Caltrain Business Plan

SEPTEMBER 2018

LPMG

September 27, 2018

Rounding out the 2040 Vision

What is the Caltrain Business Plan?

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

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

What Will the Business Plan Cover?

Technical Tracks

Service

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

Business Case

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

Community Interface

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

Organization

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

Recap of Last Month

Recap from Last Month

Planning within Constraints

The Caltrain corridor is not a blank slate. Over the past decade, the JPB and its partners have made major policy decisions that inform and bound how the railroad will grow and evolve in the future.

2008 CHSRA specifies its alignment

2011-2013 “Blended System” introduced

CHSRA Business Plan confirms Blended System

Senate Bills 1029 and 557 provide Prop 1A funds and codify 2-track blended system

2013-2017 Peninsula Corridor Electrification Program environmentally cleared

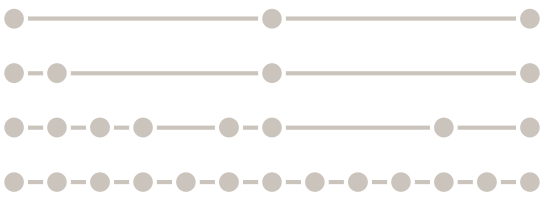
Receipt of Federal Full Funding Grant Agreement

Full Notice to Proceed issued

Recap from Last Month

Planning within Constraints

Decisions and commitments that have already been made on the corridor bring three fundamental service planning questions into tension with one another:



1. Service Differentiation

How can local, regional and high speed services be blended and balanced on the corridor to best serve multiple markets?

2. Peak Service Volume

How much growth in peak train traffic volume can the corridor support and what kinds of growth may be required to meet long term demand?

3. Service Investments

What types of investments into operations, systems and infrastructure will be required to achieve the desired types and volumes of service?

Recap from Last Month

Planning within the Corridor-Community Interface

Planning for a long range Service Vision also requires a specific focus on the interface between the rail corridor and the communities it serves.

This means thinking about what changes or strategies can be employed in the corridor to maximize the opportunities and benefits of the railroad provides while addressing challenges and mitigating impacts.

Analysis

- Document interface between the railroad and its surroundings
- Understand how the interface could change as the railroad and its surrounding communities grow
- Describe how the corridor-community interface is “managed” today including decision-making, project delivery and funding
- Compare with approaches used by national and international peer rail corridors

Outcomes

- Work with the communities to identify opportunities for how the corridor, not just individual projects, could be better managed to achieve both community and railroad goals
- **This includes considering both the appetite and need for a corridor-wide approach to address at-grade crossings**

SHARING SESSION

Do you have any questions related to the key Service and Community Interface issues we discussed last month?

Focus on Service

Service Practices and Priorities

Service Practices and Priorities

Exploring the Market for Service

Planning for the Service We Want

Best Practices

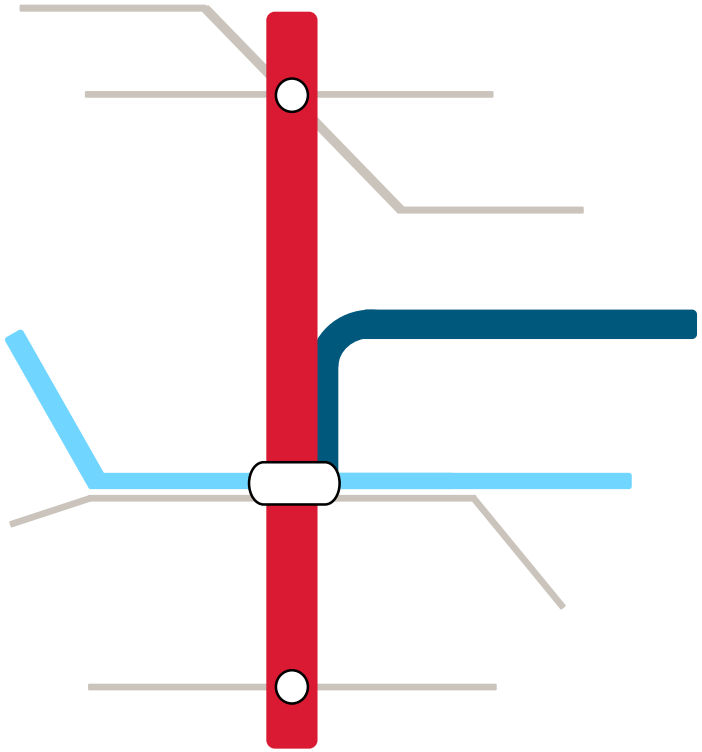
Goals to strive for as we plan the 2040 Service Vision

Balancing Priorities

Considerations that will shape the 2040 Service Vision

Best Practice

Seamless Network Integration

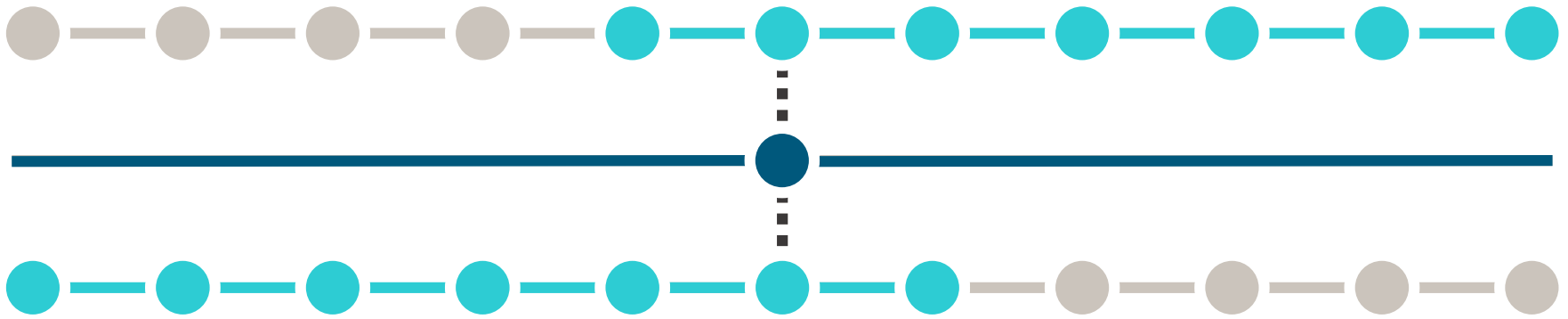


The Caltrain service is part of a statewide, regional and local transportation network.

To get the most out of this network, individual operators must plan, coordinate and administer their services in a way that enhances connectivity and achieves a seamless experience for the customer.

Best Practice

Coordinated Transfers



Example timed transfer between regional express and local services

Timed, well-coordinated transfers increase the useability of the rail system and help provide high quality service to a larger range of travel markets. Well coordinated transfers are one tool that can help the system balance the competing goals of coverage vs. travel time and service to high demand markets

Best Practice

Clock-Face Scheduling

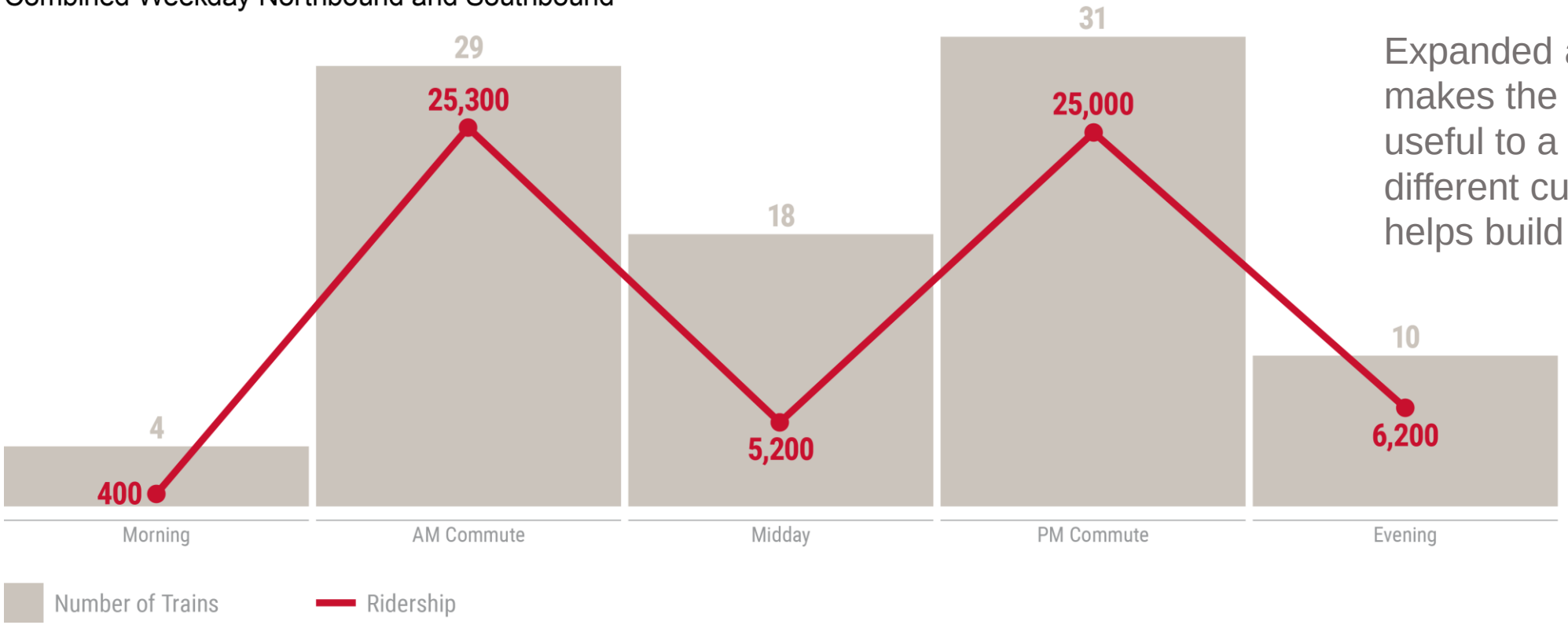
With clock-face scheduling, trains arrive and depart at consistent intervals, like every 10 minutes. This simplicity makes it easy for customers to remember train schedules, which cuts down on travel planning complexity.

This practice is commonplace in many countries with high-quality transit systems.

Best Practice

Better All-Day Service

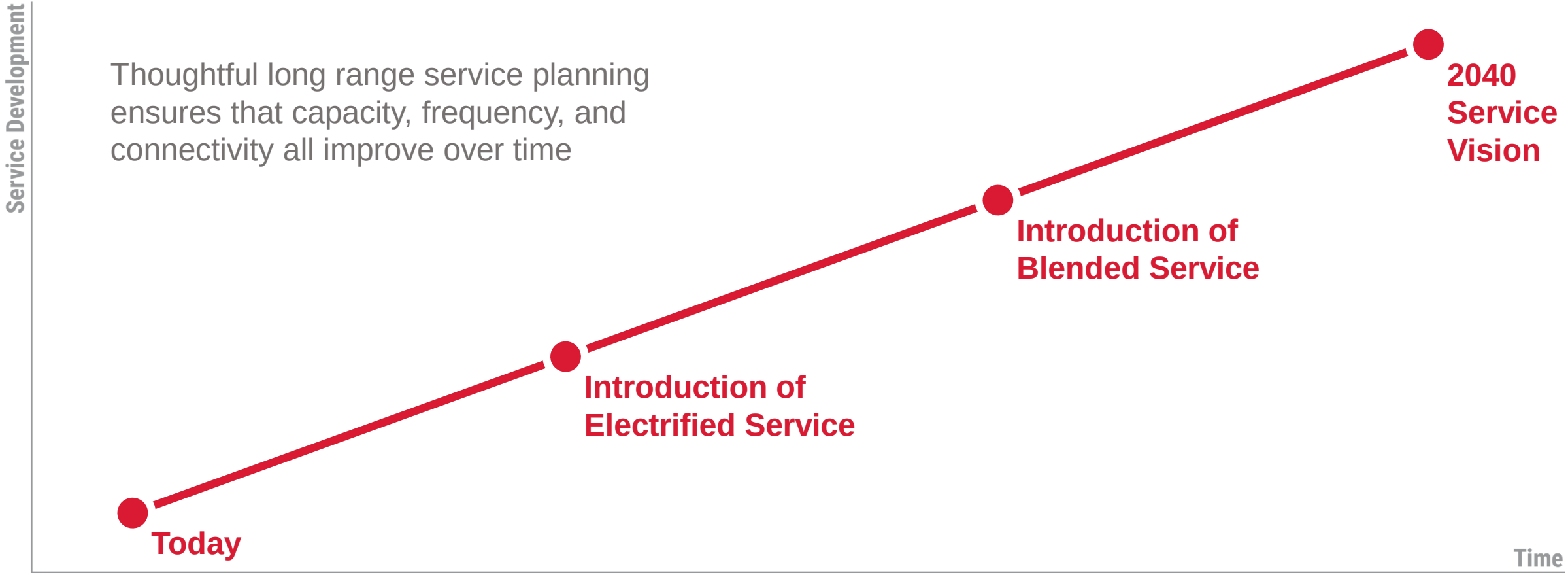
Train Service and Ridership by Time of Day
Combined Weekday Northbound and Southbound



Expanded all-day service makes the system more useful to a range of different customers and helps build new markets

Best Practice

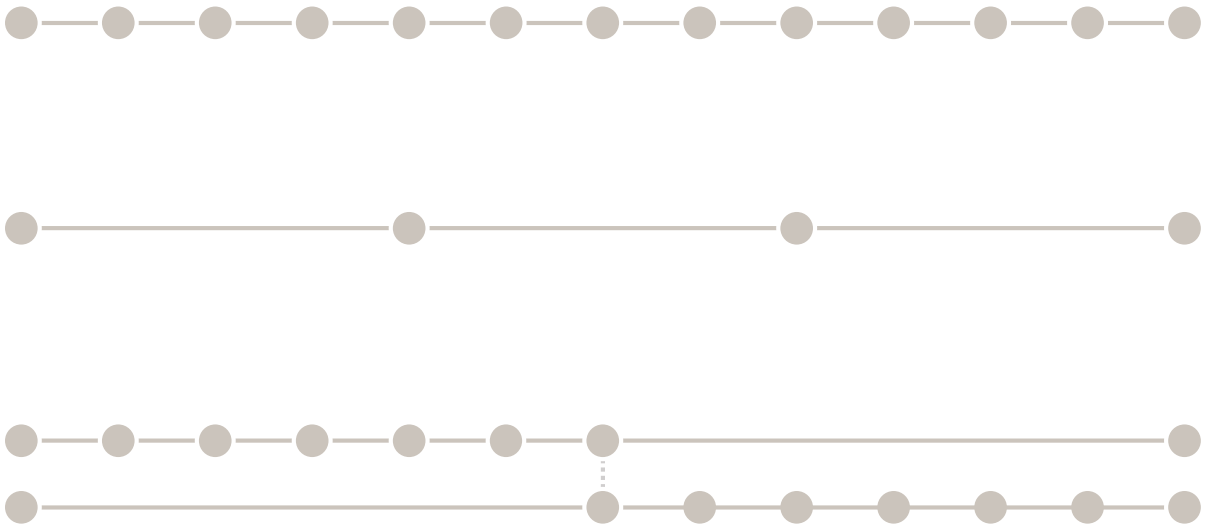
Continuous Improvement



Priorities

Balancing Frequency & Travel Time

Working within Pre-Established System Constraints, We Can Blend…



Frequent Service to Many Stations
with slower travel time due to many stops

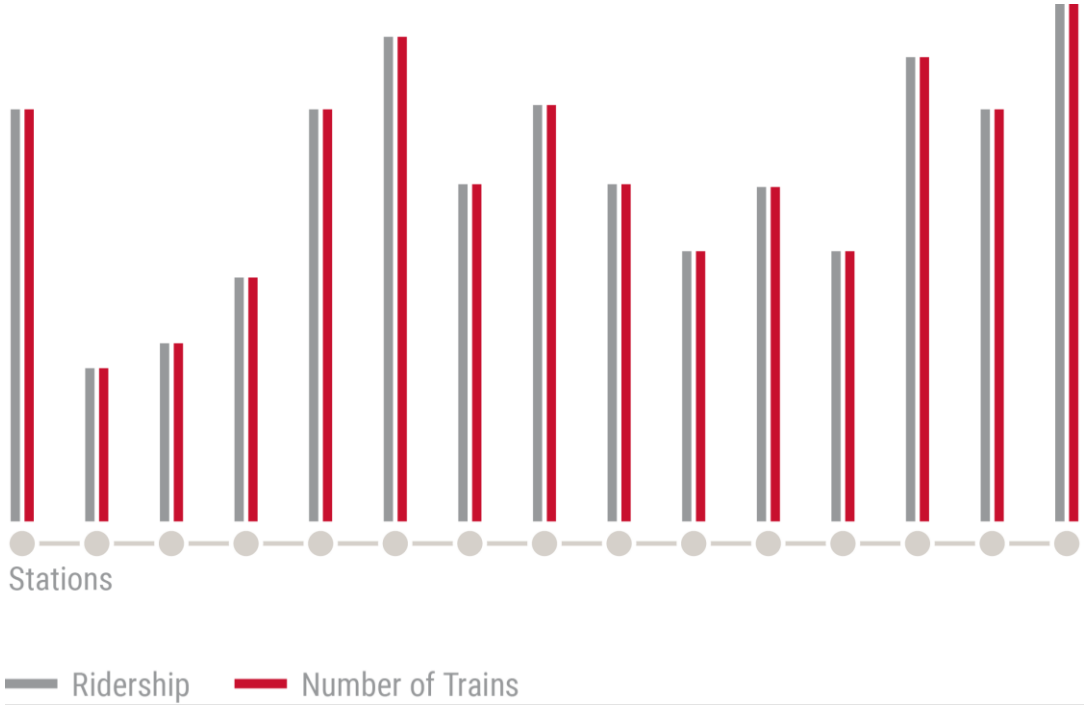
Fast Travel Time to Fewer Stations
with longer wait times at skipped stations

A Balance of Travel Time and Frequency
with transfers required

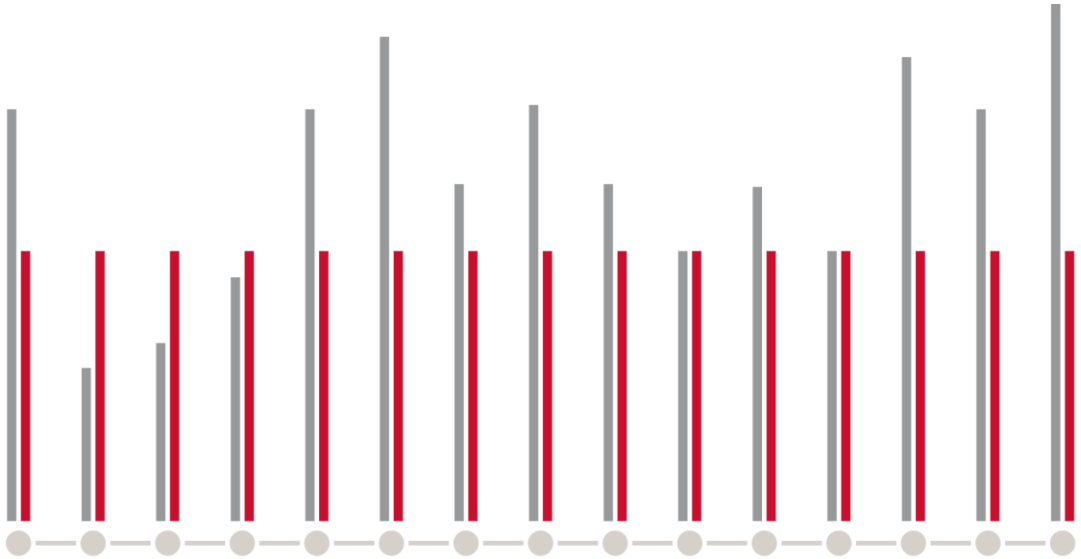
Priorities

Balancing Market & Coverage Service

Market-Focused Service



Coverage-Focused Service



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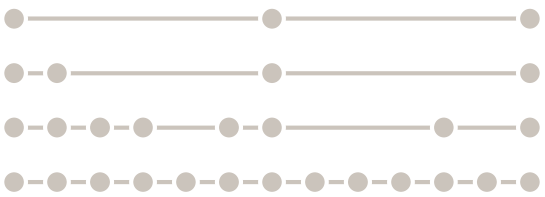

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Caltrain

SHARING SESSION

Which service “Best Practices” are most important to your jurisdiction? Are there any best practices that we are missing?

How do you think we should approach balancing competing service needs?

Exploring the Market for Service

Service Priorities

Exploring the Market for Service

Understanding the Market for Caltrain Today

1. **Ridership is highly concentrated at a few stations**

- The busiest 8 stations account for nearly ¾ of all ridership and nearly all ridership growth over the past 20 years
- The least busy 8 mainline stations and the San Jose – Gilroy stations have lost ridership over the last 20 years
- One in four Caltrain riders do not use the station closest to their origin or destination due to differences in service levels and accessibility

2. **Caltrain serves multiple markets in both directions**

- Existing riders primarily commute to four major employment centers (San Francisco, Redwood City, Palo Alto, and Mountain View) plus several mid-sized hubs
- AM peak period ridership exhibits a 64%-36% northbound-southbound split

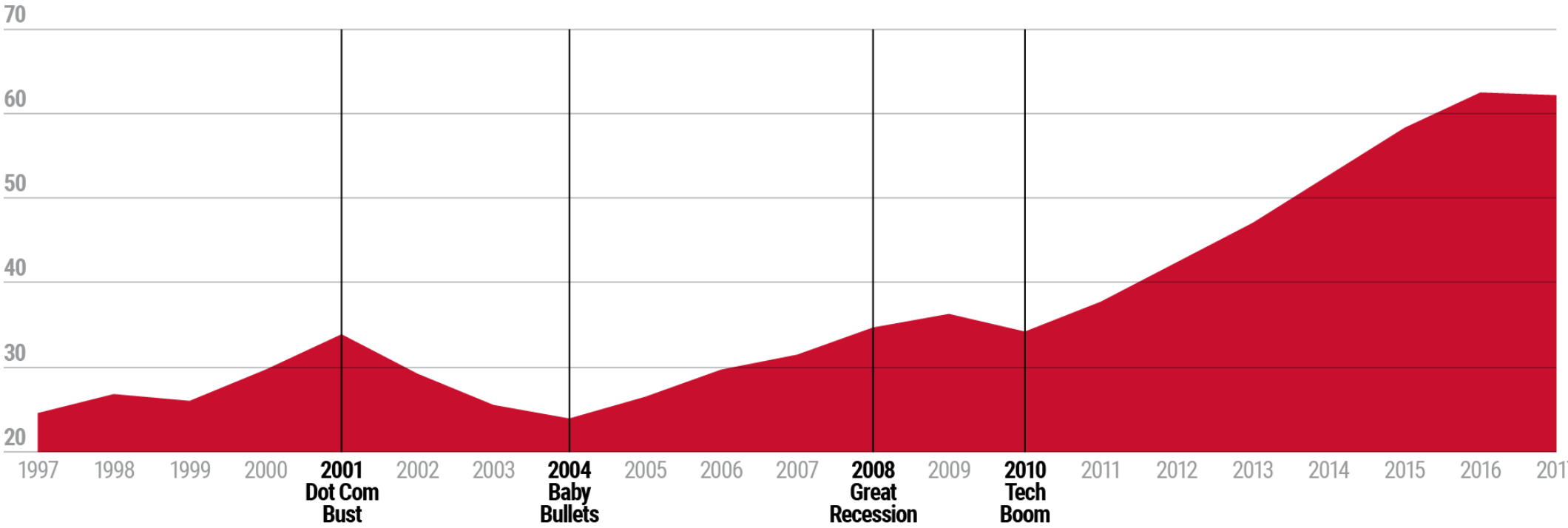
3. **Today caltrain captures a small, but significant percentage of the overall travel market along the peninsula**

- Caltrain captures roughly 8-10% of regional peak hour travel markets along the Peninsula
- There appears to be significant market growth opportunities, both overall and for off-peak and Gilroy markets

Understanding the Market for Caltrain Today

Existing Ridership

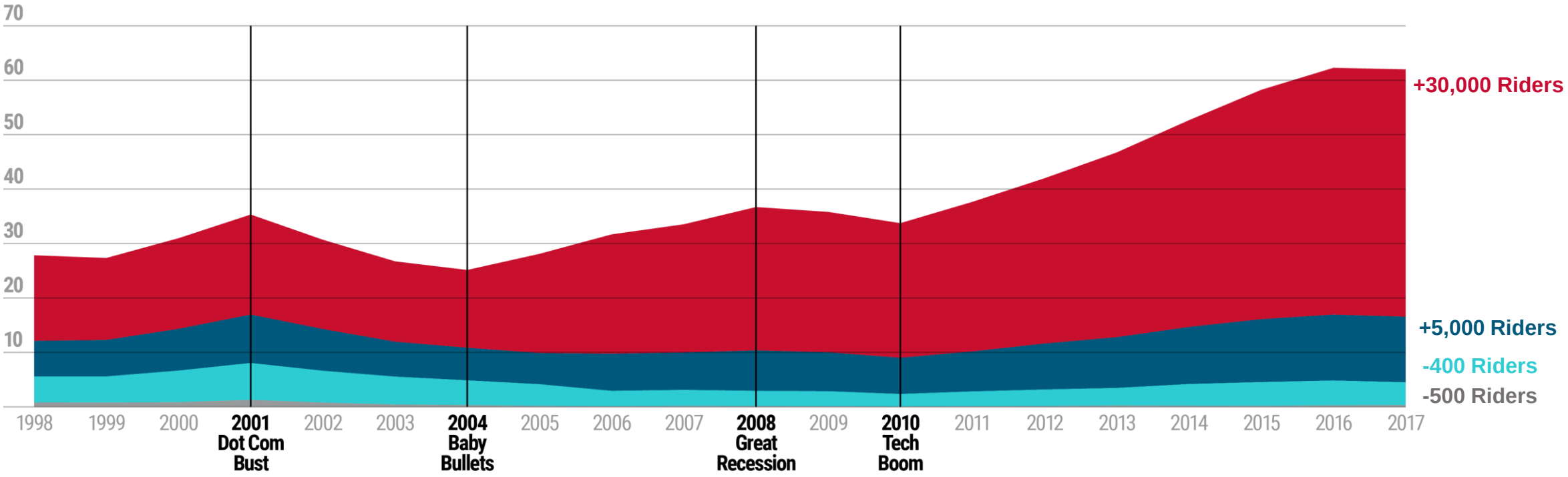
Caltrain Average Weekday Ridership (Thousands)
1997 – 2017



Today, Ridership is Highly Concentrated at a Few Stations

Change in Ridership (Thousands)

1998 – 2017



Top 8 Stations
4th & King, Millbrae, Hillsdale, Redwood City, Palo Alto, Mountain View, Sunnyvale, San Jose Diridon

Middle 8 Stations
22nd Street, Burlingame, San Mateo, San Carlos, Menlo Park, California Ave, Santa Clara, Tamien

Bottom 8 Stations
Bayshore, South San Francisco, San Bruno, Hayward Park, Belmont, San Antonio, Lawrence, College Park

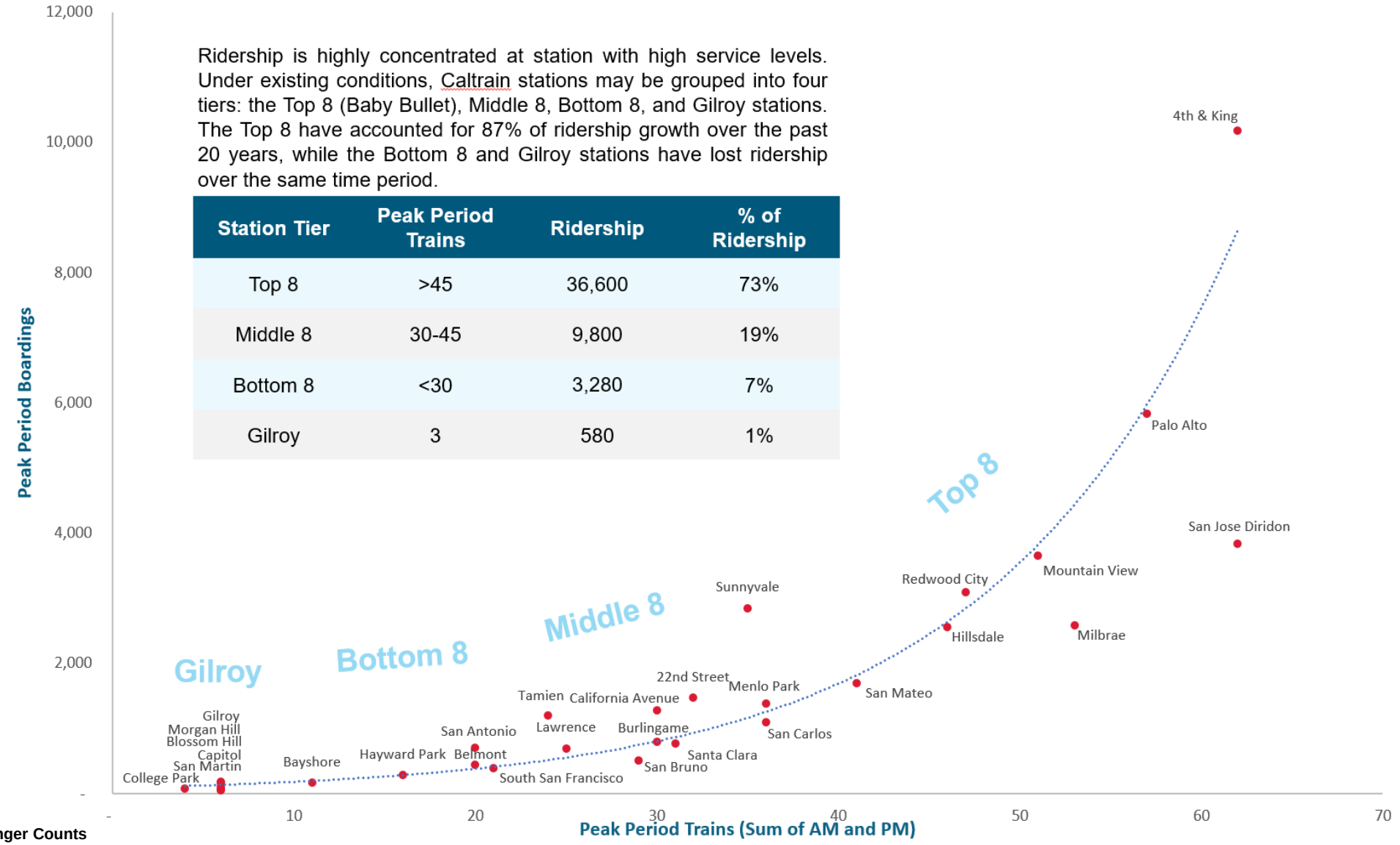
Gilroy Service
Capitol, Blossom Hill, Morgan Hill, San Martin, Gilroy

Source: 1998-2017 Passenger Counts

There is a Relationship Between Service Levels and Ridership

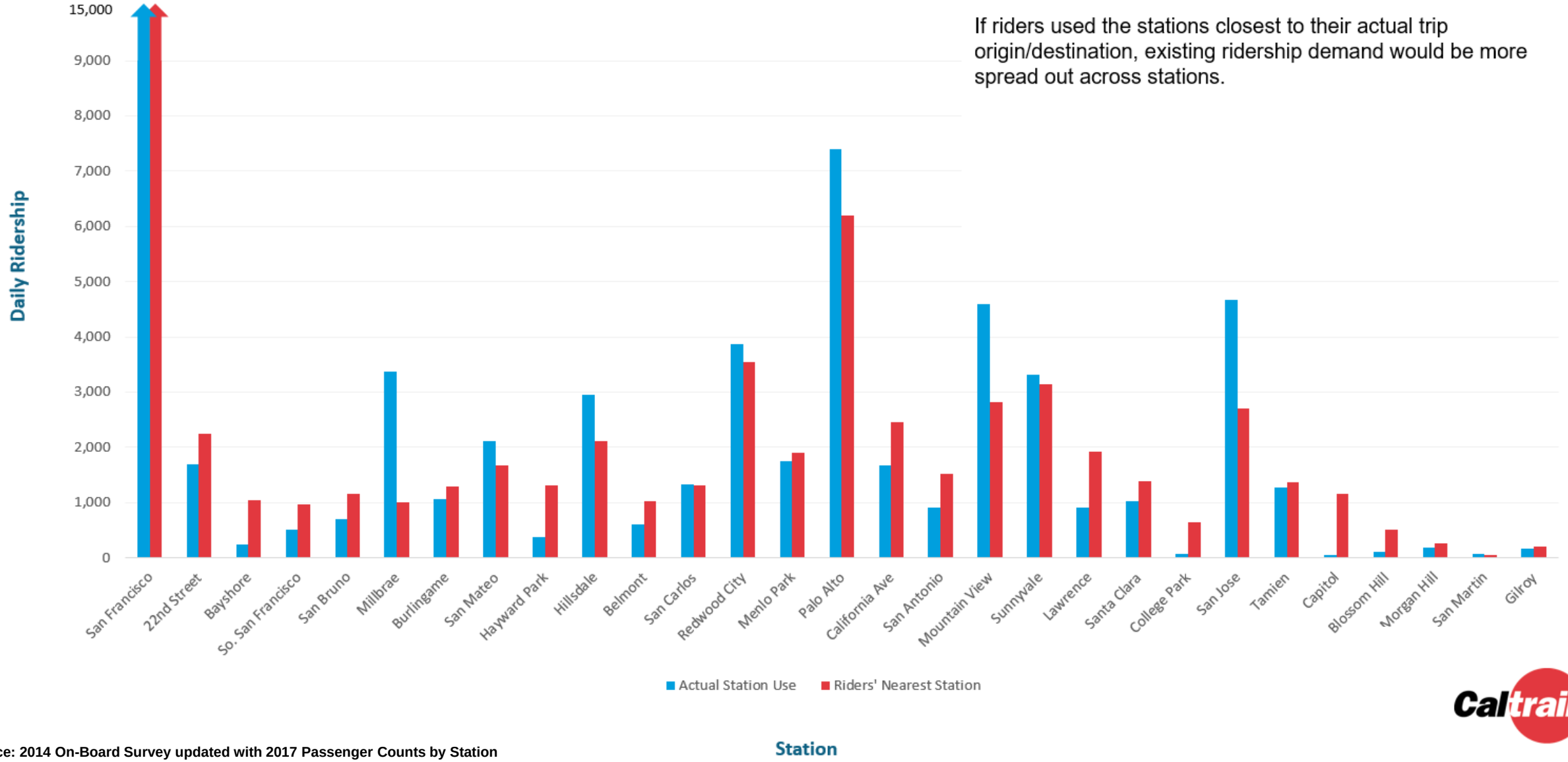
Ridership is highly concentrated at station with high service levels. Under existing conditions, Caltrain stations may be grouped into four tiers: the Top 8 (Baby Bullet), Middle 8, Bottom 8, and Gilroy stations. The Top 8 have accounted for 87% of ridership growth over the past 20 years, while the Bottom 8 and Gilroy stations have lost ridership over the same time period.

Station Tier	Peak Period Trains	Ridership	% of Ridership
Top 8	>45	36,600	73%
Middle 8	30-45	9,800	19%
Bottom 8	<30	3,280	7%
Gilroy	3	580	1%



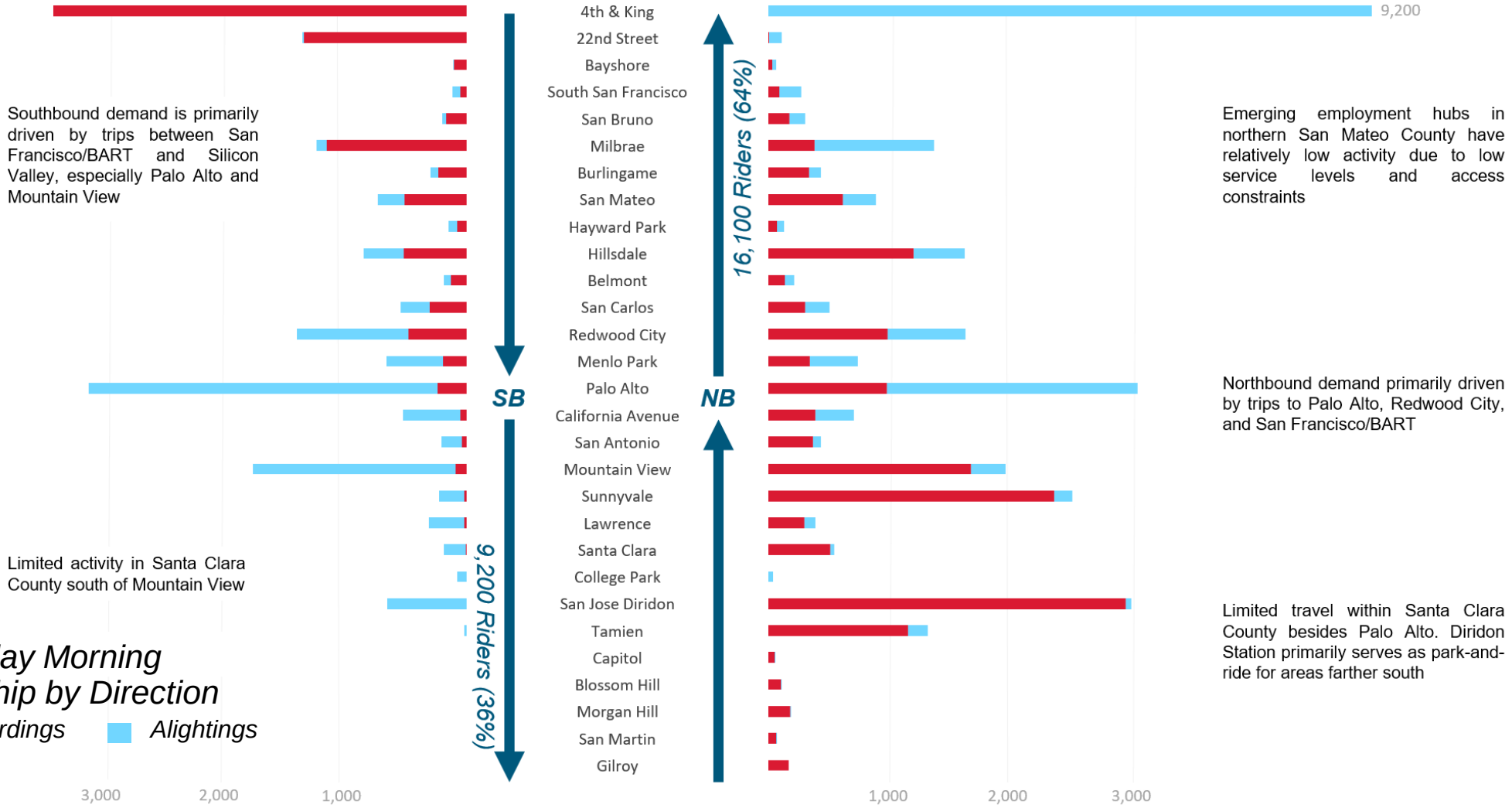
Source: 2017 Passenger Counts

Not All Riders Use the Station Closest to Them



Source: 2014 On-Board Survey updated with 2017 Passenger Counts by Station

Caltrain Serves Multiple Markets in Both Directions…



Southbound demand is primarily driven by trips between San Francisco/BART and Silicon Valley, especially Palo Alto and Mountain View

Limited activity in Santa Clara County south of Mountain View

Emerging employment hubs in northern San Mateo County have relatively low activity due to low service levels and access constraints

Northbound demand primarily driven by trips to Palo Alto, Redwood City, and San Francisco/BART

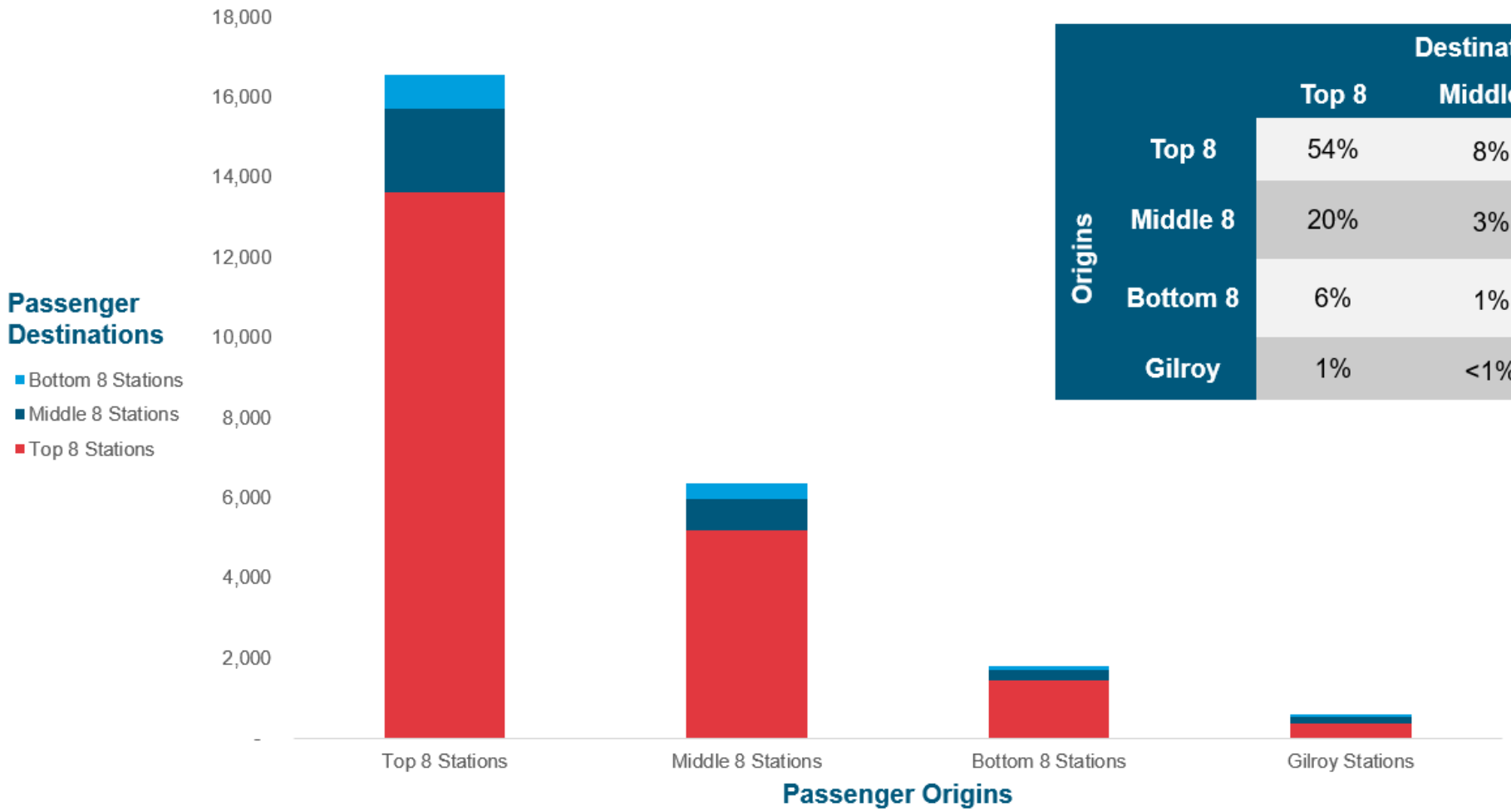
Limited travel within Santa Clara County besides Palo Alto. Diridon Station primarily serves as park-and-ride for areas farther south

Weekday Morning Ridership by Direction

Boardings *Alightings*

Source: 2017 Passenger Count

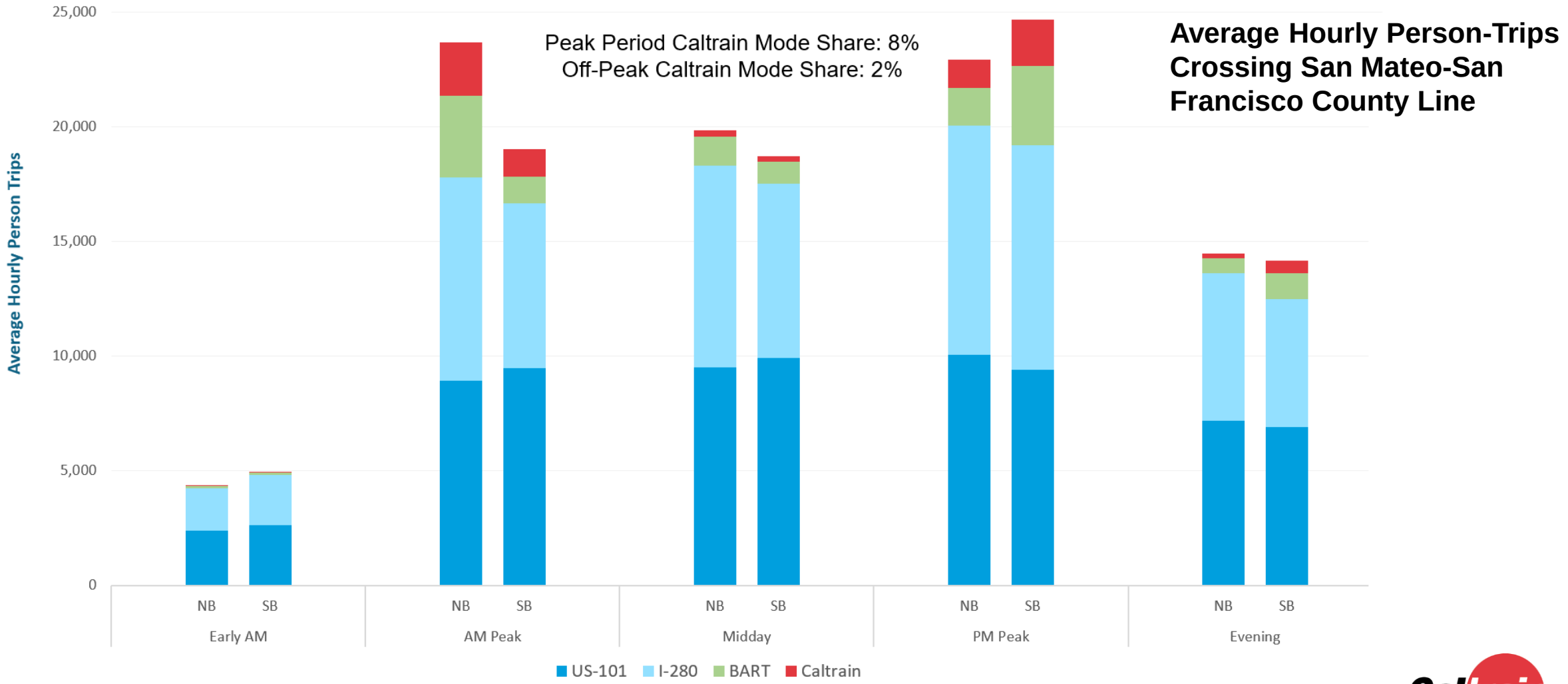
…But Demand is Still Highly Concentrated Within Top Markets



Origins	Destinations: Top 8	Destinations: Middle 8	Destinations: Bottom 8
Top 8	54%	8%	3%
Middle 8	20%	3%	2%
Bottom 8	6%	1%	<1%
Gilroy	1%	<1%	<1%

Source: 2014 On-Board Survey updated with 2017 Passenger Counts by Station

Today, Caltrain Captures a Modest Percentage of the Regional Travel Market



Source: 2017 BART and Caltrain Passenger Counts and 2017 Vehicle Counts (Adjusted for Passenger Occupancy)

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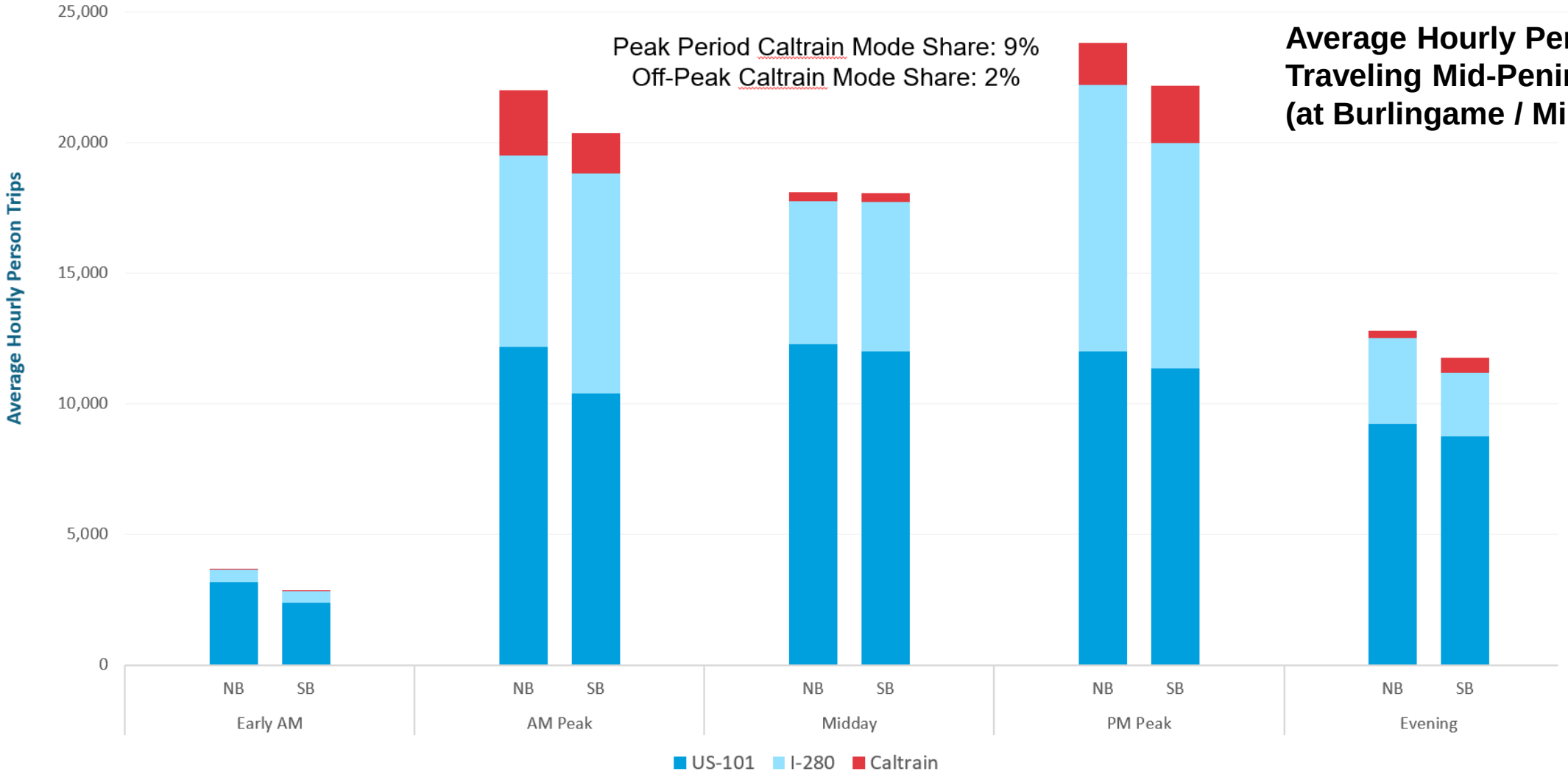
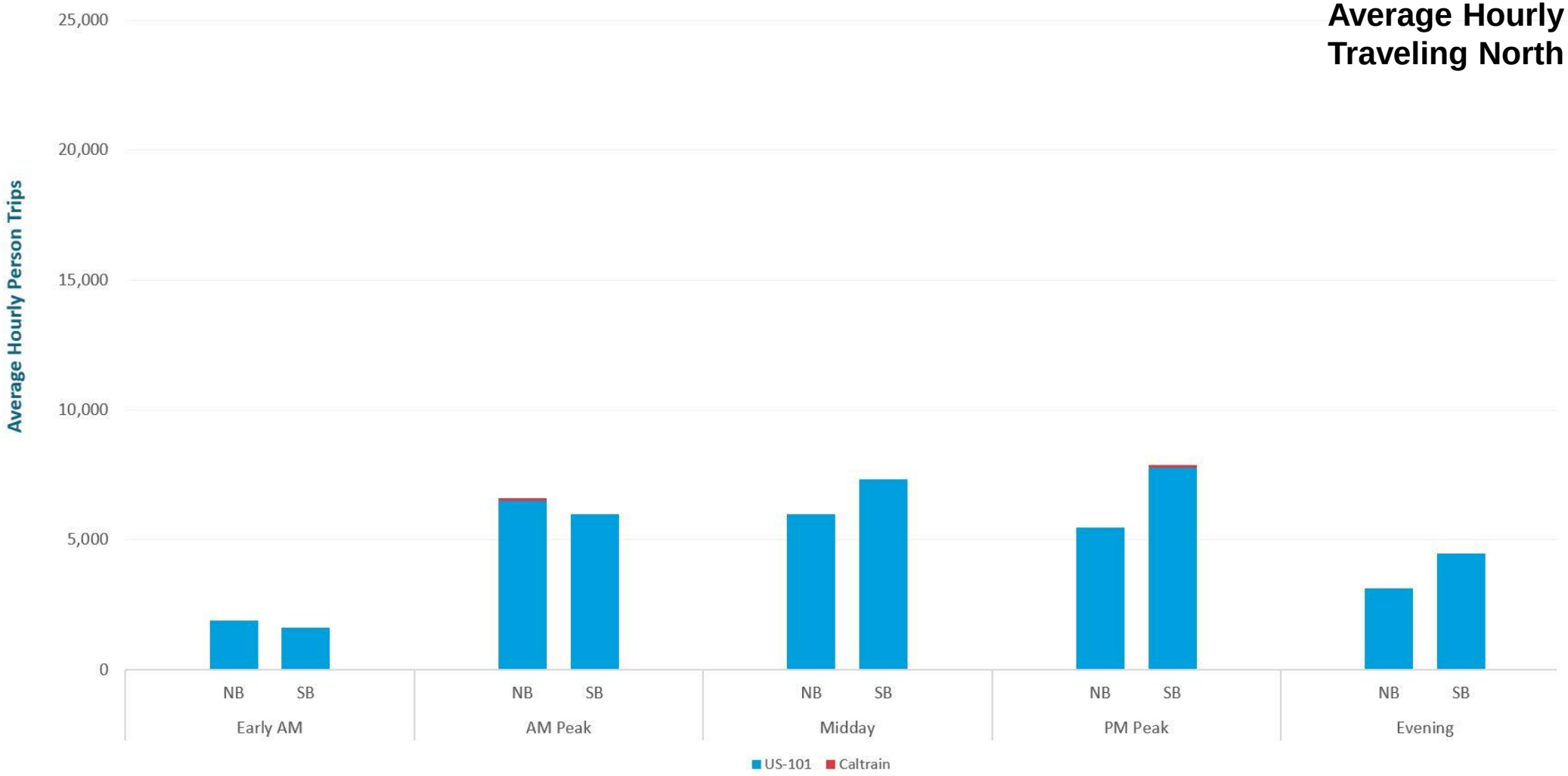


Source: 2017 Caltrain Passenger Counts and 2017 Vehicle Counts (Adjusted for Passenger Occupancy)

Today, Caltrain Captures a Modest Percentage of the Regional Travel Market

Average Hourly Person-Trips Traveling North of Morgan Hill



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Understanding the Market for Caltrain Today

Off-Peak & Weekend Service

- Today, Caltrain ridership during off-peak and weekend periods is 70-80% lower than during peak periods
- In contrast, total volume of regional travel is only 10-20% less, while BART travel in San Mateo County is 50-60% less
- There is likely an underserved market for off-peak Caltrain service

Facility	As % of Peak Hour Volume		As % of Weekday Daily Volume
	Midday Hour	Evening Hour	Weekend
BART	45%	36%	41%
Caltrain	15%	23%	27%
101 and 280 Freeways	97%	70%	90%

Exploring the Market for Caltrain Service

What is the Potential, Long-Term Demand for Caltrain Service?

Purpose

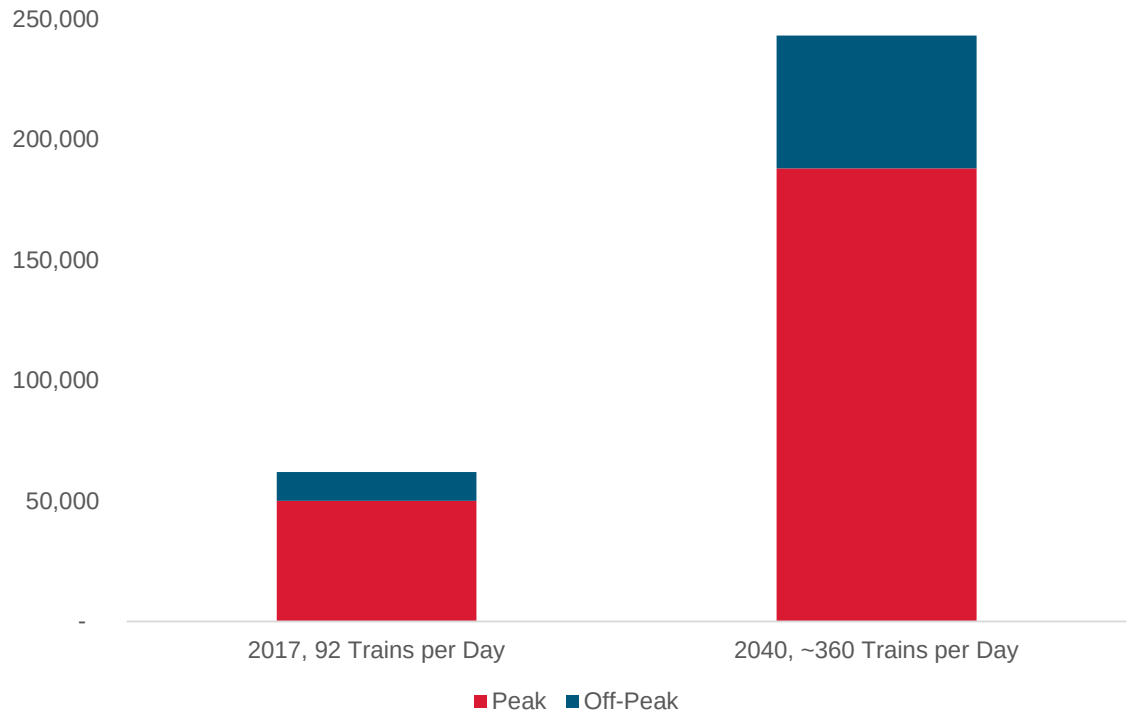
- Understand the underlying long range, order-of-magnitude demand for rail service in the Caltrain corridor.
- Establishes a rough, quantified benchmark that informs how a long range service vision can be calibrated and scaled

Methodology

- Use VTA – C/CAG Model updated with latest Plan Bay Area land use forecasts
- Develop a sensitivity test using an imaginary, high frequency, unconstrained service plan that includes;
  - Realistic train times (60-80 minutes SF-SJ)
  - High level of sustained all-day service (8 to16 trains per hour per direction. These frequencies are comparable to many sections of the BART system)

Exploring the Potential Long Term Demand for Caltrain Service

This sensitivity test suggests that providing BART-like frequencies on the Caltrain Corridor has the potential to yield BART-like ridership. Today, Caltrain serves approximately 1,300 daily passengers per mile between San Francisco and Tamien Stations, while BART serves approximately 5,200 passengers per mile along its Richmond-Daly City and Fremont-Daly City trunk lines. The sensitivity test suggests Caltrain has a long term (2040) unconstrained demand of about 4,600 passengers per mile, comparable to BART's core service in San Francisco and the inner East Bay. However, demand per mile south of Tamien is approximately 1/10th demand north of Tamien.



Description	2017, 92 Trains/Day	2040, ~360 Trains/Day
Daily	62,000	243,000
Peak	*50,000*	*188,000*
Off-Peak	*12,000*	*55,000*
Mainline (SF-SJ)	*61,500*	*231,000*
South of Tamien	*500*	*12,000*

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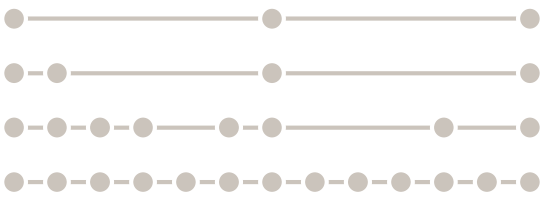

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Caltrain

SHARING SESSION

What is your reaction to the analysis of Caltrain's existing and potential market demand?

What additional kinds of data about Caltrain ridership and markets would you like to see?

To what extent do you think this information should inform the development of a Service Vision?

Focus on the Business Case

Why Do We Need A Business Case?

A Business Case for The Service Vision

The project team will develop at least two "growth scenarios" or versions of a long range "Service Vision." Each version of the potential service vision will have a business case that lays out the cumulative costs and benefits associated with it.

A Framework for Decision-making

The business case helps the JPB Board select a 2040 Service Vision with a fully informed understanding of what their choice means for the long-term costs and benefits of the system. Once the Board has selected a long range Service Vision the business case can then be further optimized and detailed.

Building an Integrated Business Model (IBM)

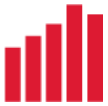
The IBM evaluates changes to the Caltrain System by integrating a broad range of data inputs and analysis. It is a tool that supports the active and informed management of Caltrain's business.

Major Inputs to the IBM Include

Railroad Network

Fleet

Current and Future Operations



Ridership and Travel Demand

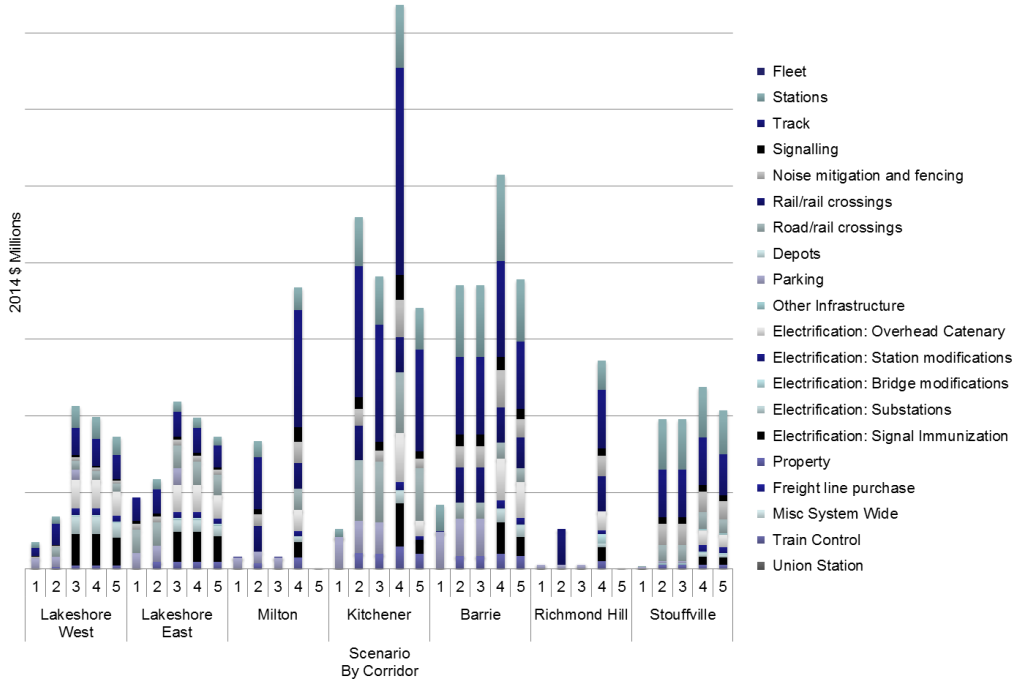
Finances

Policy Assumptions

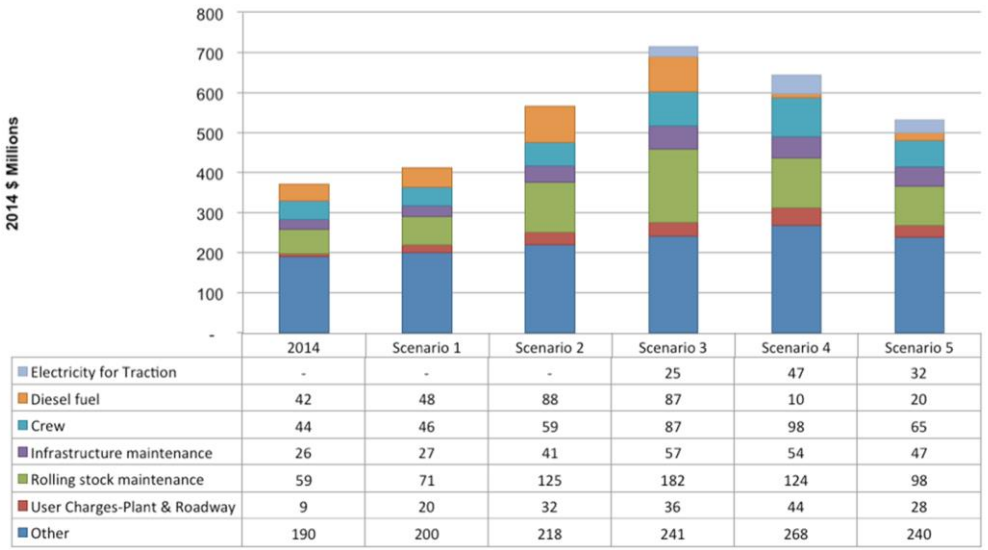
Infrastructure Investments

Example Outputs

Example outputs extracted from Metrolinx RER Business Case (Toronto)



Capital Expenditure Estimates Supporting Different Service Levels

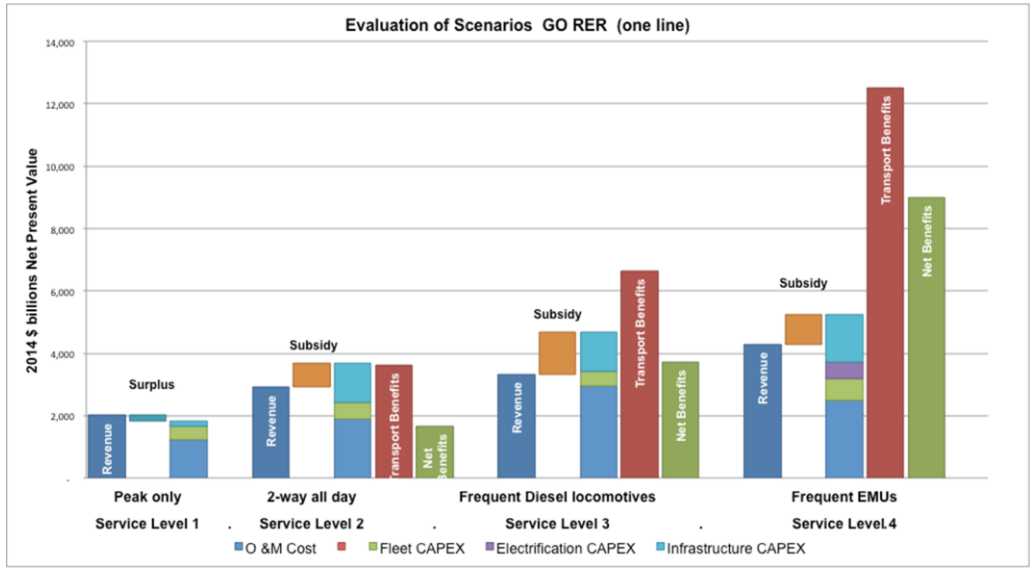


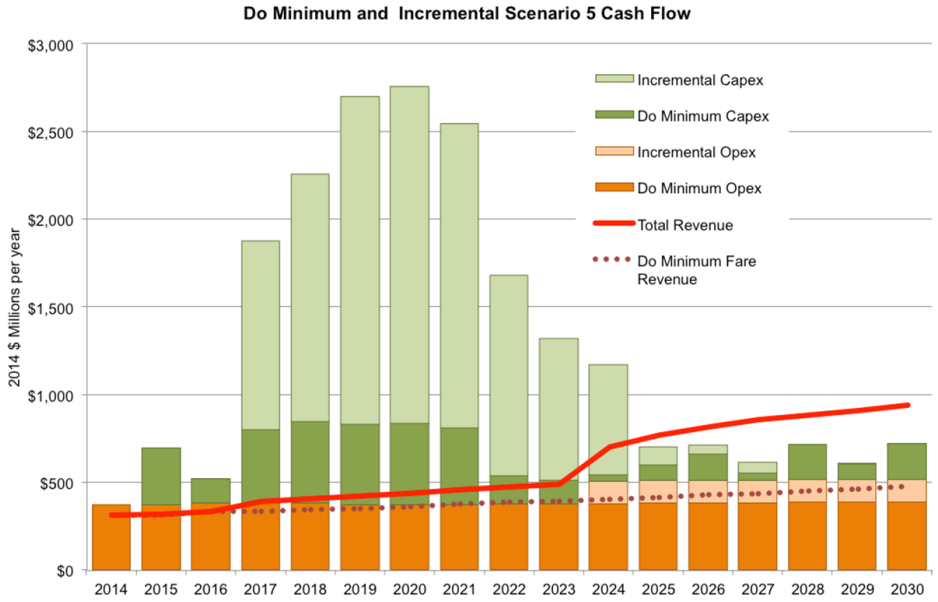
	2014	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Electricity for Traction	-	-	-	25	47	32
Diesel fuel	42	48	88	87	10	20
Crew	44	46	59	87	98	65
Infrastructure maintenance	26	27	41	57	54	47
Rolling stock maintenance	59	71	125	182	124	98
User Charges-Plant & Roadway	9	20	32	36	44	28
Other	190	200	218	241	268	240

Analysis of Operating Costs and Cost Drivers

Example Outputs

Example outputs extracted from Metrolinx RER Business Case (Toronto)





Detailed Analysis and Breakdown of System Costs and Benefits

Wider Economic Benefits of Caltrain and Communities

Outside of the IBM, User Benefits and Regional Economic Benefits will be Calculated for the Following Major Categories:

Direct & Indirect Jobs

Economic impact model captures effects on regional employment

User Benefits

Benefits from travel time/cost savings as well as safety improvements

Societal Benefits

Societal benefits including public health and environmental benefits

Land Value

Influence of increased rail service on the value of land arounds stations

SHARING SESSION

What kinds of costs and benefits are most meaningful to your community?

Are there any other specific types of costs or benefits you think Caltrain should try to analyze and quantify?

FOR MORE INFORMATION

WWW.CALTRAIN.COM