

CALTRAIN BUSINESS PLAN

DEVELOPING A LONG-RANGE VISION FOR CALTRAIN



CITY OF PALO ALTO BOOKLET


MAY 2019



CALTRAIN BUSINESS PLAN

A 2040 VISION FOR THE CORRIDOR



 Daily Riders
62,000

 Local Jurisdictions
21

Caltrain is one of the busiest commuter rail systems in the country and demand for our service is growing.

The Caltrain Business Plan is a joint effort with agency partners and communities along the corridor to plan for this growth. The Business Plan will help us develop a better understanding of the region's future transportation needs and will identify opportunities and strategies for how the Caltrain system can help.

WHY THINK ABOUT THE FUTURE OF THE CORRIDOR?

The Bay Area population and economy have continued to grow, leading to:



Traffic congestion and longer, unreliable commutes



Over-crowded trains



Increased cost of transportation and housing

Caltrain provides a cost effective, convenient alternative to driving and connects jobs and housing, but the system will need to grow to meet current and future demand.



Electrification of the Caltrain corridor is already underway and will allow Caltrain to run faster, more frequent service while reducing noise and emissions.



Electrification also creates the potential for expanded Caltrain service that will meet the current and future needs of our region. The Business Plan will identify the best strategies for maximizing this potential by developing a long-term service vision for the corridor, defining the infrastructure needed to support that service vision, and identifying opportunities to fund the implementation of these improvements.

WHAT IS THE CALTRAIN BUSINESS PLAN?

The Caltrain Business Plan includes four major focus areas that address key questions shaping the future of the railroad:



SERVICE

What is the best service Caltrain can provide to meet the needs of our customers and the communities we serve? How many trains should we run? How do we best match service to riders' needs? What infrastructure improvements will be needed to provide the service? How can Caltrain effectively connect to other transit services?



COMMUNITY INTERFACE

What are the benefits and impacts of increasing service on the corridor to each community? How can we work together to grow the railroad in a way that balances the needs of all communities along the corridor with the need to expand service and operate a safe and efficient railroad? How can we ensure this planning process and the outcomes are equitable?



BUSINESS CASE

Why should we choose one service vision over another? How can we maximize the value of current and future investments in the Caltrain corridor? How much will the service cost to operate? How will we fund it?



ORGANIZATION

What is the best organizational structure for overseeing and growing Caltrain service in the future?



WHAT IS THIS BOOKLET?

The Caltrain Business Plan is evaluating the benefits and costs of different service visions for the railroad in order to address the question of how Caltrain should grow. This booklet was developed to help your community understand – at both a corridor-wide and jurisdiction-specific scale – the details, opportunities and challenges of three illustrative 2040 “Growth Scenarios” that are being considered as part of the Business Plan process.

This booklet describes how the Caltrain system interfaces with and is used by your community today and presents analysis illustrating how that could change in the future based on the different ways that the railroad could grow.

WHO IS INVOLVED?

The Caltrain Business Plan is a collaborative effort led by Caltrain with funding and participation from Stanford University and other organizations. We are working closely with policymakers, stakeholders, Caltrain riders, and community members to make sure the Caltrain Business Plan considers everyone’s needs.

We understand that each of the local jurisdictions we serve has a unique set of priorities, projects, and plans for growth. For this reason, we have emphasized coordination with corridor communities and update local jurisdiction staff and elected officials about the Caltrain Business Plan on a monthly basis through our City / County Staff Coordinating Group and our Local Policy Maker Group. This booklet is intended to provide further information about what the Caltrain Business Plan could mean to each of the communities we serve.

WHEN IS IT HAPPENING?



CALTRAIN RIDER STATS

Today, Caltrain operates a commuter-focused service that carries more than 60,000 riders every weekday.



Daily Riders

62,000

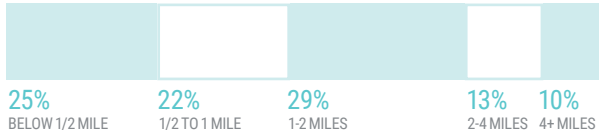


Riding 5+ Days Per Week

52%



Access Distance to Station



Weekday Trains

92

62 PEAK 30 OFF-PEAK

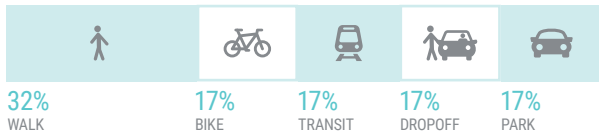


Riding to Work

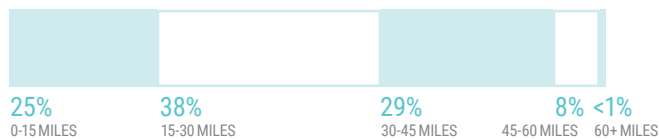
~85%



Mode of Access



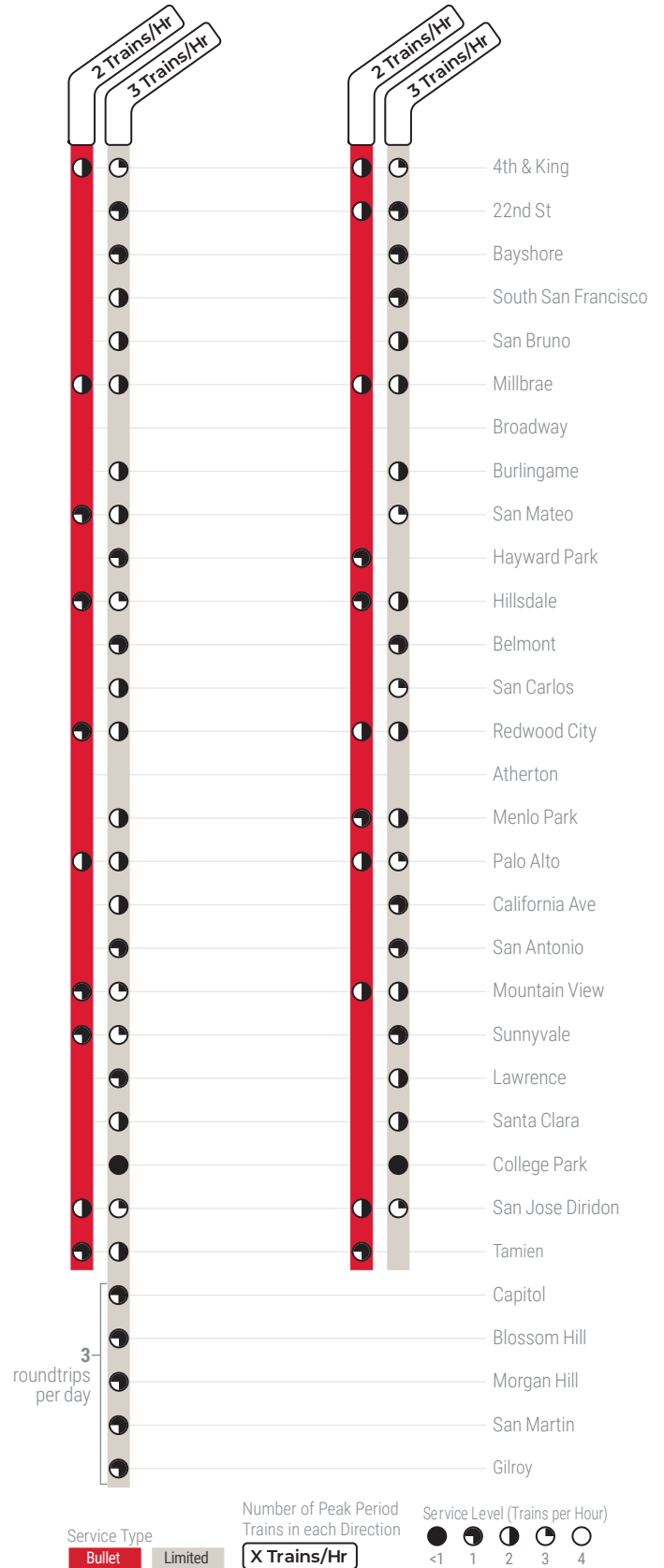
Distance on Train



EXISTING PEAK HOUR SERVICE

AM Northbound/
PM Southbound
(5 Trains)

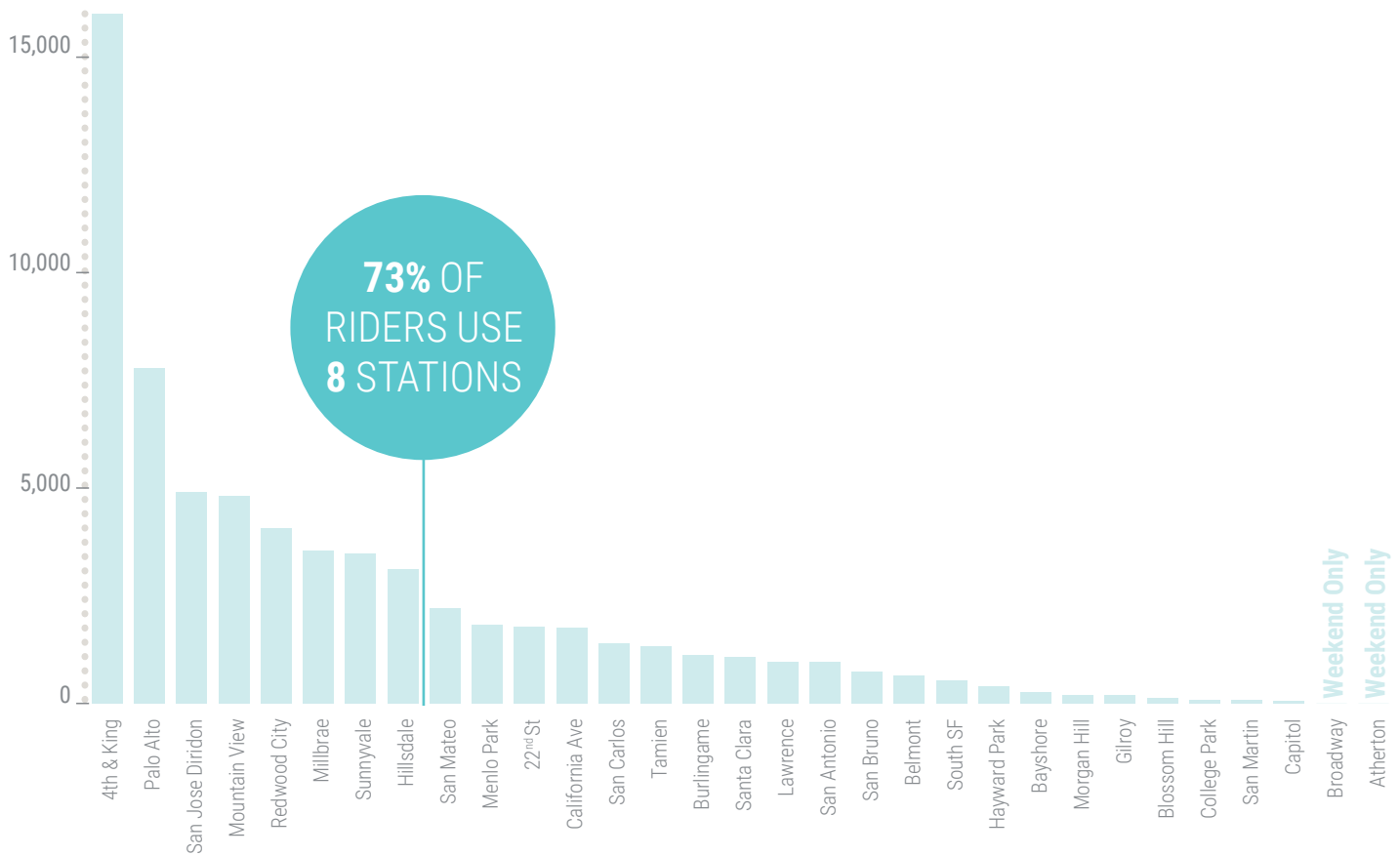
AM Southbound/
PM Northbound
(5 Trains)



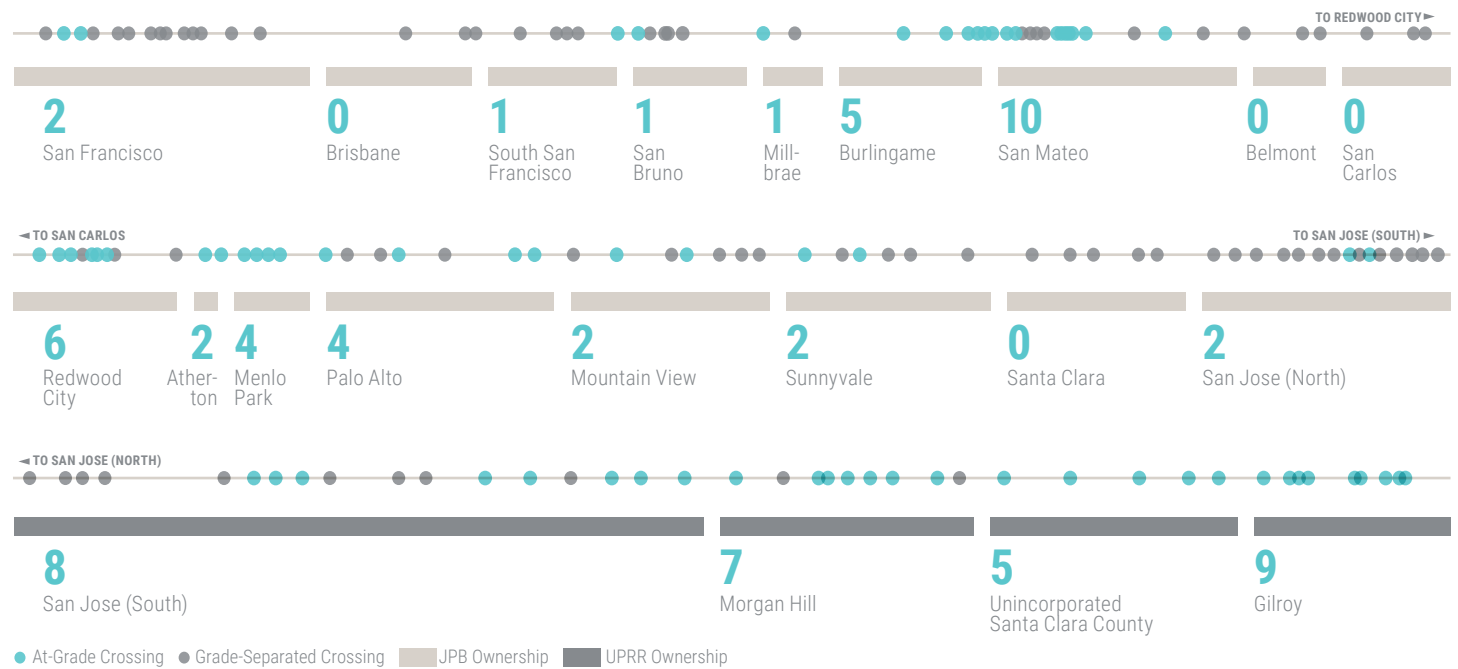
Notes: This diagram provides a simplified representation of one hour of peak period service.

THE CORRIDOR TODAY

STATIONS BY WEEKDAY RIDERSHIP



CORRIDOR TRACK CROSSINGS



Sources: Caltrain Ridership Data, 2017; Caltrain Timetables, 2018; Caltrain Parking Occupancy Report, 2017; Caltrain 2014 On-Board Transit Survey; CPUC Collision Database, 2016; Fehr&Peers Traffic Counts, 2016; Caltrain Electrification EIR; US Census Bureau Population Estimates Program.

HOW CALTRAIN IN PALO ALTO IS USED TODAY



Riders Living in the City

1,576



Riders Working in the City

2,166



Residents or Employees Riding 5+ Days Per Week

48%



Resident Riders Per Capita

2.3%

STATION CHARACTERISTICS



Station

Palo Alto

Local
Limited
Bullet

California Avenue

Local
Limited



Parking Spaces

389/272

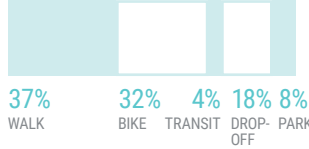
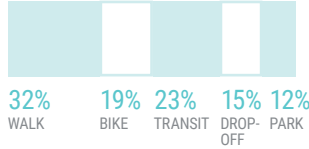
99%
VEHICLE PARKING OCCUPANCY (MAX.)

185/75

61%
VEHICLE PARKING OCCUPANCY (MAX.)



Mode of Access



Top 3 Origins/Destinations

San Francisco
22nd Street
San Jose

San Francisco
San Jose
San Mateo

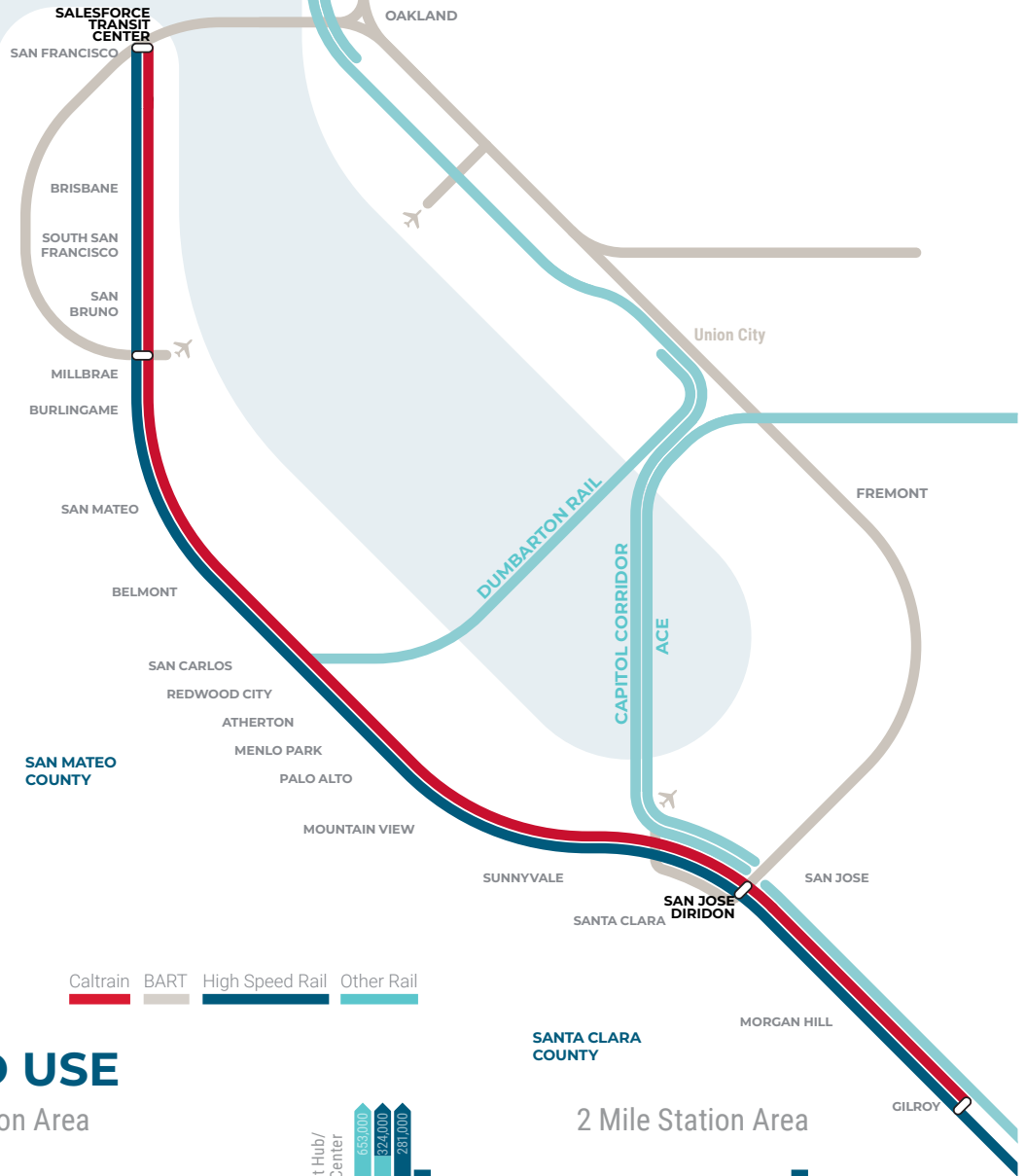
THE CORRIDOR TODAY



CALTRAIN IN 2040

The Caltrain Business Plan is asking the question "How should Caltrain Grow?" To do this we are considering what the corridor and region will look like in 2040, including how many people will want to live and work along the Caltrain corridor and what the role of the railroad should be in helping keep everyone moving.

The Business Plan team has developed three distinct, illustrative "growth scenarios" or "visions" for how Caltrain could grow to serve expanded demand for rail service. The following pages provide an overview of these "growth scenarios" and show what they could mean for communities along the corridor.

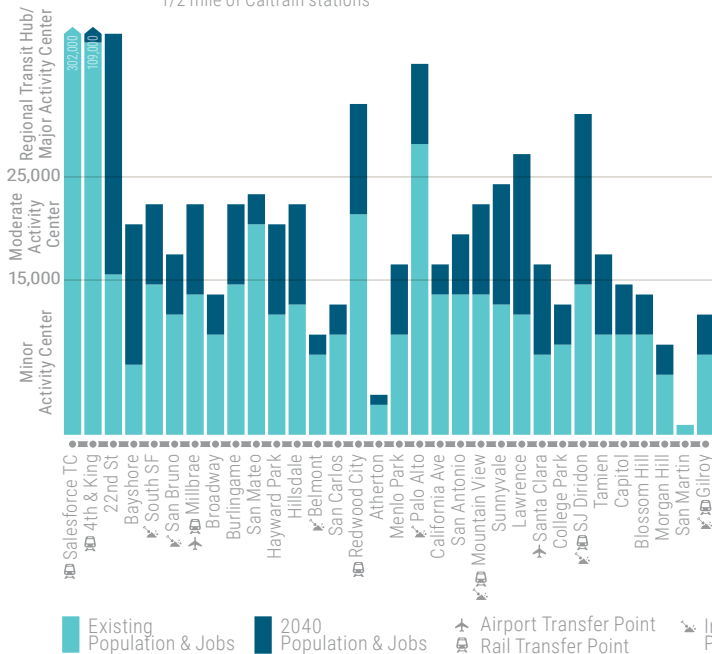


Caltrain BART High Speed Rail Other Rail

CHANGING LAND USE

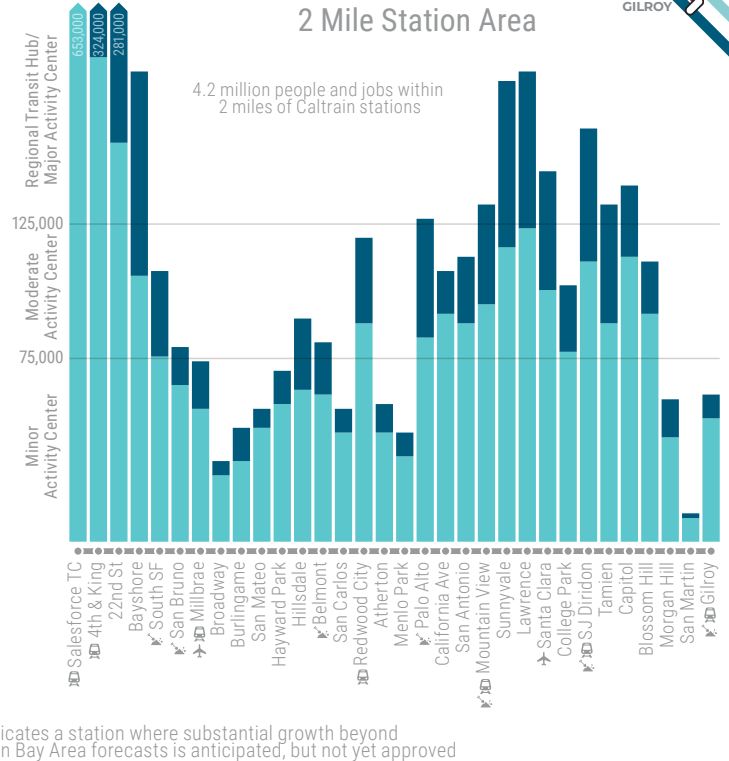
1/2 Mile Station Area

1 million people and jobs within 1/2 mile of Caltrain stations



2 Mile Station Area

4.2 million people and jobs within 2 miles of Caltrain stations



Existing Population & Jobs 2040 Population & Jobs Airport Transfer Point Rail Transfer Point Indicates a station where substantial growth beyond Plan Bay Area forecasts is anticipated, but not yet approved

SERVICE VISION DEVELOPMENT

How we want to grow:

The team developed service plans that attempt to balance coverage and market demand goals, emphasize clock-face schedules, integration with the state and regional transportation network and timed-transfers.



**BALANCING
MARKET &
COVERAGE
SERVICE**



**CLOCK-FACE
SCHEDULING**



**SEAMLESS
NETWORK
INTEGRATION**



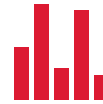
**COORDINATED
TRANSFERS**

Growing in a constrained corridor:

All of the service concepts developed are an exercise in compromise. The Caltrain corridor is physically constrained and the Joint Powers Board must balance competing objectives of changing markets and land uses, historic station spacing, and multiple types and speeds of train service. There are no perfect solutions and any future service plan must reconcile technical challenges related to service differentiation, infrastructure investments, and the total volume of trains running in the corridor.



**SERVICE
DIFFERENTIATION**

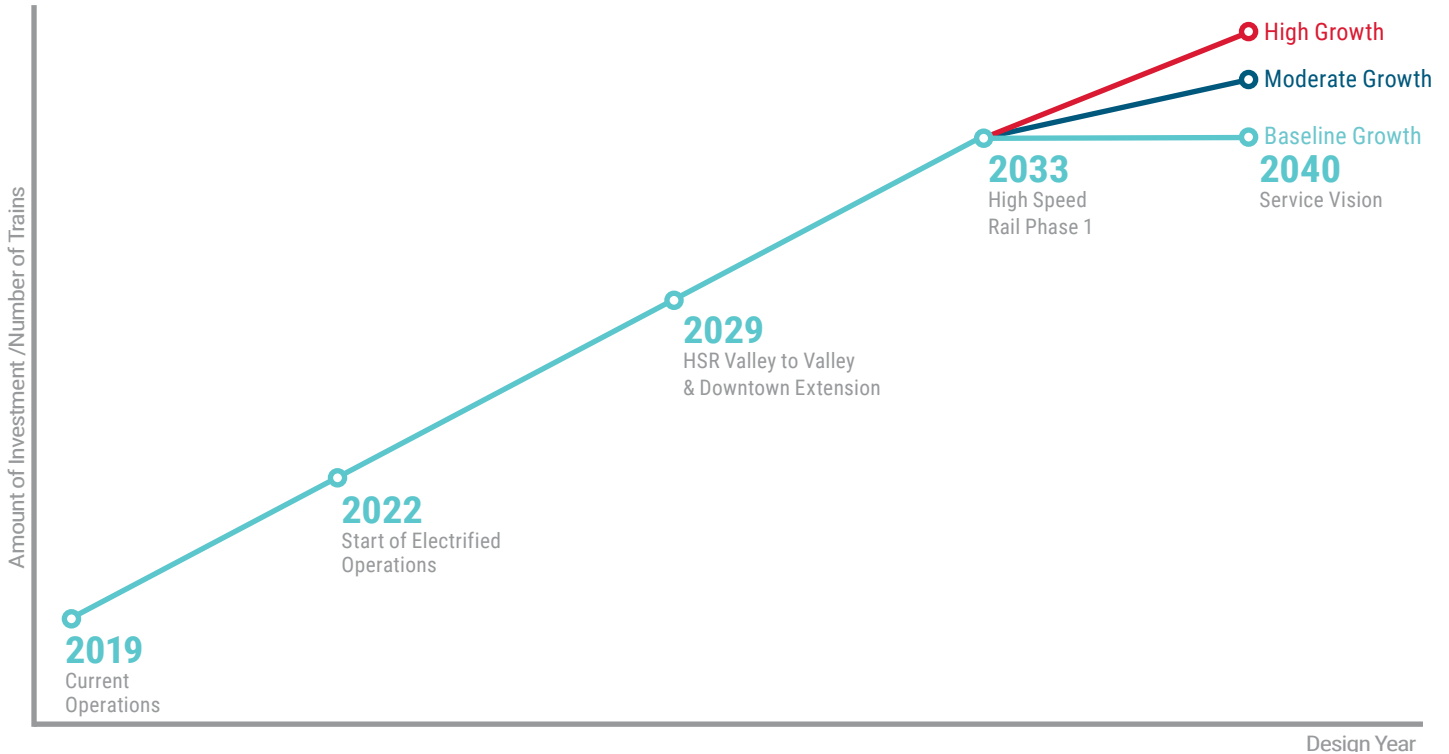


**PEAK
SERVICE
VOLUME**



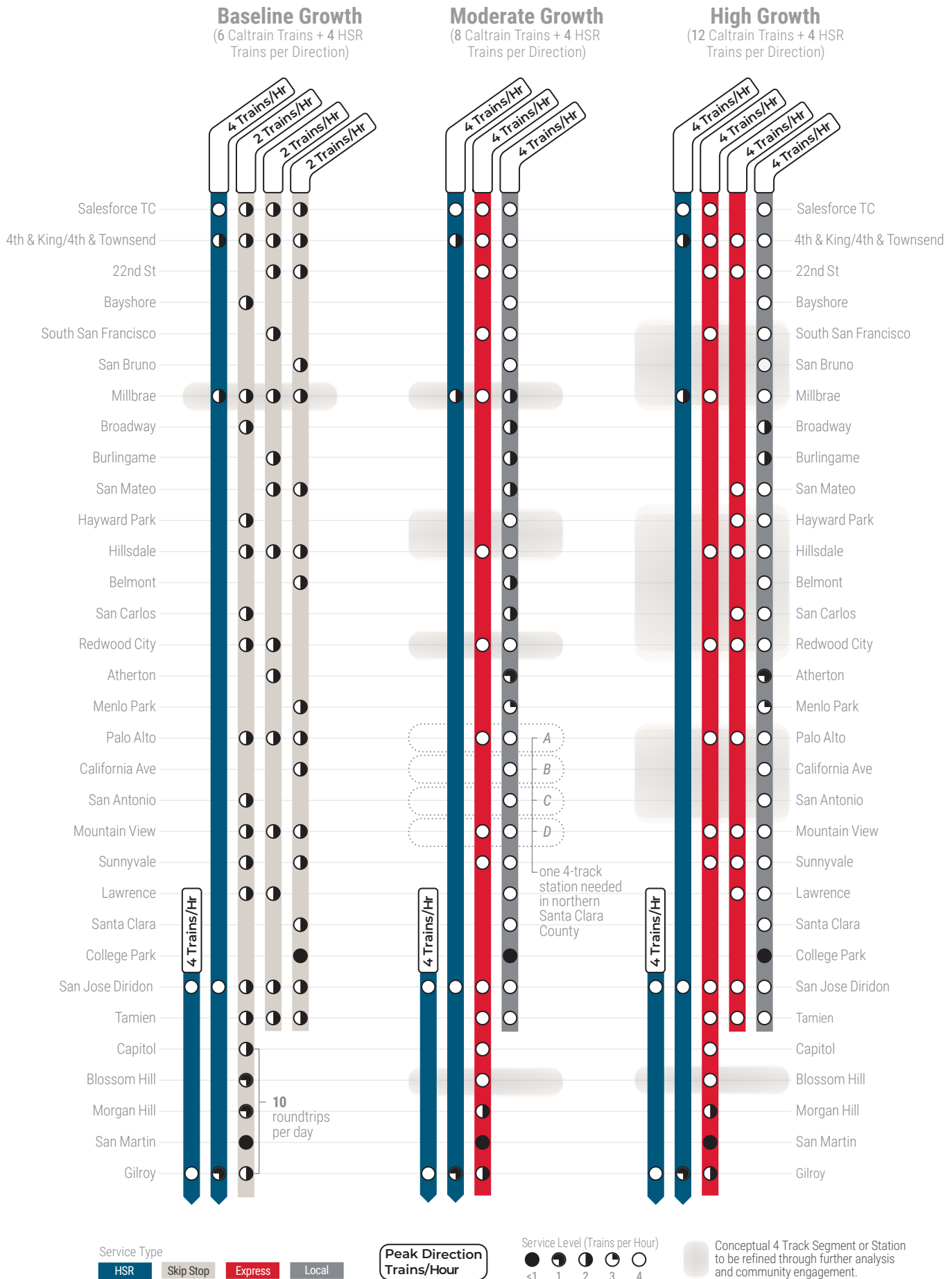
**SERVICE
INVESTMENTS**

DIFFERENT WAYS TO GROW



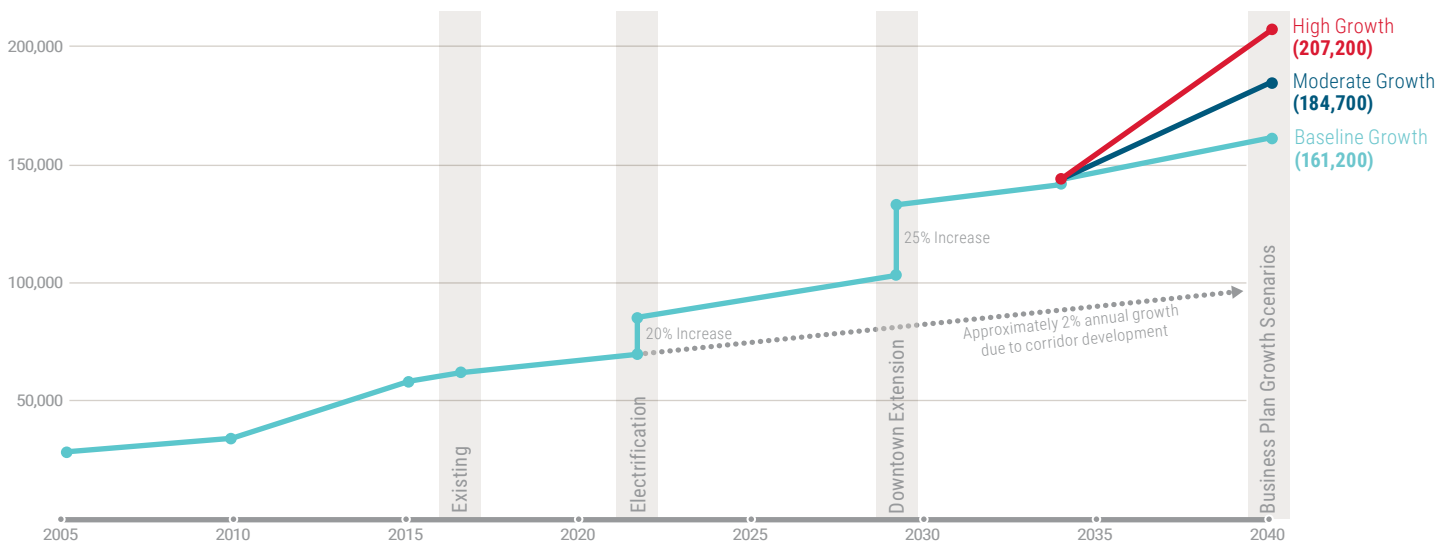
Caltrain has developed three long-range service scenarios that illustrate different choices for how the railroad could grow over time. Each of these scenarios incorporates and builds on the existing projects and policy commitments in the corridor. Although these scenarios are illustrative, they have been developed at a high level of detail to provide a realistic and nuanced picture of how rail service in the corridor could grow and what kinds of trade-offs might be required.

CONCEPTUAL PEAK HOUR SERVICE SCENARIOS



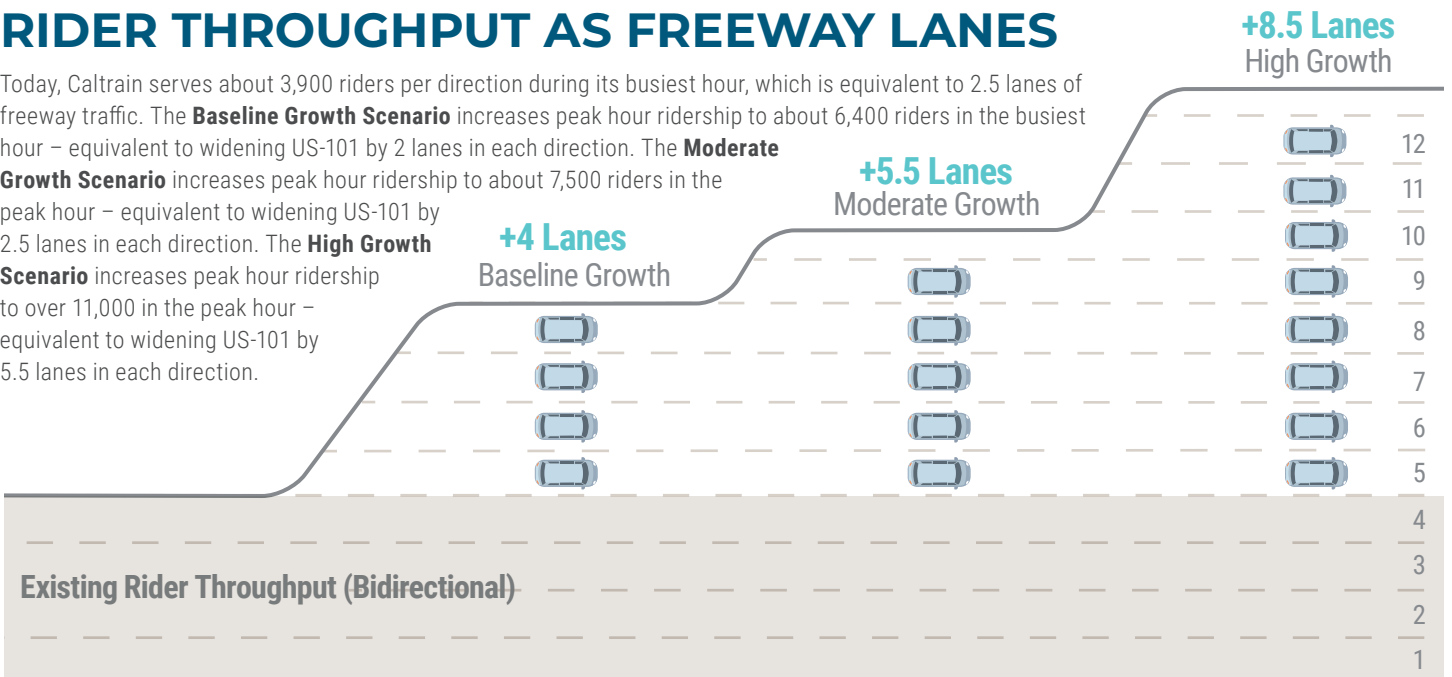
Notes: These service patterns and infrastructure projects represent illustrative concepts carried forward for business planning purposes. Actual service patterns and infrastructure may vary depending on corridor-wide and jurisdiction-specific feedback and will be refined and confirmed based on Board direction and subsequent planning and analysis. Ridership projections are derived from analysis of potential service patterns and land use changes included in Plan Bay Area or subsequently approved by local jurisdictions.

WEEKDAY RIDERSHIP DEMAND OVER TIME



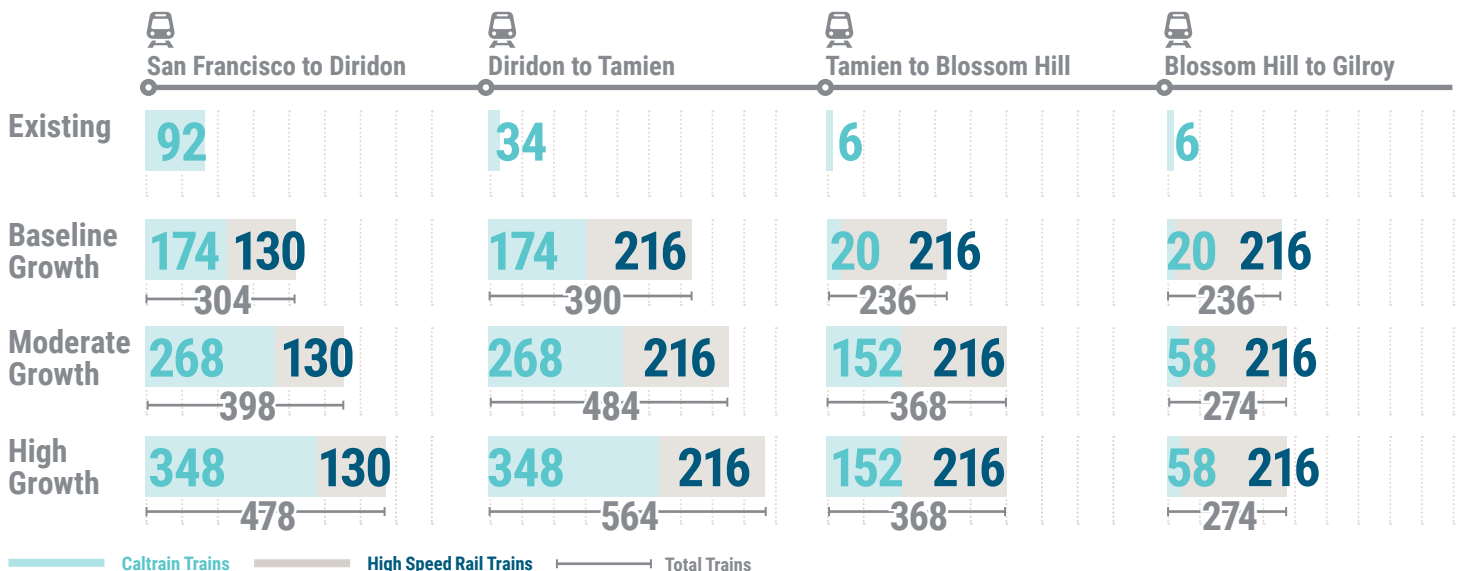
RIDER THROUGHPUT AS FREEWAY LANES

Today, Caltrain serves about 3,900 riders per direction during its busiest hour, which is equivalent to 2.5 lanes of freeway traffic. The **Baseline Growth Scenario** increases peak hour ridership to about 6,400 riders in the busiest hour – equivalent to widening US-101 by 2 lanes in each direction. The **Moderate Growth Scenario** increases peak hour ridership to about 7,500 riders in the peak hour – equivalent to widening US-101 by 2.5 lanes in each direction. The **High Growth Scenario** increases peak hour ridership to over 11,000 in the peak hour – equivalent to widening US-101 by 5.5 lanes in each direction.



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

HOW MANY TRAINS PER DAY?



Note: Graphic includes only Caltrain and HSR service and does not account for ACE, Capitol Corridor, or Freight/Amtrak trains.

SERVICE CONCEPTS IN PALO ALTO



Station



Weekday Train Stops



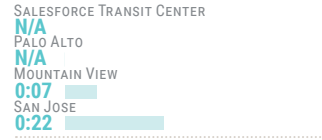
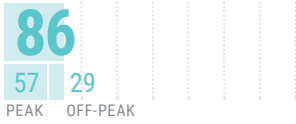
Daily Boardings



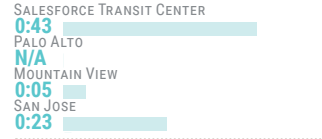
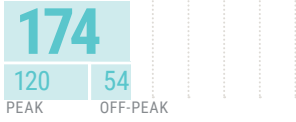
Quickest Travel Time (min)

Palo Alto

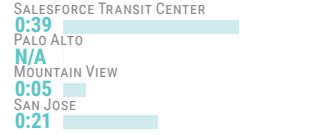
Existing



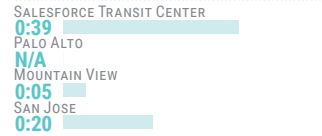
Baseline Growth



Moderate Growth

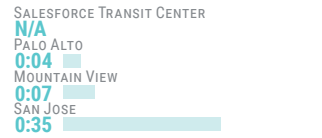


High Growth

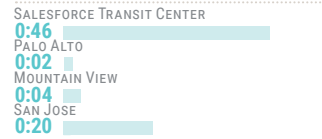


California Ave

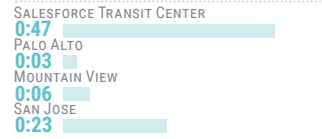
Existing



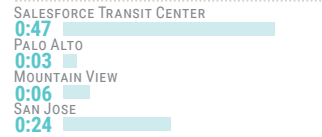
Baseline Growth



Moderate Growth



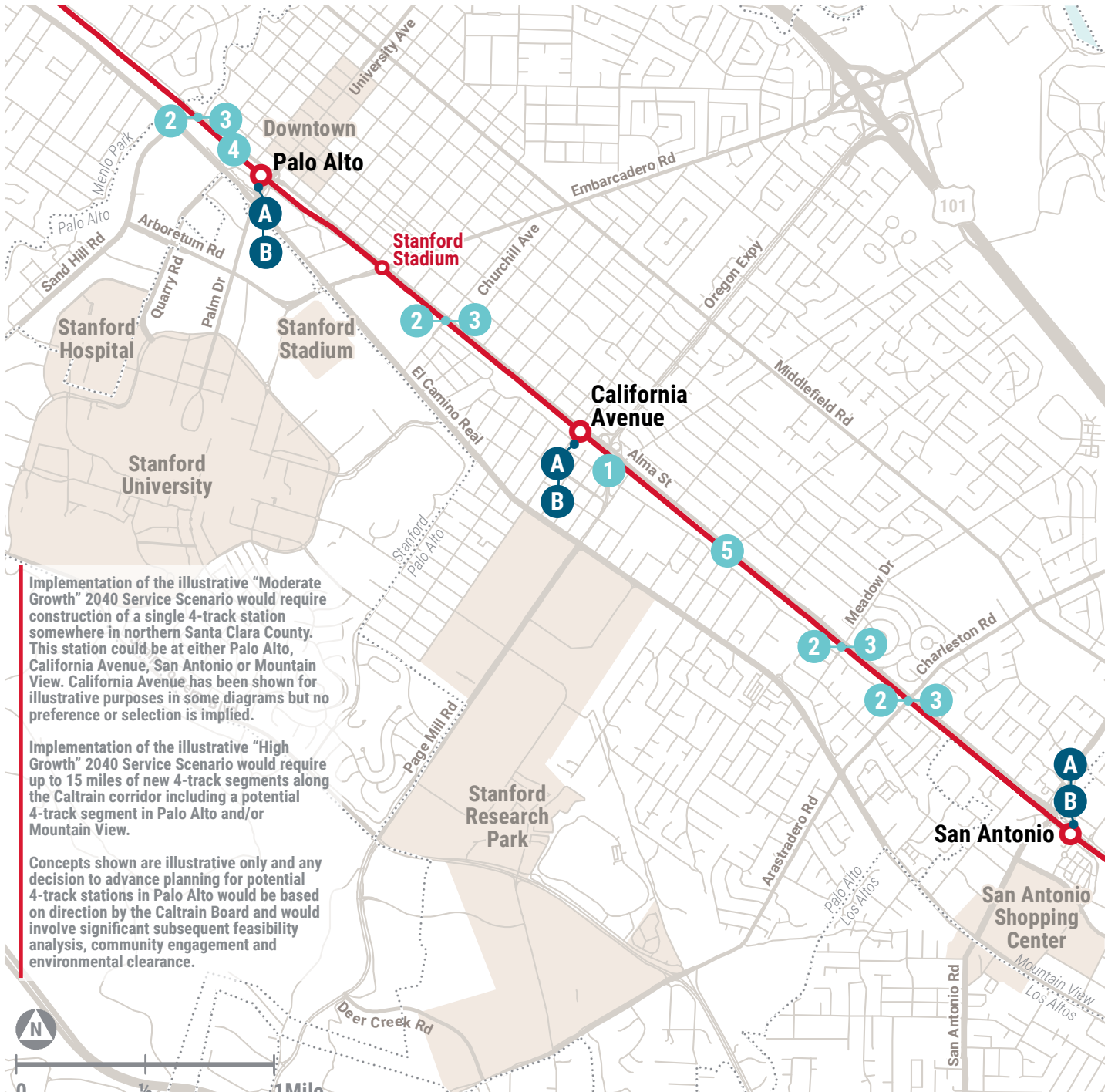
High Growth



Notes: These service patterns represent illustrative concepts carried forward for business planning purposes. Actual service patterns may vary depending on corridor-wide and jurisdiction-specific feedback as well as Board direction and subsequent analysis. Ridership projections are derived from analysis of potential service patterns and land use changes in Plan Bay Area or subsequently approved by local jurisdictions.

CORRIDOR CONTEXT & CAPITAL PROJECTS

2040 VISION



Implementation of the illustrative "Moderate Growth" 2040 Service Scenario would require construction of a single 4-track station somewhere in northern Santa Clara County. This station could be at either Palo Alto, California Avenue, San Antonio or Mountain View. California Avenue has been shown for illustrative purposes in some diagrams but no preference or selection is implied.

Implementation of the illustrative "High Growth" 2040 Service Scenario would require up to 15 miles of new 4-track segments along the Caltrain corridor including a potential 4-track segment in Palo Alto and/or Mountain View.

Concepts shown are illustrative only and any decision to advance planning for potential 4-track stations in Palo Alto would be based on direction by the Caltrain Board and would involve significant subsequent feasibility analysis, community engagement and environmental clearance.



Legend	
	Caltrain line
	Key Destination

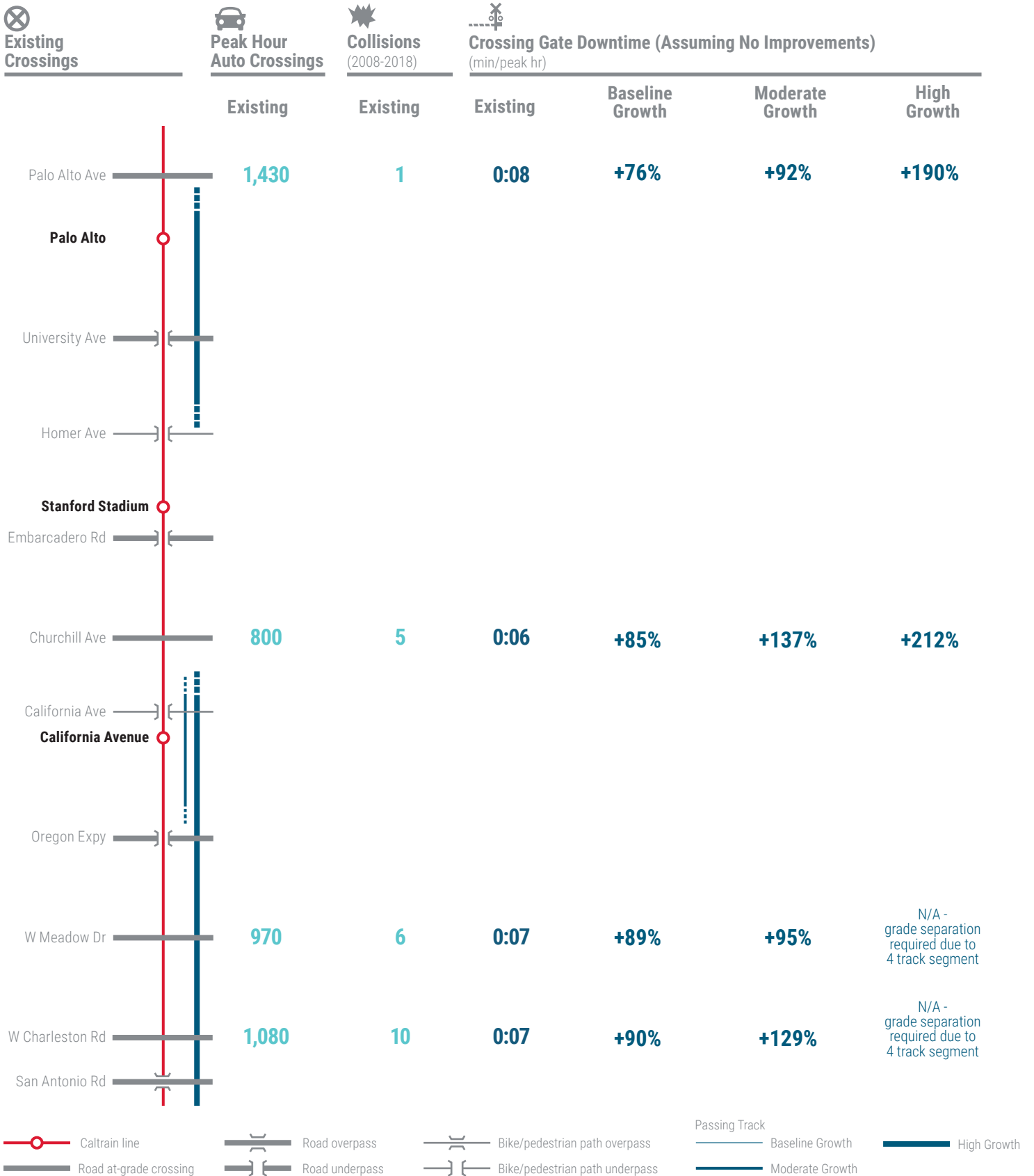
Current Projects	
1	Paralleling Station
2	Connecting Palo Alto Grade Separation Study
3	Caltrain Grade Crossing Improvements - Palo Alto Ave, Churchill Ave, Meadow Dr, Charleston Rd
4	Everett Ave Bike/Ped Grade Separation
5	Loma Verde Ave Bike/Ped Grade Separation
	Electrification

Potential Projects				
A	Station enhancements and platform extensions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B	Possible location for conceptual 4-track station	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Baseline Growth	Moderate Growth	High Growth




Notes: These infrastructure projects represent concepts carried forward for business planning purposes. Actual infrastructure may vary depending on corridor-wide and jurisdiction-specific feedback.
Sources: Caltrain Ridership Data, 2017; Caltrain Timetables, 2018; Caltrain Parking Occupancy Report, 2017; Caltrain 2014 On-Board Transit Survey; CPUC Collision Database, 2016; Fehr&Peers Traffic Counts, 2016; Caltrain Electrification EIR; US Census Bureau Population Estimates Program.

CROSSING THE TRACKS

Gate down times shown are indicative projections extrapolated from existing crossing performance. They are examples of "worst case" gate downtimes that could occur if no grade separations or grade crossing improvements were made. The financial component of the Caltrain Business Plan is planning for substantial investments in grade separation and crossing improvements across all scenarios.



Note: Conceptual 4 Track Segment to be refined through further analysis and community engagement.

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