# Choosing a Long Range Vision

Caltrain Business Plan




San José City Council

Caltrain

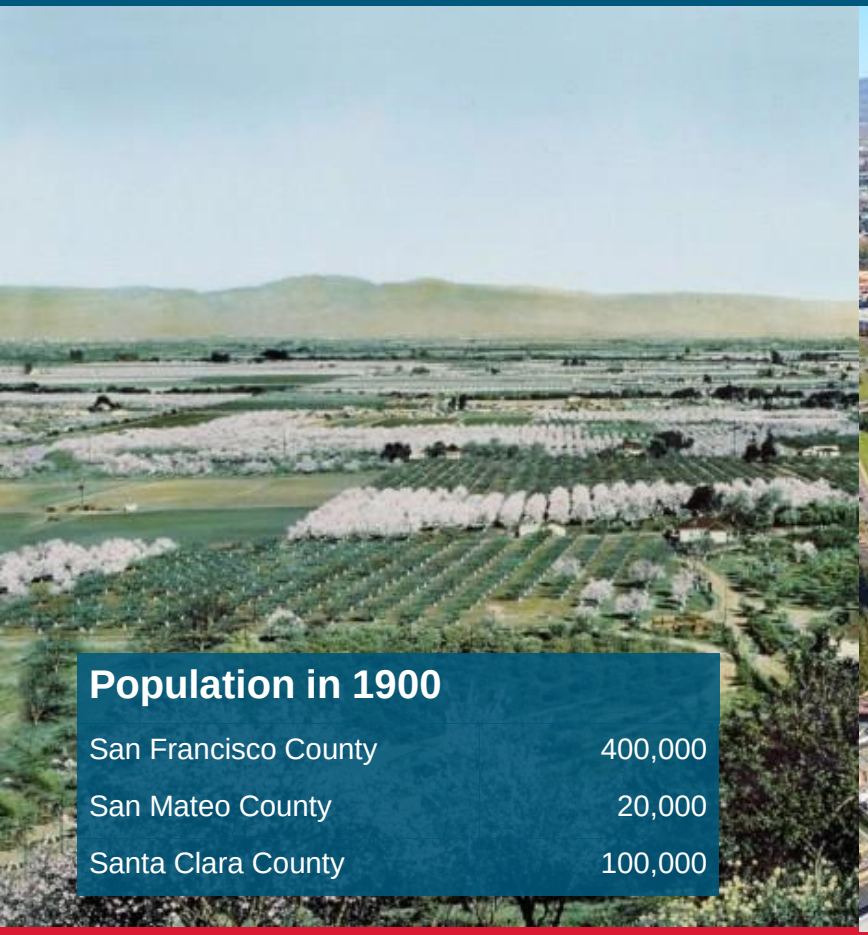
# What is the Caltrain Business Plan?




**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.

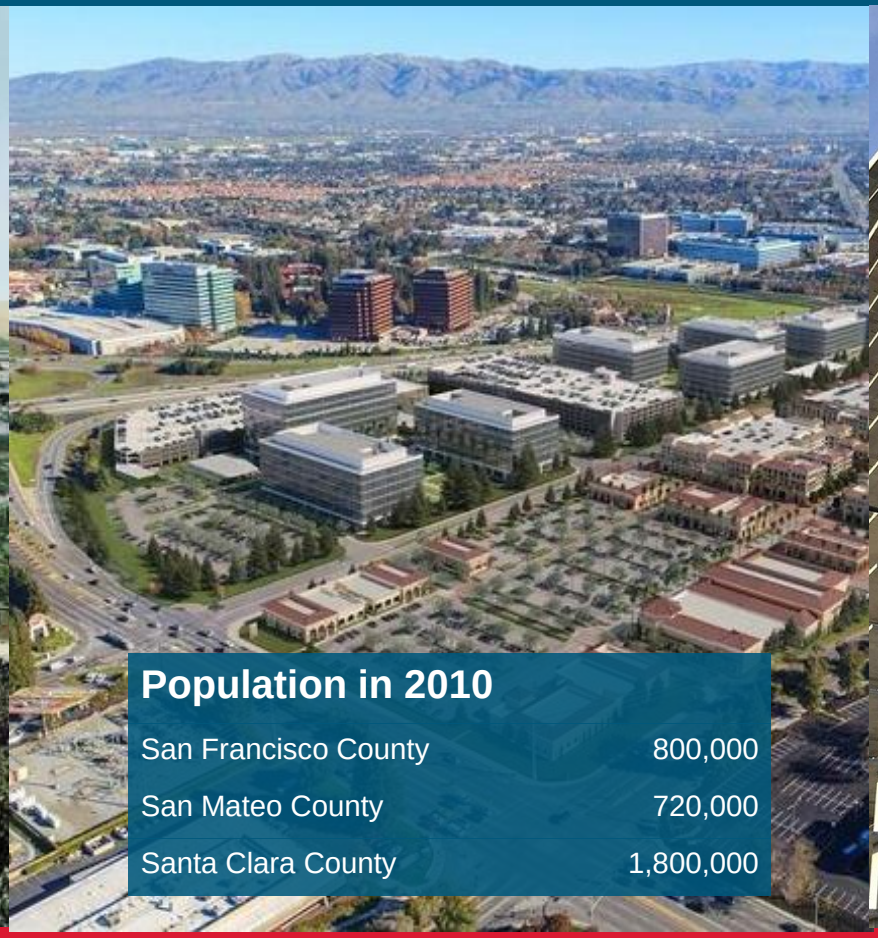
**Why** Allows the community and stakeholders to engage in developing a more certain, achievable, financially feasible future for the railroad based on local, regional, and statewide needs.

# 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 |

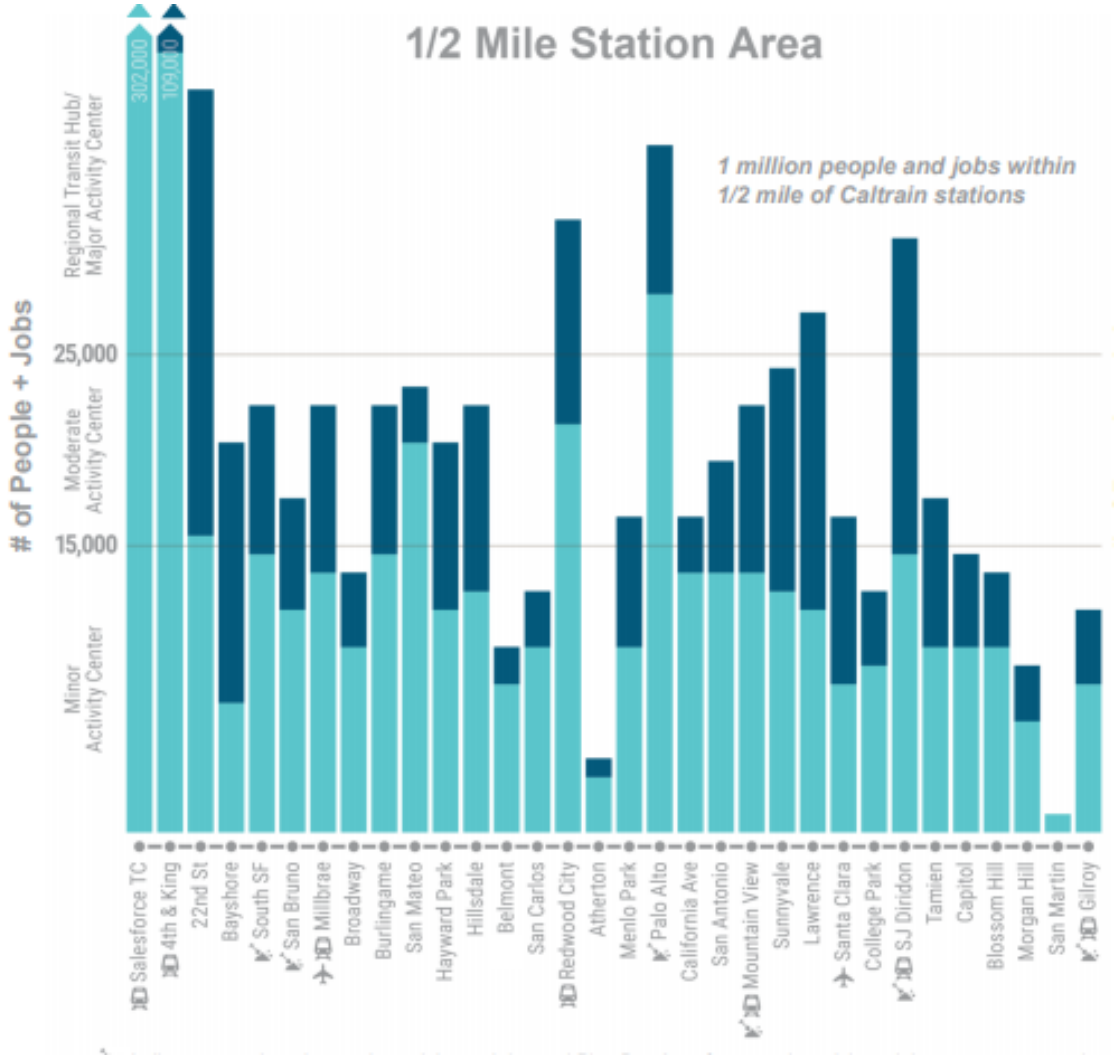
# 2040 Demand

**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

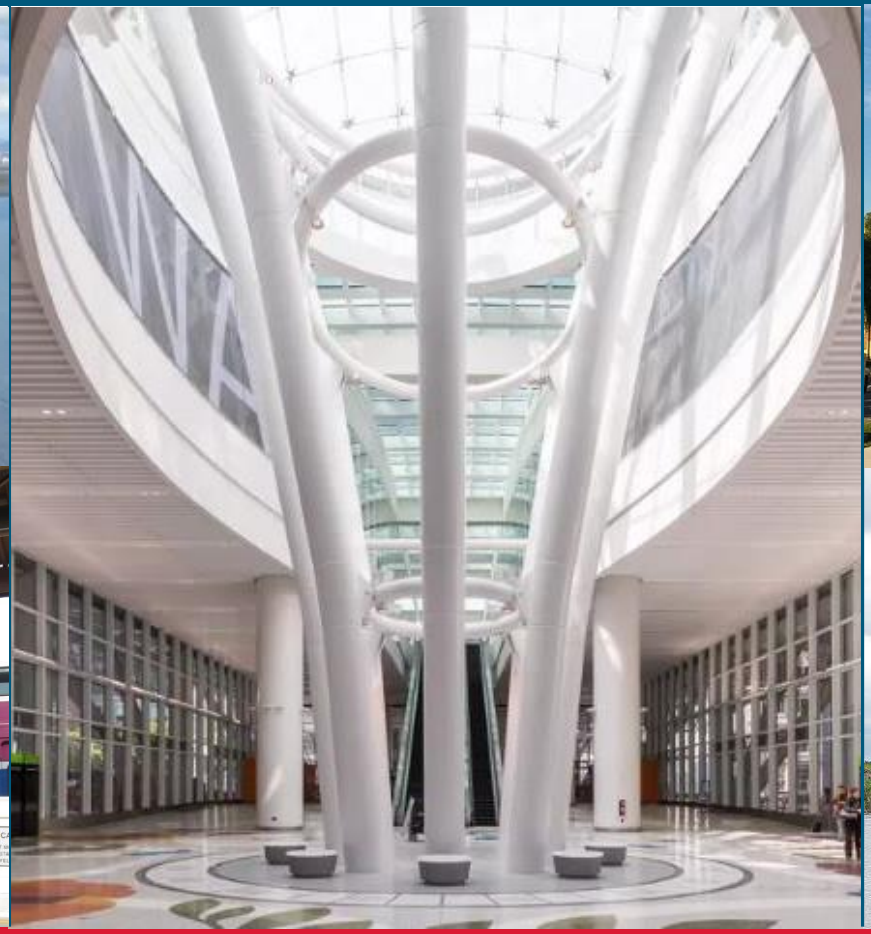
**Major transit investments are opening new travel markets to Caltrain**

- 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.





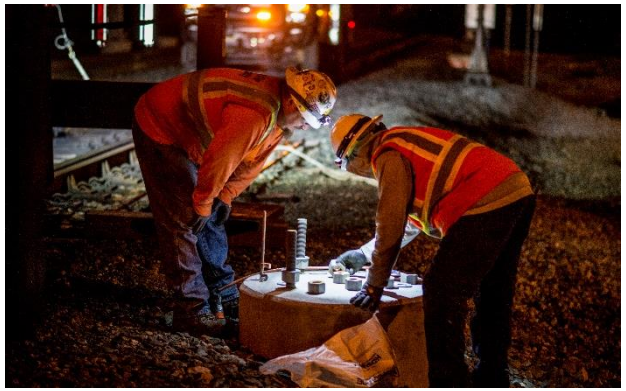







# Caltrain will be the first, modern electrified railroad in California. The Vision we choose will shape the future of rail in the region and the state.












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

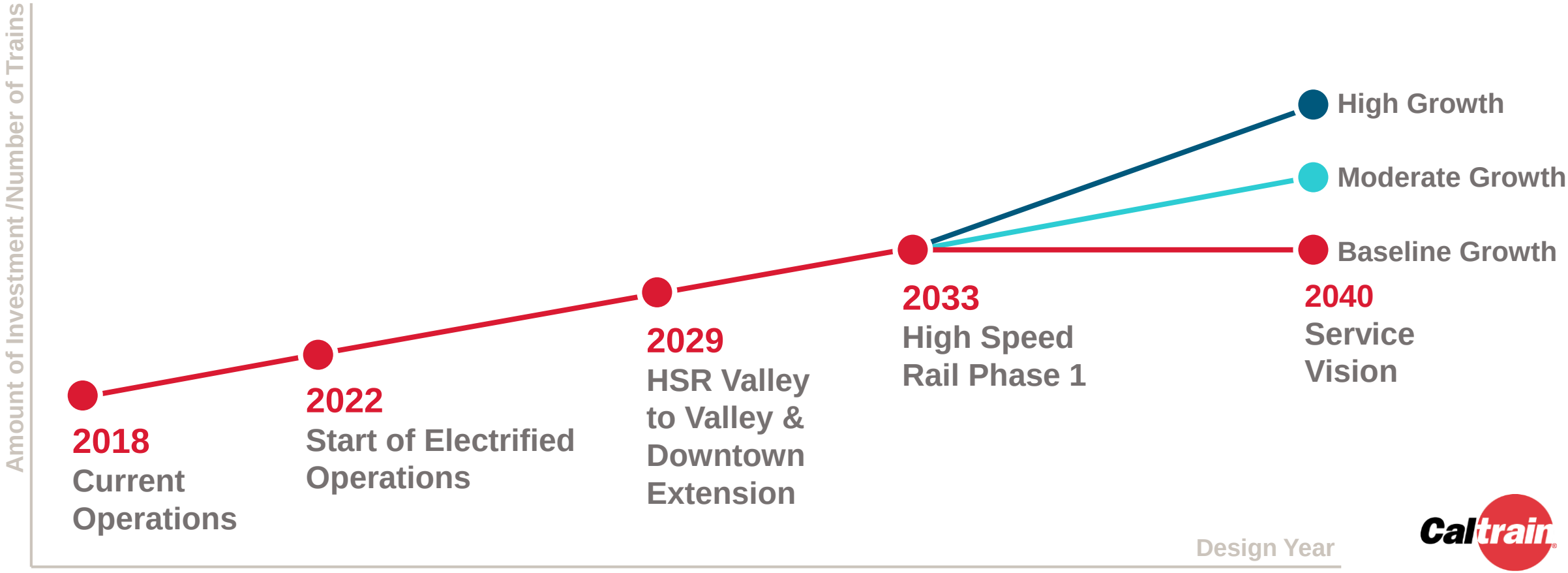
## Caltrain's 2040 Service Vision needs to be a "Big Tent"

- 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 "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

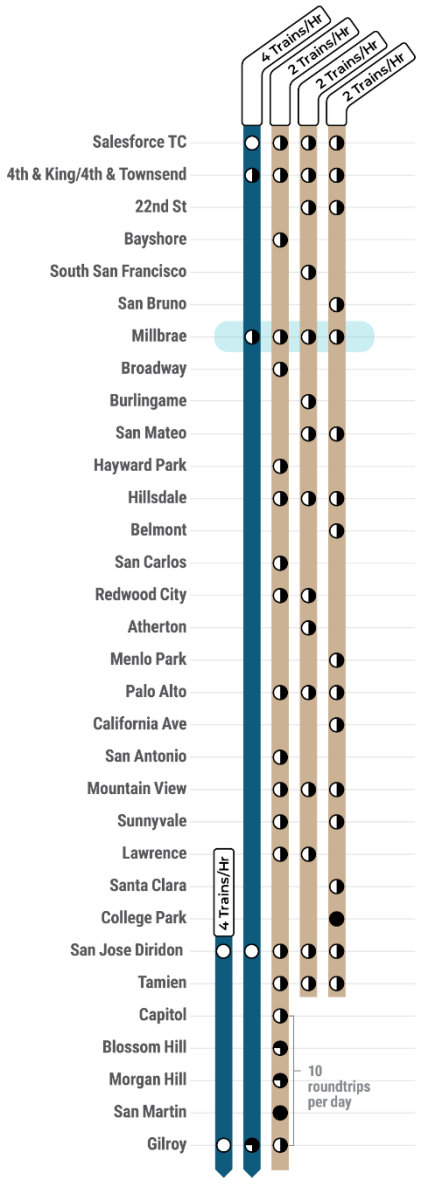
## Caltrain's core question as it considers a Long Range Service Vision:

## How Much Service Should We Provide?

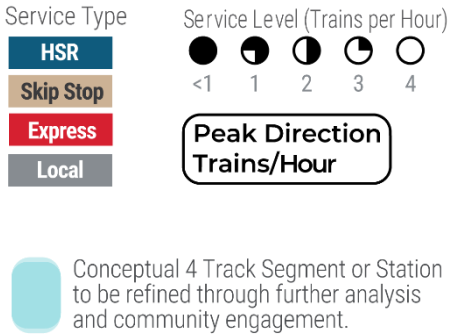
# 2040 Service Scenarios: Different Ways to Grow



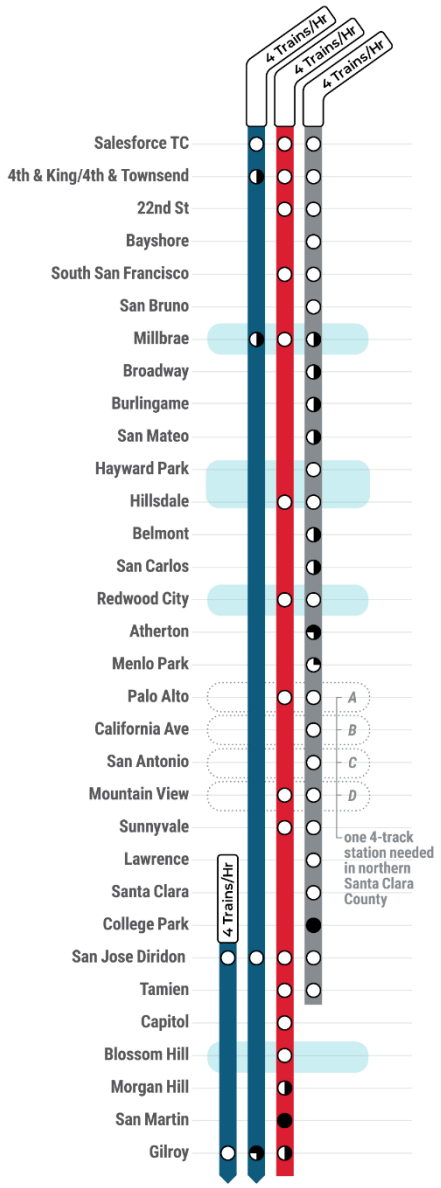
# 2040 Baseline Growth Scenario




| | |
|---|---|
| **Trains per Hour, per Direction** | Peak: 6 Caltrain + 4 HSR<br>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<br>• Three half-hourly skip stop patterns each with similar travel times<br>• South of Tamien, peak-direction skip stop service with 10 round trips per day |

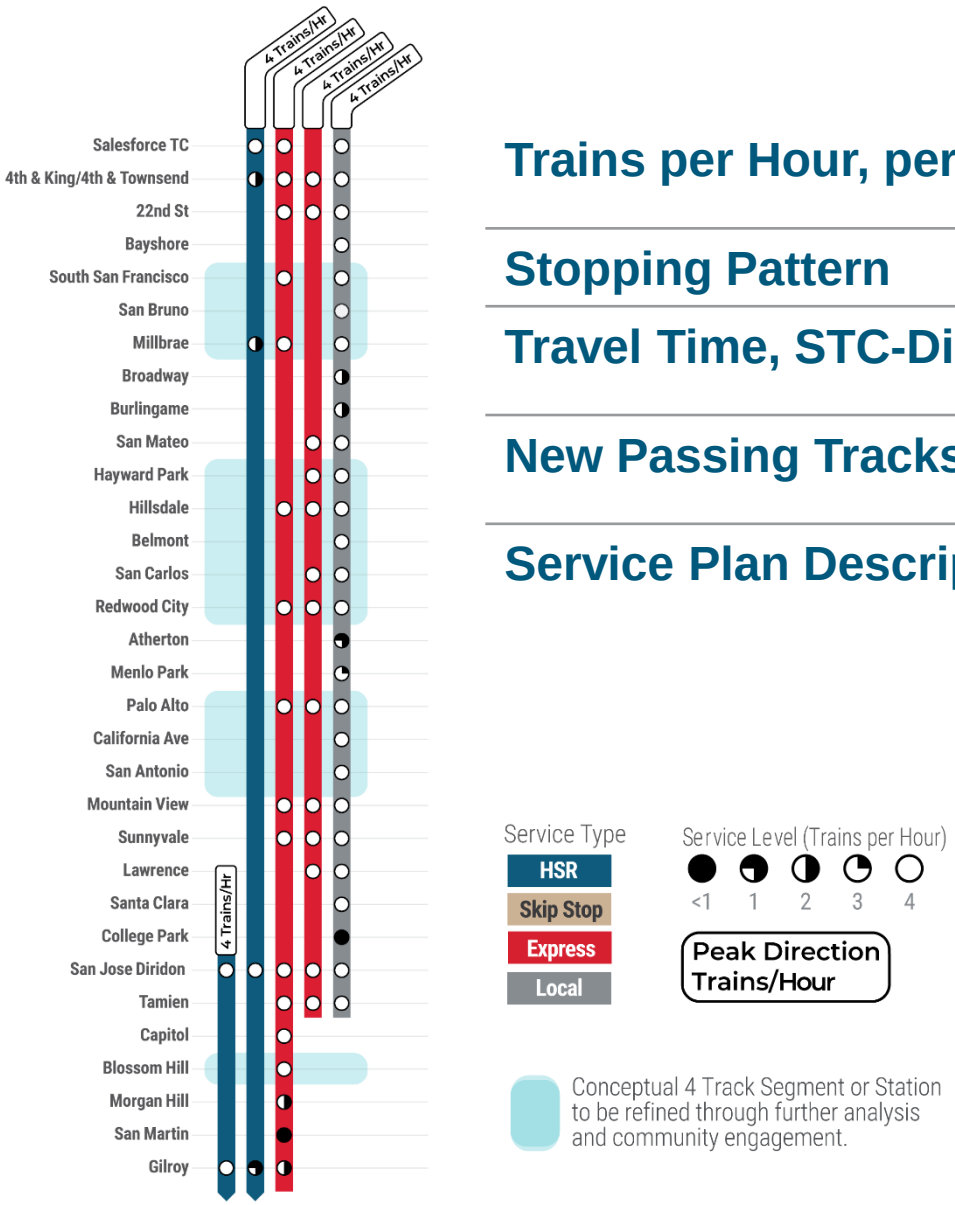


# Moderate Growth Scenario




| | |
|---|---|
| **Trains per Hour, per Direction** | Peak: 8 Caltrain + 4 HSR<br>Off-Peak: 6 Caltrain + 3 HSR |
| **Stopping Pattern** | Local / Express with timed transfer at Redwood City |
| **Travel Time, STC-Diridon** | 61 Min (Express)<br>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<br>• Skip stop pattern for some mid-Peninsula stations; some origin-destination pairs not served at all<br>• Trains serve Capitol and Blossom Hill every 15 minutes and Morgan Hill and Gilroy every 30 minutes |

# 2040 High Growth Scenario




| | |
|---|---|
| **Trains per Hour, per Direction** | Peak: 12 Caltrain + 4 HSR<br>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)<br>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<br>• Express B trains operate every 15 minutes between 4th & King and Tamien<br>• Local trains make nearly all stops<br>• 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.

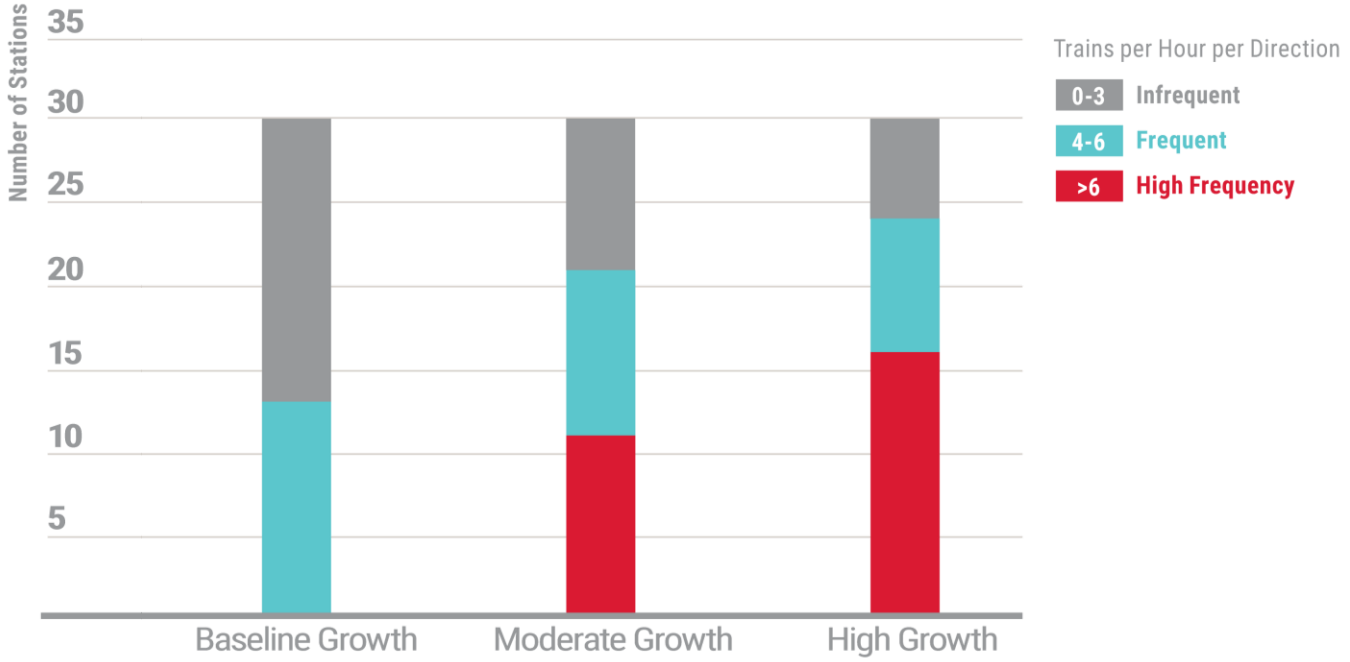
Collectively, this analysis helps provide guidance as to whether we should remain on the “baseline” course or if there is value in choosing a Long Range Service Vision for Caltrain that aims higher.

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.

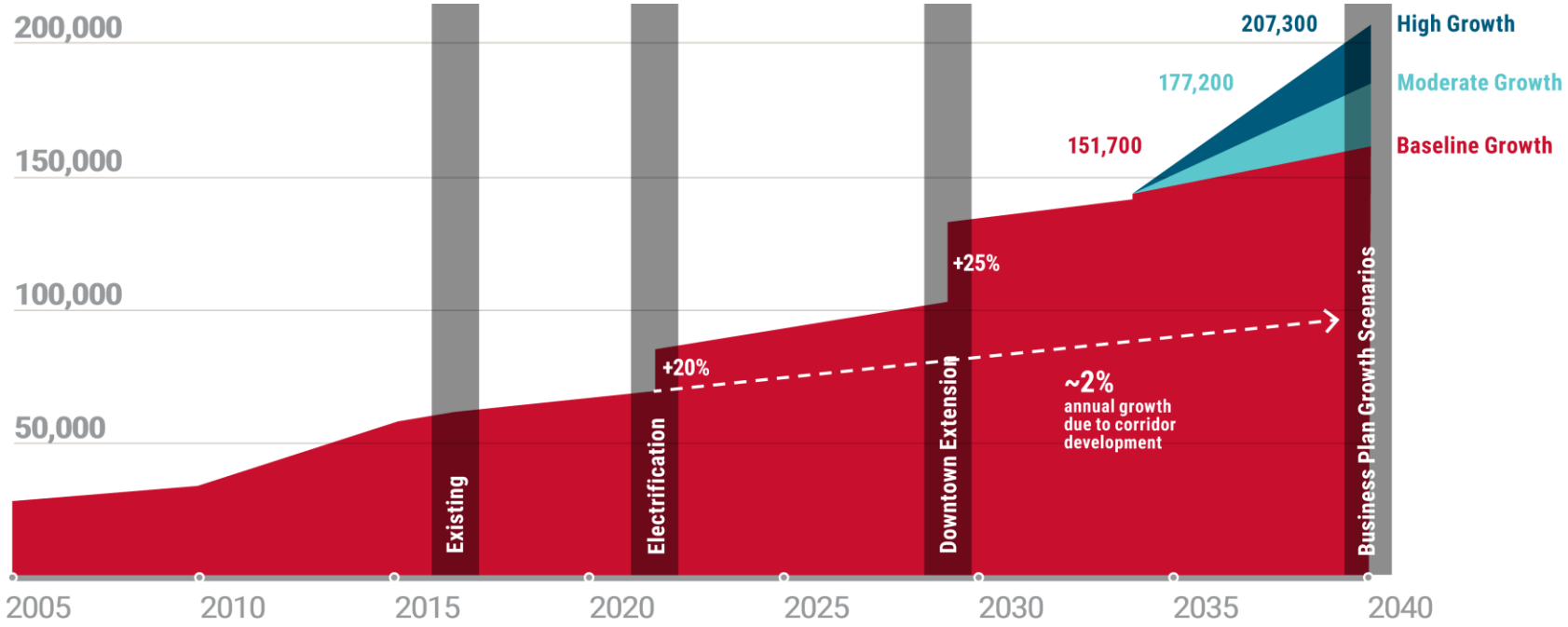



| | Metric | Baseline Growth | Moderate Growth | High Growth |
|---|---|---|---|---|
| Frequency | Number of Stations Served by Frequent Service (>4 TPHPD) | 13 Stations | 21 Stations | 24 Stations |
| | Longest wait times at major stations served by all trains | 22 minutes | 12 minutes | 8 minutes |

# 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%)*

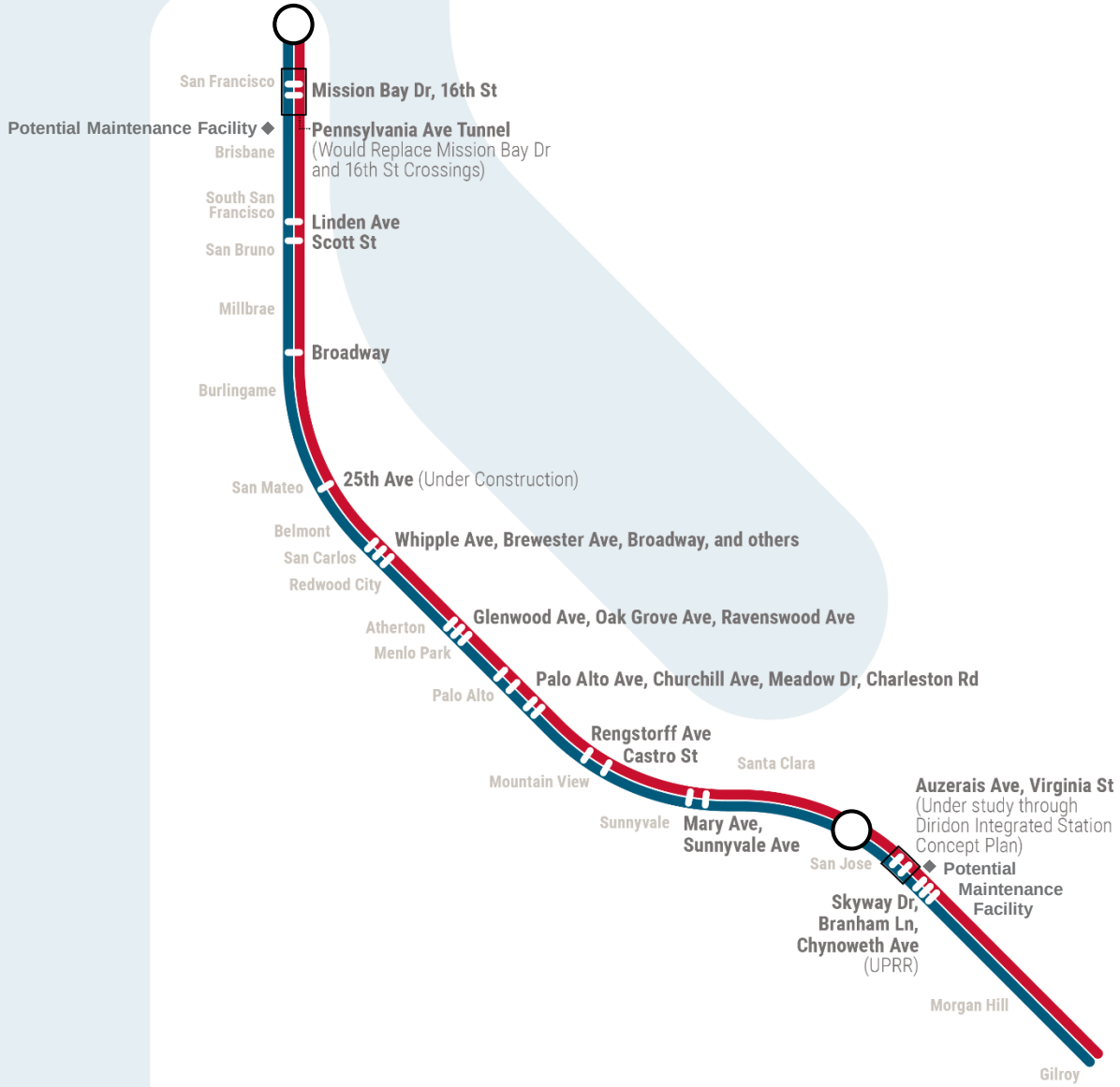
# Baseline Investments

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**

| $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 |

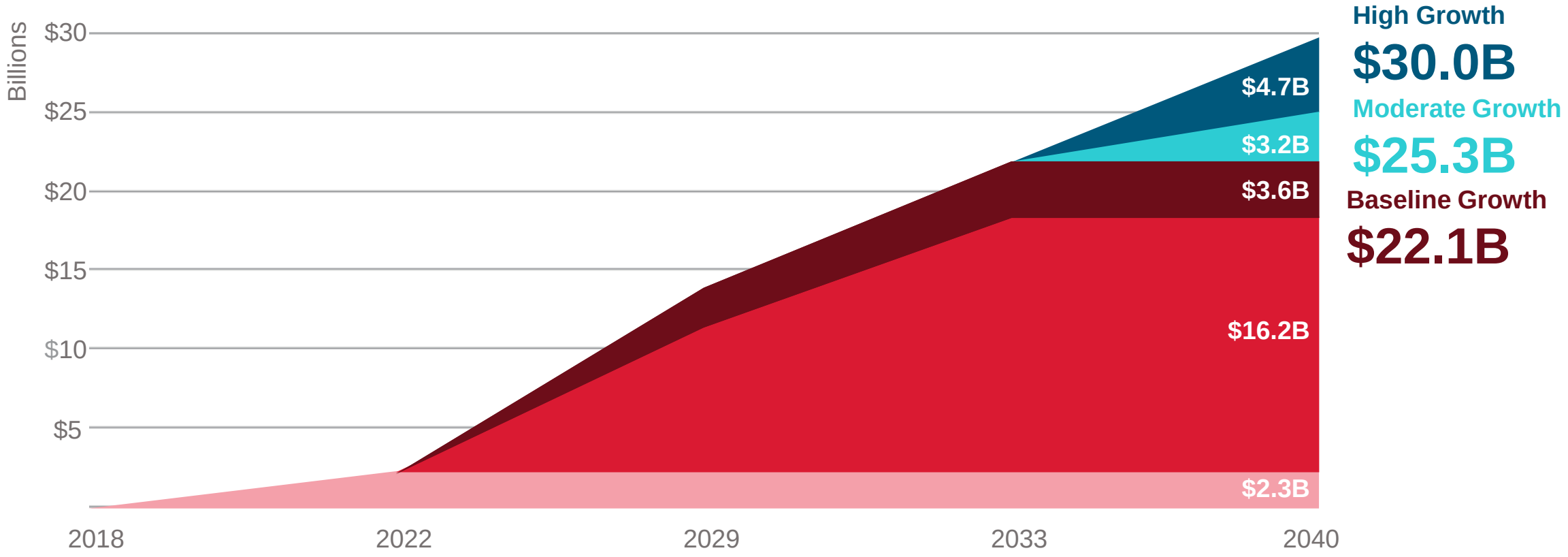
**$3.6B**
**New Caltrain Investments to Support Baseline Growth Scenario**



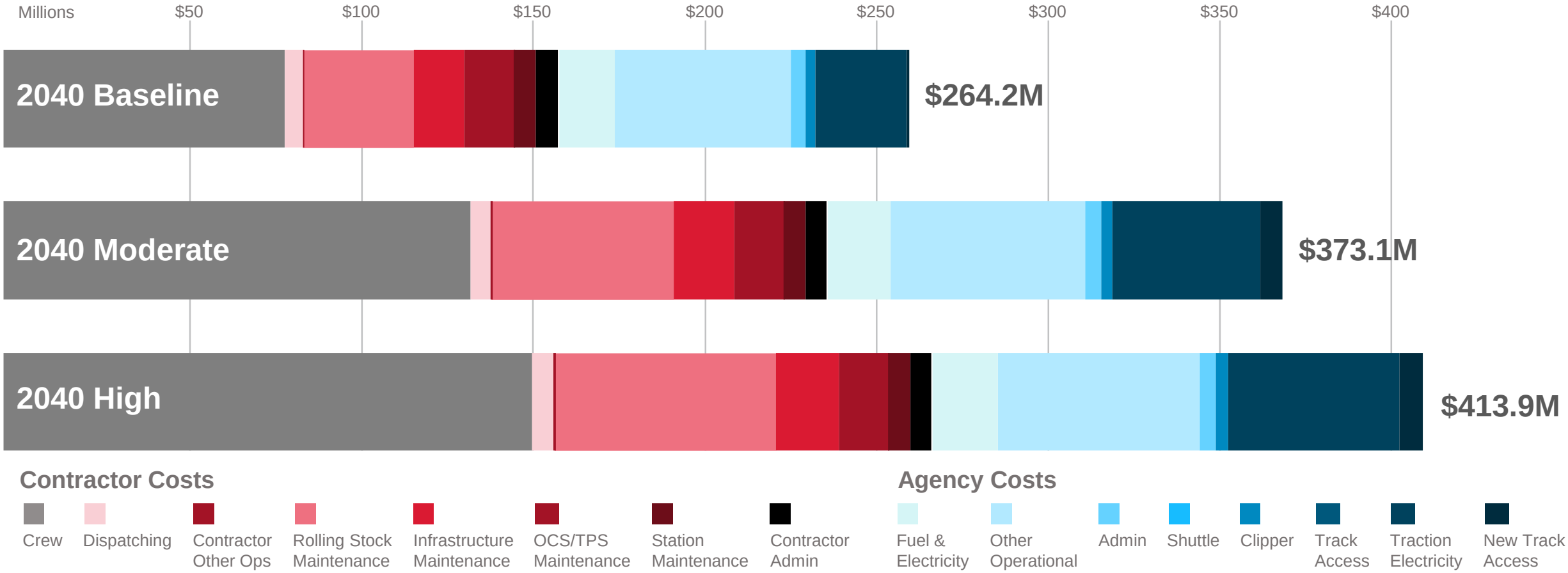

** Placeholder cost pending detailed cost estimate to be developed through Diridon Integrated Station Concept Plan*

# 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*

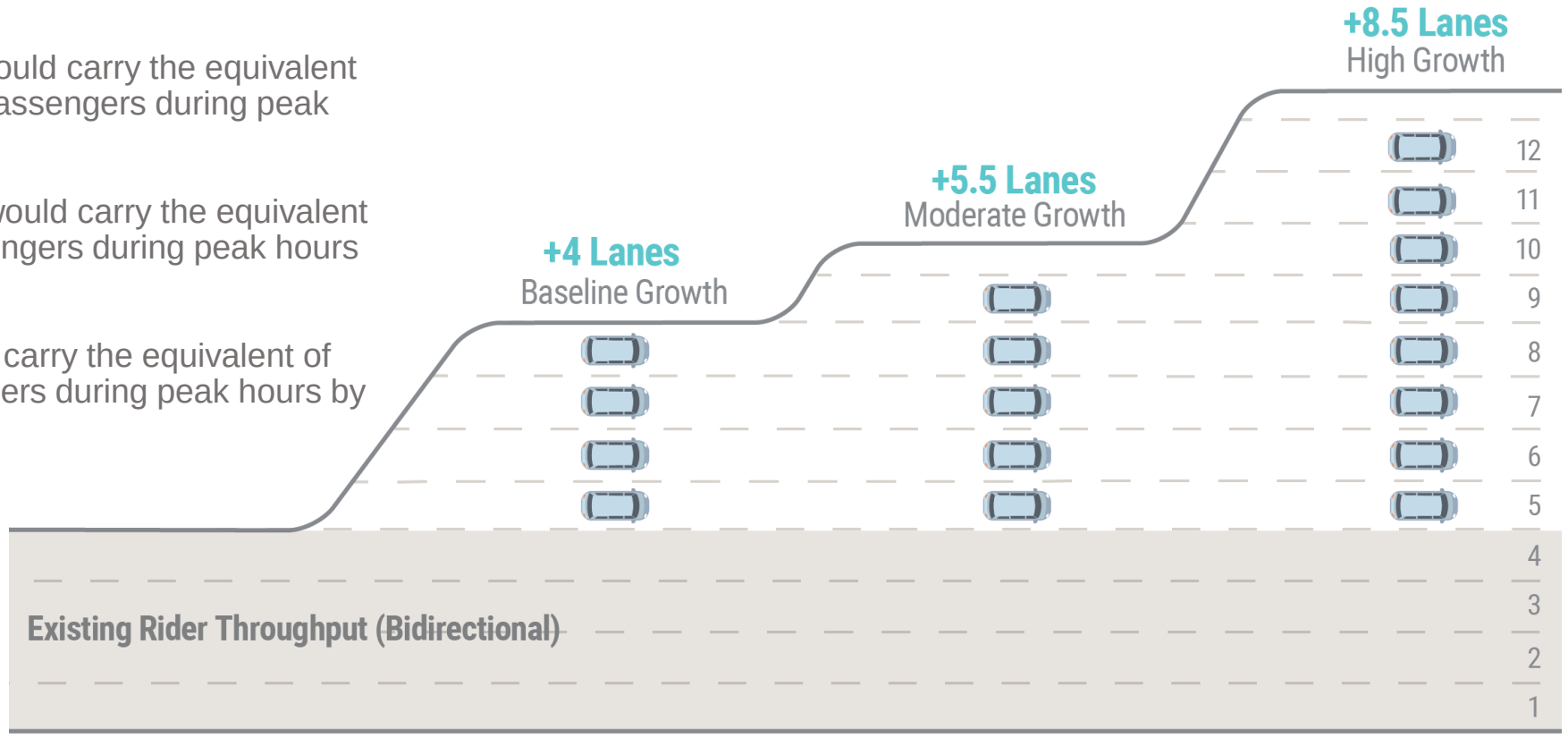
# Freeway Throughput

**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

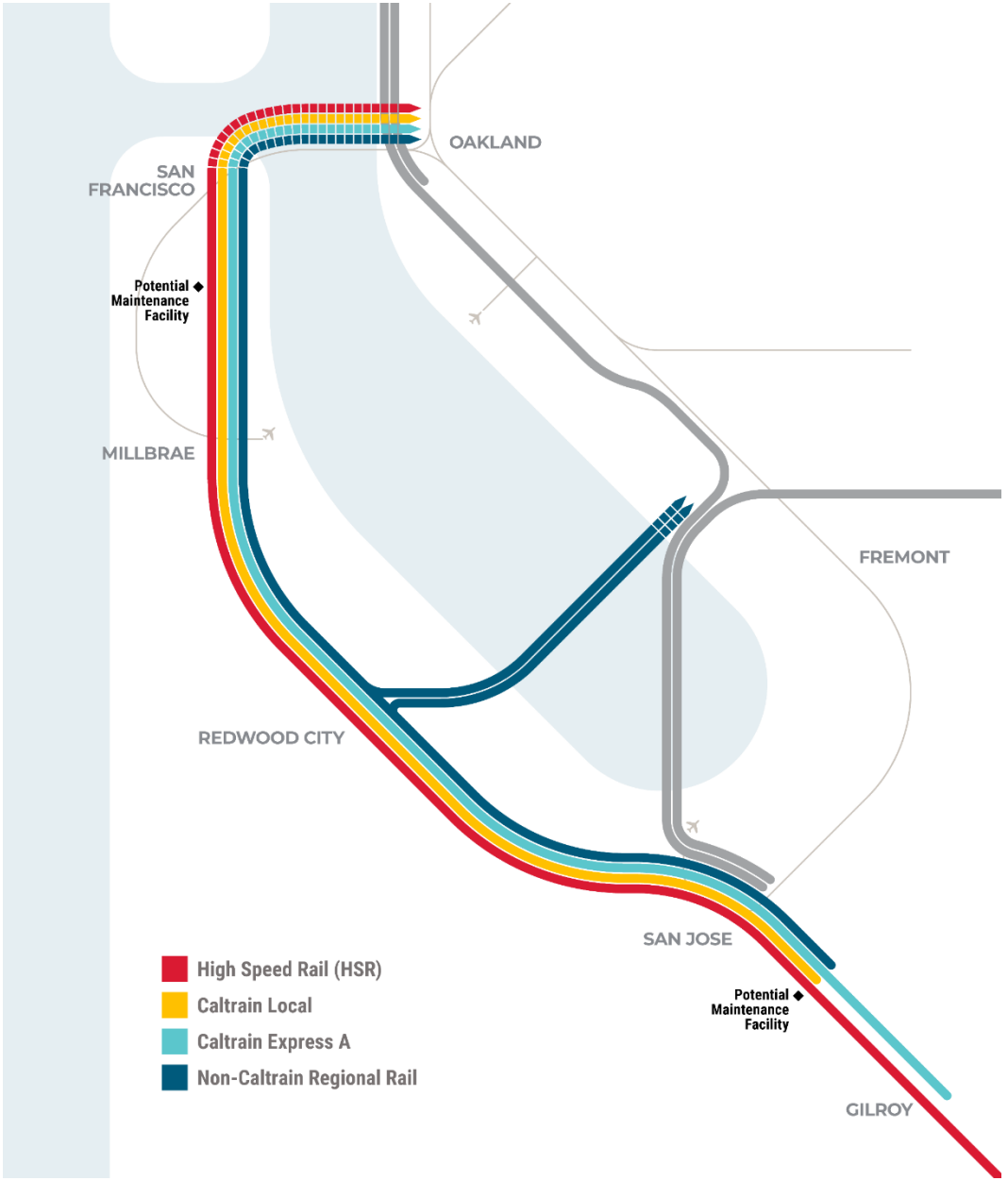
**All service scenarios are compatible with regional rail needs.**

**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

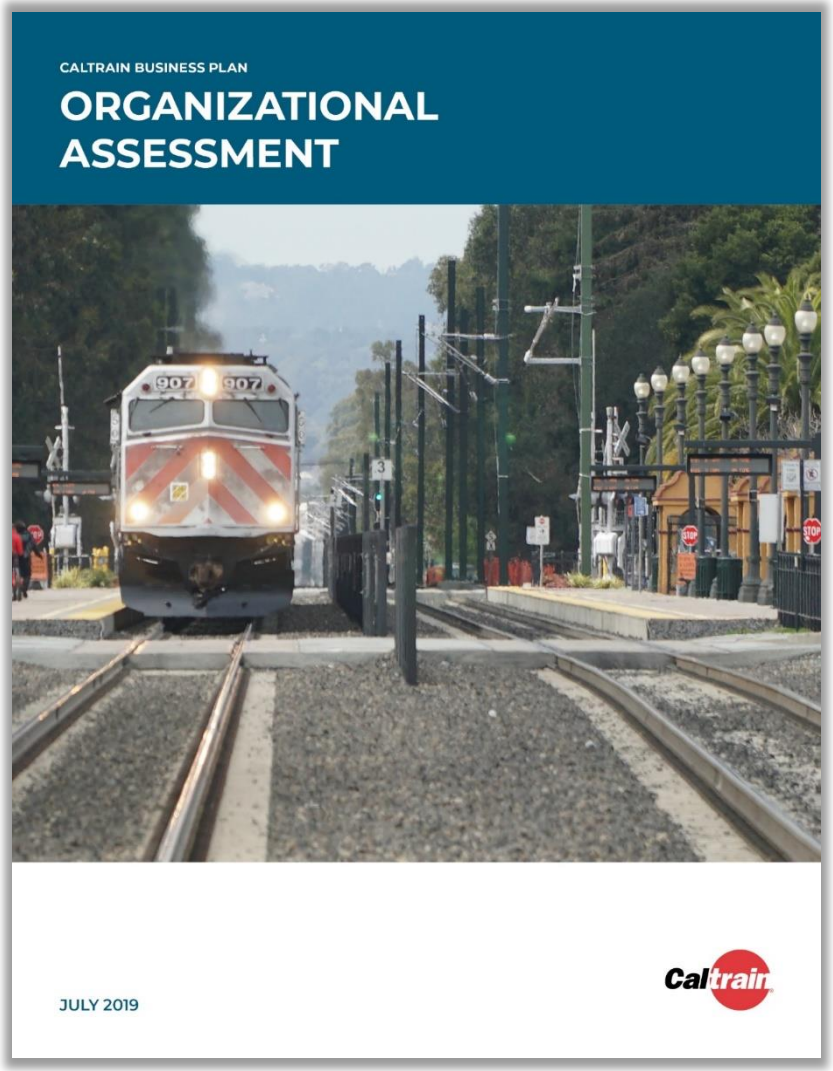
## The High Growth Scenario:

- 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/*

**For San José, the features of the Service Vision include:**

**Service at least every 15 minutes at all San Jose Stations, all day**

- Up to 8 Caltrain trains per hour per direction at Diridon and Tamien Stations (both express and local service)
- 4 trains per hour per direction at Capitol and Blossom Hill Stations

**Better connections to the region**

- Express trains to the Downtown San Francisco in under 60 minutes, running all day
- All day bi-directional service to Morgan Hill and Gilory
- Regular schedules allowing easy transfers to other systems like BART, VTA and HSR

# 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

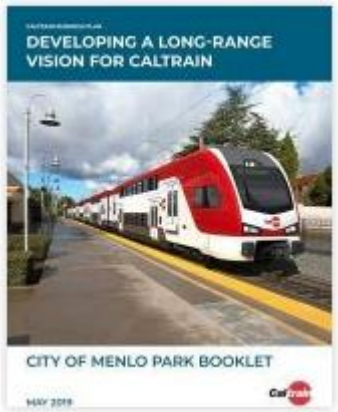
**1,000+**
Survey Responses

**14,300+**
Website Views

**258,200+**
Social Media Engagements

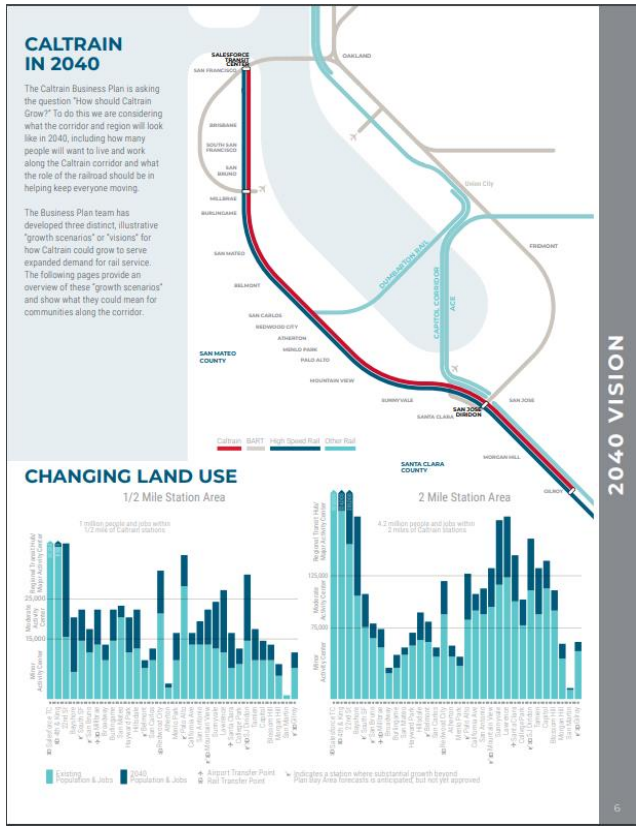
## Individual Jurisdiction Outreach

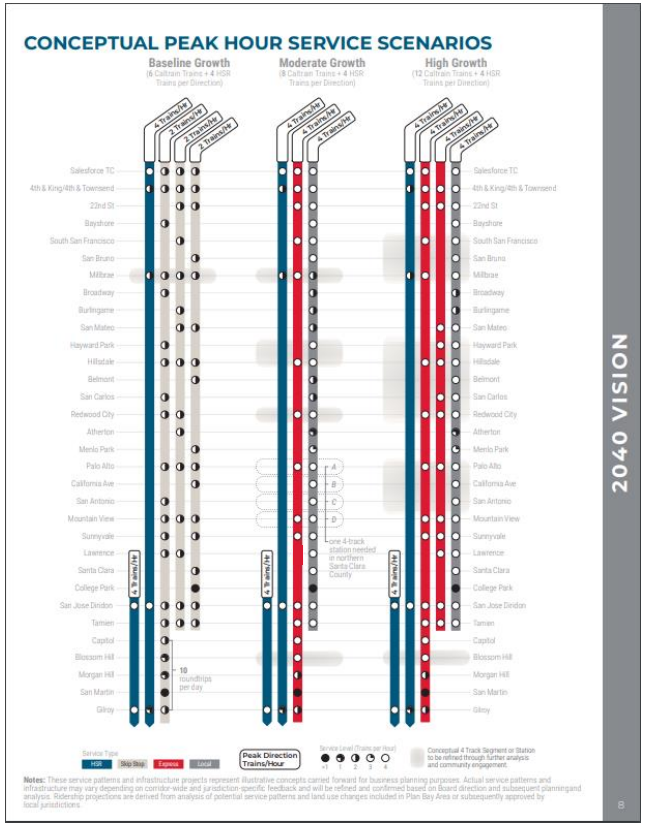
# City Booklets










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