Choosing a Long Range Vision

Caltrain Business Plan

Bicycle Advisory Committee
September 19, 2019

Caltrain

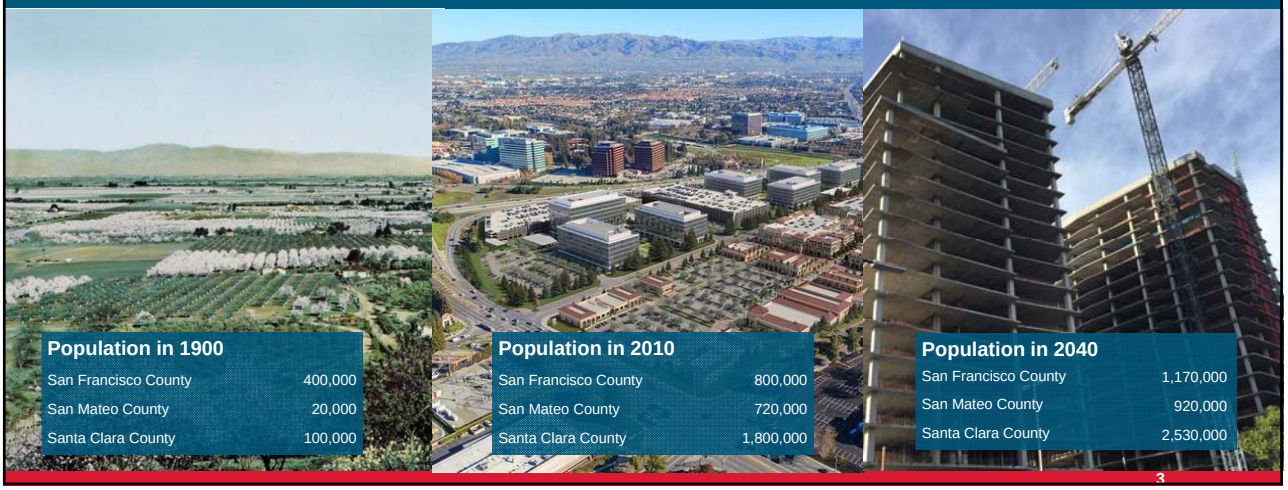
What is the Caltrain Business Plan?

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

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

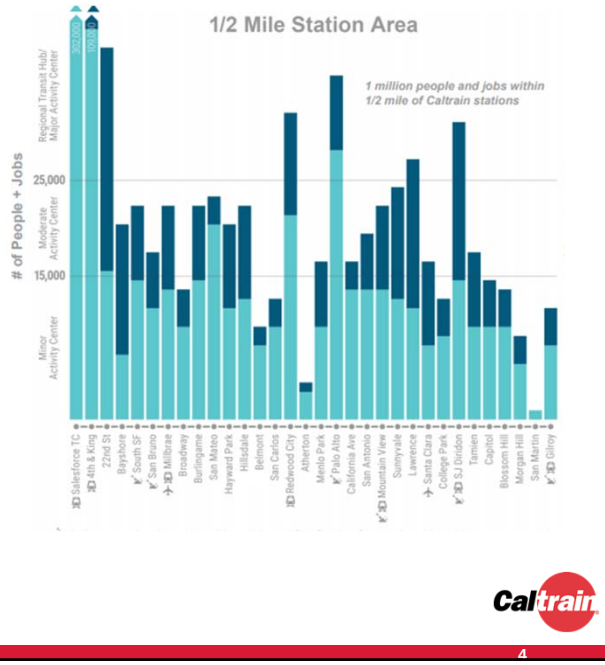
2040 Demand

The Caltrain corridor is growing

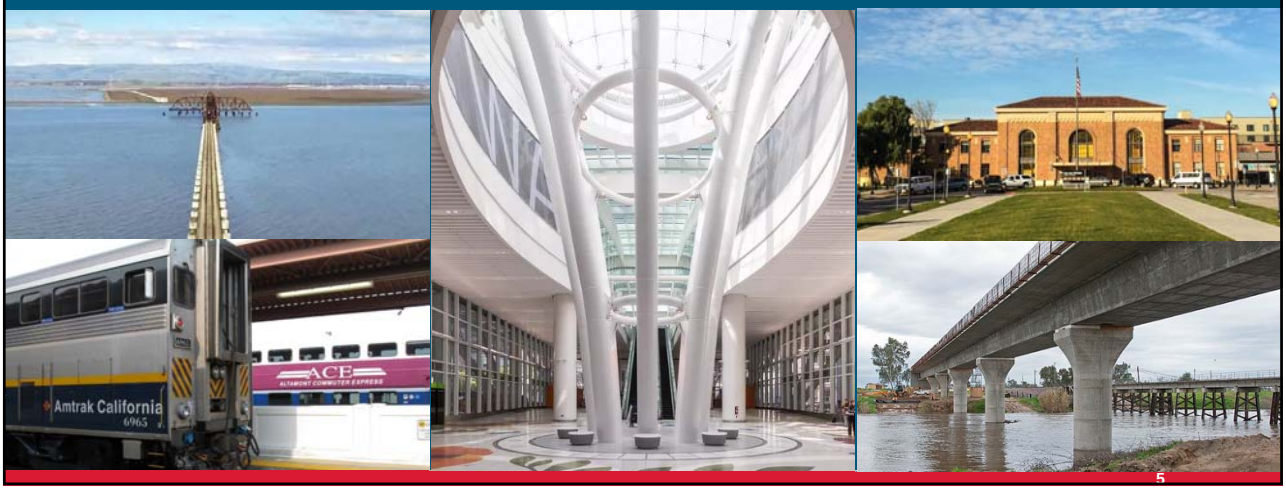
- By 2040 the corridor expected to add 1.2 million people and jobs within 2 miles of Caltrain (+40%)[1]
- 80% growth expected in San Francisco and Santa Clara Counties

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.



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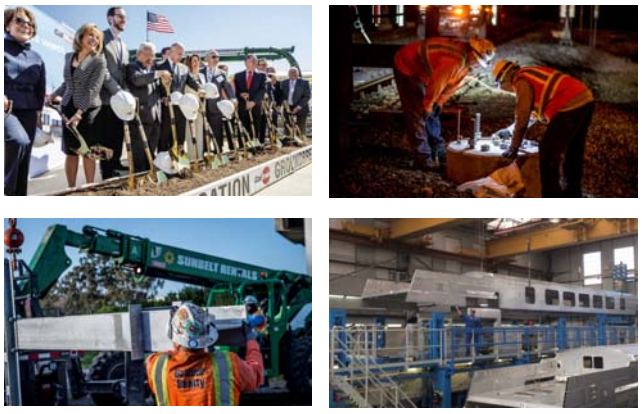
Caltrain will be the first, modern electrified railroad in California. The Vision we choose will shape the future of rail in the region and the state.



6

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

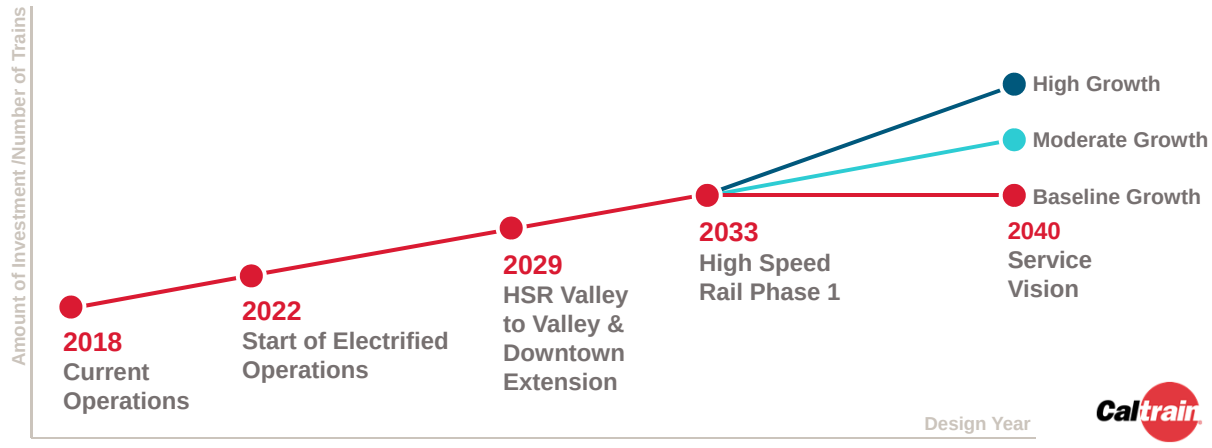
Caltrain's 2040 Service Vision needs to be a "Big Tent"

- 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

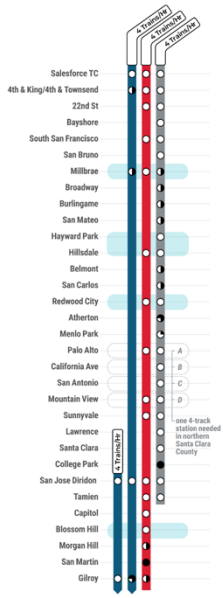
Service Type: HSR, Skip Stop, Express, Local

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

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.

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

Weighing Caltrain's Choices

Components of the Business Case Analysis

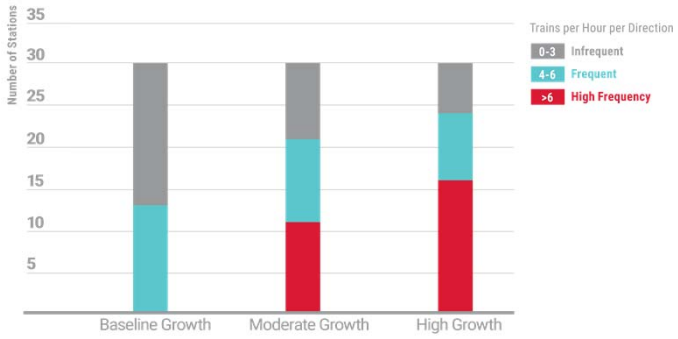
We have adapted a traditional Business Case Analysis to the specific, and complicated circumstances of the Caltrain corridor.

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.

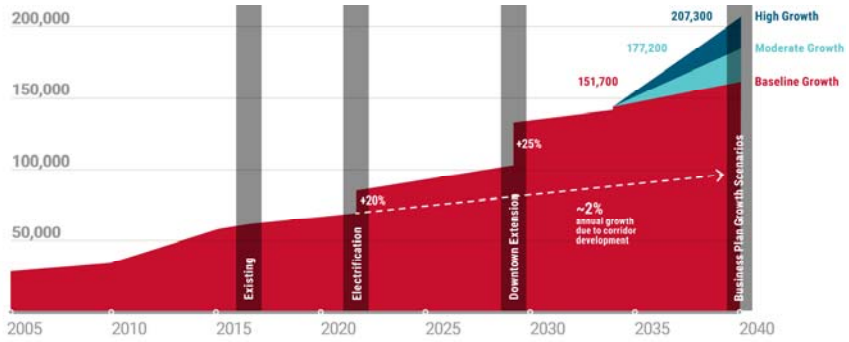


	Metric	Baseline Growth	Moderate Growth	High Growth
Frequency	Number of Stations Served by Frequent Service (>4 TPHPD)	13 Stations	21 Stations	24 Stations
	Longest wait times at major stations served by all trains	22 minutes	12 minutes	8 minutes

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%)*

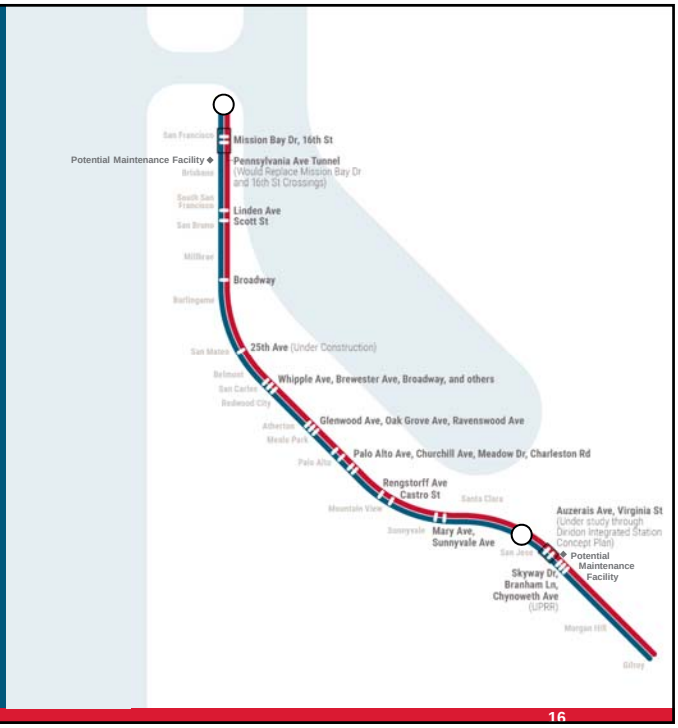
Baseline Investments

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:

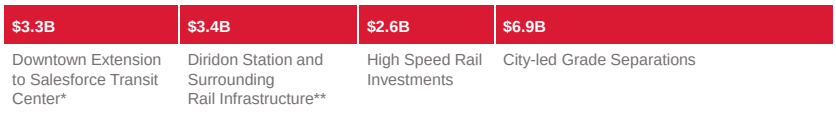
1. Caltrain projects already underway
2. Local, Regional & State partner projects that directly influence Caltrain
3. Additional Caltrain investments needed to fill out the baseline and support blended operations



The Baseline Costs $22.1 Billion

$2.3B
Caltrain Work Underway

$16.2B
Investments Planned and Proposed by Caltrain Partners



Downtown Extension to Salesforce Transit Center*

Diridon Station and Surrounding Rail Infrastructure**

High Speed Rail Investments

City-led Grade Separations

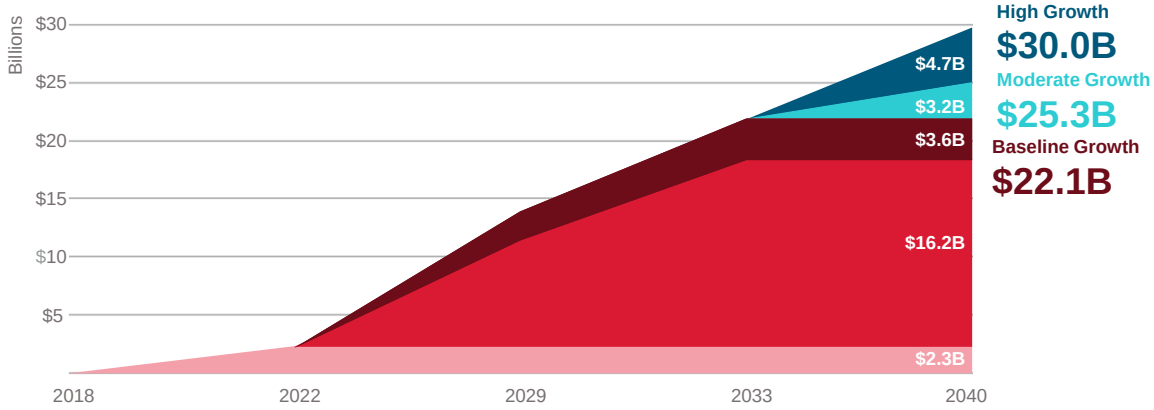
$3.6B
New Caltrain Investments to Support Baseline Growth Scenario

**The SF preferred Pennsylvania alignment (extended tunnel) Is included in the city-lead grade separation category*
***Placeholder cost pending detailed cost estimate to be developed through Diridon Integrated Station Concept Plan*

17

Investing for Growth

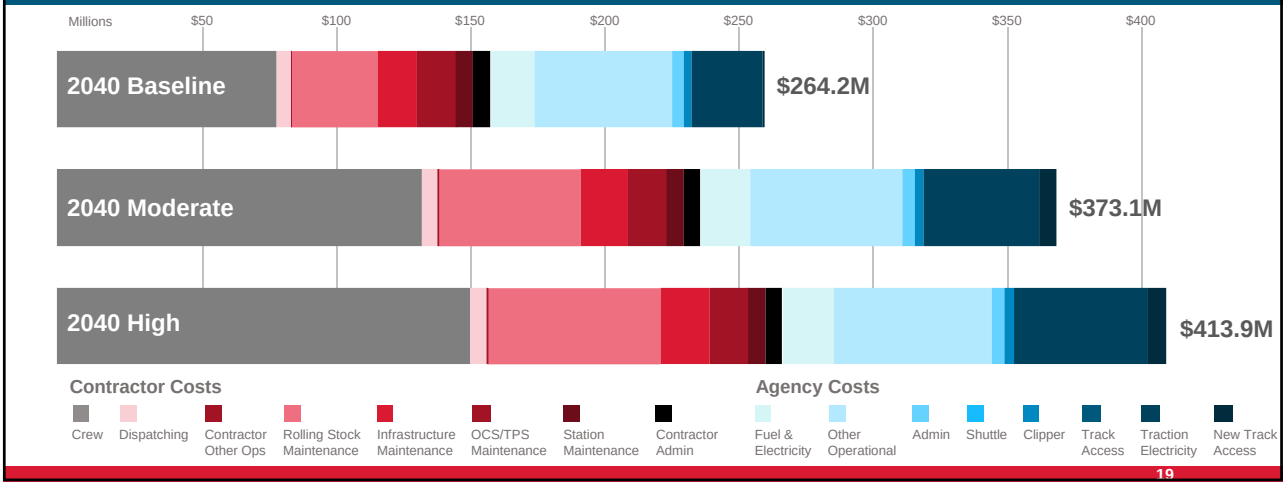
Total Corridor Investment Over Time by Growth Scenario



High Growth
$30.0B
Moderate Growth
$25.3B
Baseline Growth
$22.1B

18

Year 2040 Operating Costs



Caltrain User Benefits over Baseline

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

		Moderate Growth		High Growth	
Benefit	**Unit**	**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*

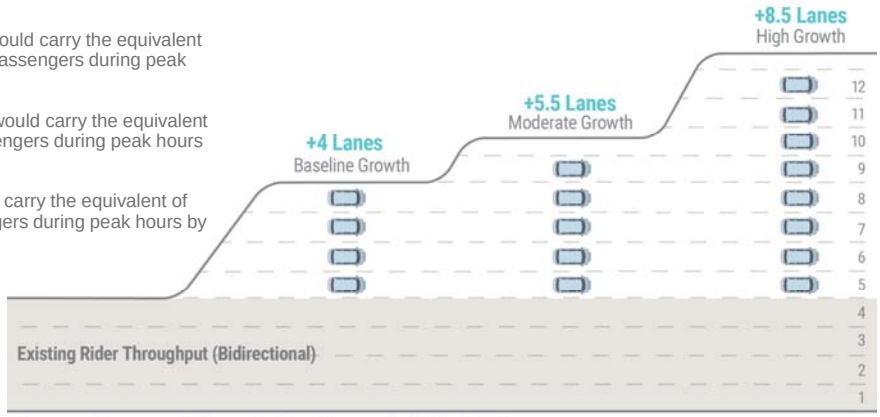
Freeway Throughput

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.

21

Regional Rail Integration

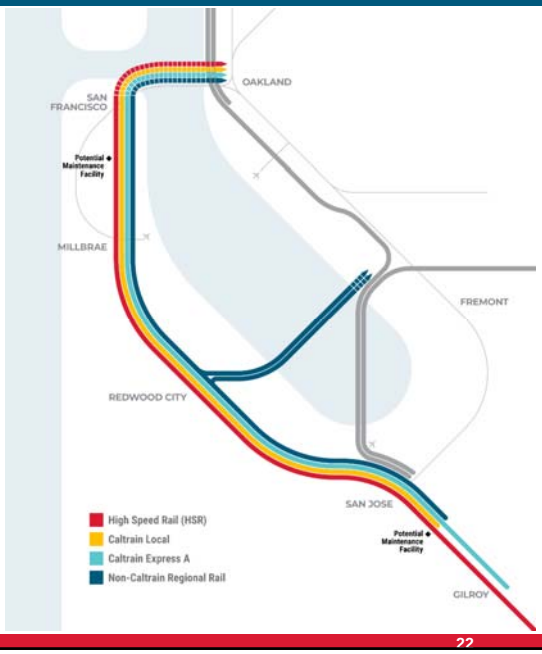
All service scenarios are compatible with regional rail needs.

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



22

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

Regional Analysis

	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

Flexibility and Uncertainty

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

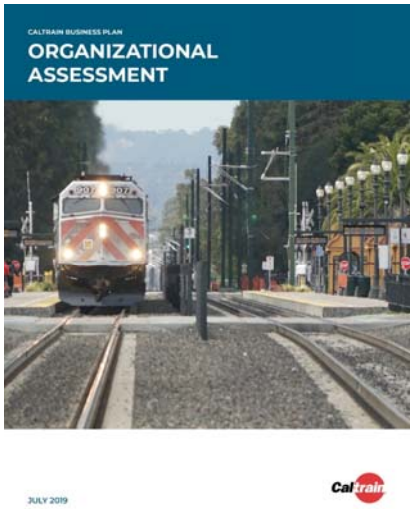
The High Growth Scenario:

- 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

27

Staff Recommendation

28

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

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

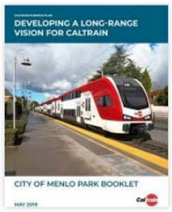
1,000+ Survey Responses

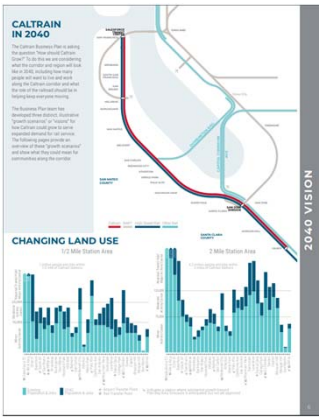
14,300+ Website Views

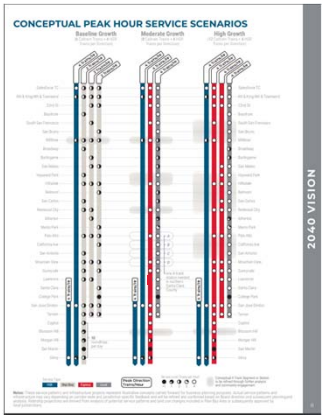
258,200+ Social Media Engagements

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

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