

# Caltrain Business Plan

COVID RECOVERY  
PLANNING

UPDATE ON NEAR TERM  
SERVICE PLANNING

October 28, 2020



# Ongoing Recovery Planning Efforts

Caltrain has pivoted its Business Plan effort to focus on COVID-19 Recovery planning. This work is spread across multiple streams as shown on the right

Caltrain staff will engage regularly with the Board, stakeholders and the public as recovery planning proceeds over the next several months



**Equity, Connectivity, Recovery, & Growth Framework**



**Near Term Service Planning**



**Financial Analysis**



**Scenario Planning**

# Ongoing Recovery Planning Efforts

Caltrain has pivoted its Business Plan effort to focus on COVID-19 Recovery planning. This work is spread across multiple streams as shown on the right

Caltrain staff will engage regularly with the Board, stakeholders and the public as recovery planning proceeds over the next several months



Equity, Connectivity, Recovery, & Growth Framework



**Near Term Service Planning**



Financial Analysis



Scenario Planning

# Context & Background

# Multiple Phases of Crisis & Response

## Initial Triage

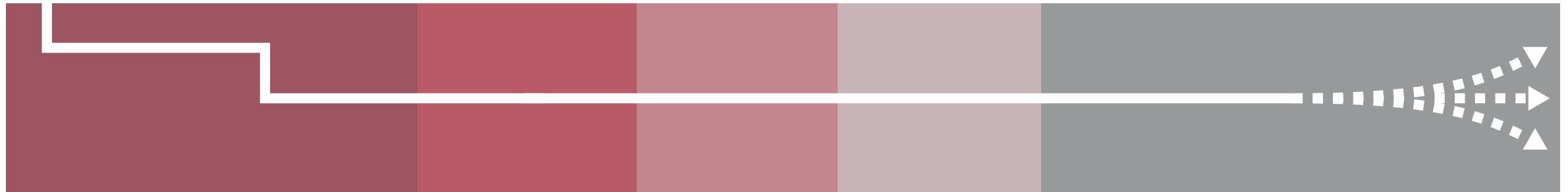
March 2020 – May 2020

## Surviving the Pandemic

May 2020 – 2021 (?)

## Preparing for the Next Reality

2021 and Beyond



Initial crisis and immediate triage response by Caltrain

Extended period where Pandemic is ongoing and Caltrain ridership and operations remain deeply impacted and in a state of dynamic flux. Railroad's financial position is precarious

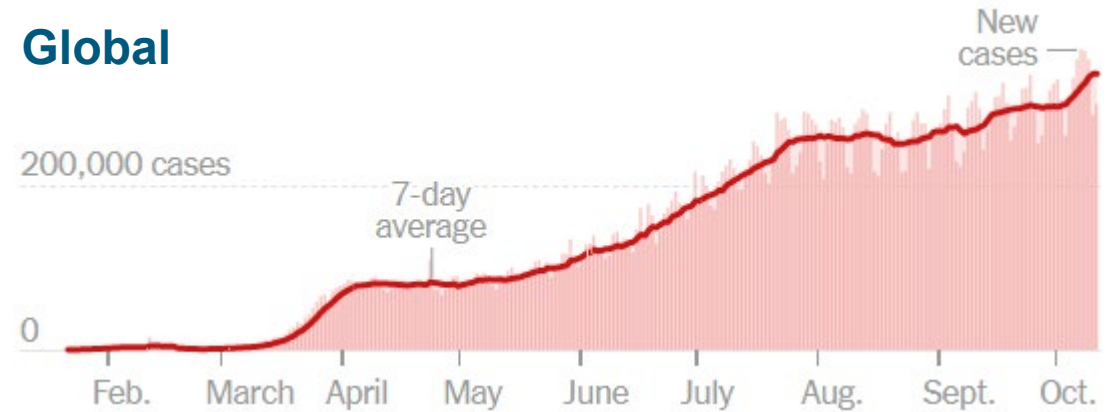
Long-term resolution of pandemic through vaccine or other permanent public health approaches. Caltrain adjusts to new Business Environment

# The Pandemic

The U.S. and the world continue to experience waves of the COVID-19 pandemic.

Public health experts, like Dr. Fauci, have indicated that they expect a vaccine could be available for mass distribution around Q2 2021, while social distancing guidelines are likely to remain in effect through at least Q3 2021.

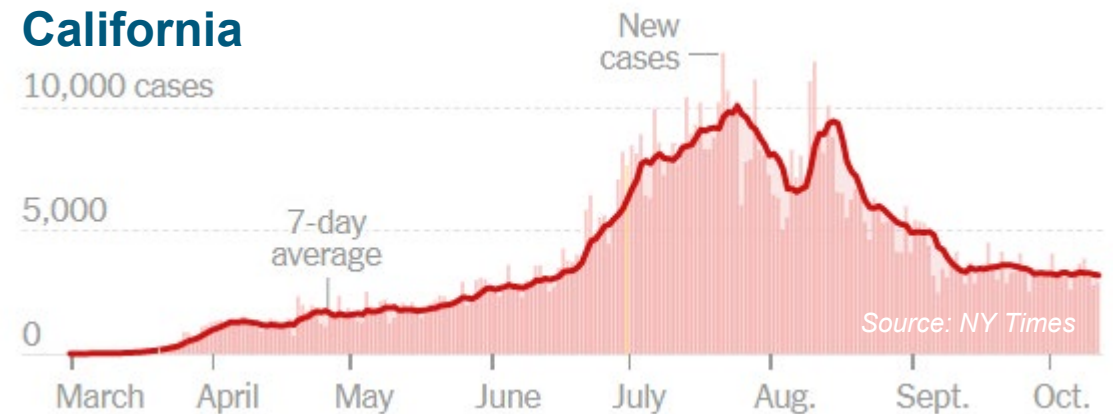
## Global



## US



## California

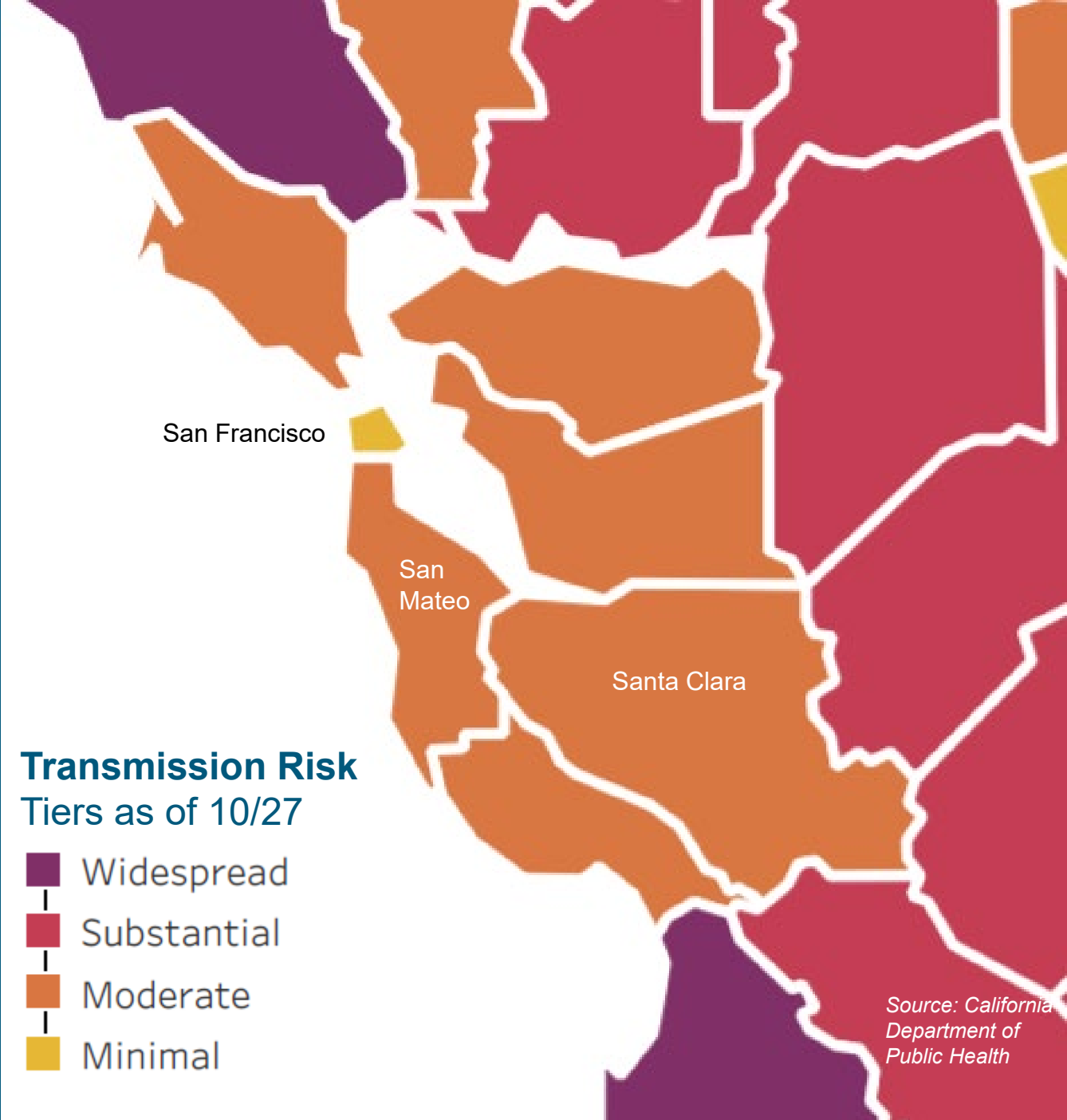


# The Pandemic & Bay Area

The Bay Area has been under a shelter-in-place order since March. Cases loads have generally remained lower than other regions in the country.

On October 20th, San Francisco became the first urban county to reach the state's least restrictive tier in California's reopening blueprint—although non-essential offices can open at 25% capacity.

Many large companies have announced plans to continue remote work through at least July 2021. Some have announced permanent shifts toward remote work and hybrid work options.



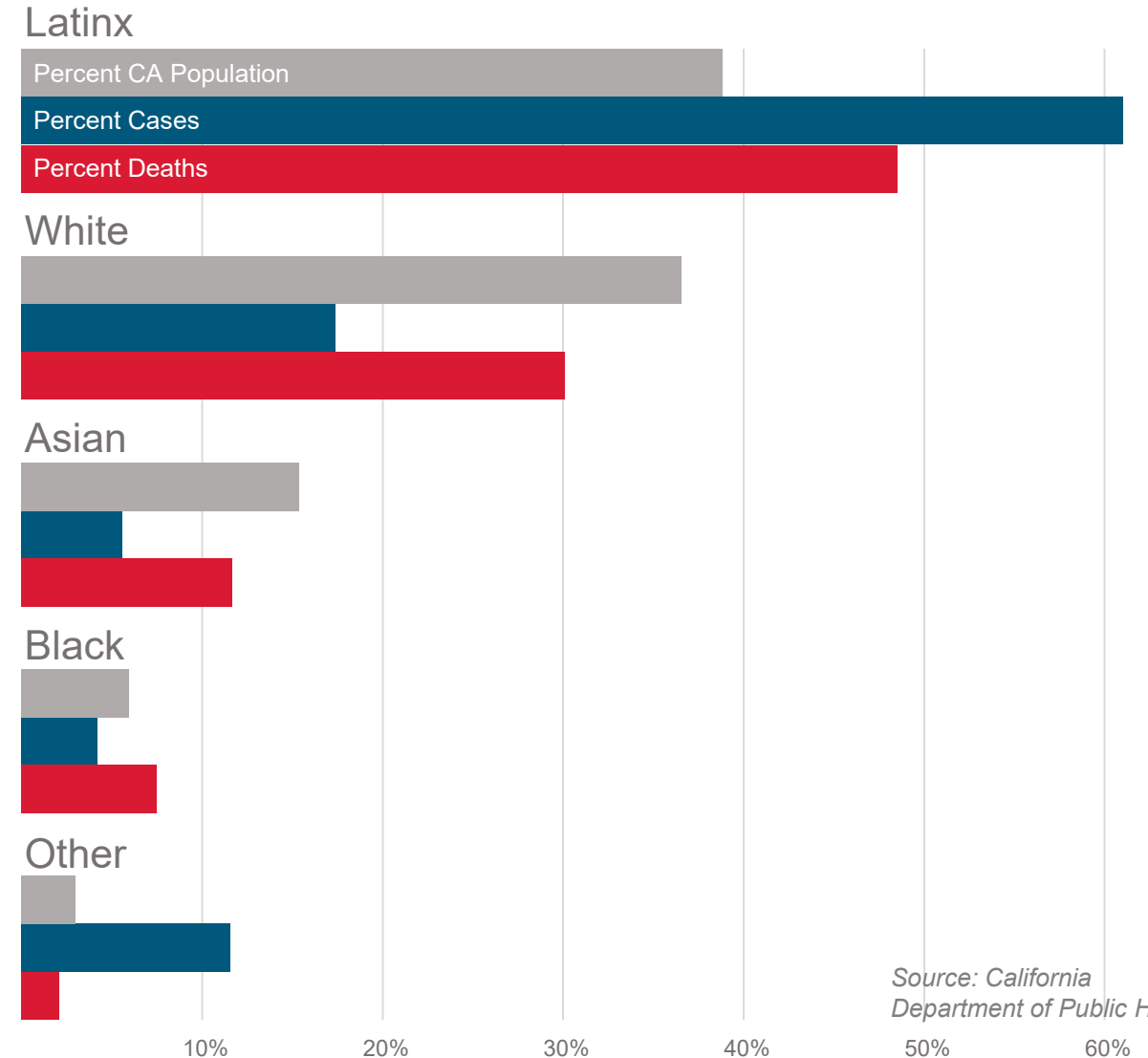
# The Pandemic & Equity

The COVID-19 pandemic and economic effects have disproportionately affected low income communities and communities of color.

These populations have been more likely to face exposure as essential workers or be adversely affected by the shelter-in-place order.

Caltrain's **Equity, Connectivity Recovery & Growth Framework** (adopted at the September JPB meeting) provides guidance to Caltrain regarding ways it can make its services more useful and accessible to these communities

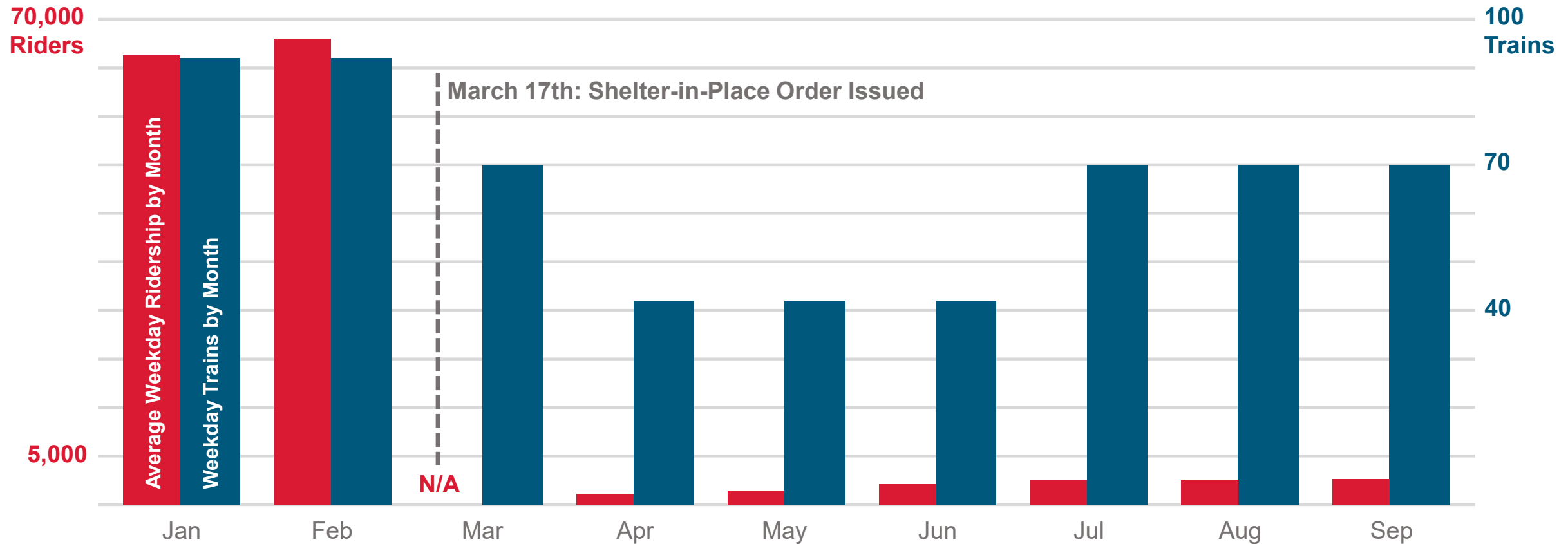
## California's COVID-19 Cases and Deaths by Race and Ethnicity



Source: California Department of Public Health

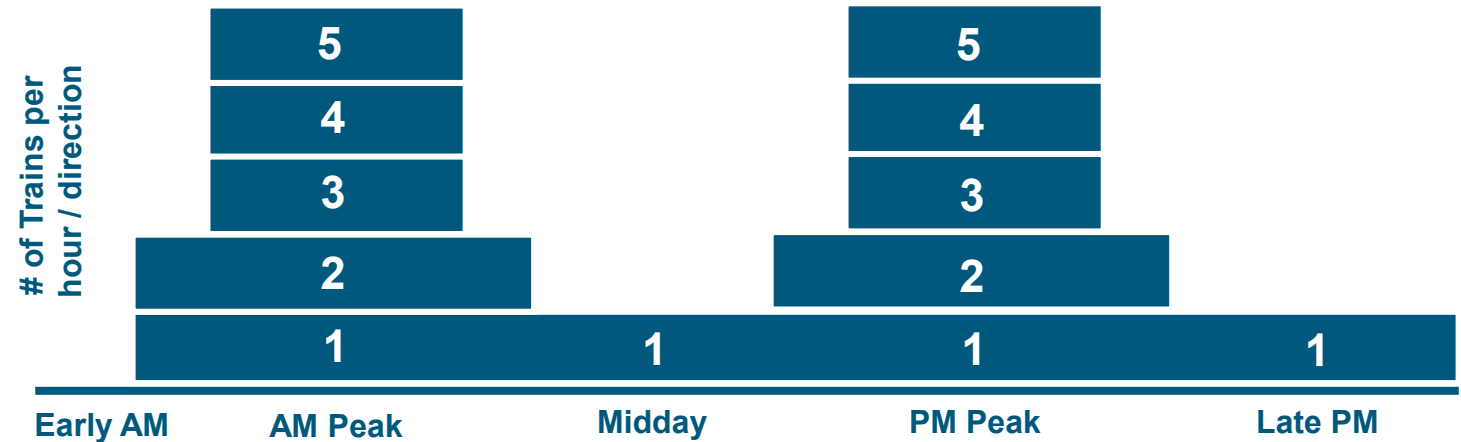


# Changes in Caltrain Service and Ridership

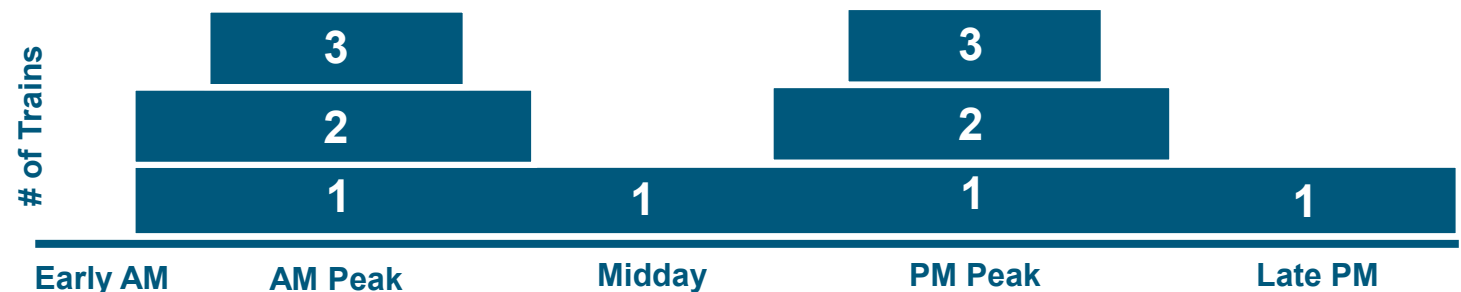


# Change in Weekday Service Levels

**Pre-COVID Service Plan**  
**92 Trains/Day**  
**65,000 Daily Riders**



**Current Service Plan**  
**70 Trains/Day**  
**~3,500 Daily Riders**



# Health & Safety

## Enhanced Cleaning



## Face Coverings



## Physical Distancing



Since the start of the pandemic, Caltrain has aggressively implemented enhanced safety protocols with an emphasis on frequent cleaning, mask requirements for all employees and passengers, and physical distancing onboard trains. Caltrain has partnered with other Bay Area transit agencies to develop common commitments and expectations for employees and passengers – and the JPB adopted the [\*\*Riding Together—Bay Area Healthy Transit Plan\*\*](#) at its September meeting

# Caltrain Finances

Lacking a dedicated source of funding, Caltrain is highly dependent on fare revenue. With ridership devastated by the pandemic, Caltrain has had to rely heavily on CARES Act federal relief funding. The railroad has avoided devastating service cuts and has refrained from furloughs while using these funds.

CARES funding will be exhausted soon, and Caltrain must consider how to balance service costs, customer needs and available financial resources as it looks toward the coming year.

## A Challenging Fiscal Outlook



### Fiscal Year 2021 Budget

- The JPB has incrementally approved balanced quarterly operating budgets for Q1 and Q2
- A deficit of at least \$18.5 million is projected for the remainder of the fiscal year
- Deficit could be higher if ridership recovery is slow or GoPass participation drops further
- Fiscal year 2022 will present additional financial challenges



### Analyzing Options

- Caltrain is exploring a variety of deficit closure options related to both revenue generation and cost reduction
- Service plans shown here are being analyzed for cost implications



# Winter Service Change: Context and Goals

Caltrain continues to navigate a period of extreme uncertainty relative to both the financial health of the system as well the trajectory of the pandemic and its impact on ridership recovery

## Context

- The COVID-19 Pandemic is ongoing and the path to recovery and resolution is uncertain. Reopening of the region has been slow and uneven
- CARES Act funding will be exhausted in December timeframe. Overall financial state of railroad is highly uncertain
- Hillsdale reopening, potential Atherton closure and ongoing major construction on corridor

## Goals

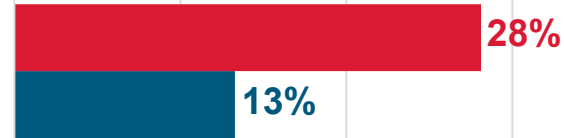
- Develop a consistent service framework that can be scaled up (and down) based on demand and funding availability while minimizing disruption and confusion for riders and connecting transit
- Focus on serving the riders who need Caltrain most, with an emphasis on implementing key elements of the ECRG policy
- Balance travel time and coverage goals while also maintaining capacity for social distancing

# Overall Service Approach

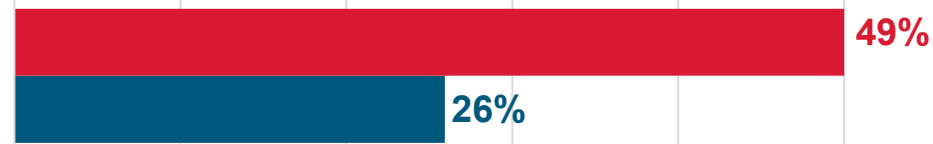
# Who's riding Caltrain during COVID-19?



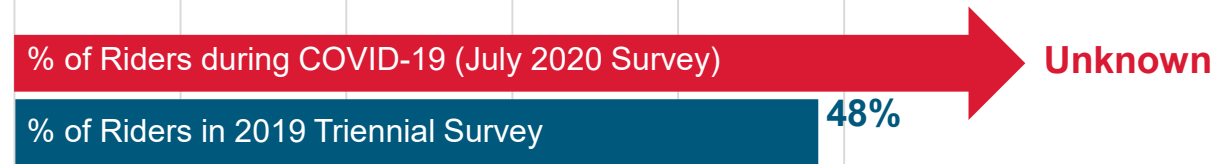
Share of riders that qualify for **low income housing assistance**



Share of riders that live in households earning **less than \$100k** per year



Share of riders that **did not have to a car**



**Ridership has skewed toward essential workers, many of whom live in low- or middle-income households.**

0% 10% 20% 30% 40% 50%

Based on the July 2020 online survey, 2019 Triennial Survey



# Where Are Riders Traveling?

Caltrain ridership patterns have shifted during COVID-19, with ridership comprised of essential workers in healthcare, life sciences, government, and related fields.

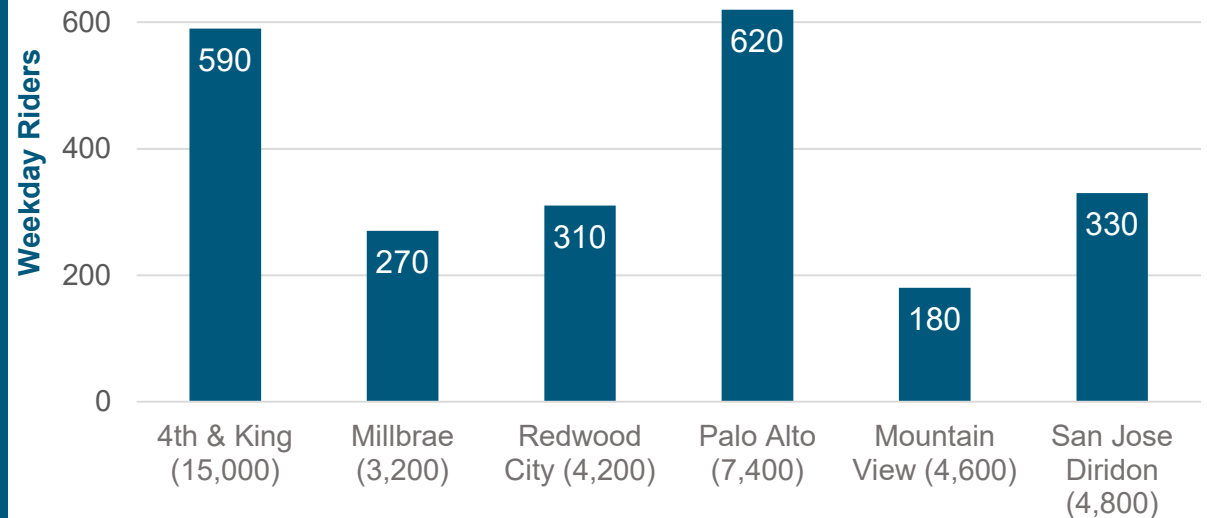
## Rider Trip Purposes

**70%** of riders commuting to work

**50%** of riders work in healthcare, life sciences, or government

**10%** of riders traveling to medical appointments

## September 2020 Weekday Ridership at Top Ridership Stations (2019 Ridership for Comparison)



### Ridership Concentration

Ridership during COVID-19 has been more concentrated around stations with major medical centers like Palo Alto and Redwood City, with fewer riders commuting to offices due to COVID restrictions.

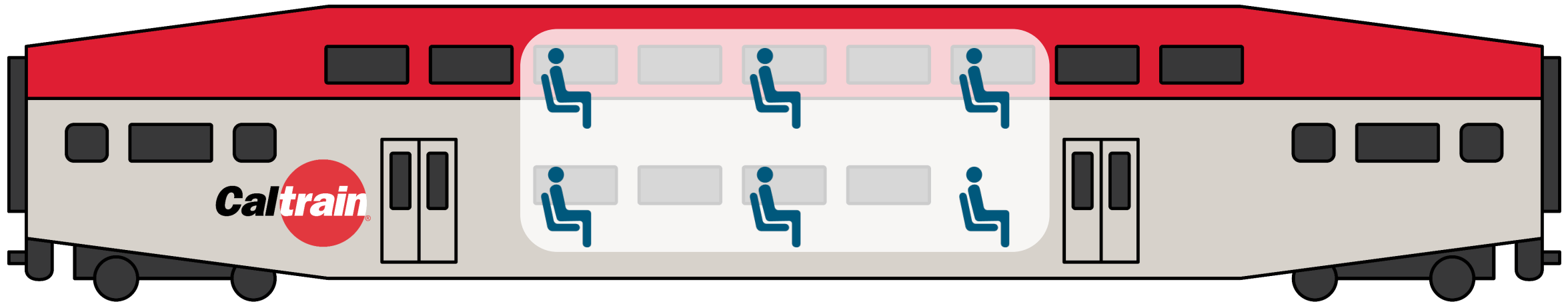
### Gilroy Extension

Ridership on the Gilroy extension (50 riders per day) mirrors systemwide decline.





# Social Distancing



## Social Distancing

Trains can handle about 33% of seated capacity (roughly 250 passengers) in order to maintain 6 feet of distance between passengers, or about 500 passengers to maintain 3 feet of distance.

## Ample Space is Available

On a typical day, Caltrain served a max load of around 8% of seated capacity in September (about 60 passengers).

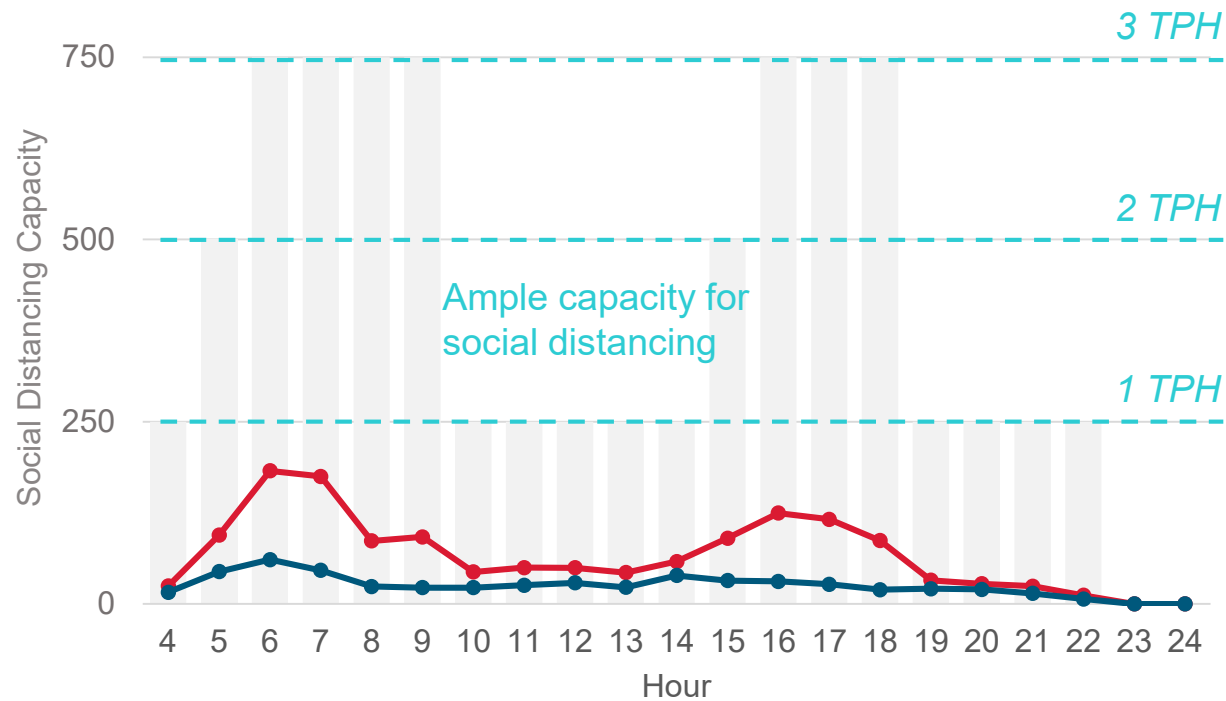


# When are Riders Traveling on Weekdays?

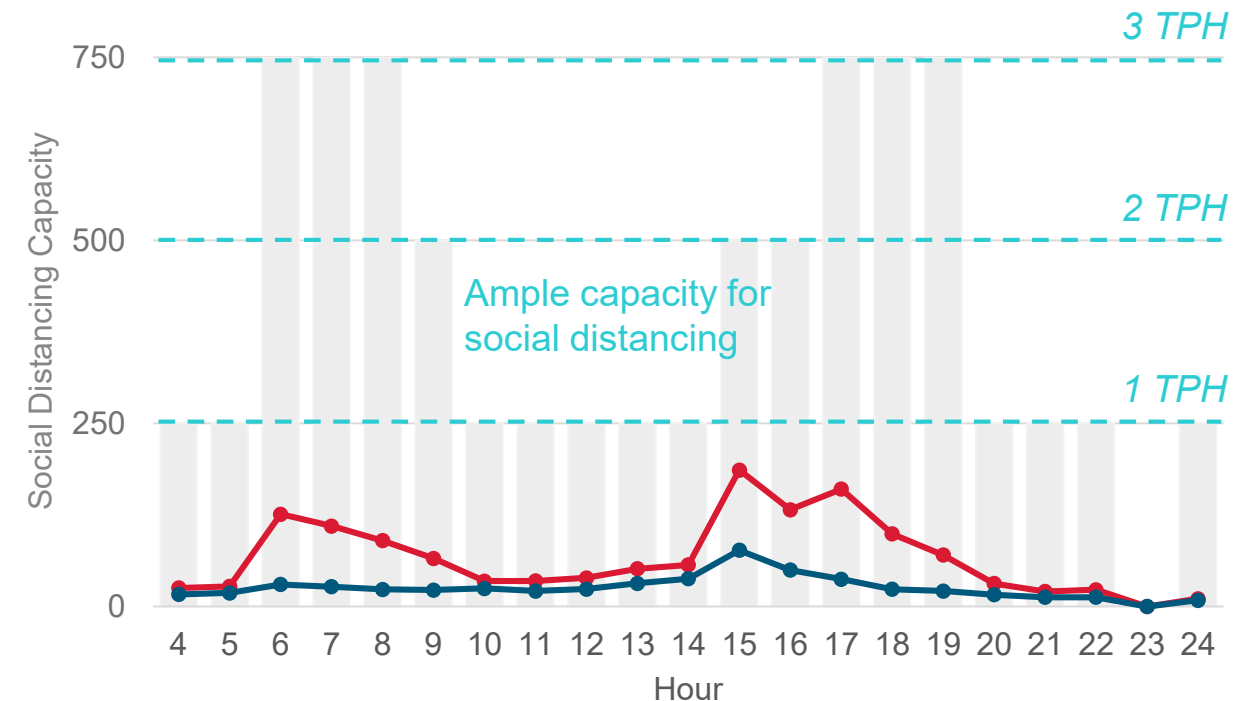
Weekday ridership has experienced earlier peaks due to a higher proportion healthcare workers

## Average Weekday Ridership vs. Social Distancing Capacity

### Northbound



### Southbound



■ Social Distancing Capacity (6 Feet)    ● Riders per Hour    ● Estimated Max Load per Train

Based on September 2020 ridership and SF/SJ departure times



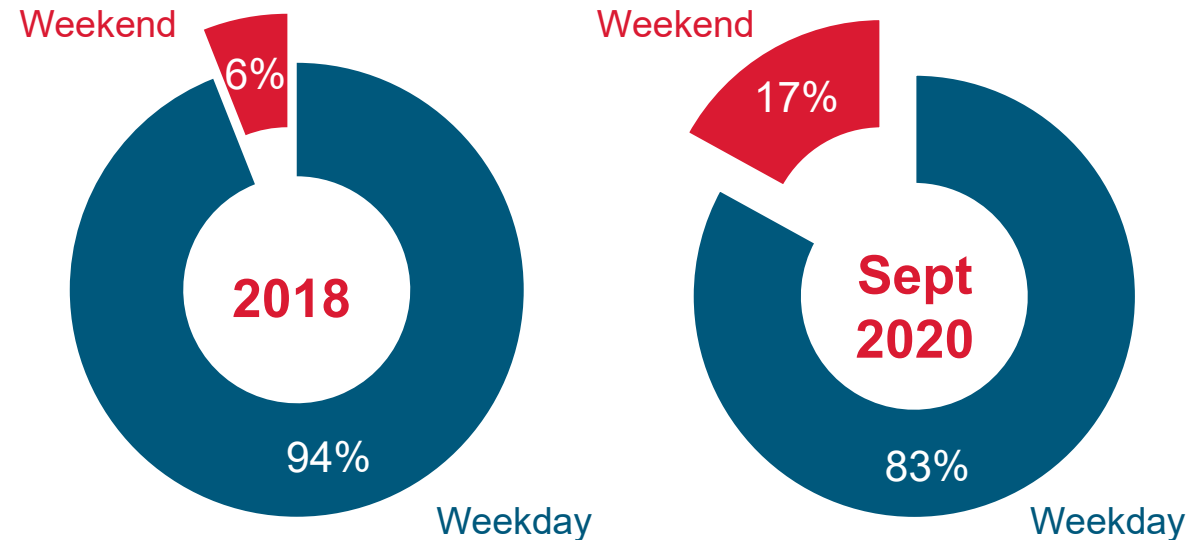
# Weekend Ridership Patterns

The share of weekend ridership (1,900 per day, 17% of all riders) is three times greater than pre-COVID-19. The resiliency of weekend ridership is likely due to continued use by essential workers and low-income riders.

Ridership on Local trains is about 20% higher than on Bullet trains as the market for leisure trips has declined.

*Based on September 2020 ridership, 2019 ridership counts, and 2019 Triennial Survey*

## Weekly Ridership, Pre-COVID and During COVID



## Ridership by Train Type

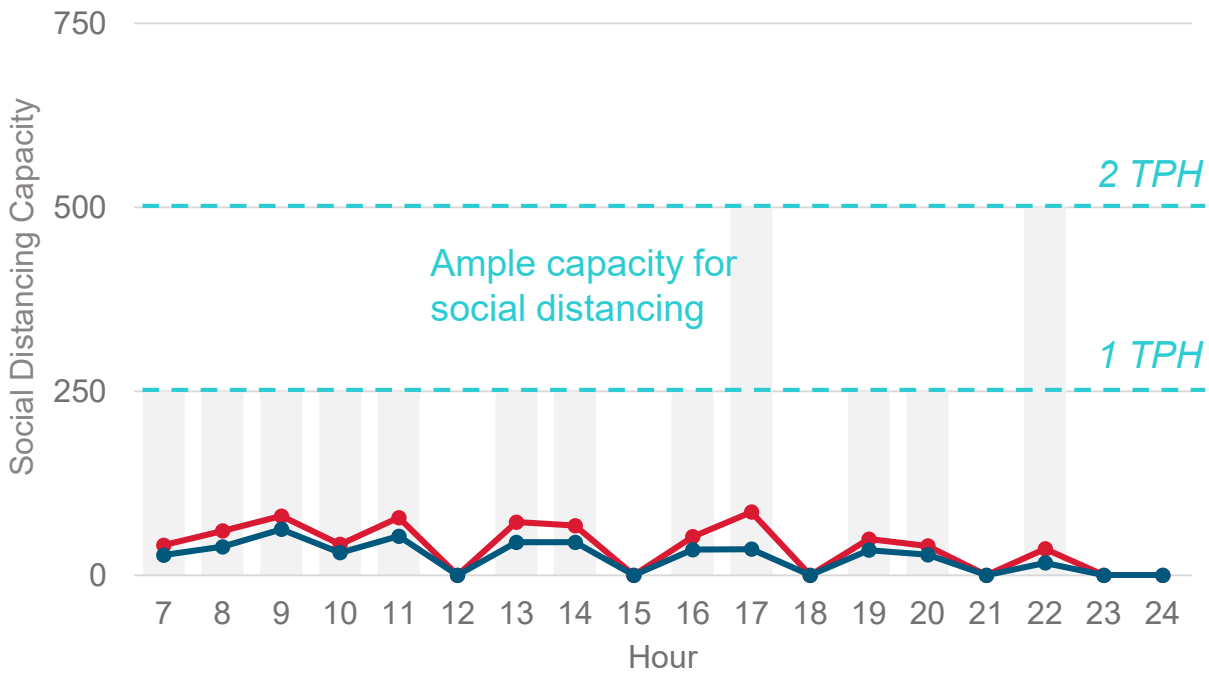
Service Type	2018 Riders per Train	Sept 2020 Riders per Train
Weekend Local	575	95
Weekend Bullet	542	79

*Based on 2018 counts and September 2020 counts. Local comparison for service 8am-8pm.*

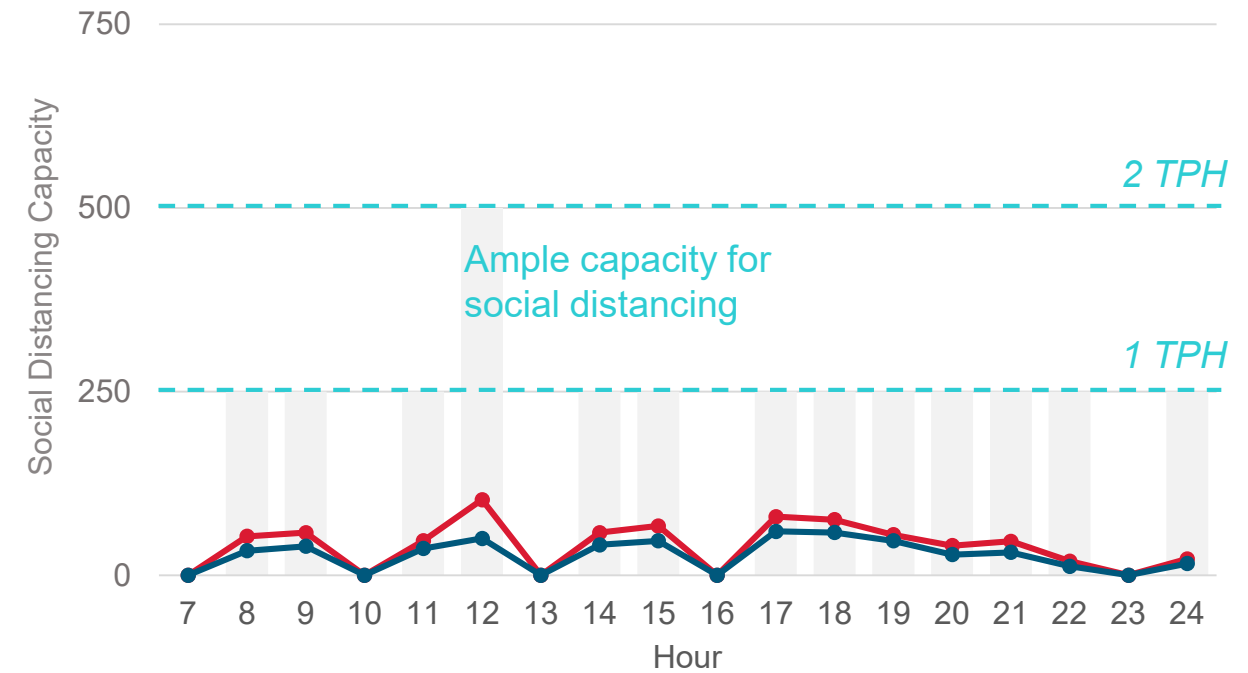
# When are Riders Traveling on Weekends?

## Average Weekday Ridership vs. Social Distancing Capacity

### Northbound



### Southbound



Social Distancing Capacity (6 Feet)
  Riders per Hour
  Estimated Max Load per Train



Based on September 2020 ridership and SF/SJ departure times

# Base Service Plan

**Recommended Base Service Plan**  
68 Trains/Weekday

	AM Peak	Midday	PM Peak	Evening
# of Trains	2	2	2	
	1	1	1	1

**Weekend**  
Hourly Service All Day  
(28-32 Trains/Day)

## 2 Trains per Hour, Per Direction – All Day

Caltrain would provide 2 trains per hour per direction in the peak- sufficient to meet demand. By expanding service to 2 trains through the midday period, Caltrain can better serve unmet needs of essential workers and lower income riders.

## Hourly All-Day Weekend Service

Caltrain would increase weekend service to hourly frequencies to better serve weekend riders, especially essential workers and low-income riders.

# Why Two Trains?

Caltrain has focused on maintaining at least two trains per hour during as many time periods as possible. Running at least two trains per hour, per direction provides several key benefits:



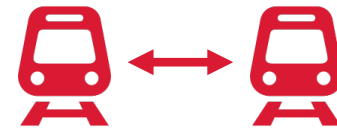
30 min frequency  
at higher demand  
stations



Reasonably  
competitive  
travel times



Coverage to  
all stations



Timed connections  
to every BART train  
at Millbrae

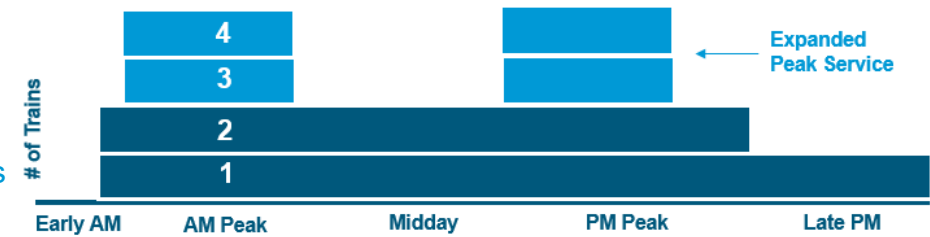
# A Framework For Service

Ridership is not expected to fully recover in 2021. Depending on public health conditions and the railroad's finances, Caltrain may need to make further service adjustments including scaling service levels up or down to meet changing needs.

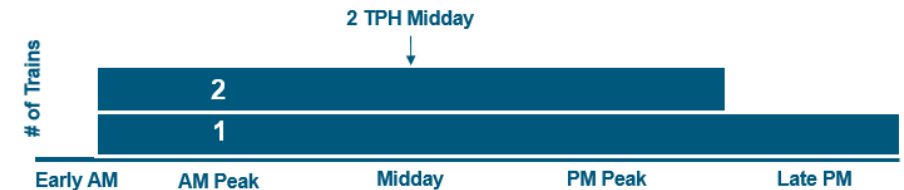
An Expanded Service Plan could restore service back to 92 trains per day.

An Austerity Service Plan could reduce service to as little as 44 trains per day and suspend weekend service.

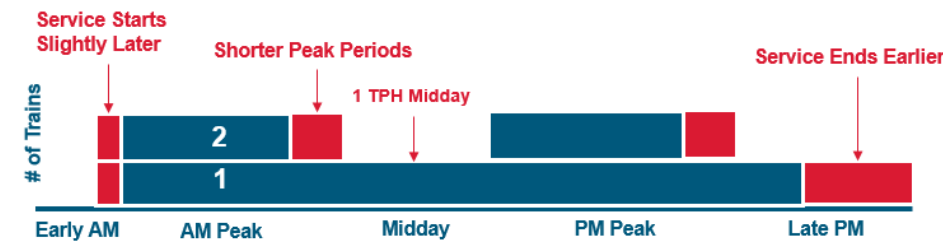
**Expanded Service Plan**  
92 Weekday Trains  
28-32 Weekend Trains



**Base Service Plan**  
68 Weekday Trains  
28-32 Weekend Trains



**Austerity Service Plan**  
44 Weekday Trains  
No Weekend Trains



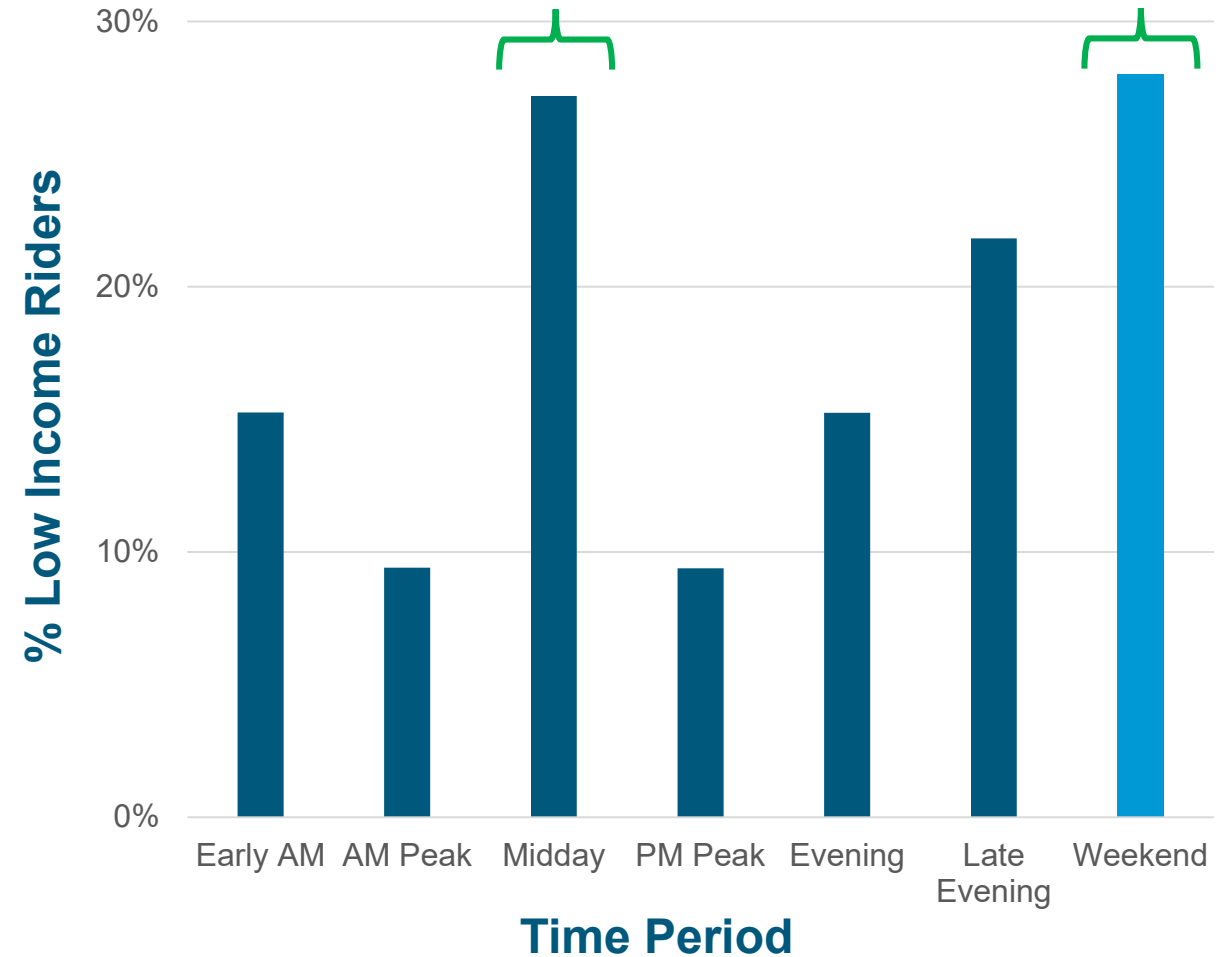
# Equity Implications

The Base (and Expanded) service plans expands service in a manner that supports the observed travel patterns of low-income riders who rely on Caltrain and enacts key service components of the Equity, Connectivity Recovery & Growth framework.

- Service frequency would double during midday periods and passengers will no longer need to rely solely on local trains
- On weekends, service would increase to hourly (a 50% increase in frequencies)
- Service span is maintained

## Low Income Ridership by Time Period

Significant increases in service proposed during midday and on weekends would benefit lower income riders



Source: 2019 Triennial Survey



# Equity Implications

The Austerity Service Plan represents a minimum viable level of service for the railroad.

It would not provide equity benefits and cuts would impact low income riders.

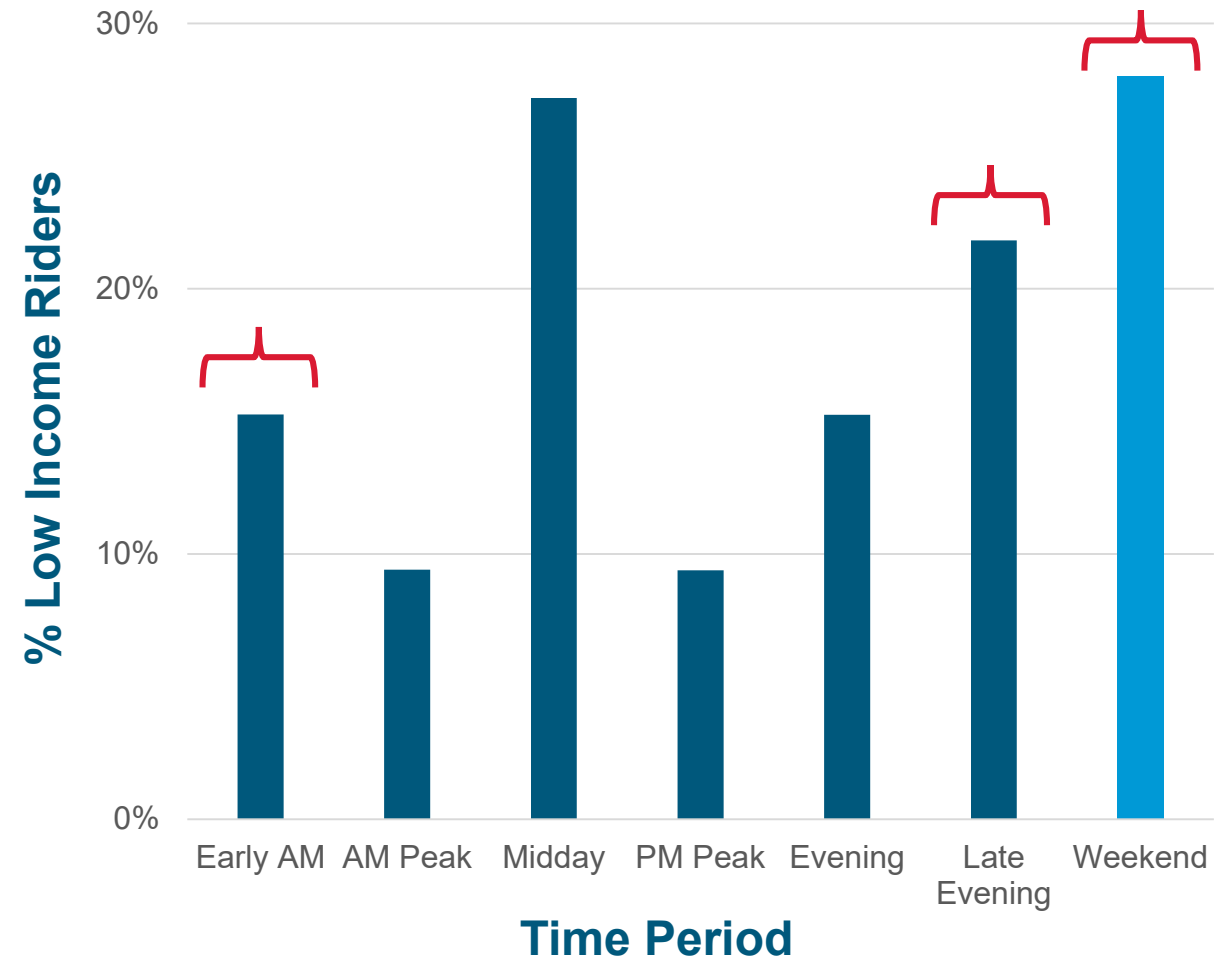
- Suspending early morning, late evening, and weekend services would substantially impact lower income riders
- Midday service would not be improved

The Austerity Plan is not recommended.

A potential intermediate level of service reduction (between the Austerity and Base plan) could look at initially cutting either weekday or weekend service.

## Low Income Ridership by Time Period

Service cuts to early morning, late evening and weekend service would impact low income riders



Source: 2019 Triennial Survey

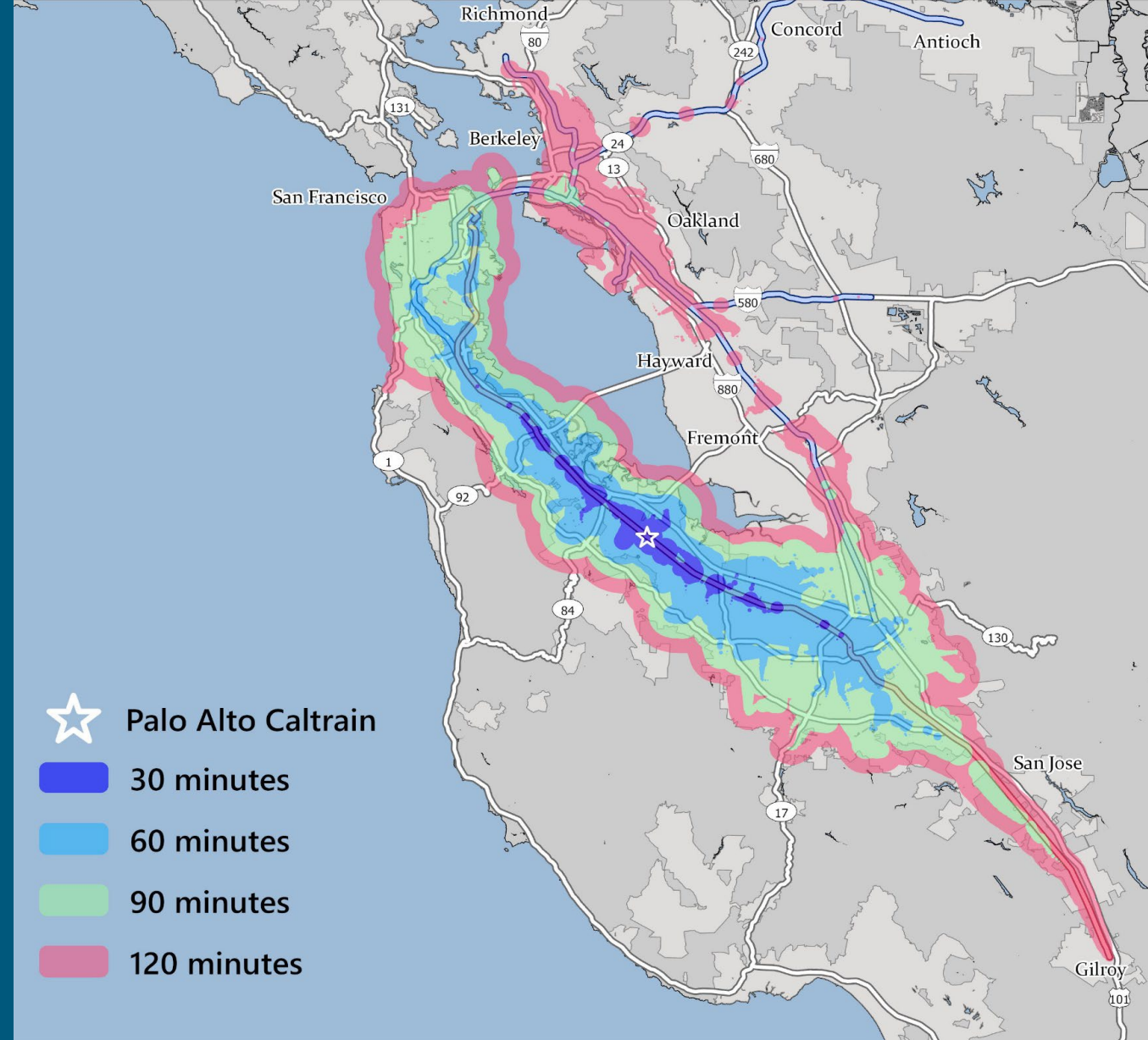
# Shutdown Considerations

While the Austerity plan is not recommended and would have significant equity impacts, it remains a strongly preferred option relative to shutting down the railroad

The map at the right shows how far a person could travel by transit during a weekday peak-hour starting at the Palo Alto Caltrain station (currently the busiest station in the system).

This map assumes the 2 train per hour peak service included in both the Base Caltrain plan and austerity plan.

## Regional Access by Transit from Palo Alto with Base 2tph Caltrain Service Plan



# Shutdown Considerations

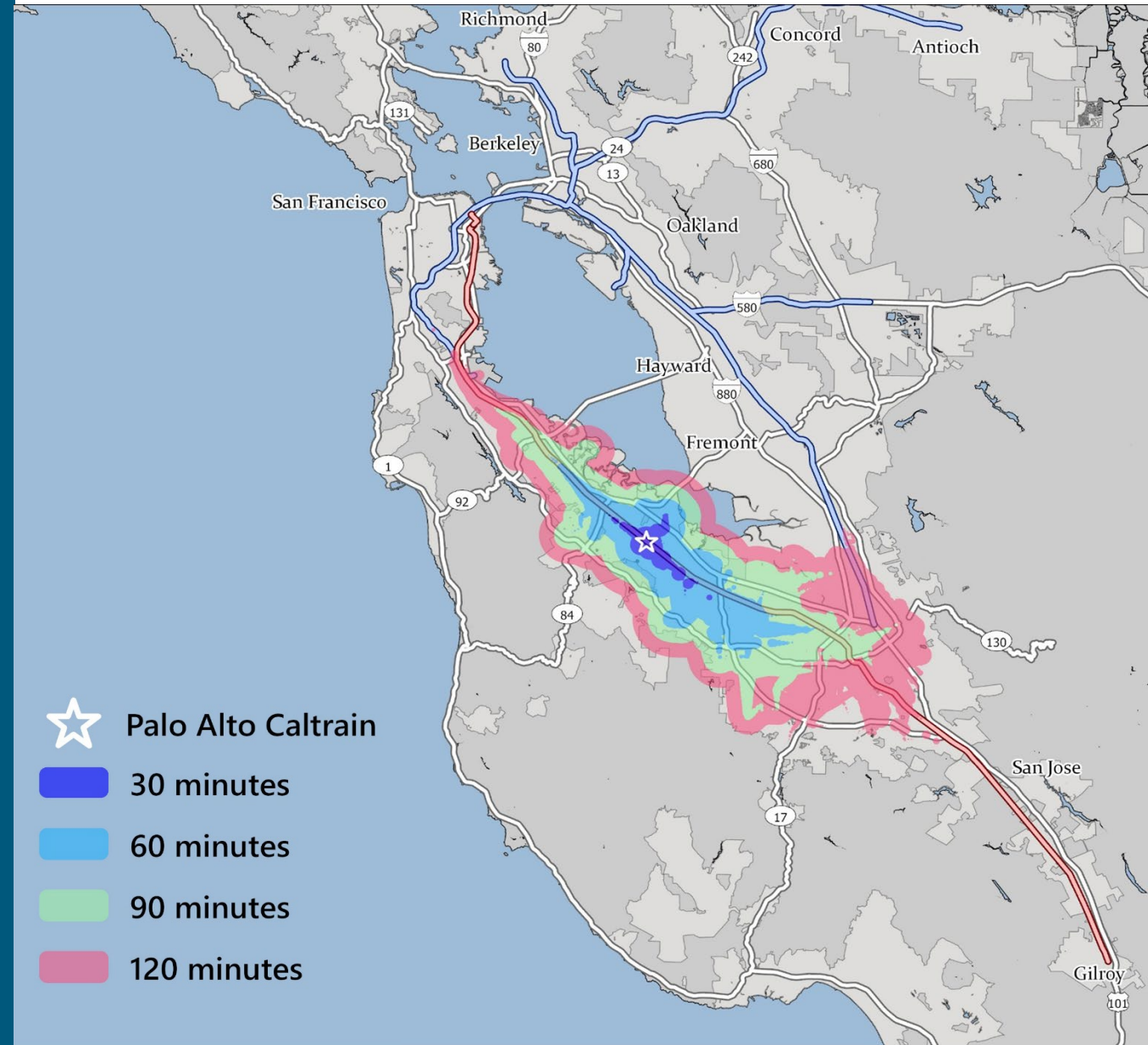
The map at the right shows how transit access for Palo Alto Station would change if Caltrain were shut down and passengers only had access to bus and connecting services. The table below quantifies the loss of access to bay area residents within a 60-minute travel shed.

60 Minute Travel Shed

People Served	Proposed Base Service Pattern	Service Shut Down	% Difference
Population	1,390,000	488,200	-65%
Jobs	955,100	294,000	-69%
Low-Income	280,500	84,400	-70%
Non-White	878,300	282,800	-68%
Car-Free	100,300	31,000	-69%

Demographic data from 2018 American Community Survey

## Regional Access by Transit from Palo Alto with Caltrain Service Shut Down



# Service Details

# Service Options

Operating two trains per hour per direction, Caltrain has two basic service options that fit the corridor:

## Local/Express Pattern

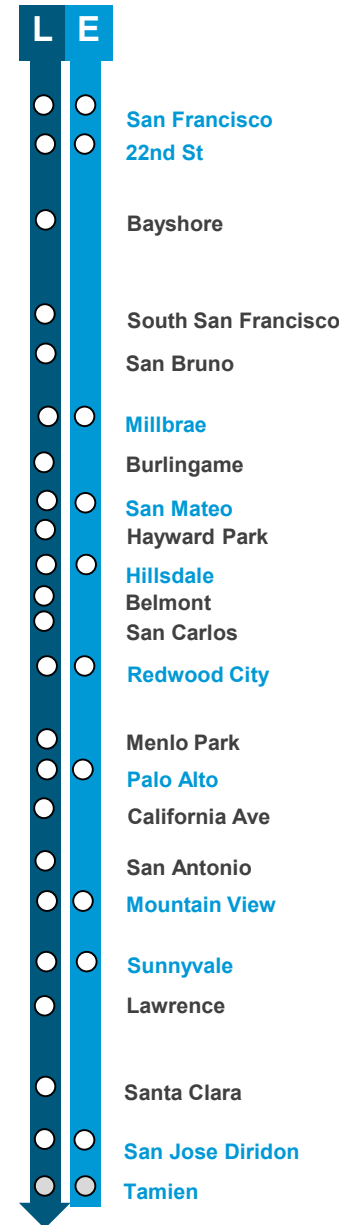
- One express train and one local train per hour
- 11 stations receive two stops per hour, *but headways vary between 10 and 50 mins*
- 2 roundtrips to Gilroy per day (Local)

## Limited Pattern

- Two limited stop trains running at similar travel times in a skip-stop manner
- 11 stations receive two stops per hour *at even 30-minute headways*
- 2 roundtrips to Gilroy per day (one on each pattern)

*Stopping patterns shown are preliminary recommendations and subject to change*

## Local/Express



To Gilroy: 2x roundtrip per Day

## Limited



To Gilroy: 2x roundtrip per Day



# Travel Markets & Equity

Recommended stopping patterns were developed based on a number of factors including, historic ridership patterns, observed use of the system during the pandemic, and ECRG policy goals related to enhancing equity and connectivity.



**COVID-19  
Ridership  
Counts and  
Surveys**



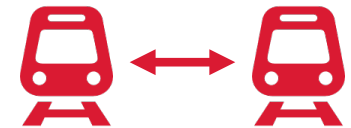
**2019  
Ridership  
& Triennial  
Survey**



**Equity**



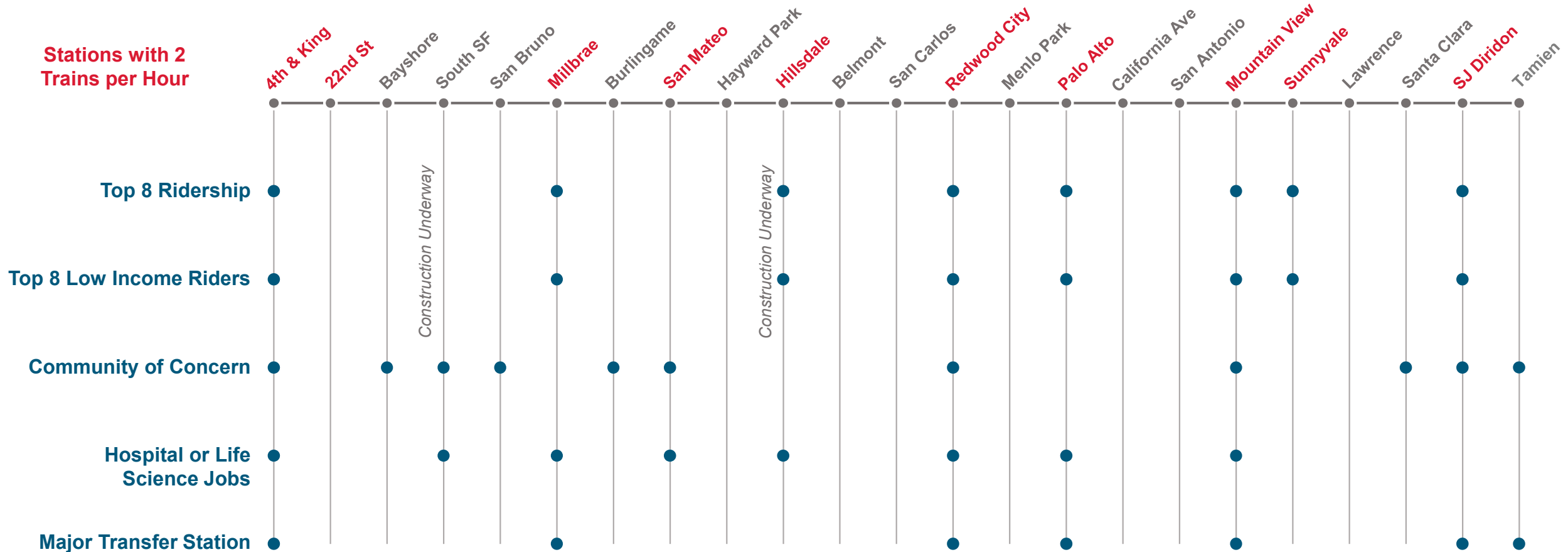
**Essential  
Workers**



**Connectivity  
to other transit  
systems**

# Travel Markets & Equity

*Stopping patterns shown are preliminary recommendations and subject to change*



# Service Characteristics: Comparison

## Similarities

### Markets & Equity

Both provide 2 trains per hour throughout the day at stations serving high ridership volumes – especially those serving low income riders and essential workers

Both provide hourly service at all other stations and on weekends

Both provide 2 daily roundtrips to Gilroy

## Differences

### Intermodal Connectivity

Both provide timed transfers to BART at Millbrae Station

Both provide standardized, repeating schedules

Limited provides even headways and better opportunities for coordinated transfers at more stations

Local/Express connects all station pairs. Limited does not

### Balancing Loads

Limited helps avoid crowding and enables social distancing by maintaining consistent 30-minute headways and balanced loads

Local/Express may result in imbalanced loads and bunched headways of up to 50 minutes

### Competitive Travel Times

Limited provides moderately competitive travel times between stations

Local/Express provides fast travel times between major stations and slow travel times everywhere else

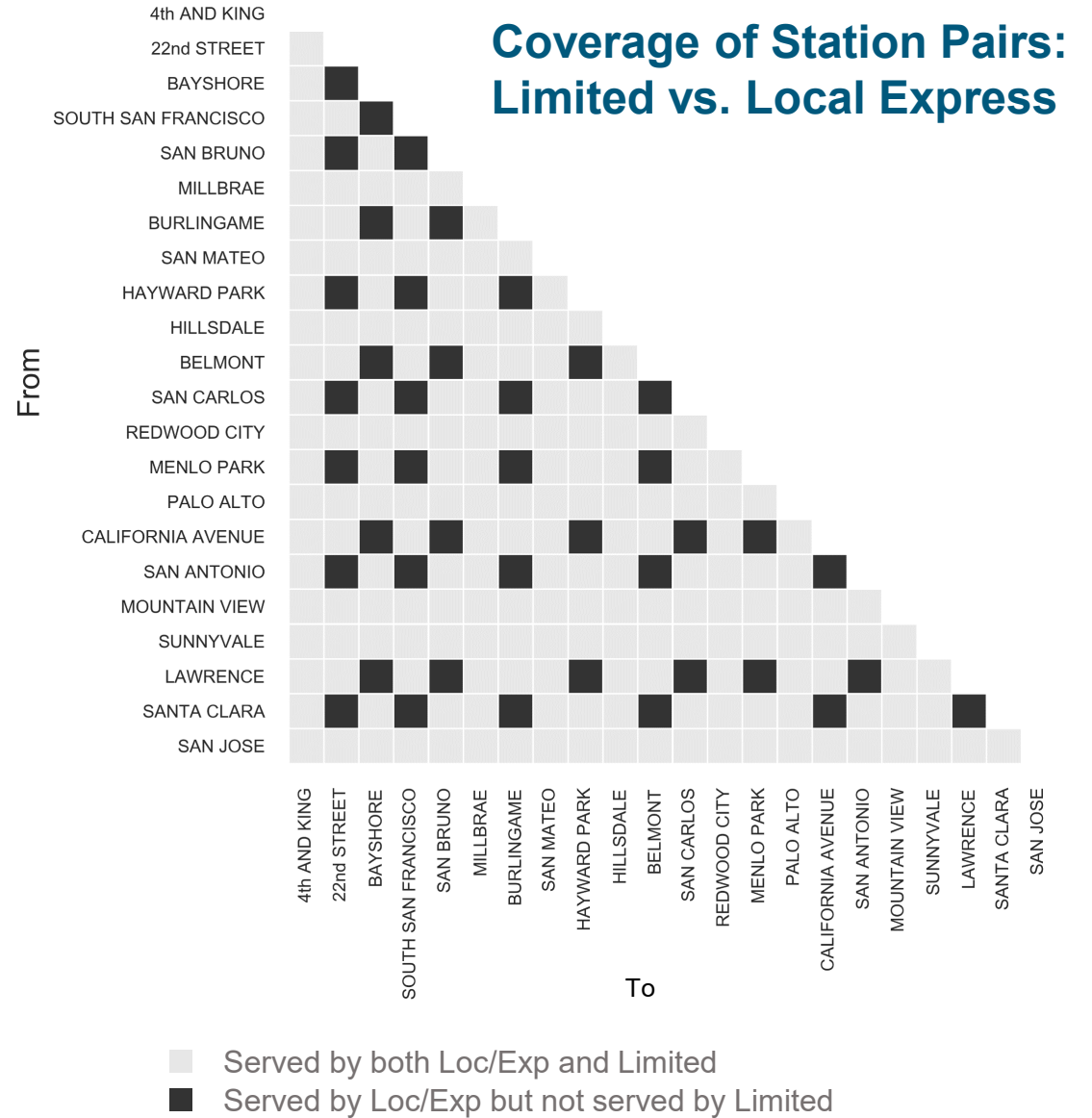


# Coverage Comparison

Prior to COVID-19, Caltrain connected approximately 98% of station pairs, while 3% were not connected.

With the Limited service, 18% of station pairs would not be not connected. However, these station pairs account for less than 3% of pre-pandemic ridership.

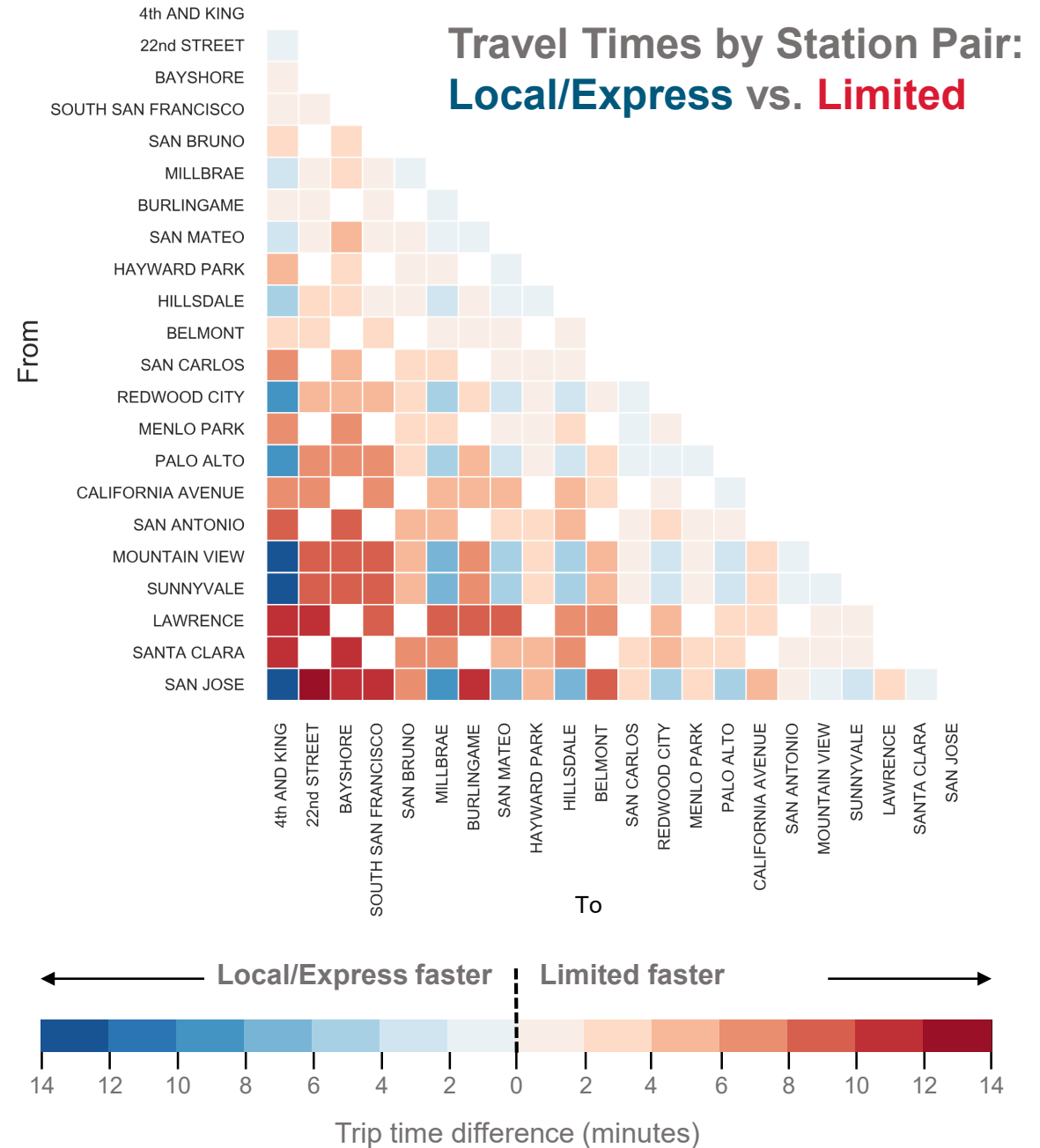
Local/Express would serve 100% of riders and station pairs.



# Travel Time Comparison

Local/Express would be faster for trips between major stations, but stations with only local service would have slow travel times.

Limited trains would be faster for all other trips, including trips between minor stations and between minor and major stations.



# Sample Travel Times

Travel times shown are preliminary and subject to change

Example Station Pair	Local/Express	Limited	Fastest Travel Time
Diridon-4 <sup>th</sup> & King	<b>65</b> or 91	79	
Palo Alto-San Mateo	<b>17</b> or 25	21	
Diridon-Palo Alto	<b>23</b> or 32	27	
Menlo Park-Millbrae	29	<b>25</b>	
Lawrence-Millbrae	53	<b>45</b>	
San Carlos-4 <sup>th</sup> & King	45	<b>38</b>	
Palo Alto-4 <sup>th</sup> & King	<b>41</b> or 58	50	
Lawrence-4 <sup>th</sup> & King	79	<b>68</b>	



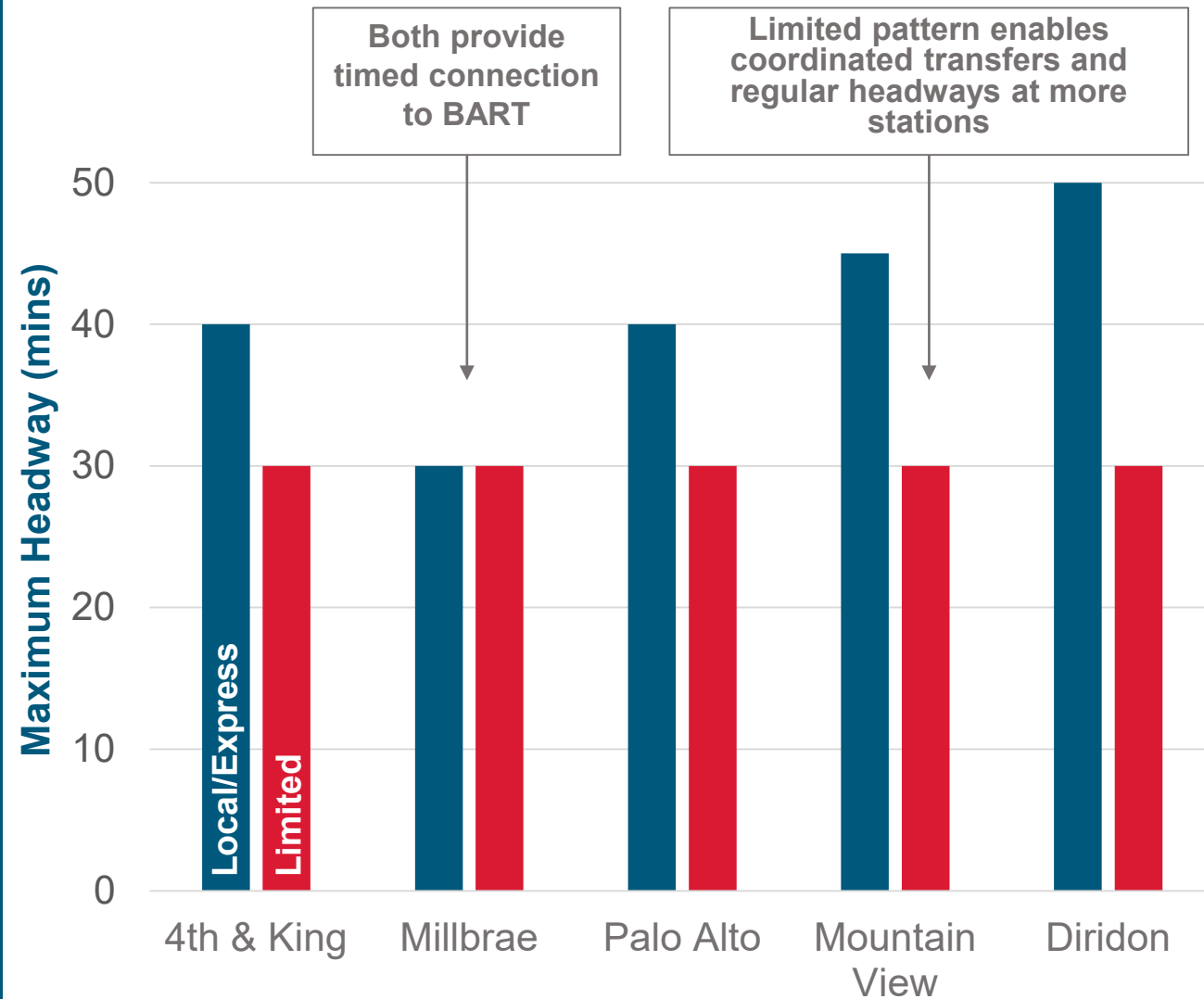
# Headways & Connectivity

While both patterns provide two trains per hour, they differ in headways and potential for connectivity.

Both provide timed connections to BART, which will continue to operate every 30 minutes at Millbrae.

The Limited pattern provides 30 minute regular headways at all other stations receiving two trains per hour, enabling more easily coordinated transfers with other frequent transit services.

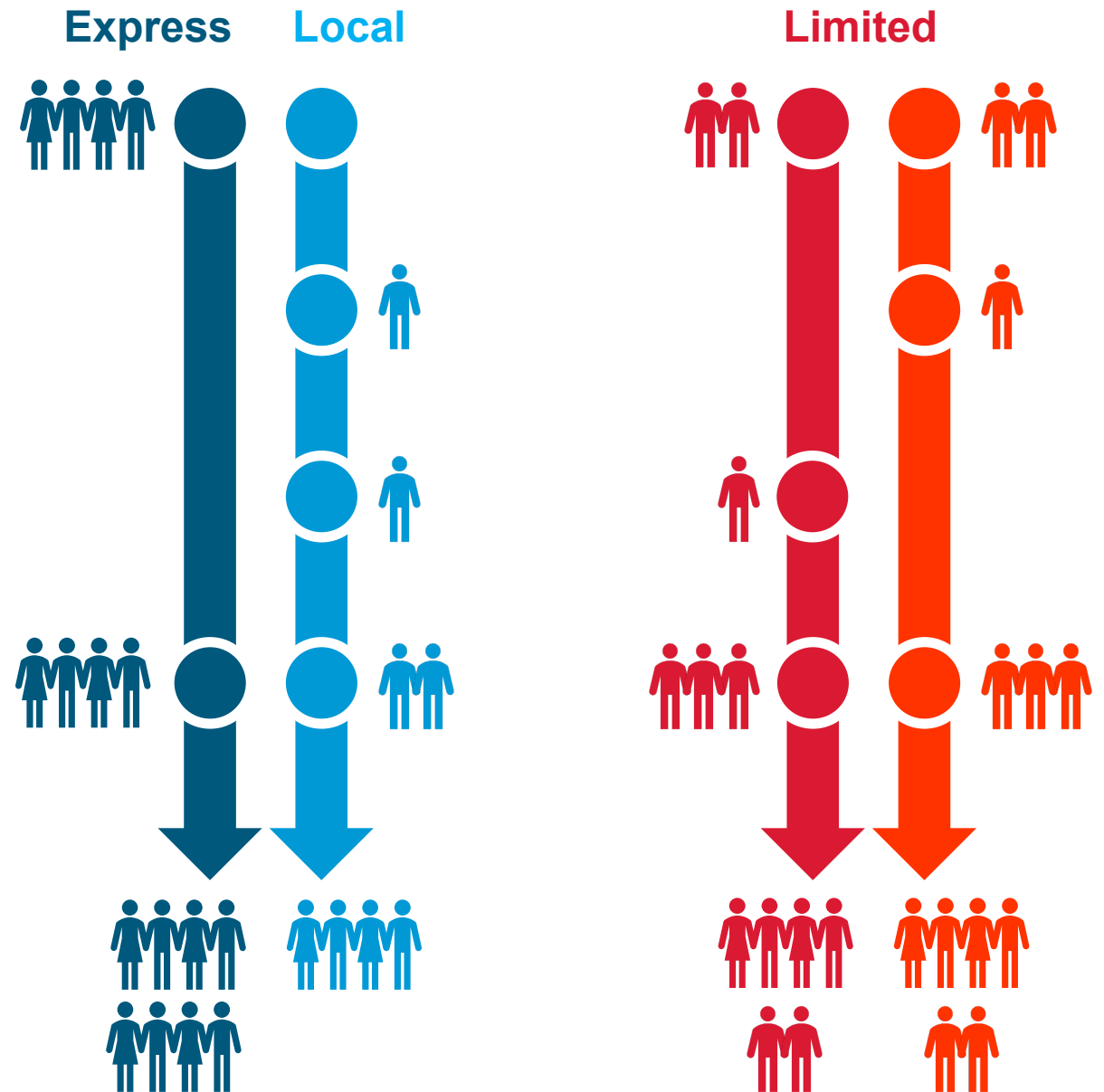
Local/Express provides variable headways of up to 50 minutes, which makes coordinating transfers more challenging.



# Balancing Passenger Loads & Social Distancing

With Local/Express, bunched headways and differentiated travel times increase the likelihood of imbalanced passenger loads, which could make social distancing more challenging as ridership returns.

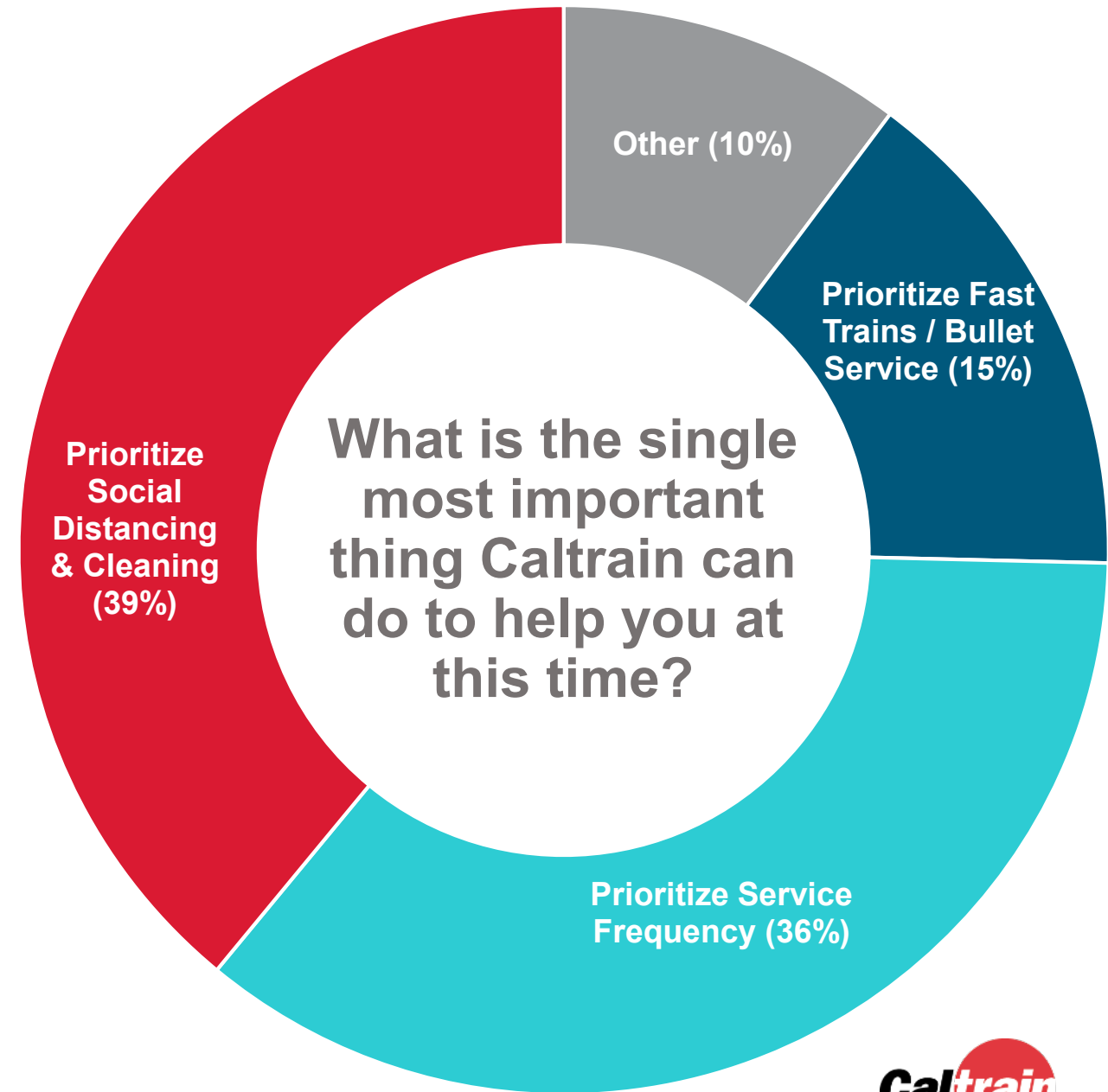
Skip Stop balances passenger loads by maintaining even headways and similar travel times.



# Rider Perspectives

Rider feedback suggest space for social distancing and service frequency are higher priorities than providing faster service at this time.

This feedback suggests a Limited service would better meet the needs of riders.



What is the single most important thing Caltrain can do to help you at this time?



Source: July 2020 Caltrain Rider Survey

# Weekday Recommendation

## Operate the Base Service Plan at 68 trains per day with 2 TPH throughout the day

- Serves peak ridership demand
- Responds to midday needs of low-income riders and essential workers by significantly improving midday service
- Provides framework for scaling up or down based on finances and demand

## Operate two Limited patterns per hour

- Balances passenger loads to promote social distancing
- Provides regular headways and enables coordinated transfers
- Provides good travel times for all stations
- Provides two daily roundtrips to Gilroy (one trip on each pattern)

# Weekend Recommendation

## **Provide Hourly Local Service to provide 28-32 trains per day (+4 trains over today)**

- Better serves ridership demand and promotes social distancing
- Responds to needs of low-income riders and essential workers by increasing service frequency by 50%
- Regular hourly service better enables coordinated transfers with other transit providers
- Maintains construction windows

## **Suspend Weekend Bullet Service**

- Weekend bullet service is scheduled around leisure trips, a market that has been weak during the pandemic. Observed ridership on weekend bullets has been substantially similar to local trains.
- Standardized hourly service benefits weekend riders who are traveling to work or medical appointments



# Scaling Down: Austerity Plan

## **The Austerity service plan would not further equitable outcomes**

Cutting service during off-peak periods, shortening peaks and service span, and suspending weekend service would have a disproportionate effect on low-income riders

## **Rebuilding ridership would be difficult**

There is presently not a clear peak period to plan around - Caltrain may need to choose between serving earlier peaks for medical workers or later peaks for office workers

**Austerity Plan is not recommended – and remains conceptual only at this time**

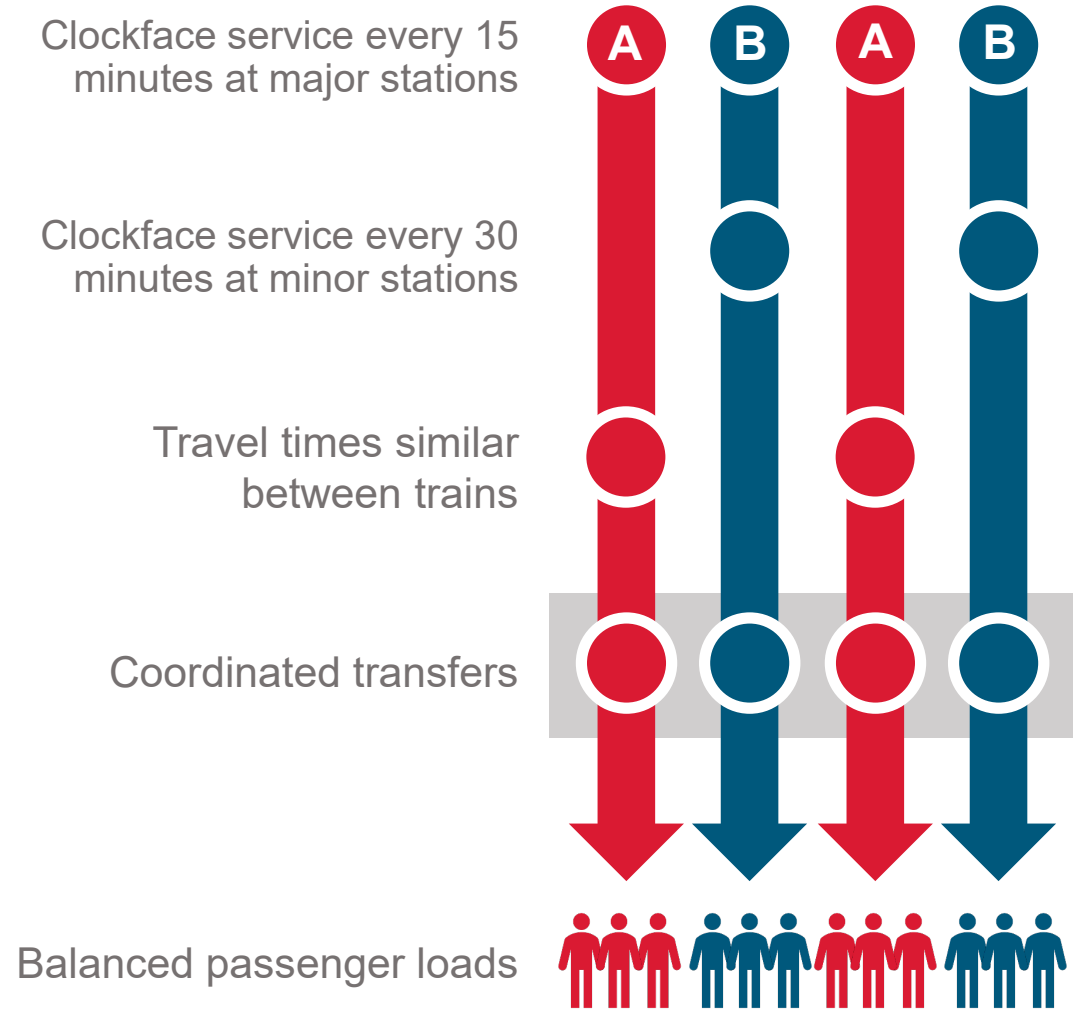
# Scaling Up:

There are several options for how Caltrain could scale up service as finances allow and demand returns

Caltrain could double frequency on the two Limited patterns

- All stations would be served at least every 30 minutes during peak periods, with major stations served every 15 minutes
- Travel times would remain similar between patterns
- Maintains coordinated transfers
- Minimal disruption to schedules

## Example – Adding service by doubling recommended Base Service Pattern



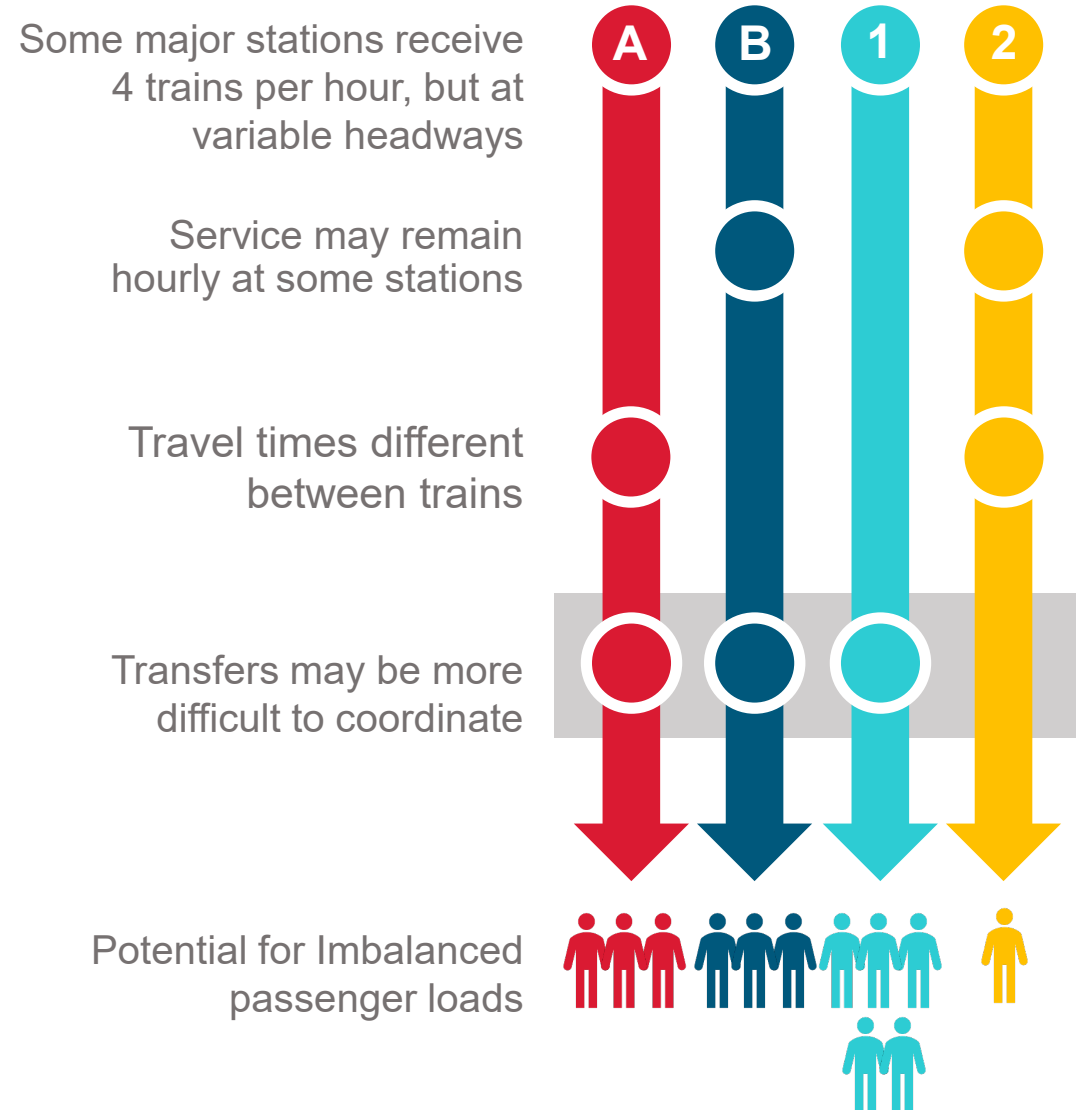
# Scaling Up:

There are several options for how Caltrain could scale up service as finances allow and demand returns

Alternatively, Caltrain could reduce travel times by providing fewer stops and more variation in train types – either on added trains or within the service plan as a whole

- Stations could be served by one to four trains per hour at variable headways
- Travel times could decrease, especially between major stations
- Change would involve more significant disruption to schedules and would make aspects of coordination with other service providers more challenging

## Example – Adding Service in a more customized pattern



# Next Steps

# Next Steps: Implementation & Monitoring

The outlined service approach is a staff recommendation based on available data and evidence

The pandemic has created a highly difficult and dynamic business environment for transit – further changes and adjustments will inevitably be needed

Monitoring rider reaction to the new service will be essential to determine what aspects are working well and what may need to change

## Implementation

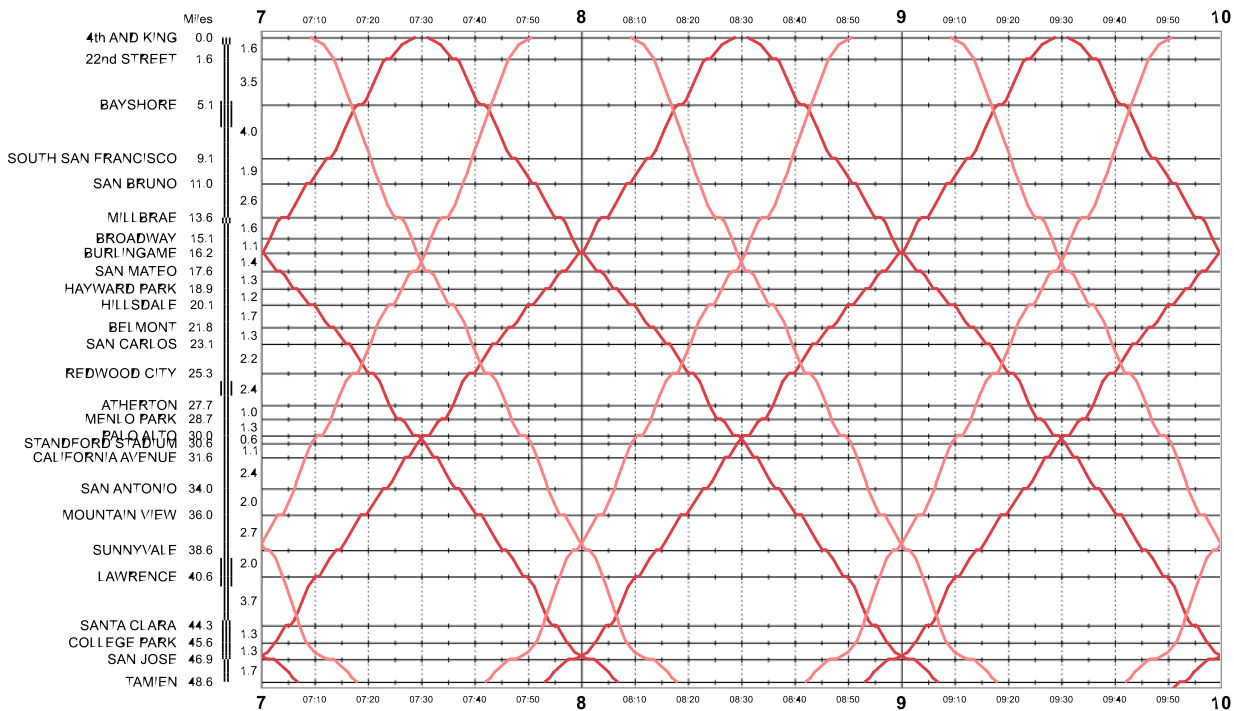
- Continue refinement of schedule and stopping patterns
- Complete financial analysis related to crewing and equipment utilization
- Coordinate with connecting and partner operators (BART, CCJPA, ACE, SFMTA, SamTrans and VTA)
- Solicit feedback from JPB, CAC and other stakeholder groups
- Confirm date for implementation (targeting mid-December)

## Monitoring

- Develop pre- and post-implementation counts and surveys
- Identify external measures that can be used to calibrate and contextualize ridership outcomes

# Appendix: Stringline Charts

## Local/Express



## Limited

