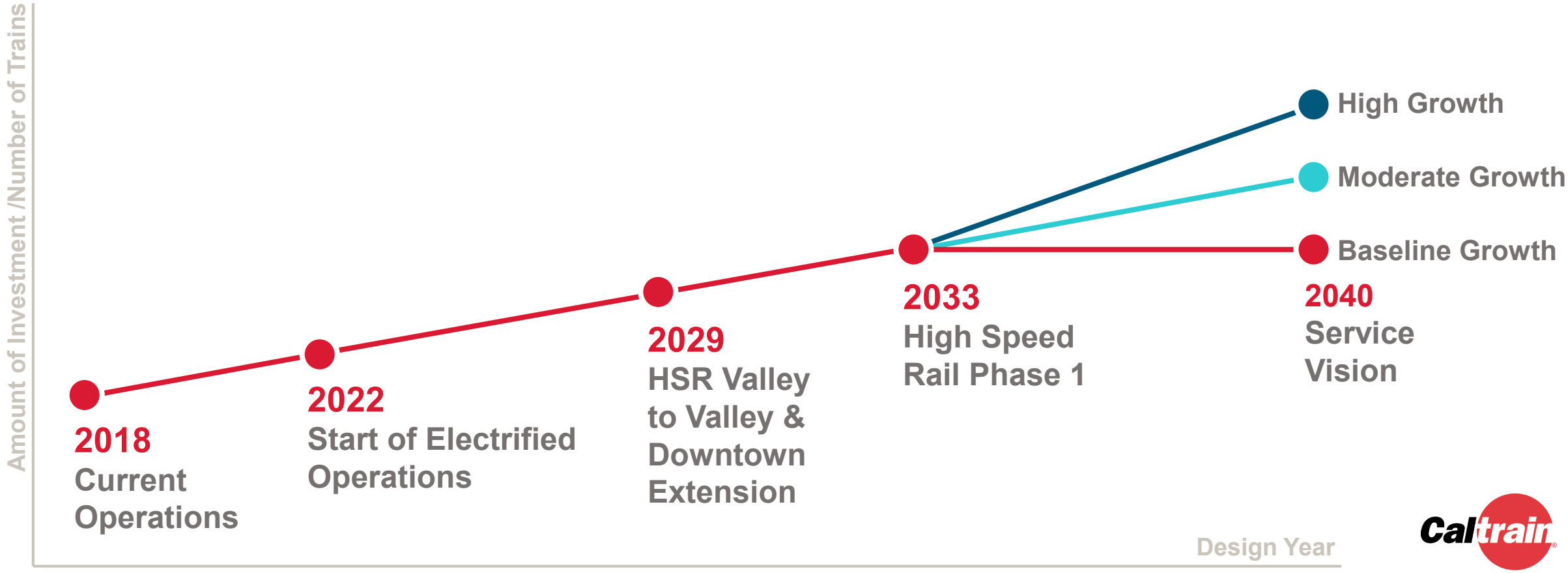
Caltrain's 2040 Service Vision needs to be a "Big Tent"

- The Caltrain corridor is a key regional transportation asset and many of our partner cities and agencies have major commitments or planned investments (Projects) in the corridor. The vast majority of these are substantially unfunded.
- The "Baseline Vision" incorporates these investments, as well as the basic improvements that Caltrain will need by 2040 to operate a fully modernized blended system at "baseline" levels of frequency.
- Building from this "baseline," Caltrain has assessed options for incremental expansion of service

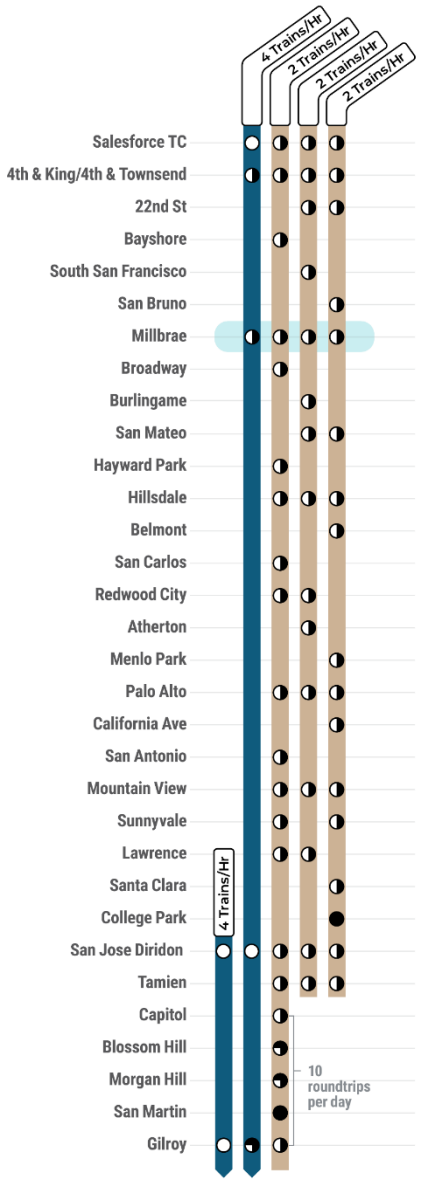
Caltrain's core question as it considers a Long Range Service Vision:

How Much Service Should We Provide?

2040 Service Scenarios: Different Ways to Grow



2040 Baseline Growth Scenario



Trains per Hour, per Direction	Peak: 6 Caltrain + 4 HSR Off-Peak: 3 Caltrain + 3 HSR
Stopping Pattern	Skip stop
Travel Time, STC-Diridon	69-73 Min
New Passing Tracks	Millbrae
Service Plan Description	• Bunched service results in irregular Caltrain headways; each pattern arrives over span of 10 minutes, then a 20-minute gap between trains • Three half-hourly skip stop patterns each with similar travel times • South of Tamien, peak-direction skip stop service with 10 round trips per day

Service Type

HSR

Skip Stop

Express

Local

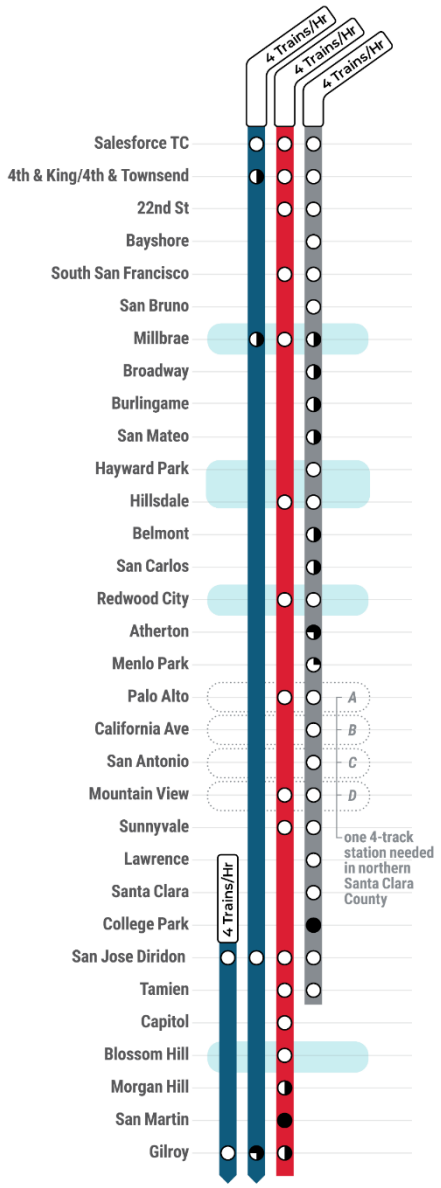
Service Level (Trains per Hour)

<1 1 2 3 4

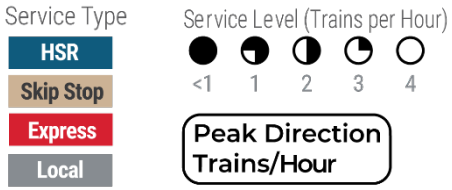
Peak Direction Trains/Hour

Conceptual 4 Track Segment or Station to be refined through further analysis and community engagement.

Moderate Growth Scenario

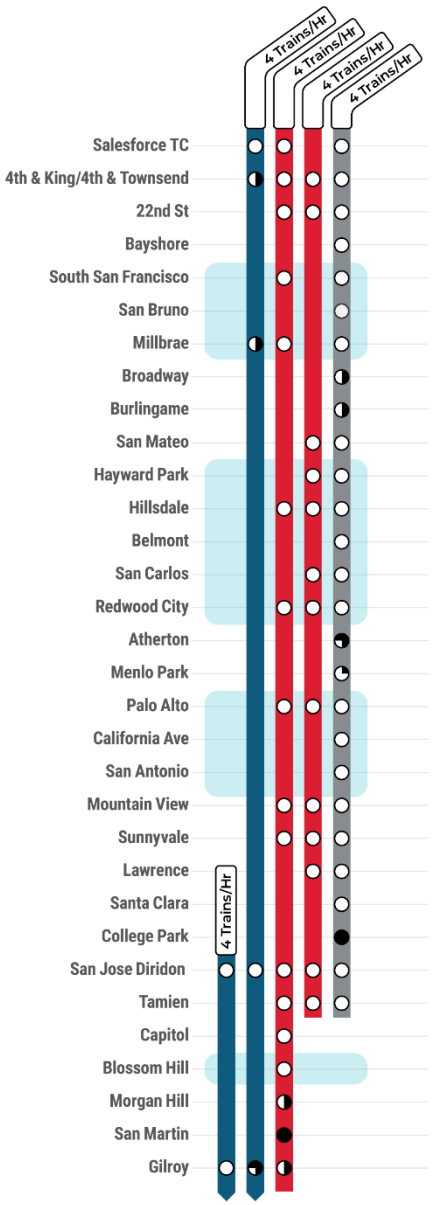


Trains per Hour, per Direction	Peak: 8 Caltrain + 4 HSR Off-Peak: 6 Caltrain + 3 HSR
Stopping Pattern	Local / Express with timed transfer at Redwood City
Travel Time, STC-Diridon	61 Min (Express) 85 Min (Local)
New Passing Tracks	Millbrae, Hayward Park-Hillsdale, Redwood City, Northern Santa Clara County, Blossom Hill
Service Plan Description	• Local and Express trains each operating at 15-minute frequencies with timed cross-platform transfer at Redwood City • Skip stop pattern for some mid-Peninsula stations; some origin-destination pairs not served at all • Trains serve Capitol and Blossom Hill every 15 minutes and Morgan Hill and Gilroy every 30 minutes



Conceptual 4 Track Segment or Station to be refined through further analysis and community engagement.

2040 High Growth Scenario



Trains per Hour, per Direction	Peak: 12 Caltrain + 4 HSR Off-Peak: 6 Caltrain + 3 HSR
Stopping Pattern	Local / Express A / Express B with timed transfer at Redwood City
Travel Time, STC-Diridon	61 Min (Express A) 82 Min (Local)
New Passing Tracks	South San Francisco-Millbrae, Hayward Park-Redwood City, northern Santa Clara County, Blossom Hill
Service Plan Description	• Local and Express A trains each operating at 15-minute frequencies with timed cross-platform transfer at Redwood City • Express B trains operate every 15 minutes between 4th & King and Tamien • Local trains make nearly all stops • Trains serve Capitol and Blossom Hill every 15 minutes and Morgan Hill and Gilroy every 30 mins

Service Type
HSR
Skip Stop
Express
Local

Service Level (Trains per Hour)
<1 1 2 3 4

Peak Direction Trains/Hour

Conceptual 4 Track Segment or Station to be refined through further analysis and community engagement.

Weighing Caltrain's Choices

Components of the Business Case Analysis

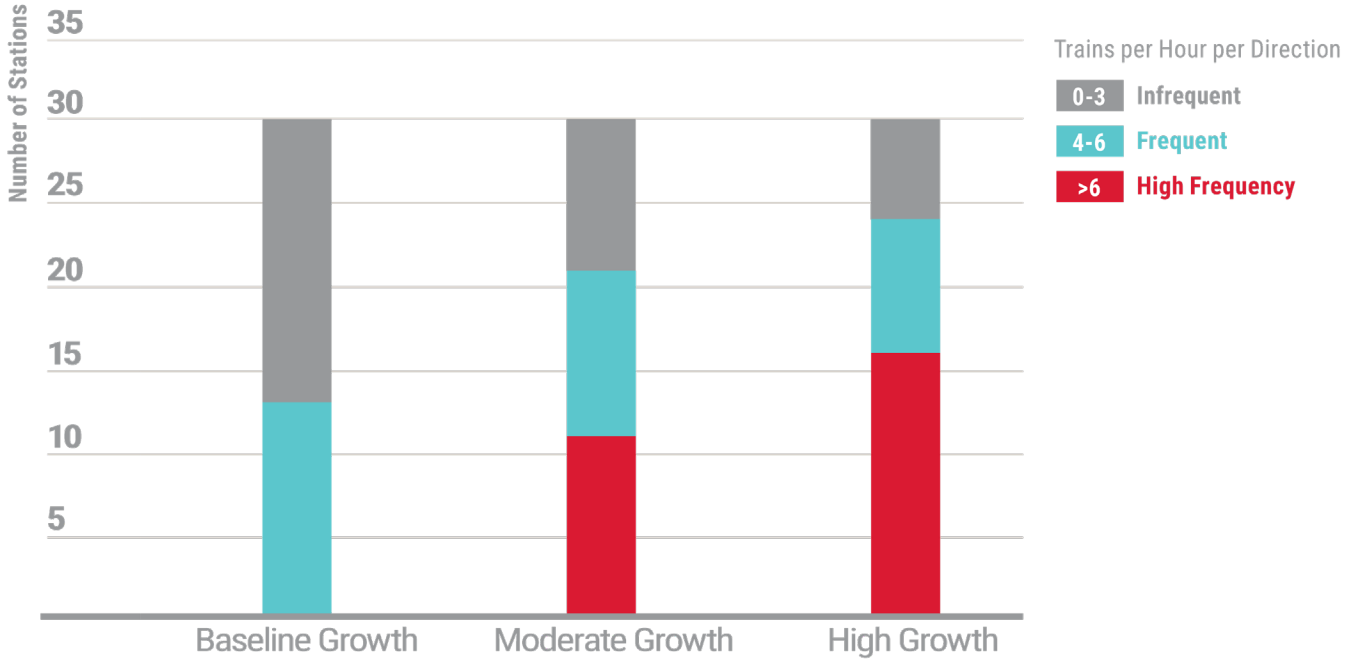
We have adapted a traditional Business Case Analysis to the specific, and complicated circumstances of the Caltrain corridor.

Collectively, this analysis helps provide guidance as to whether we should remain on the “baseline” course or if there is value in choosing a Long Range Service Vision for Caltrain that aims higher.

The following slides present and weigh analyses in each of the following areas.

Peak Period Frequency

The **number of stations** receiving frequent or high frequency service increases substantially in the Moderate and High Growth Scenarios due to higher train volumes in the peak period.

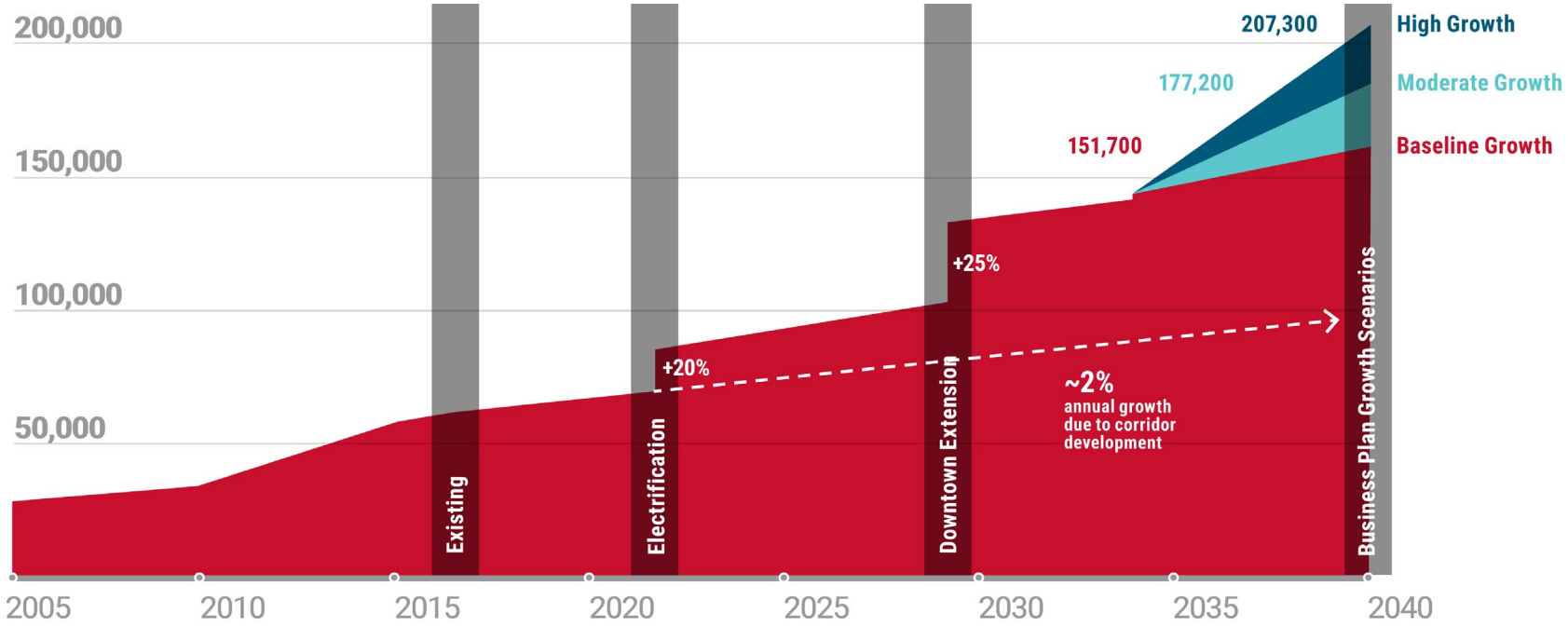


	Metric	Baseline Growth	Moderate Growth	High Growth
Frequency	Number of Stations Served by Frequent Service (>4 TPHPD)	13 Stations	21 Stations	24 Stations
	Longest wait times at major stations served by all trains	22 minutes	12 minutes	8 minutes

Ridership

On its current **Baseline** path, Caltrain would experience a *demand* of 161,000 daily riders by 2040.

The **Moderate and High Growth** scenarios would increase *demand* to 185,000 and 207,000 riders, respectively, leading to ridership and VMT saving increases.



	Metric	Baseline Growth	Moderate Growth	High Growth
Ridership	Daily Ridership*	151,700 Riders	177,200 Riders	207,300 Riders
	Comfortable Peak Hour Train Loads?*	No	Crowding on some trains	Yes

**Crowd Constrained Ridership (135%)*

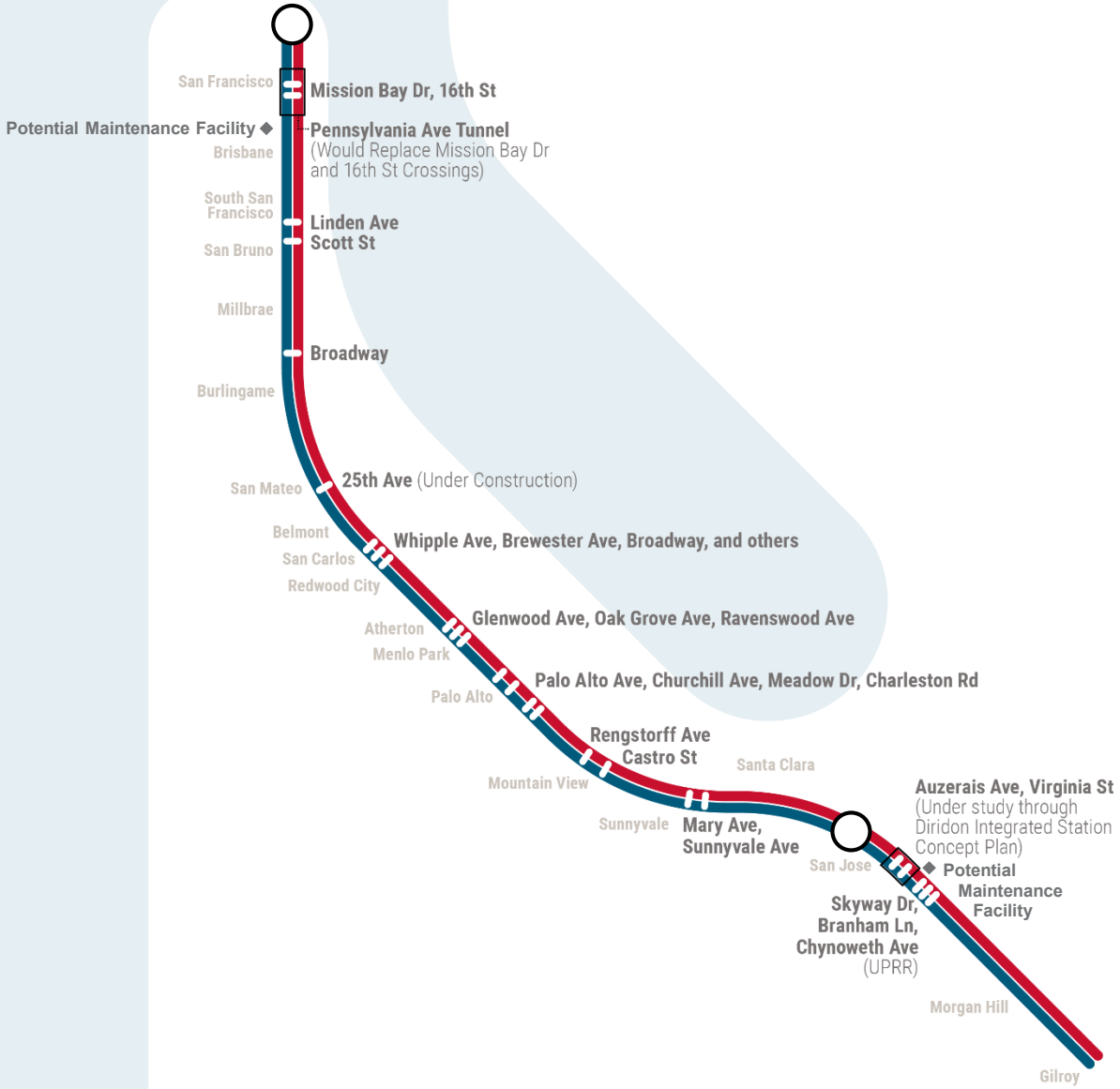
Baseline Investments

While the “Baseline” for the 2040 Service Vision contemplates only modest increases in Caltrain service beyond electrification, there are many other investments planned for the Caltrain corridor before 2040.

Some of these projects are directly required to enable the baseline level of service while others reflect the goals and commitments of Caltrain’s local, regional and state partners.

Baseline investments include:

1. Caltrain projects already underway
2. Local, Regional & State partner projects that directly influence Caltrain
3. Additional Caltrain investments needed to fill out the baseline and support blended operations



The Baseline Costs $22.1 Billion

$2.3B
Caltrain Work Underway

$16.2B
Investments Planned and Proposed by Caltrain Partners

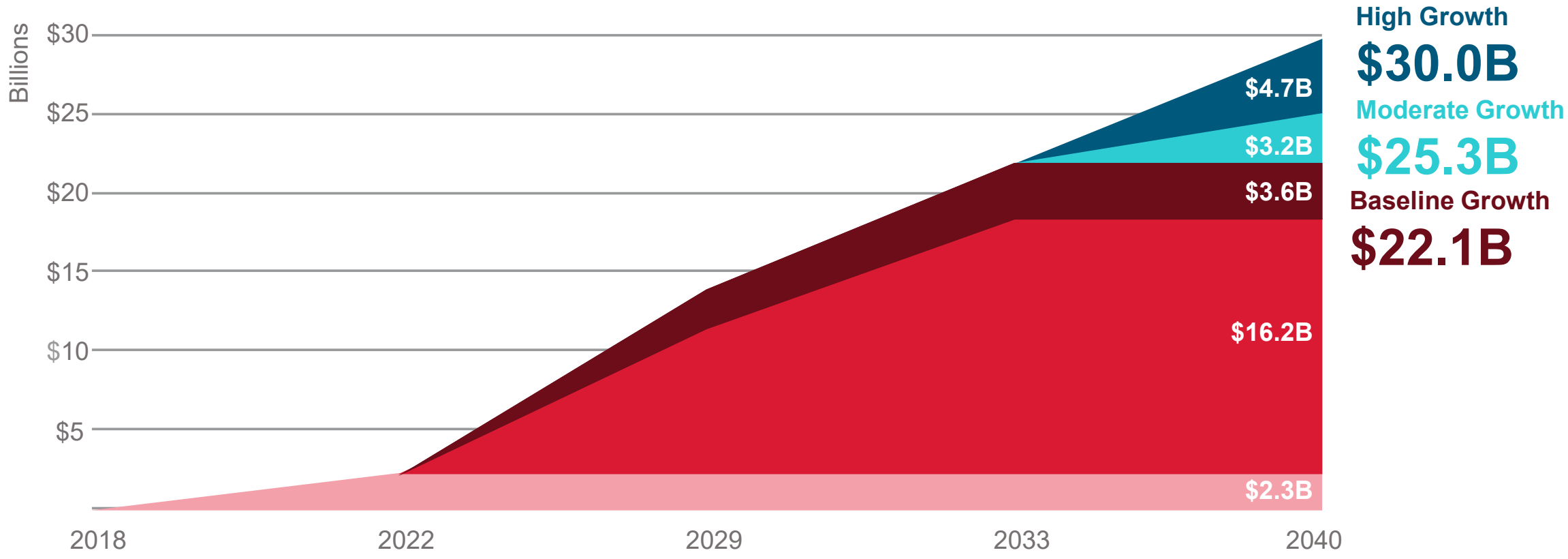
$3.3B	$3.4B	$2.6B	$6.9B
Downtown Extension to Salesforce Transit Center	Diridon Station and Surrounding Rail Infrastructure*	High Speed Rail Investments	City-led Grade Separations

$3.6B
New Caltrain Investments to Support Baseline Growth Scenario

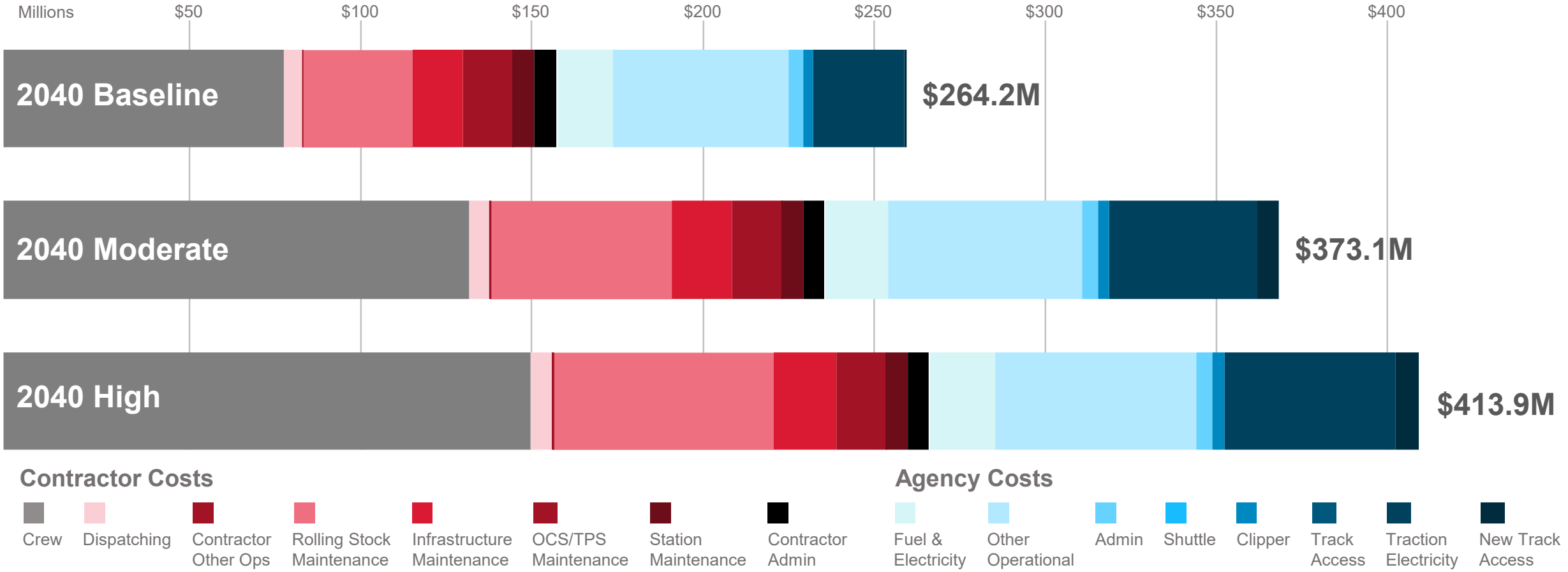
** Placeholder cost pending detailed cost estimate to be developed through Diridon Integrated Station Concept Plan*

Investing for Growth

Total Corridor Investment Over Time by Growth Scenario



Year 2040 Operating Costs



Caltrain User Benefits over Baseline

Total Benefits 2018 to 2070, Average Annual Benefits 2040 to 2070

Benefit	Unit	Moderate Growth		High Growth	
		Total*	Per Year Average	Total*	Per Year Average
Existing Transit User Travel Time Savings	*hours*	12.9M	0.43M	20.9M	0.70M
New Transit User Travel Time Savings	*hours*	27.7M	0.92M	40.4M	1.35M
Avoided Auto Trips (VMT Savings from New Transit Users)	*vehicle miles*	9,000M	300M	16,100M	540M
Roadway Network Safety Improvements	*reduced fatal/injury accidents*	7,300	240	13,000	430
Public Health Benefits (from Active Transportation Mode Access)	*lives saved*	70	2	150	5
	reduced absent days at work	30,000	1,000	67,000	2,200

**Values rounded for presentation purposes*

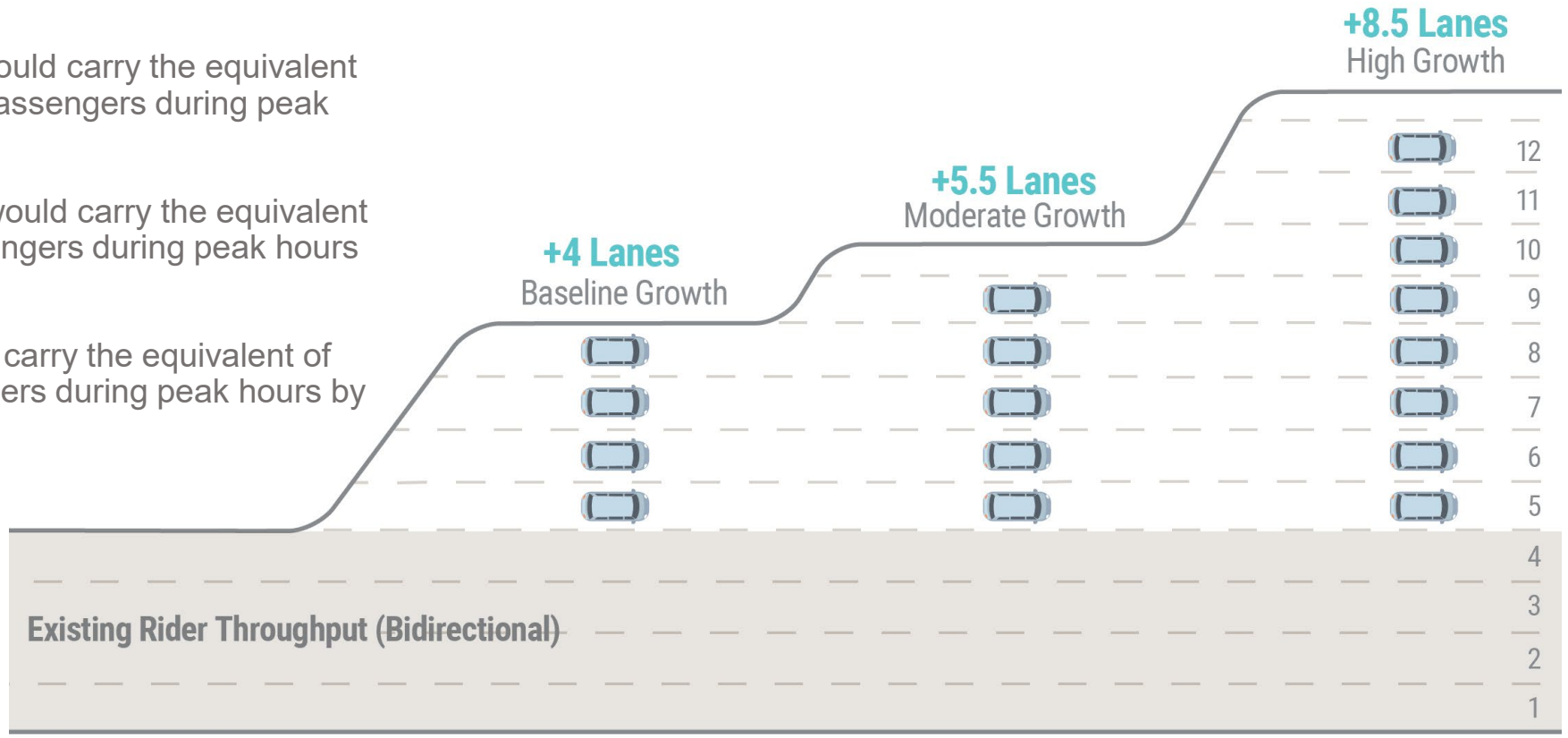
Freeway Throughput

Today, Caltrain carries 4 freeway lanes worth of people during peak hours. By 2040, the proposed growth scenarios will carry an additional 4 to 8.5 freeway lanes worth of passengers.

The **Baseline Growth** scenario would carry the equivalent of 4 new freeway lanes worth of passengers during peak hours by 2040.

The **Moderate Growth** scenario would carry the equivalent of 5.5 new freeway lanes of passengers during peak hours by 2040.

The **High Growth** scenario would carry the equivalent of 8.5 new freeway lanes of passengers during peak hours by 2040.



*Assumes vehicle occupancy of 1.1 persons/vehicle and lane capacity of 1,500 vehicles/hour.

Regional Rail Integration

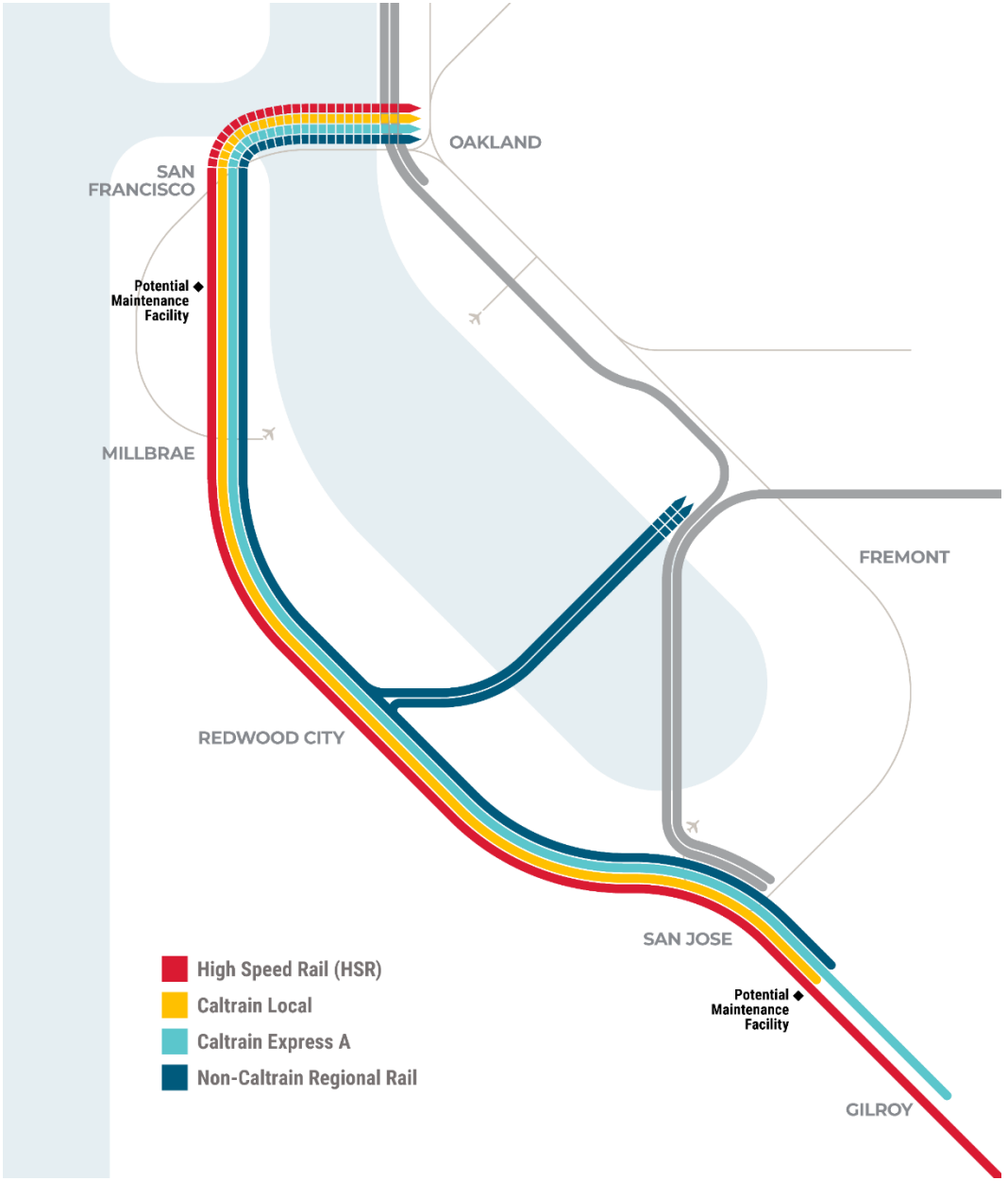
All service scenarios are compatible with regional rail needs.

High Growth anticipates large-scale corridor sharing, or “interlining" through investments in 4-track segments.

Baseline & Moderate Growth preserve the ability to scale up to large-scale corridor sharing but hold off on proactive investments until regional needs are better defined.

Examples of active studies and plans ongoing in the region that could advance the potential need for significant interlining onto Caltrain’s corridor include:

- A standard gauge transbay crossing connecting San Francisco and the East Bay
- The reactivation of the Dumbarton rail bridge
- The development of expanded, “visionary” levels of service by ACE or Capital Corridor into San Jose



Summary

Service

	Metric	Baseline Growth	Moderate Growth	High Growth
Frequency	Number of Stations Served by Frequent Service (>4 TPHPD)	13 Stations	21 Stations	24 Stations
	Longest Wait Times At Major Stations Served by All Trains	22 minutes	12 minutes	8 minutes
Connectivity	Percentage of Station Pairs Connected Without/(With) a Transfer	84% (91%)	96% (98%)	99% (99%)
	Number of Station Pairs Not Connected at All	95	17	2
Network Integration	Timed Connections at Regular Intervals	No	Yes	Yes
Ridership	Daily Ridership (capacity constrained)	151,700 Riders	177,200 Riders	207,300 Riders
	Comfortable Peak Hour Train Loads?	No	Some Crowding	Yes
Travel Time	Travel Time, San Francisco (STC) to San Jose (Diridon)	69-73 Minutes	61 Minutes	60 Minutes
	Average Travel Time per Rider, All Origin-Destination Pairs	33 Minutes	32 Minutes	31 Minutes
Infrastructure	Passing Tracks Needed	<1 Mile	<5 Miles	15-20 Miles

Summary

Financial Analysis

Caltrain Economic Case

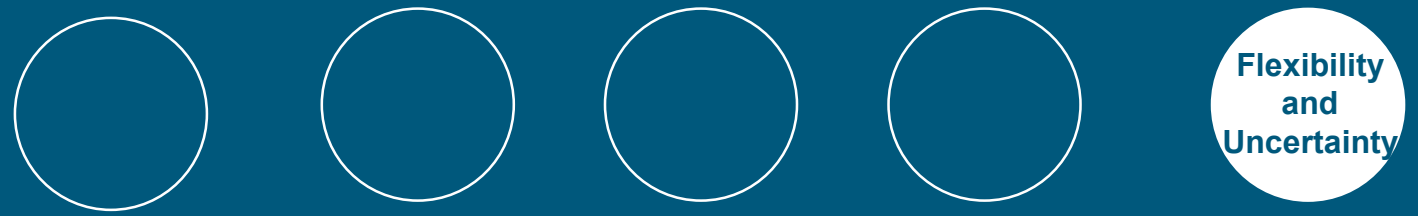
	Metric	Baseline Growth	Moderate Growth	High Growth
Financial Metrics	Total Capital Costs	($22.1B)	($25.3B)	($30.0B)
	Caltrain Allocated Capital Costs	($6.6B)	($7.6B)	($9.4B)
	Total Operating Costs	($5.1B)	($6.0B)	($6.3B)
	Year 2040 Operating Costs	($0.26B)	($0.37B)	($0.41B)
	Farebox Recovery Ratio	82%	75%	77%
	Net Investment	($7.1B)	($8.6B)	($10.3B)
Caltrain Economic Metrics	Net Present Value	-	$0.58B	$0.15B
	Benefit Cost Ratio	-	1.33	1.04

Except for Total Capital Costs, values are shown as a present (Year 2018) value using a discount rate of 4.0% and cover the period from 2018-2070.

Summary

	Metric	Baseline Growth	Moderate Growth	High Growth
Freeway Throughput	Additional Freeway Lanes	+4 lanes	+5.5 lanes	+8.5 lanes
Regional Rail Integration	Accommodation of Large-Scale Corridor-Sharing Beyond HSR	could be scaled to accommodate	could be scaled to accommodate	can accommodate
Environmental Benefits	GHG (MTCO2e)	1,108,045	1,898,330	3,006,028
Land Value Benefits	Property Value Premiums Generated by 2040 Service Growth within 1 Mile of a Station	$10B	$10 - $22B	$22B
Economic Productivity	Economic Output	$32.8B	$40.8B	$47.7B
	Full and Part-time Jobs	44K job-years	51K job-years	69K job-years

Summary



Uncertainties to consider in selecting a Service Vision for Caltrain include:

- Ultimate design and timing of key regional projects impacting the corridor is still in flux and may change
- All scenarios have a degree of flexibility; detailed service and infrastructure planning will be an ongoing process
- Scale and location of passing tracks needed are sensitive to state and regional rail plans, particularly in the high growth scenario
- Key business metrics may shift as fundamental assumptions change

The Moderate Growth Scenario:

- Does not directly accommodate large-scale corridor sharing but has the potential to scale up
- Has a high level of confidence that the Benefit-Cost Ratio to Caltrain is over 1.0 even if key assumptions change

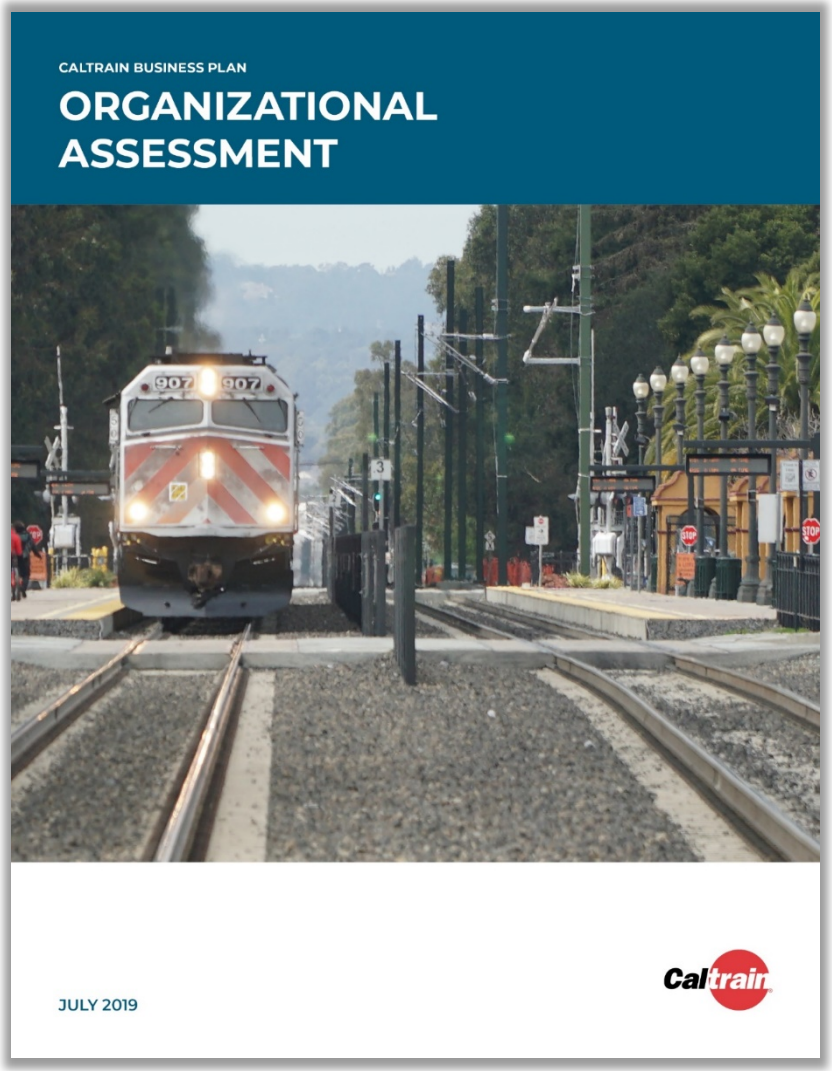
The High Growth Scenario:

- Most directly accommodates large-scale corridor sharing and interlining but infrastructure is sensitive to changes in regional and state assumptions
- Has less certainty that Benefit-Cost Ratio to Caltrain is solidly over 1.0 should key assumptions change

Organizational Assessment Report

The Organizational Assessment was developed by Howard Permut of Permut Consulting LLC and former President of Metro-North.

Key areas of Howard's work have been supported by the Stanford Global Projects Center and a team of outside experts



Read the full report at www.caltrain2040.org

Staff Recommendation

Caltrain Long Range Service Vision: Staff Recommendation

Website where full draft staff recommendation can be reviewed:

https://www.caltrain2040.org/long-range-service-vision/

Summary and Basis for Recommendation

Caltrain staff have developed a draft recommendation for the Long Range Service Vision. This recommended Vision is:

Caltrain adopt and pursue a Vision compatible with the "moderate growth" scenario while also taking a series of steps to plan for and not preclude the potential realization of the "high growth" scenario

The extensive analysis conducted during the Business Plan process has shown that there is a strong demand for expanded Caltrain service. Additionally, the business case analysis conducted as part of the plan has shown that there is a clear case, based on economic and regional benefits, for pursuing a Vision that goes beyond the baseline levels of service previously contemplated.

While the high growth option generates the greatest ridership and expanded regional benefits, it also comes at a higher cost and carries significantly higher levels of uncertainty and potential for community impacts. Therefore, based on the assembled evidence, staff has developed a recommendation that would direct Caltrain to pursue a service vision consistent with the "moderate growth" scenario while retaining the ability to expand to a level consistent with the "high growth" scenario at such time as demand warrants or the region has made the policy and funding commitments to pursue a larger, integrated rail system.

Caltrain Long Range Service Vision: Staff Recommendation

Website where full draft staff recommendation can be reviewed:

https://www.caltrain2040.org/long-range-service-vision/

The features of the Service Vision include:

Fast and frequent all day (every day) service

- Total peak hour frequencies of 8 Caltrain trains per direction
- Faster, all day baby bullet service with express service every 15 minutes
- Significantly increased off-peak and weekend service levels
- User friendly, show up and go service with easy to understand schedules

Increased Capacity

- Provides the capacity to triple today's ridership, serving nearly 180,000 people a day
- Adding more than 5 freeway lanes worth of regional capacity

Regional Connectivity

- End to end service - connecting Gilroy to downtown San Francisco (all day, both ways)
- Comprehensive local service providing coverage to every community
- Regular service making transfers and connections easier and more predictable

Caltrain Long Range Service Vision: Staff Recommendation

Website where full draft staff recommendation can be reviewed:

https://www.caltrain2040.org/long-range-service-vision/

Major Additional Benefits

The Vision will bring huge benefits beyond direct improvements to service. Once complete, the Vision will deliver;

- **Reduced Travel Time** - 1.3 million hours of travel time savings for existing and new Caltrain riders every year as compared to the baseline scenario
- **Reduced Auto Travel** - 300 million vehicle miles not traveled every year as compared to the baseline scenario
- **Economic Productivity** - $40.8 billion in regional economic output created by ongoing capital and operating investments
- **Land Value Benefits** - By 2040 Caltrain service will add between $25 and $37 billion in property value premiums to residential and office properties within 1 mile of stations. (This analysis is conservative and excludes San Francisco as well as commercial, non-office properties for which estimates could not be reliably developed)
- **Environmental Benefits** - The Vision will result in a reduction of nearly 2 million metric tons of CO2 as well as other air quality improvements

Where are We in the Process

July 2018 – July 2019

Development and Evaluation of Growth Scenarios

August 2019

Staff Recommendation for Long Range Service Vision

October 2019

Refinement and Proposed Adoption of Long Range Service Vision

Early 2020

Completion of Business Plan

Outreach Activities to Date

July 2018 – July 2019 by the Numbers

Stakeholders Engaged

21
Jurisdictions

26
Public Agencies

93
Organizations in Stakeholder Advisory Group

156
Stakeholder Meetings

Public Outreach

51
Public Meetings and Presentations

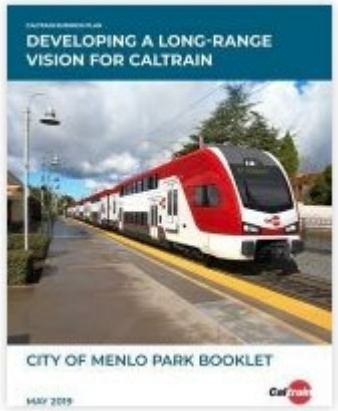
1,000+
Survey Responses

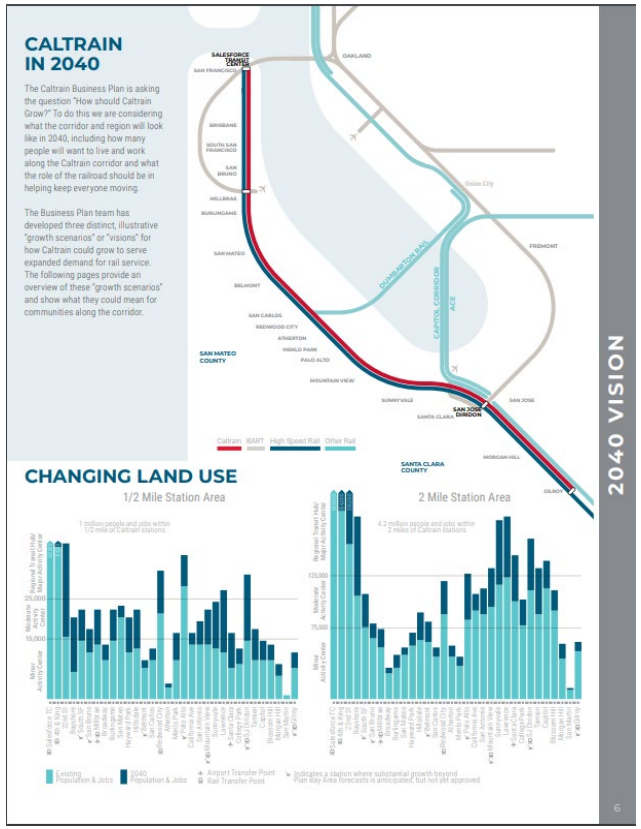
14,300+
Website Views

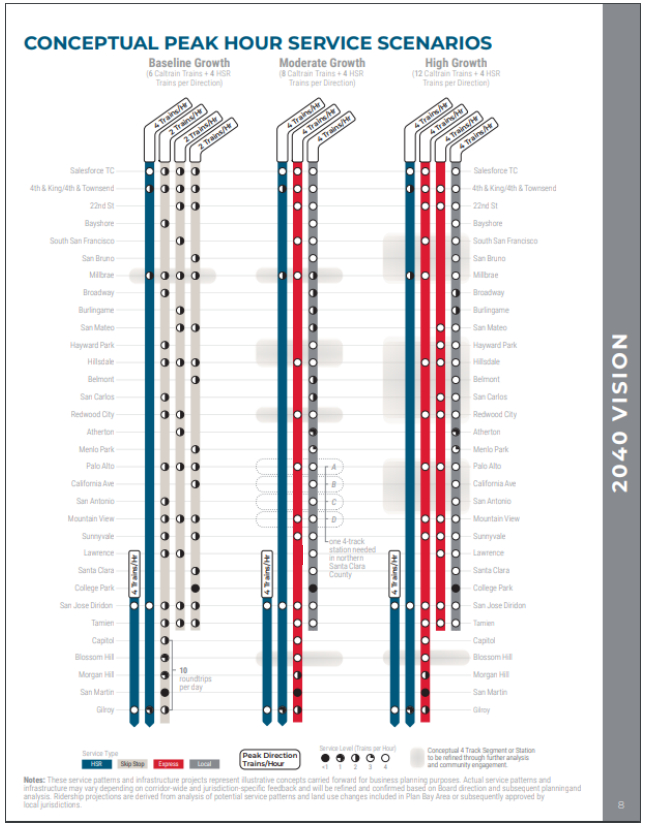
258,200+
Social Media Engagements

Individual Jurisdiction Outreach

City Booklets







View the booklets at: www.caltrain2040.org

How to Get Involved

- **Visit our website:**

  www.Caltrain2040.org

- **Watch the staff recommendation presentation:**

  https://www.youtube.com/watch?v=BCc3tlkEMYA&feature=youtu.be

- **Attend an in-person meeting (over 20 meetings planned before potential Board action):**

  https://www.caltrain2040.org/get-involved/

- **Send us a note via email or phone:**
  - Email: BusinessPlan@Caltrain.com
  - Phone: 650-508-6499

FOR MORE INFORMATION

WWW.CALTRAIN2040.ORG

BUSINESSPLAN@CALTRAIN.COM

650-508-6499

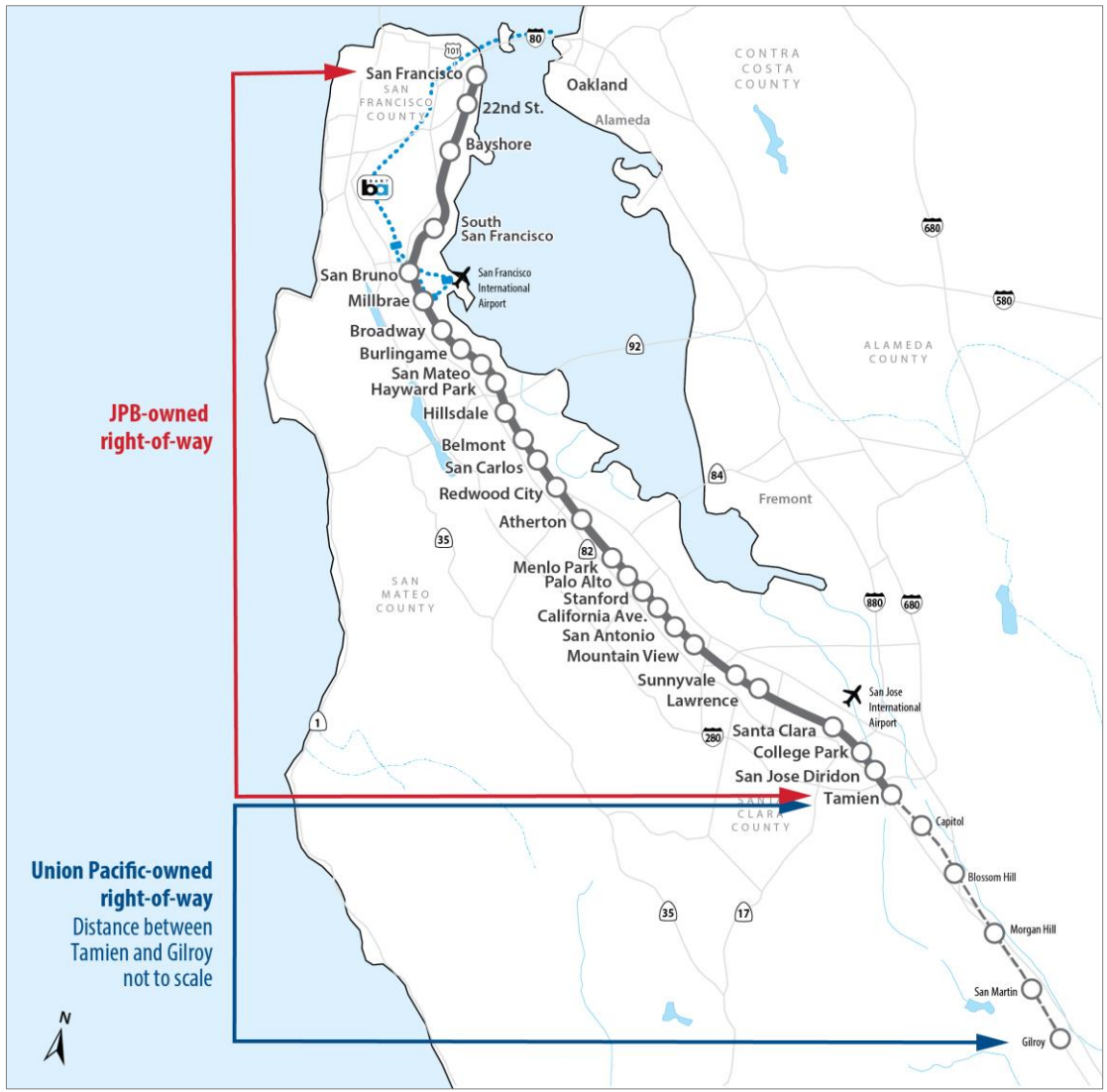
CalMod

SFCTA

September 2019

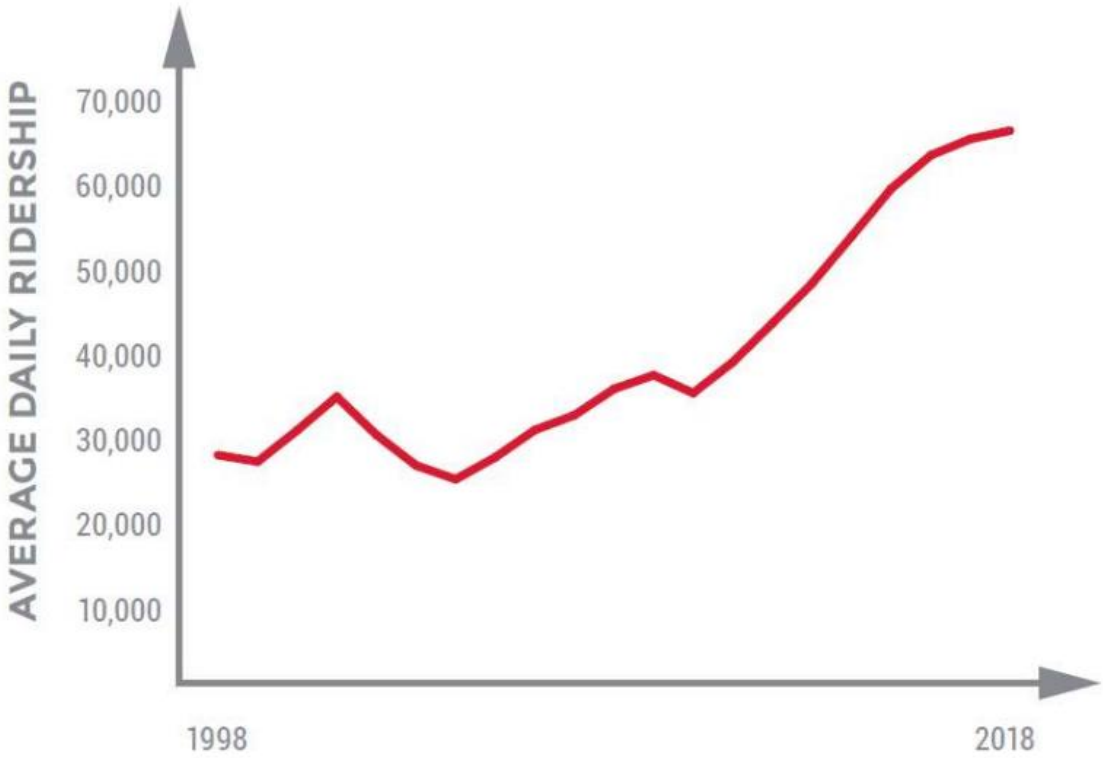
Caltrain

CALTRAIN SYSTEM



- 32 Stations Gilroy to San Francisco
- 92 Weekday Trains
- At-Grade Crossings, Viaducts, and Bridges
- Intermodal Connections
- Bike Commuters

RIDERSHIP

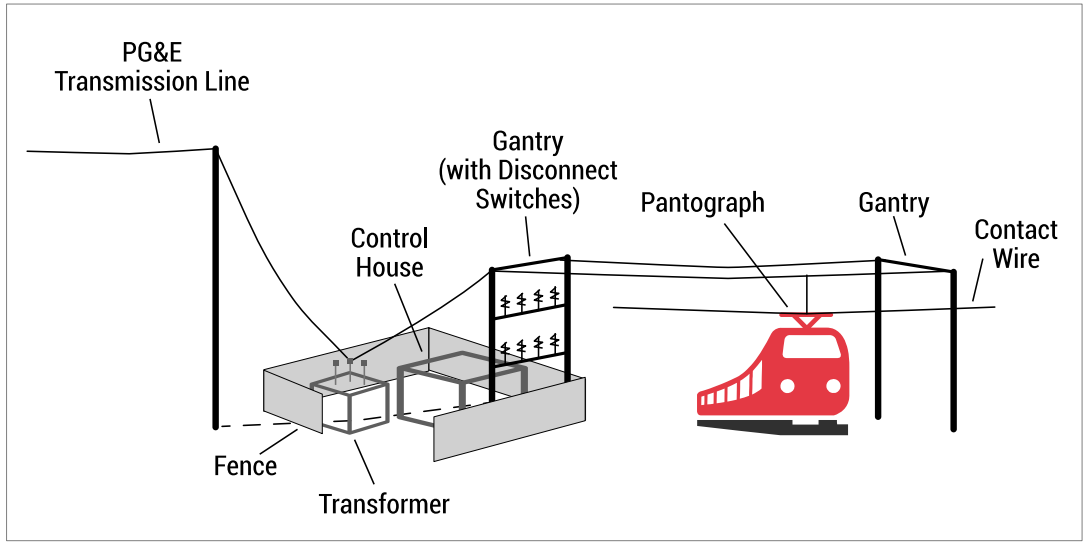

AVERAGE DAILY RIDERSHIP
70,000
60,000
50,000
40,000
30,000
20,000
10,000
1998
2018

CalMod ELECTRIFICATION PROJECT

Project Area

- 51 miles
- San Francisco to San Jose (Tamien Station)

Project Elements



Electrification

- Overhead Contact System (OCS)
- Traction Power Facilities

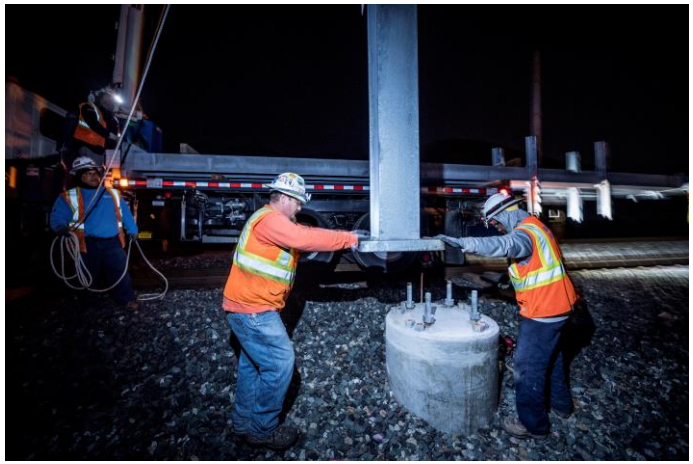
Electric Trains*

- 19 7-car train sets
- 133 electric cars

*Includes 2018 State TIRCP Funding

Caltrain

CONSTRUCTION INFORMATION



- Potholing
- Foundations
- Poles
- Wires
- Tunnel work
- Traction Power Facilities

ELECTRIC VEHICLES

ELECTRIC TRAIN

BENEFITS

CONVENIENCE
Increased frequency and reduced travel time

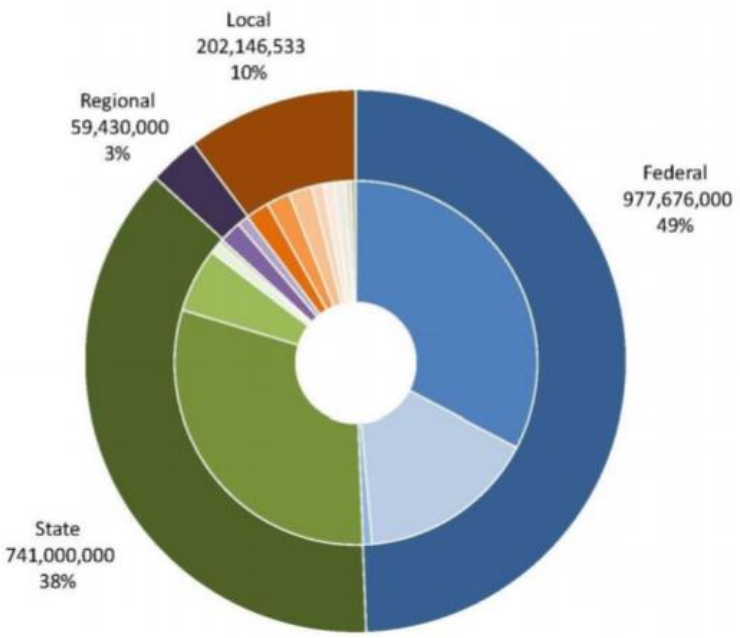
COMFORT
Amenities like destination signs and electrical plugs, more room, and reduced engine noise

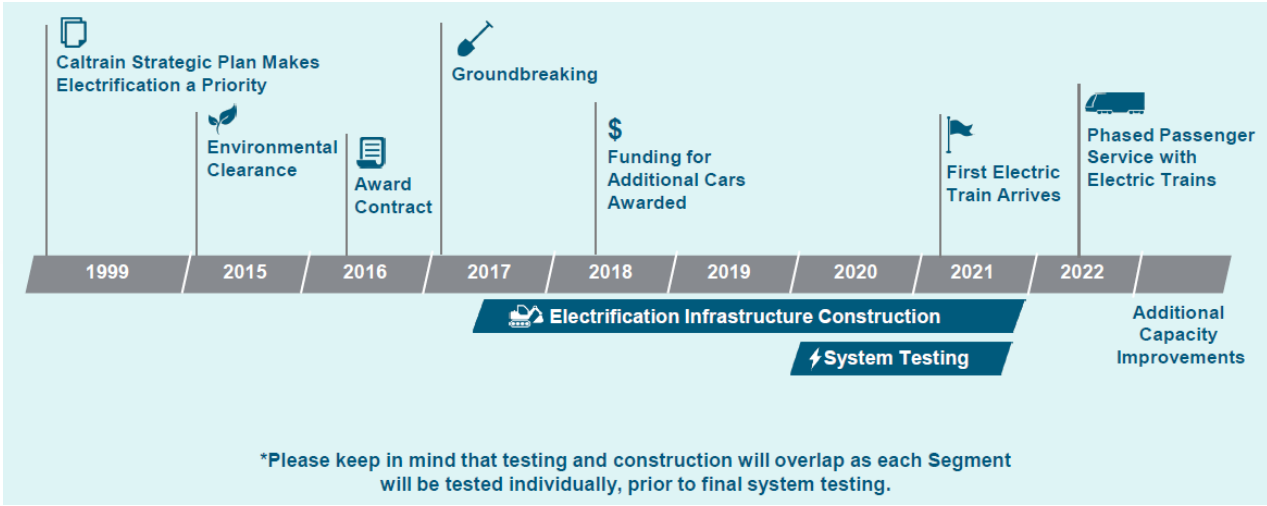
CAPACITY
Short and long-term capacity growth potential, without degrading service

SUSTAINABILITY
Replacing old diesel trains with new electric trains will reduce GHG and improve air quality

- Public involved in design process
- Virtual Reality 360 Tour planned early 2020

BUDGET ($1.98B) / SCHEDULE





- SF Contribution, ~$60M

- Joint Caltrain / FTA schedule workshops schedule late September – October

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 by December 2020
- Caltrain's PTC system:
  - September 7, 2019: Revenue Service mainline
  - December 2019: Full Interoperability
  - Summer 2020: Safety Plan to be submitted for final approval
  - December 2020: Full System Certification

KEY BENEFITS: IMPROVING SAFETY

- Eliminates risk of train-to-train collisions
- Reduces risk of over-speed derailments
- Provides additional safety for railroad workers

BUDGET

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

CalMod

CALMOD CONTACT INFORMATION

WEBSITE CalMod.org

EMAIL CalMod@caltrain.com

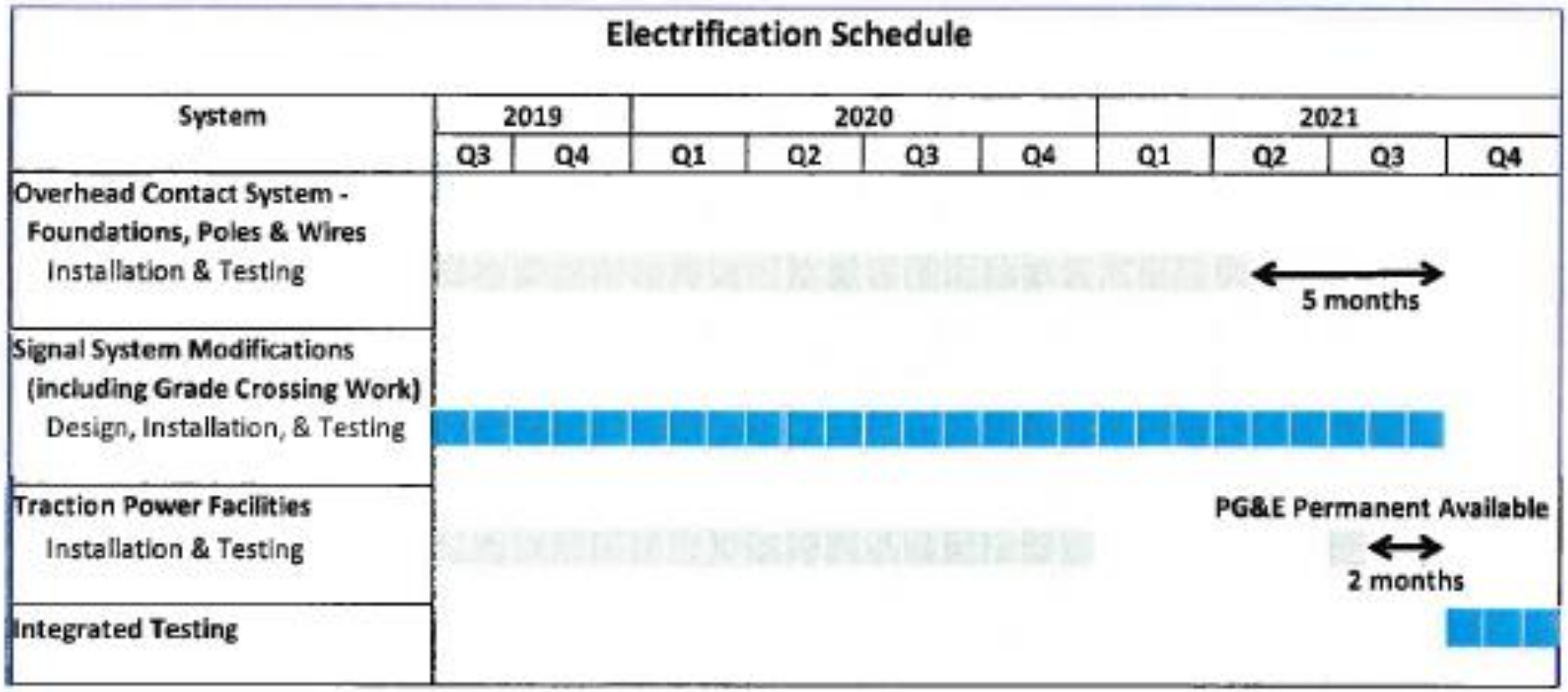
PHONE 650-399-9659
800-660-4287 (Toll Free)

OFFICE 2121 S. El Camino, Suite A-100
San Mateo, CA 94403
9 a.m. - 5 p.m. Monday - Friday

FACEBOOK www.facebook.com/caltrain
TWITTER @caltrain

Caltrain

DETAILED SCHEDULE



August 30, 2019

Jim Hartnett
Caltrain Executive Director
1250 San Carlos Ave.
San Carlos, CA 94070-1306

Dear Mr. Hartnett,

The City of San Francisco and Transportation Authority are pleased to participate in the development of Caltrain's Business Plan 2040, and appreciate the opportunity to provide our comments on the draft Long Range Service Vision and Organizational Assessment, the two recently provided major study deliverables. We are broadly supportive of the Service Vision recommendations so far and look forward to supporting the remaining tasks of this critical study.

As a transit first city, San Francisco supports greatly increased rail capacity along the corridor to meet the current and future needs of the city and region in a customer-oriented and cost-effective way. The proposed Service Vision of at least twelve total trains-per-hour (eight Caltrain and four High Speed Rail) offers levels of service necessary to support the corridor and state's needs. As the Business Plan's analysis shows, San Francisco's three stations will have the most housing and jobs on the corridor and reliable and frequent rail service connecting these stations to San Mateo and Santa Clara counties is essential. Furthermore, the investments outlined will make possible far more mid-day, evening, and weekend trips on the corridor. However, as noted in the Service Vision, there may be demand for even more throughput on the corridor. We urge staff to include in the final Service Vision the specific conditions that would lead to the high growth scenario (e.g. transbay conventional rail crossing).

The Business Plan process has done an excellent job of compiling information from the corridor to assess the long-term local, Caltrain, and state projects that are expected to support the implementation of the Service Vision. This work makes it clear that it will be a major funding and institutional challenge just to deliver the Baseline service scenario, in addition to the recommended medium scenario. In order to emphasize this point, and to support the funding and prioritization discussions to come, we suggest providing more detailed descriptions and cost assumptions of the projects that comprise the Baseline. This would be a foundation on which the Service Vision could then be presented, as far as the incremental organizational, operational, and capital needs to achieve that goal. We urge Caltrain to include the long-term operating funding needed, and options for providing this level of funding, into the final Service Vision which the board will adopt this fall.

In addition, the Service Vision must speak to the need for organizational change in the coming years in order to reach the proposed Service Vision. As noted in the Organizational Assessment report (July 2019), "the status quo is no longer viable." We urge Caltrain to incorporate the need for institutional change and capacity building into the final Service Vision and lay out a public process to resolve the issues raised in the report.

More specifically, we suggest the following steps be adopted to help implement the Organizational Assessment recommendations outlined on pages 95-99 of the report. We recognize the critical

need to address 1) service delivery, 2) the internal organization, and 3) governance for Caltrain to succeed with electrification in the short term, delivery of major "baseline" investments in the medium-term, and achievement of the Service Vision in the medium to long-term.

1. Service Delivery: we recommend a report be prepared for the Finance Committee in winter 2020; follow up reports would be issued quarterly until the issue is addressed.
2. Internal Organization: we support the recommendation this work be complete in time to inform the 2020/2021 budget. We suggest quarterly updates at the Finance committee starting in winter 2020Caltrain has a large number of vacancies in the rail division and has been having difficulties with recruiting for some time. Considering that the cost of living and salary act as a barrier (but by no means the only barrier) to recruitment, Caltrain should consider engaging a recruitment firm to conduct a study to explore what it would take to make the agency more competitive in the national market and use it to develop recruitment plan for current and future vacancies.
3. Governance: a detailed process, including JPA and Board members, and a staffing/ consulting plan to implement the consultant's recommendation should be prepared by November 2019 and presented to the Board; quarterly reports on the process should be presented to the Board.

We look forward to seeing the remaining Business Plan financial and policy findings and how these will inform current and future planning, policy, and funding initiatives such as potential revenue measures, the Rail Corridor Use Plan (RCUP) and development of fare, TOD and expansion policies. We are eager to partner with Caltrain and other key stakeholders on key implementation studies regarding revenue service at Salesforce Transit Center for both the baseline and medium growth scenarios, as well as storage, maintenance, and other infrastructure needs across the corridor and the means to address those needs. Beyond these objectives, we also share the Organizational Assessment recommendations to consider the path to creating a Bay Area rail system development and delivery capacity, through regional conversations and consideration of alternative models for achieving this.

Overall, we thank you for a thorough and inclusive process to date. These preliminary analyses will serve the corridor's residents and employers in the years ahead. Staff, in particular Sebastian Petty and Casey Fromson, should be applauded for their efforts given the scope and scale of the undertaking.

We stand ready to continue to assist Caltrain in making this vision a reality.

Sincerely,

Tilly Chang, Executive Director
San Francisco County Transportation Authority

John Rahaim, Director
San Francisco Planning Department

San Francisco Planning