

Caltrain Business Plan

COVID RECOVERY
PLANNING

UPDATE ON NEAR TERM
SERVICE PLANNING

Citizens Advisory Committee

November 18, 2020

Agenda Item #10



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

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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

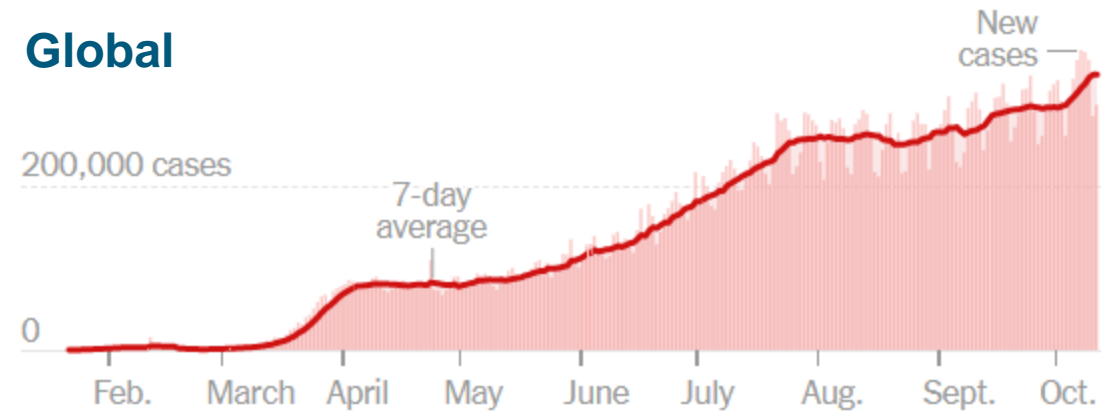
Long-term resolution of pandemic through vaccine or other permanent public health approaches. Caltrain adjusts to new Business Environment

The Pandemic

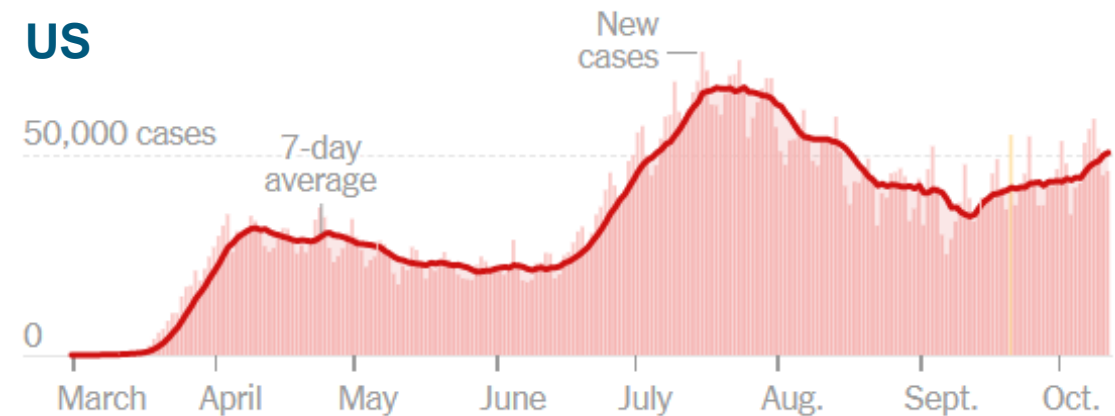
The U.S. and the world continue to experience waves of the COVID-19 pandemic.

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.

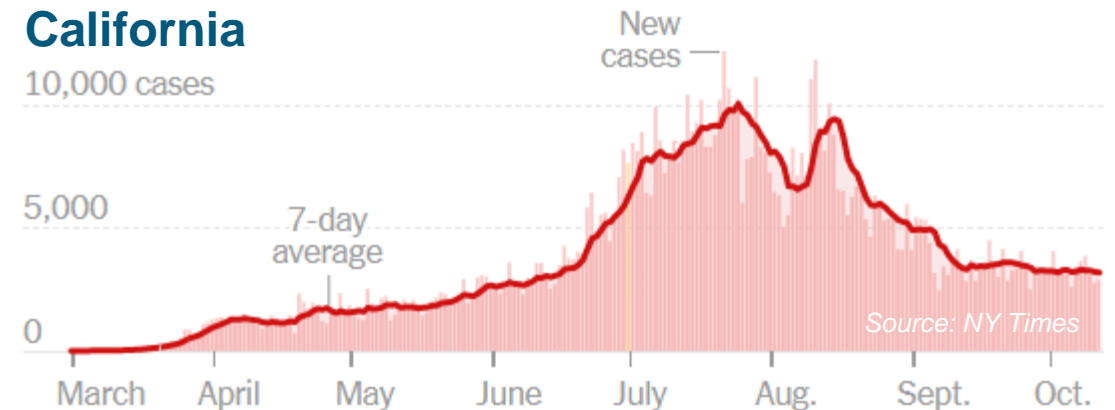
Global



US



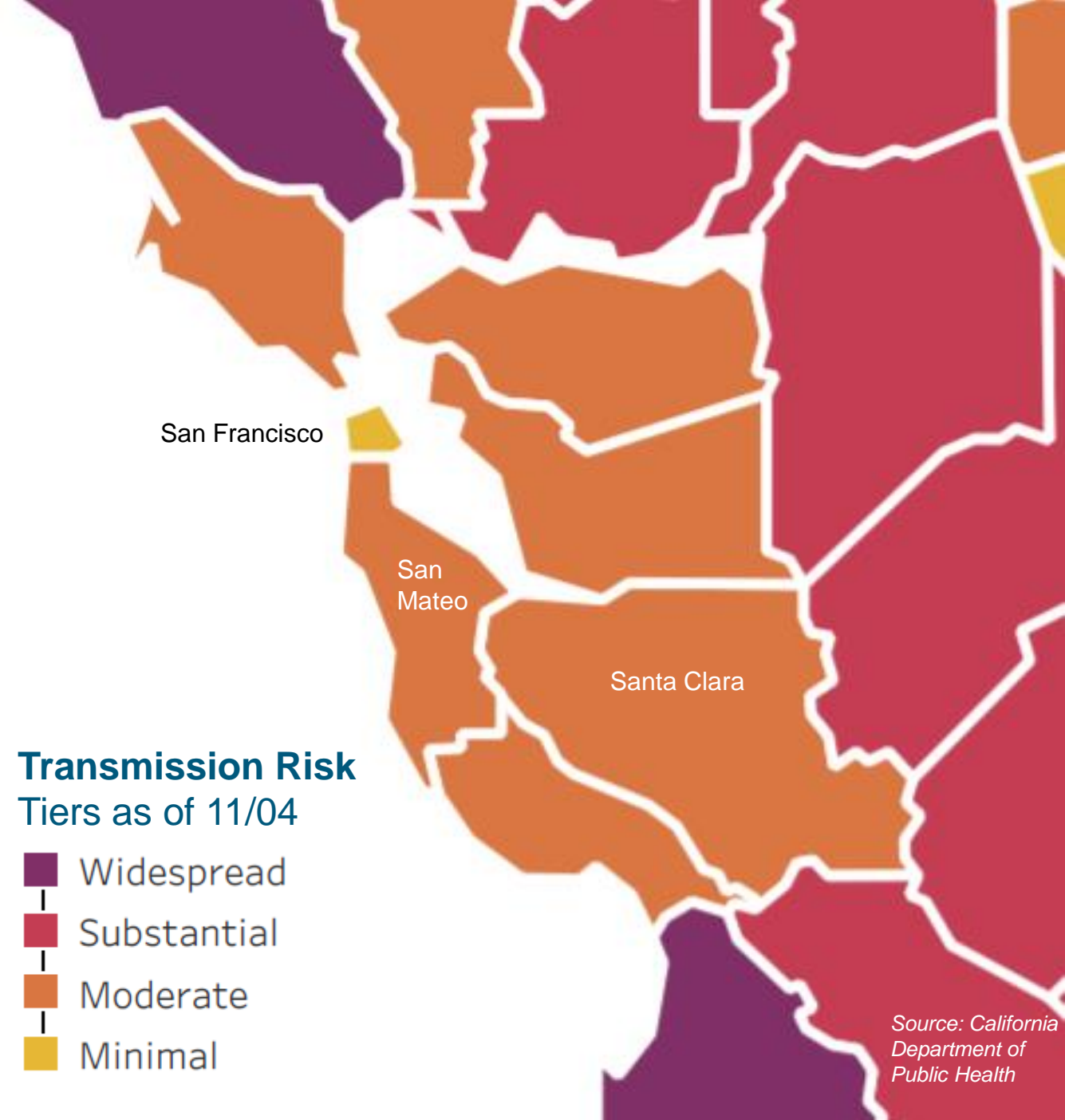
California



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.

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.



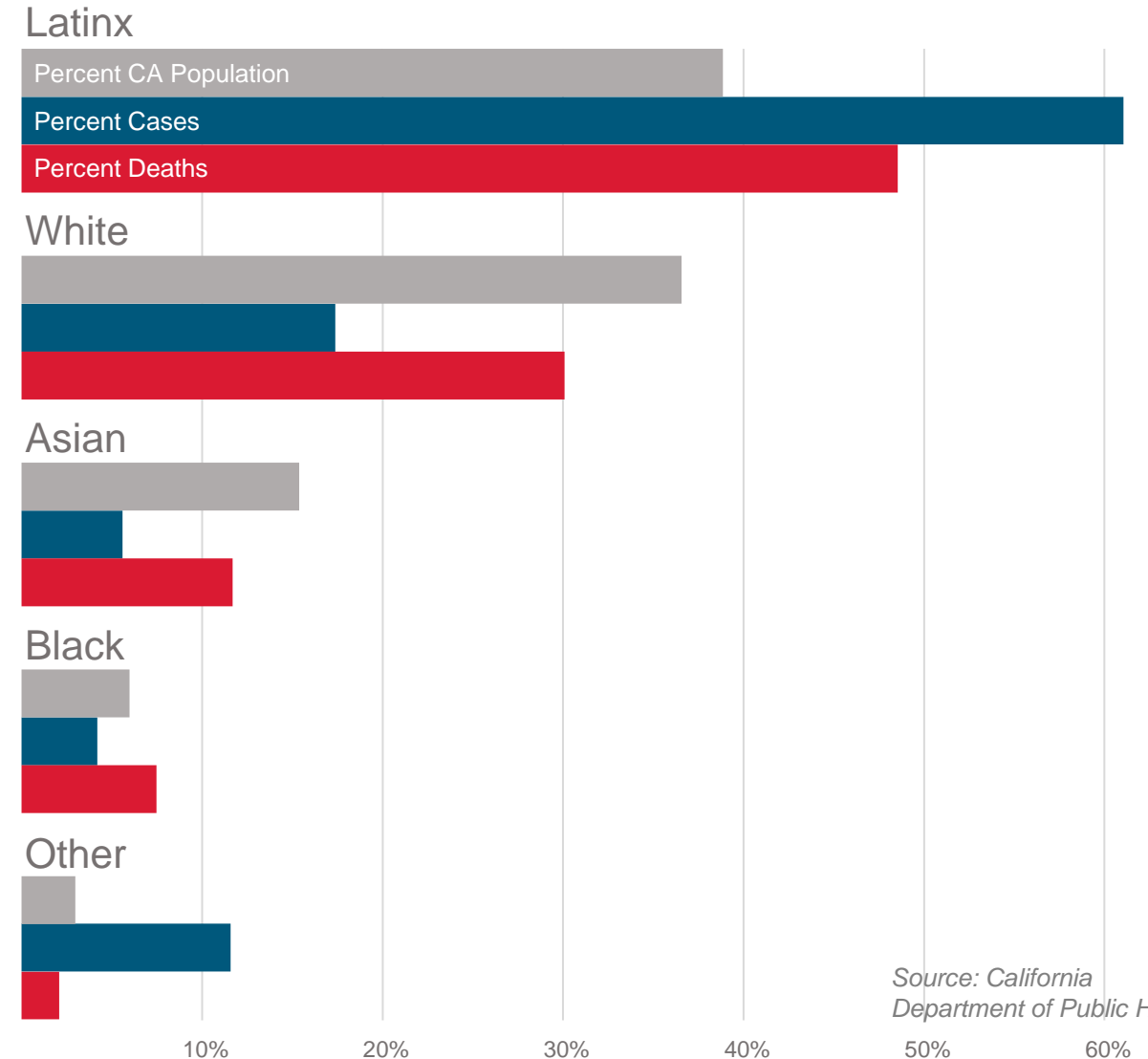
The Pandemic & Equity

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.

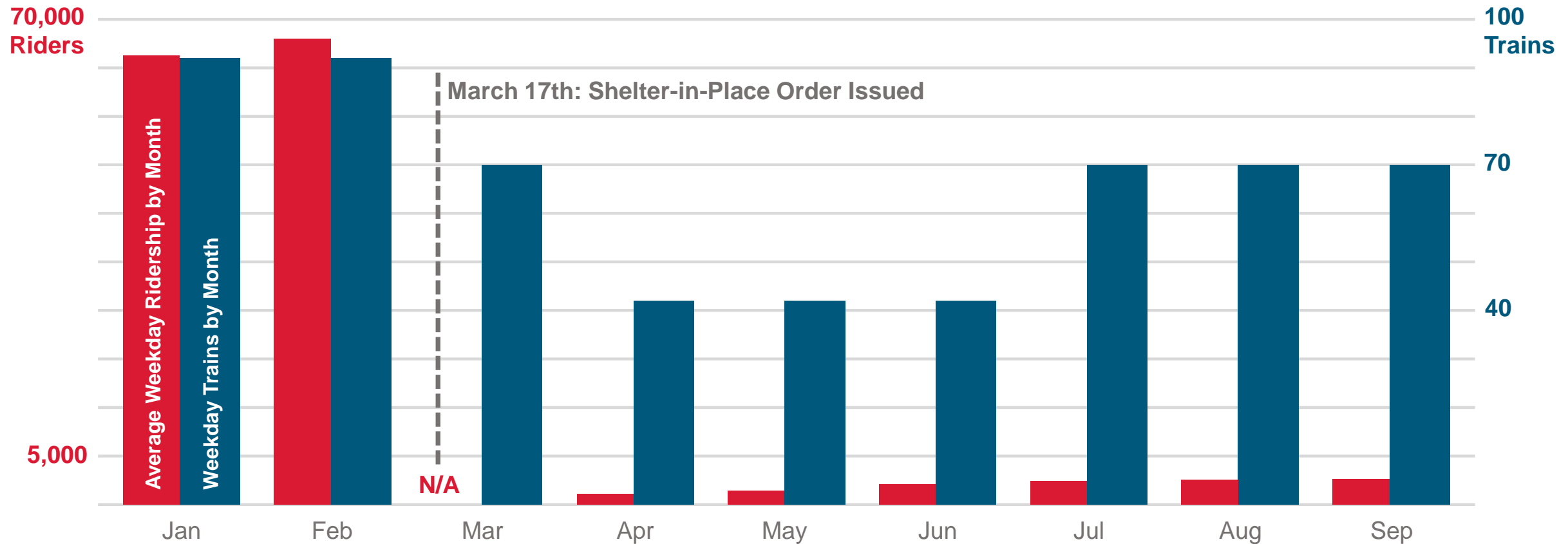
Caltrain's **Equity, Connectivity Recovery & Growth Framework** (adopted at the September JPB meeting) provides guidance to Caltrain regarding ways it can make its services more useful and accessible to these communities

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



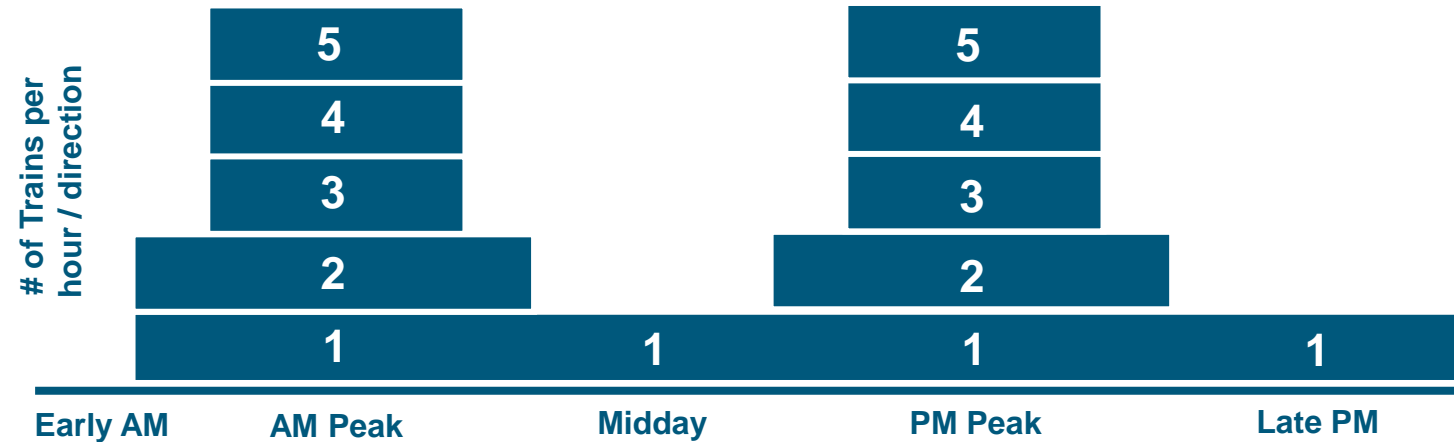
Source: California Department of Public Health

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

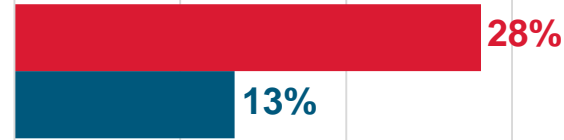
- Develop a consistent service framework that can be scaled up (and down) based on demand and funding availability while minimizing disruption and confusion for riders and connecting transit
- Focus on serving the riders who need Caltrain most, with an emphasis on implementing key elements of the ECRG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

Overall Service Approach

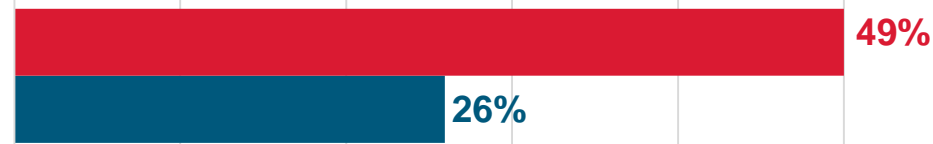
Who's riding Caltrain during COVID-19?



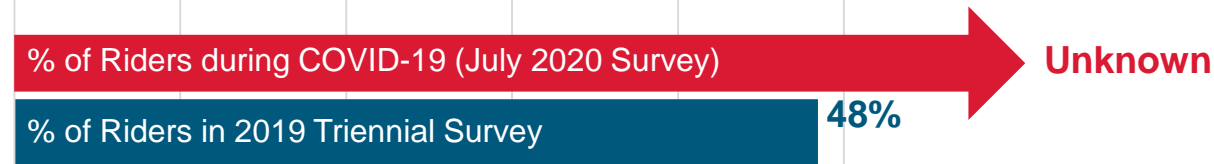
Share of riders that qualify for **low income housing assistance**



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.

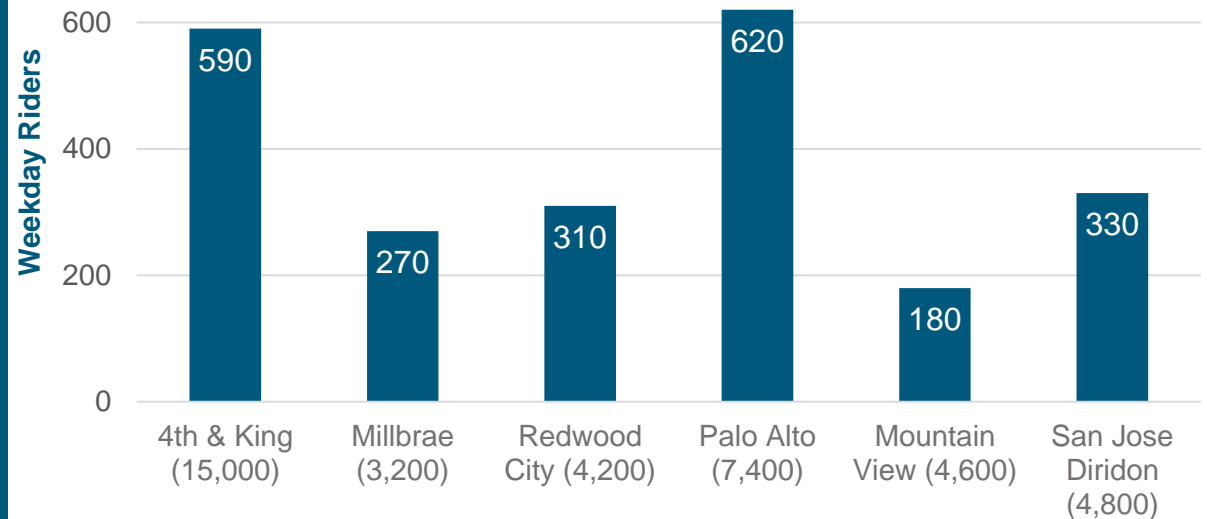
Rider Trip Purposes

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

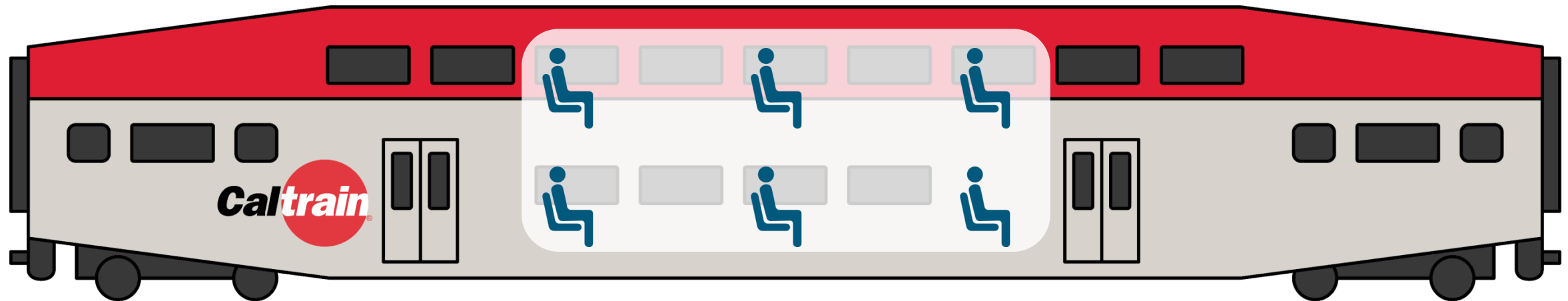
Ridership during COVID-19 has been more concentrated around stations with major medical centers like Palo Alto and Redwood City, with fewer riders commuting to offices due to COVID restrictions.

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).

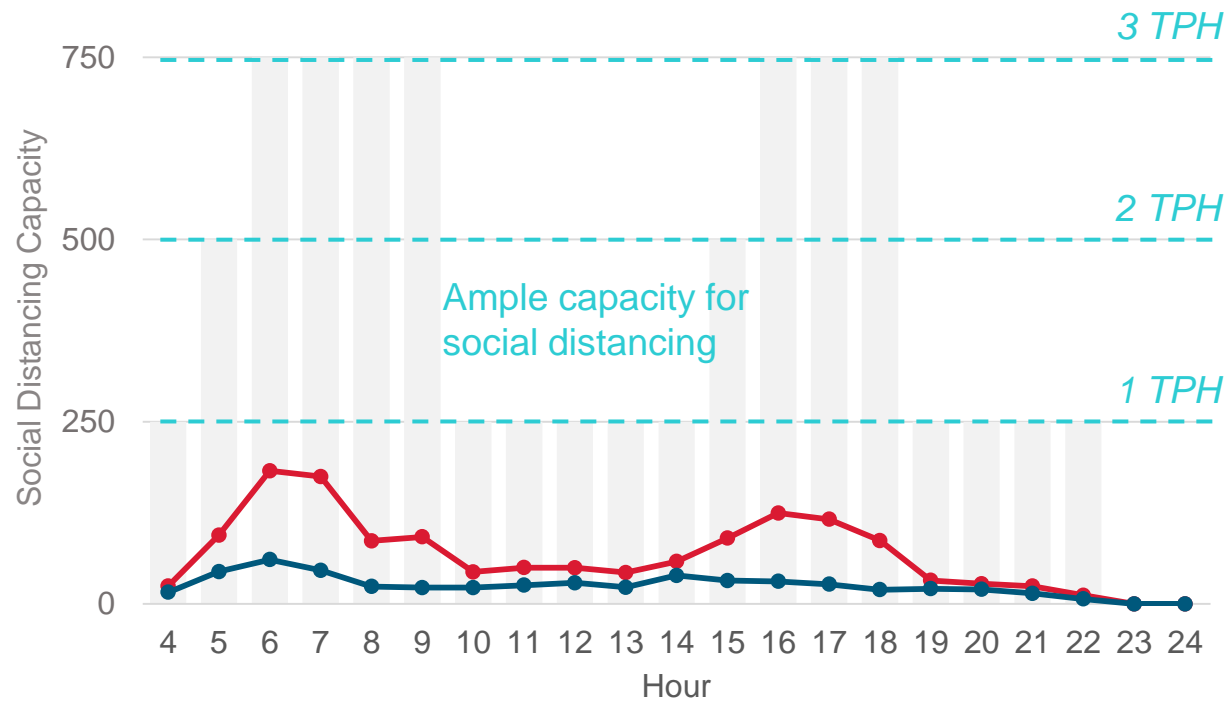


When are Riders Traveling on Weekdays?

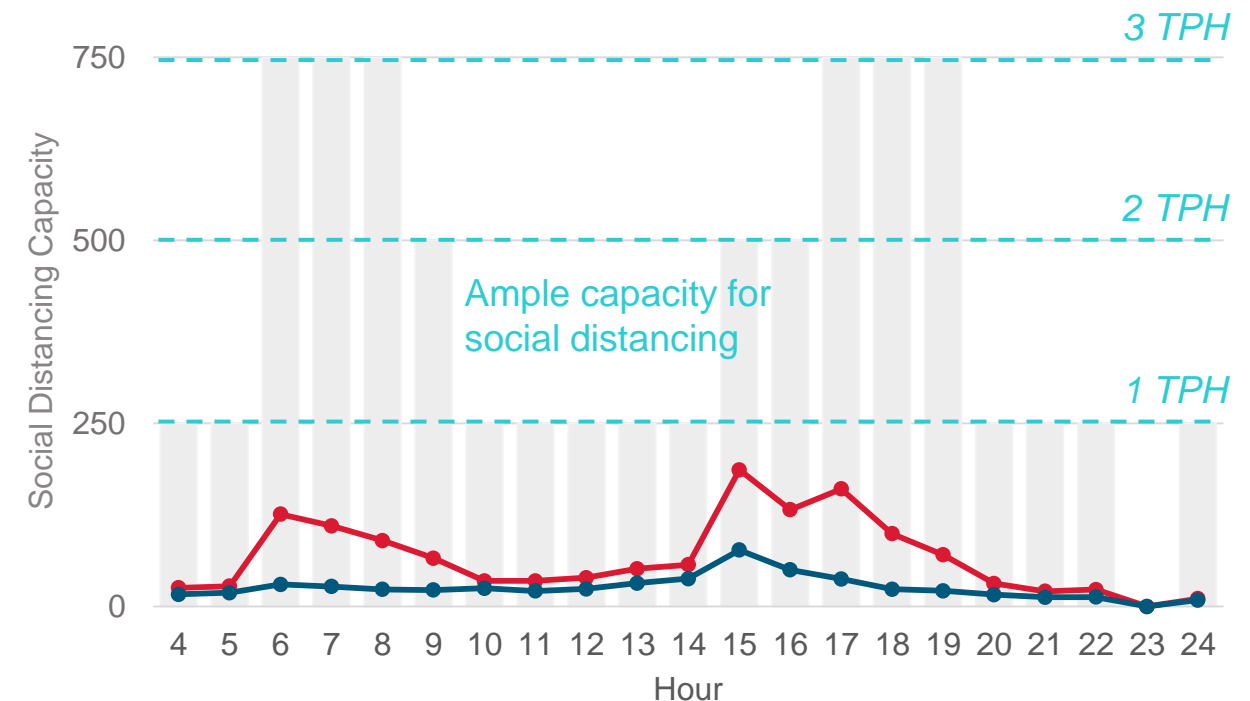
Weekday ridership has experienced earlier peaks due to a higher proportion healthcare workers

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



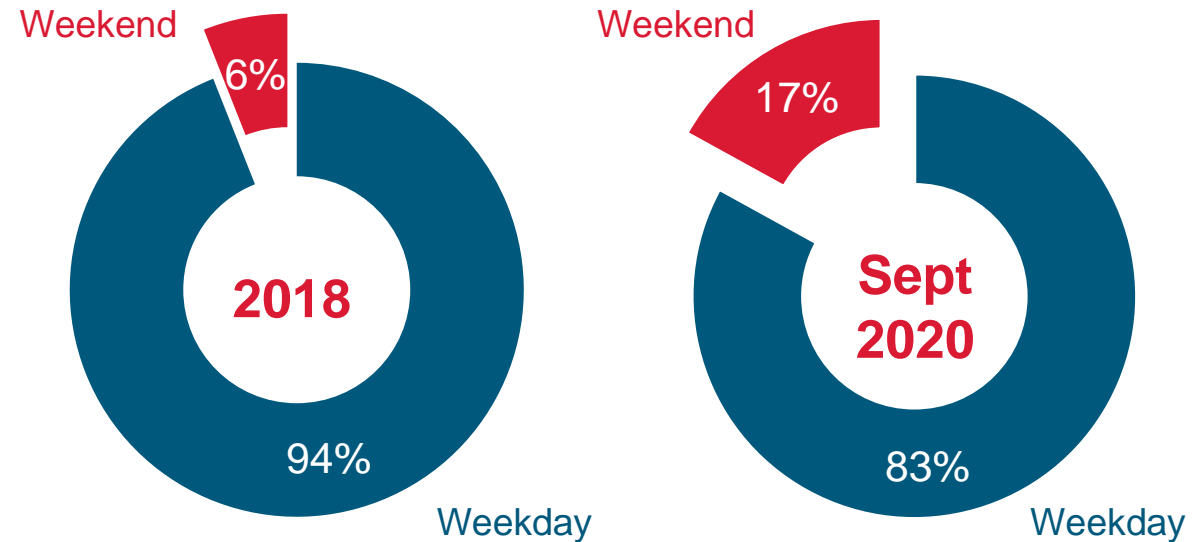
Weekend Ridership Patterns

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

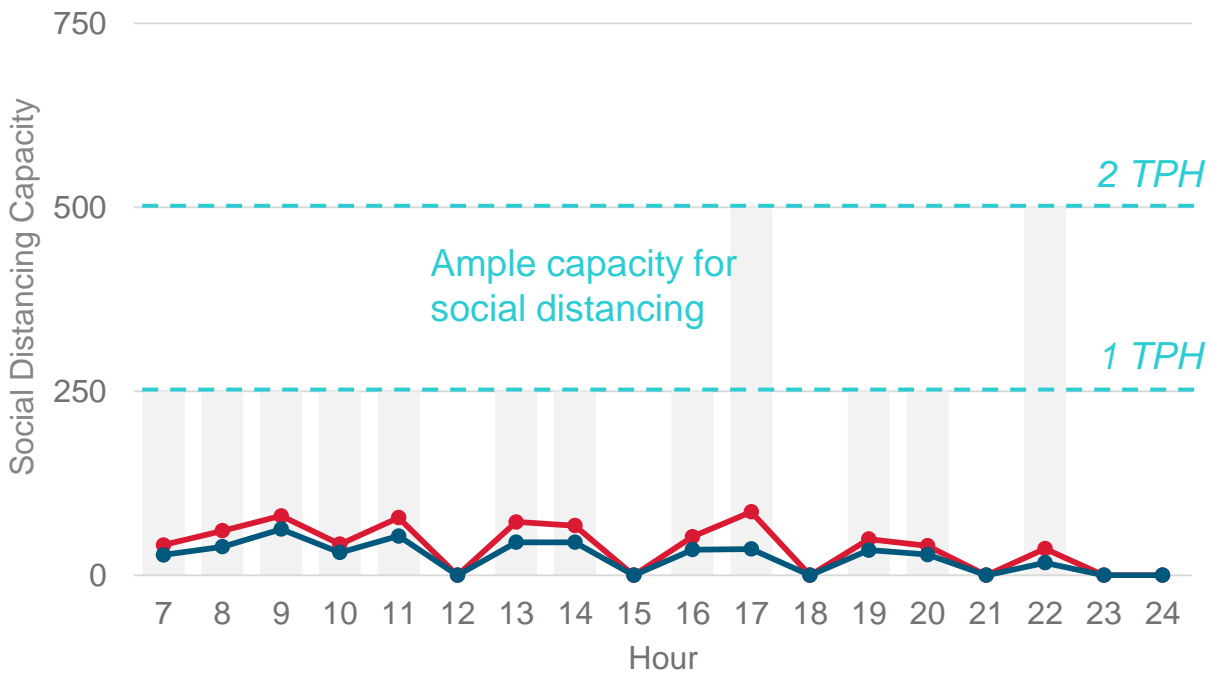
Service Type	2018 Riders per Train	Sept 2020 Riders per Train
Weekend Local	575	95
Weekend Bullet	542	79

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

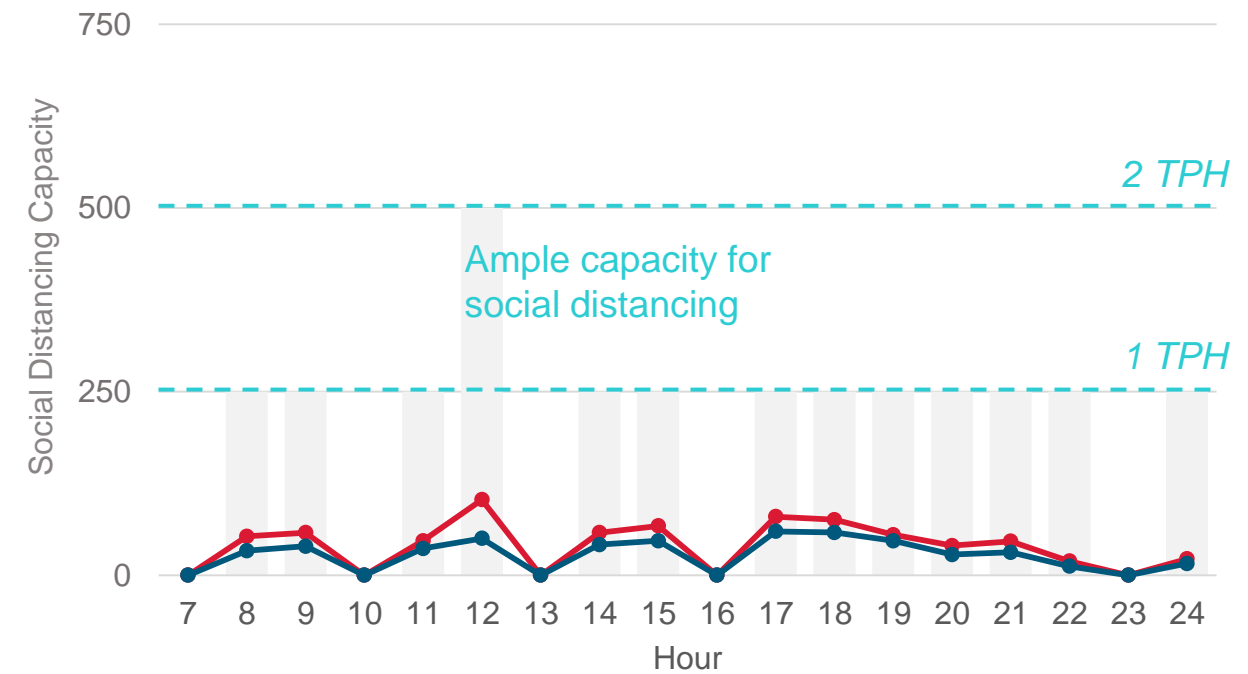
When are Riders Traveling on Weekends?

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:



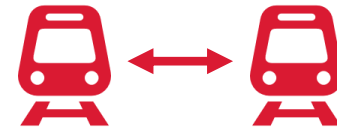
30 min frequency
at higher demand
stations



Reasonably
competitive
travel times



Coverage to
all stations



Timed connections
to every BART train
at Millbrae

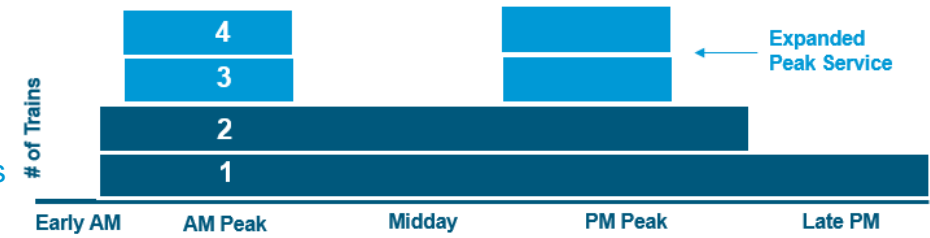
A Framework For Service

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.

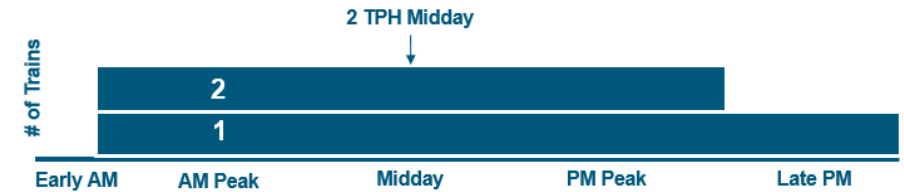
An Expanded Service Plan could restore service back to 92 trains per day.

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

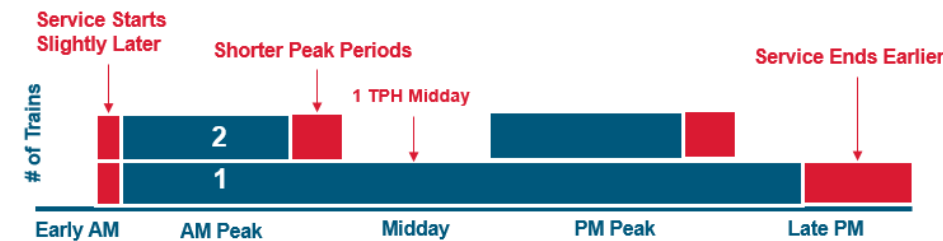
Expanded Service Plan
92 Weekday Trains
28-32 Weekend Trains



Base Service Plan
68 Weekday Trains
28-32 Weekend Trains



Austerity Service Plan
44 Weekday Trains
No Weekend Trains



Framework for Equity, Connectivity, Recovery, and Growth

Purpose

- Policy document that builds on work completed in the Business Plan
- Provides guidance to help the railroad navigate implement needed changes and guide near- and mid-range planning
- Addresses pressing equity and connectivity concerns

Equity in the Caltrain Context

- Caltrain defines equity in terms of equal access to both benefits of the system as well as the fair distribution of impacts.
- Rail corridor has been active for over 150 years, and both historically and currently, race and class have played an outsized role in defining where harmful disparities in access and impacts are most concentrated - in poor, minority communities.
- Age, gender, disability, and English proficiency can also expand or constrain access opportunities.
- Framework builds on existing policies and efforts and outlines key steps toward reversing these disparities by focusing railroad resources and attention toward those most harmed by a lingering legacy of racism and discrimination
- Equity is consciously paired with policies related to connectivity, recovery and growth because equity principles need to be foundational and integrated into how the railroad evolves and achieves its Vision

Framework for Equity, Connectivity, Recovery, and Growth

Guiding Principle:

Caltrain shall make a priority of enhancing equity in its system, focusing on the diverse constituency of riders who depend on transit for essential travel and addressing the historical inequities that have caused the rail service to be disproportionately underutilized by lower income riders and people of color.

Equity in Context of Caltrain Service

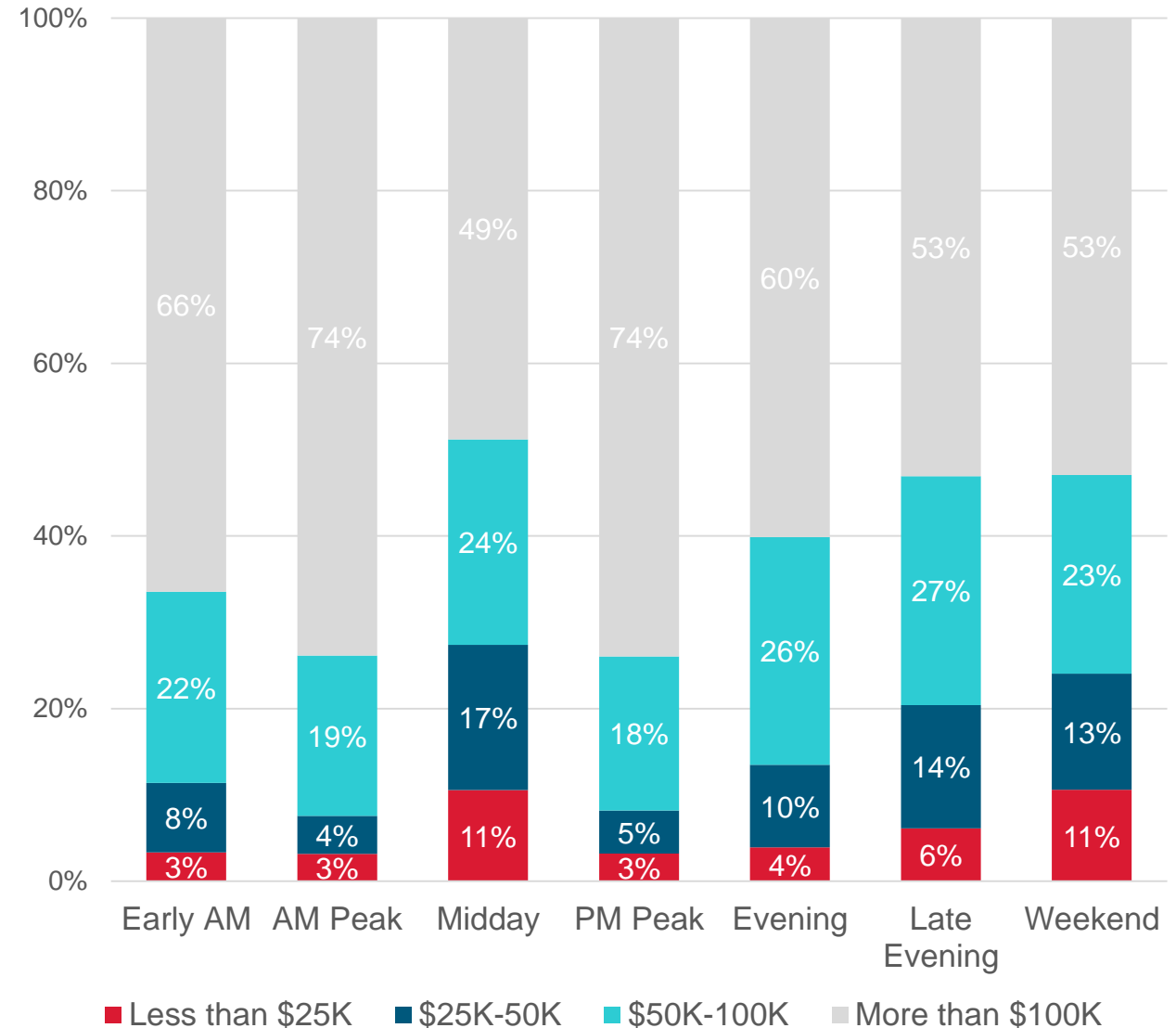
A) Caltrain Shall undertake service changes and system improvements in a manner that enhances equity and access for historically disadvantaged and underserved groups and communities. This includes:

- Improving midday and off-peak service levels to serve and attract customers who need the system for non-work trips or whose work schedules do not conform to traditional peak commute hours.
- Considering social, racial and geographic equity as a significant factor in determining the restoration and expansion of service frequencies at individual stations.
- Engaging in research, community dialog and planning to understand how best to provide meaningful access and connections between the Caltrain system and historically underserved low-income and minority communities along the corridor.
- Prioritizing the planning and implementation of station projects and system enhancements that will expand and facilitate access for riders with disabilities.
- Undertaking planning to improve Caltrain station access facilities most heavily used by low-income riders, including bus stops, bicycle parking, pick-up/drop-off areas, and walkways.



Midday, Late Evening, and Weekend Service Serve a Higher Share of Low-Income Riders

Household Income by Time Period

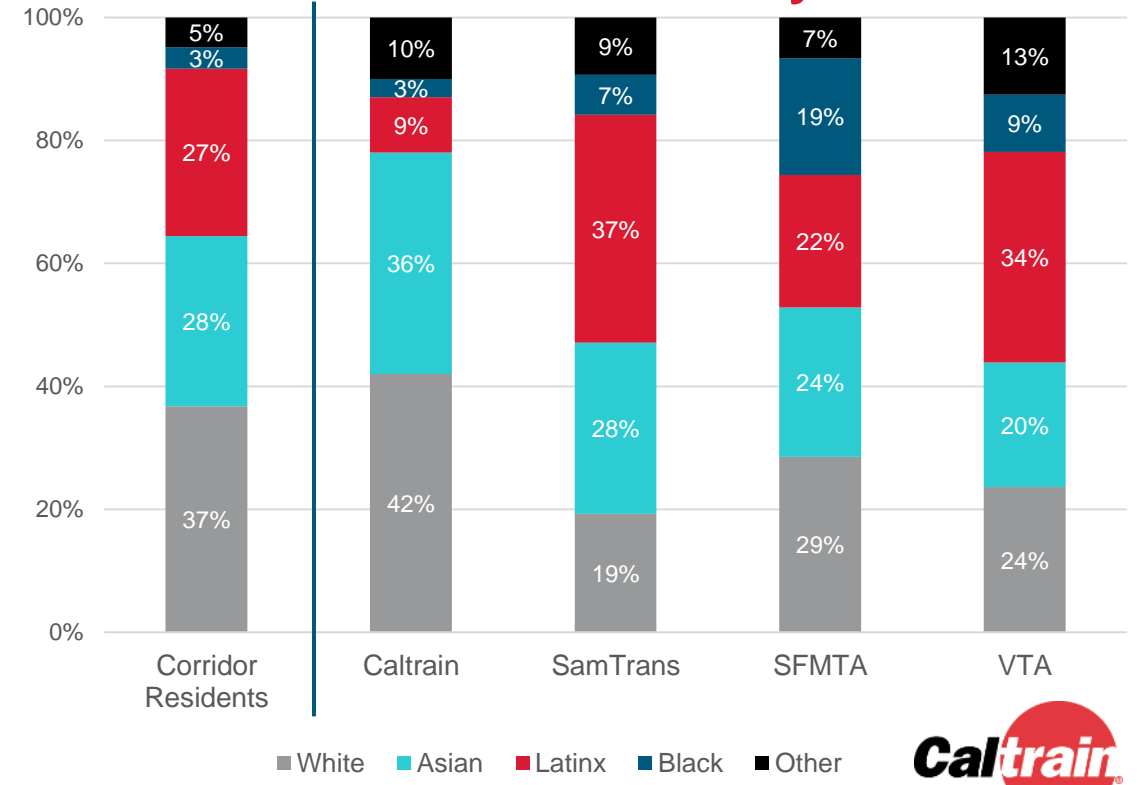


Parallel Routes Proportionally Serve More Low-Income Riders and People of Color than Caltrain

Household Income



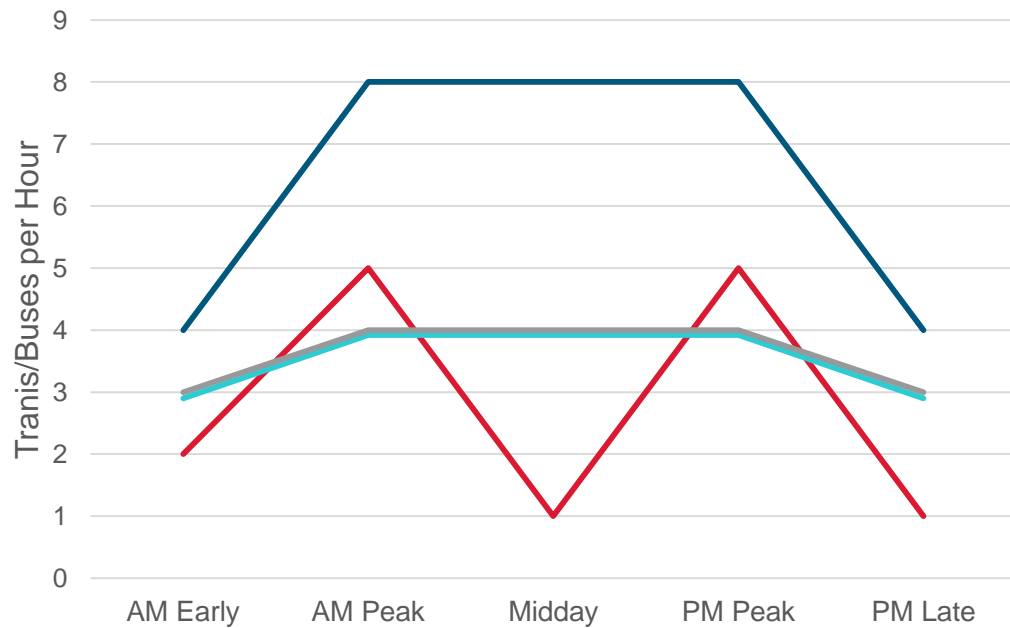
Race/Ethnicity



Source: U.S. Census, American Community Survey 2017, Caltrain 2019 Triennial Survey, SamTrans, SFMTA, and VTA on-board surveys.

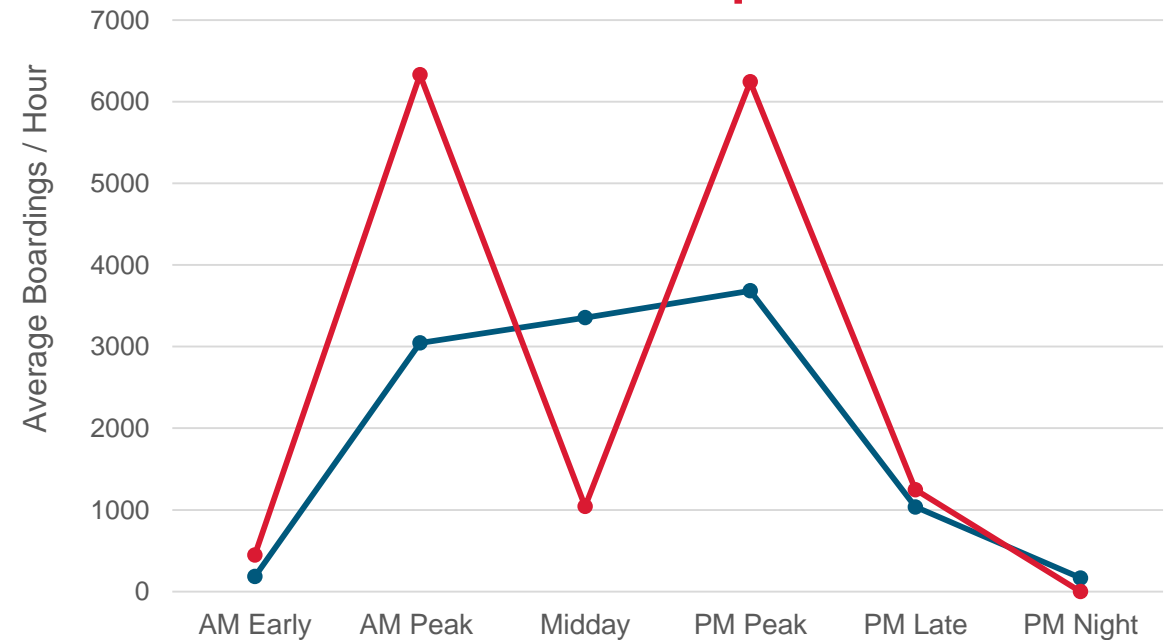
Parallel Transit Has More Frequent All-Day Service & Serves More Midday Riders

Frequency



—● Caltrain (5AM-12AM) —● SFMTA -T-Third (5AM-12AM)
—● SamTrans - ECR (4AM-2AM) —● VTA - 522 (5AM-12AM)

Ridership



—● Parallel Transit —● Caltrain

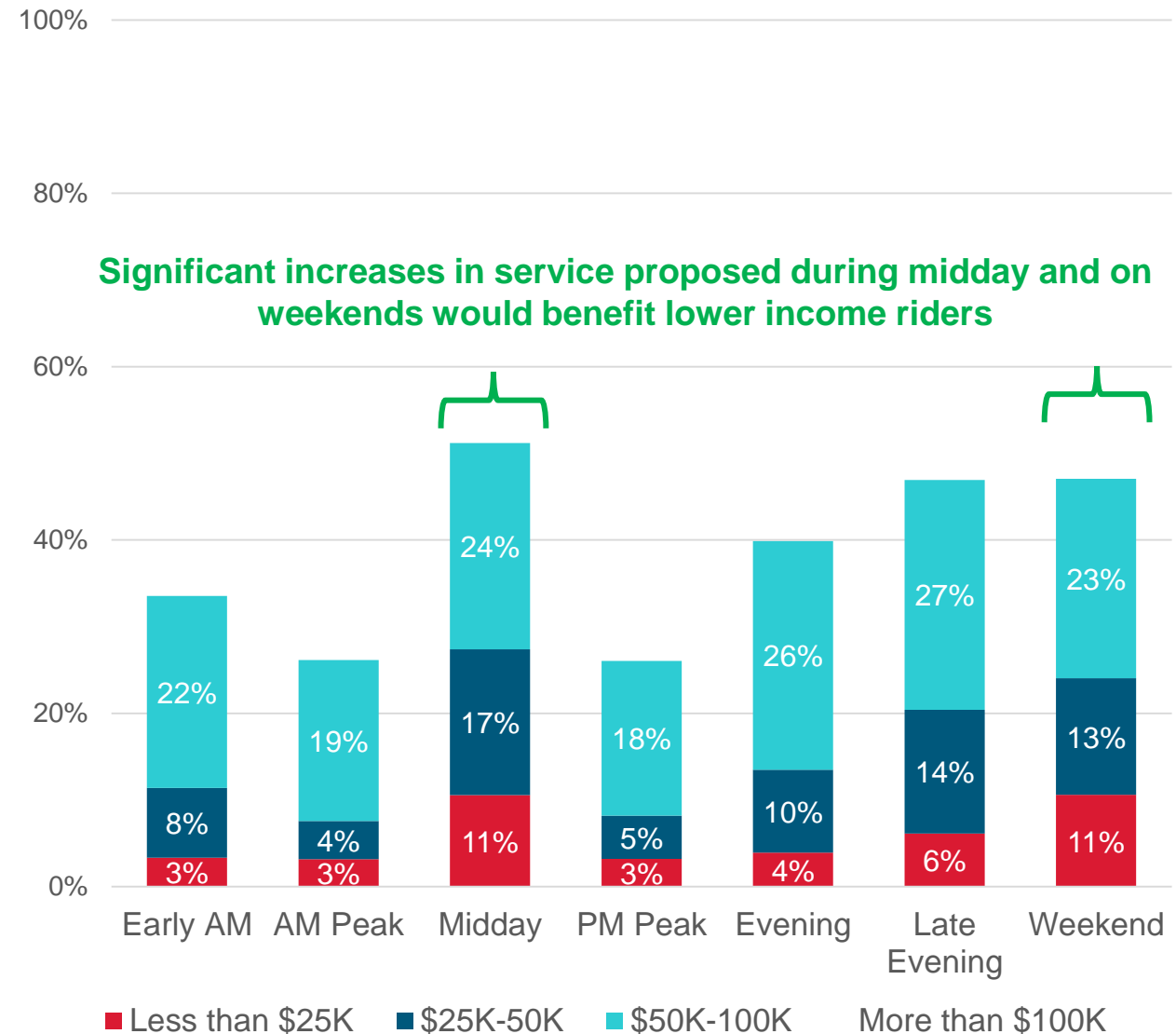


Equity Implications

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

Household Income by Time Period



Equity Implications

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

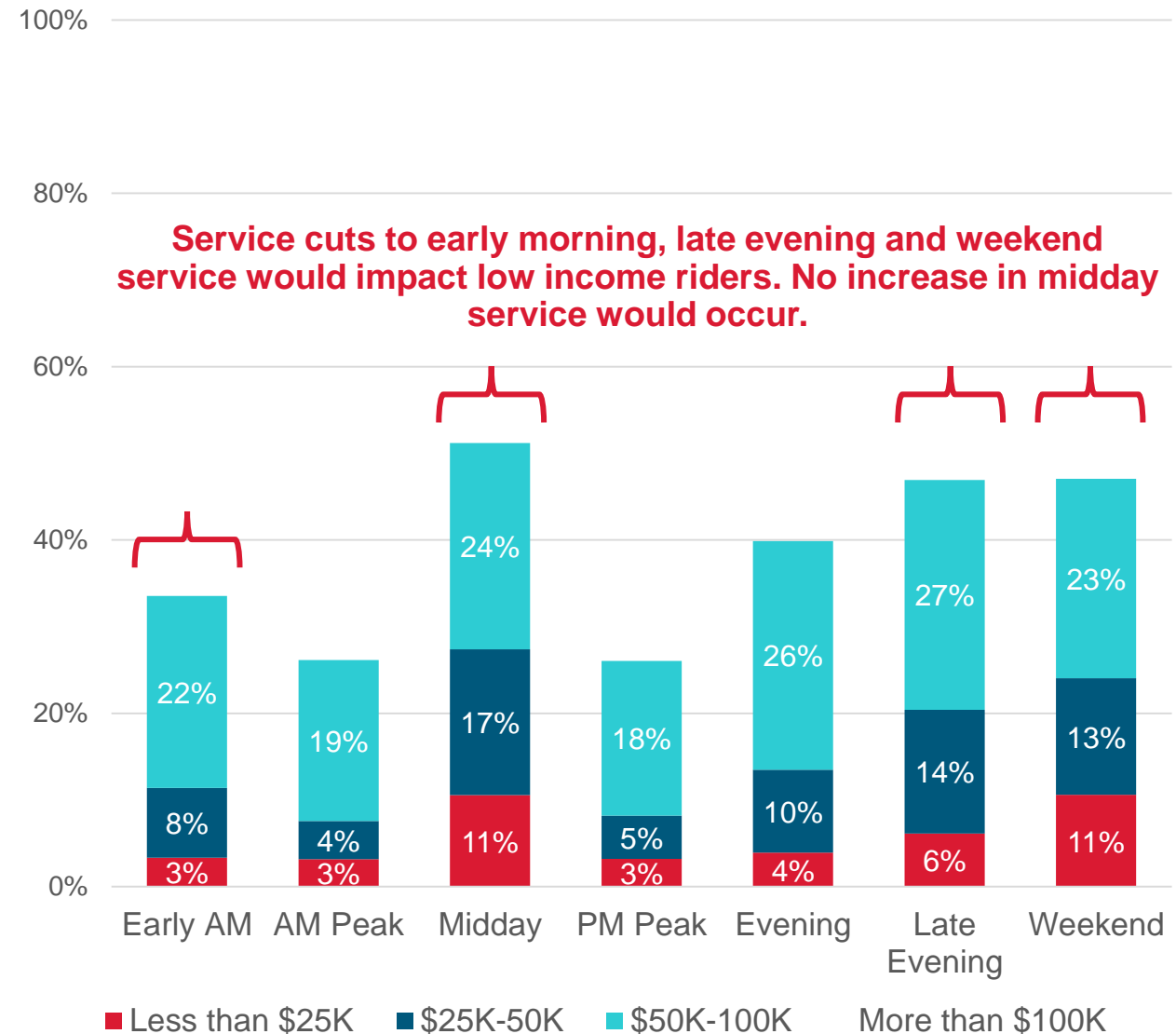
It would not provide equity benefits and cuts would impact low income riders.

- 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.

Household Income by Time Period



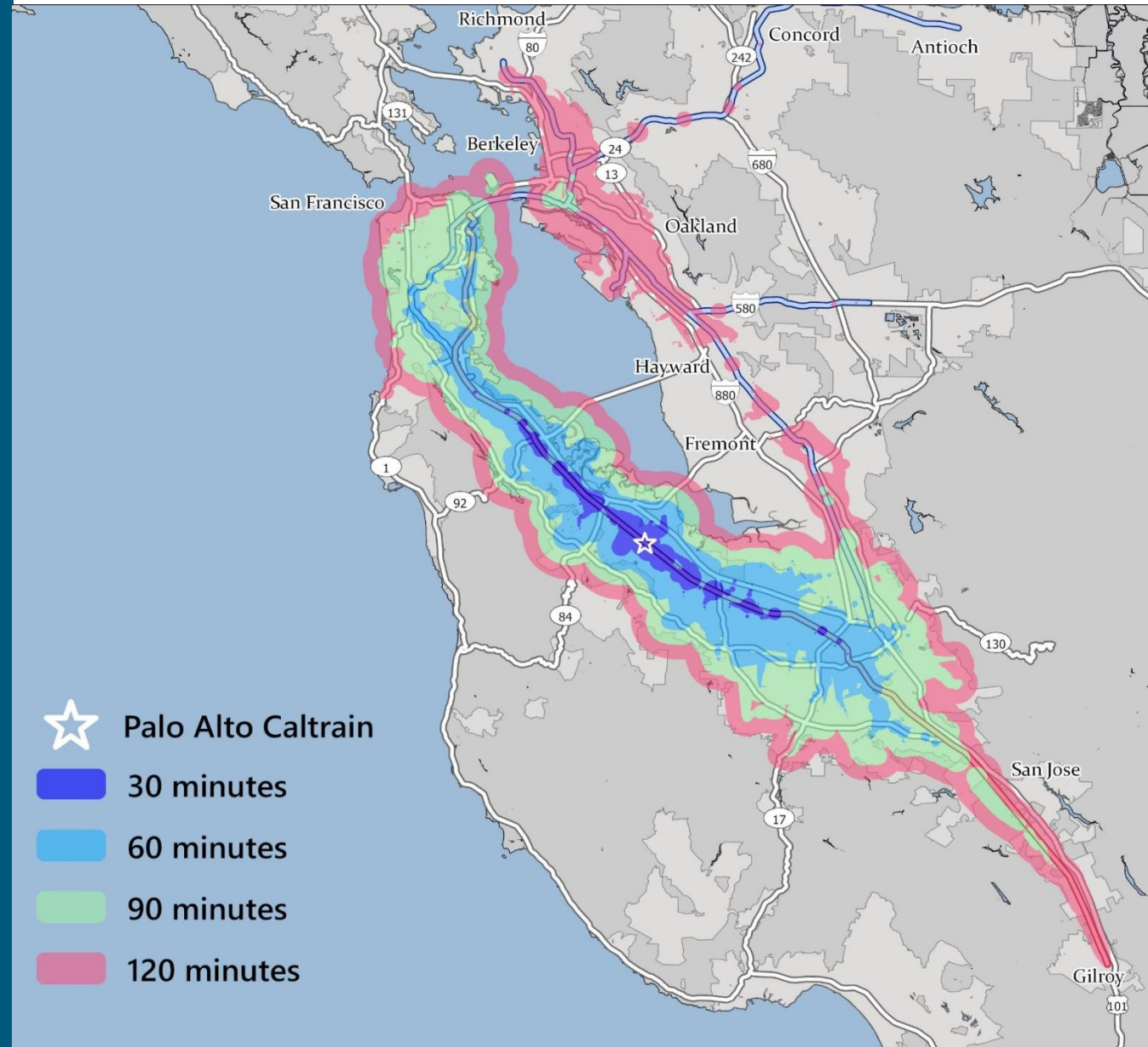
Shutdown Considerations

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

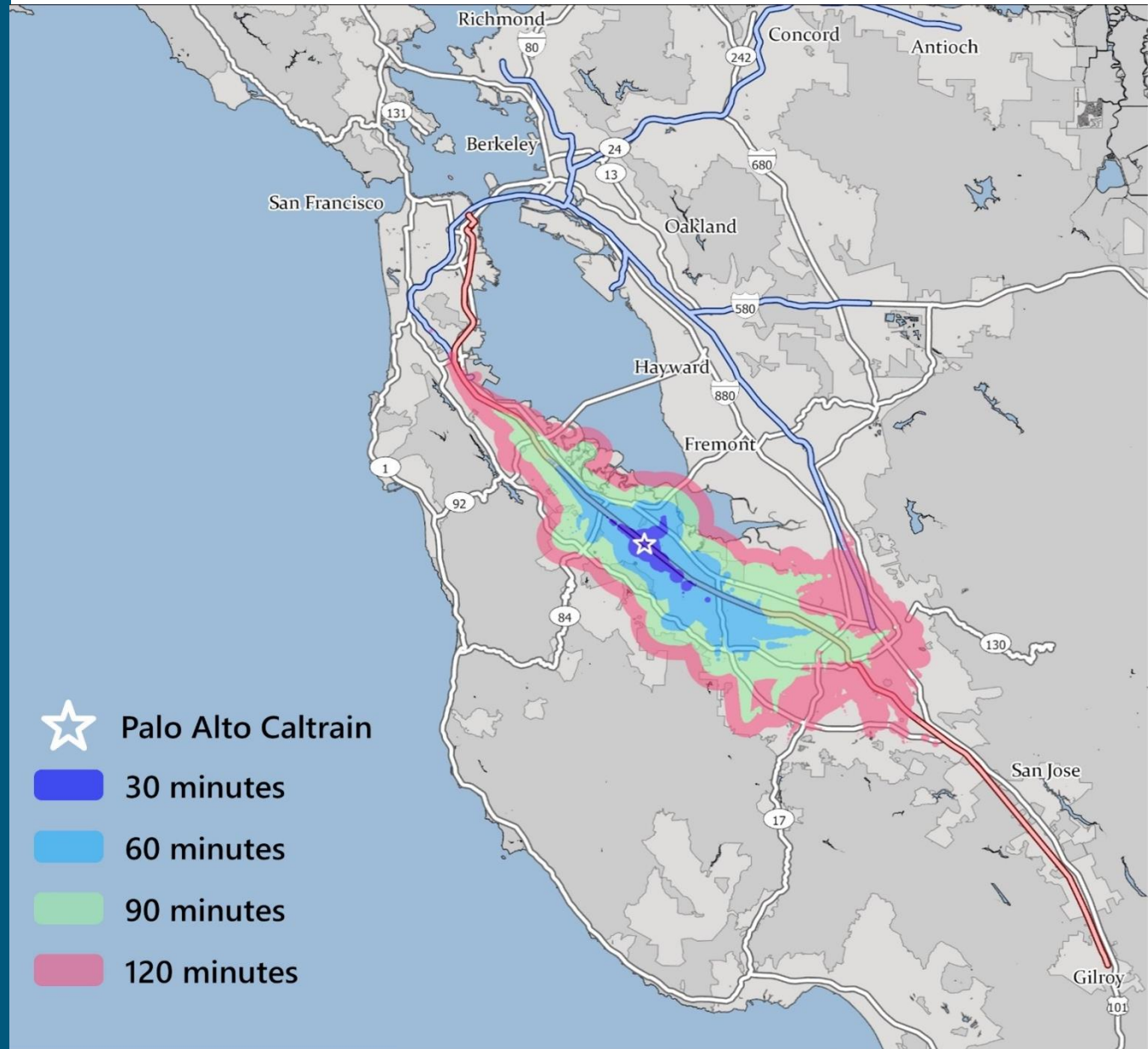
The map at the right shows how transit access for Palo Alto Station would change if Caltrain were shut down and passengers only had access to bus and connecting services. The table below quantifies the loss of access to bay area residents within a 60-minute travel shed.

60 Minute Travel Shed

	Proposed Base Service Pattern	Service Shut Down	% Difference
People Served			
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

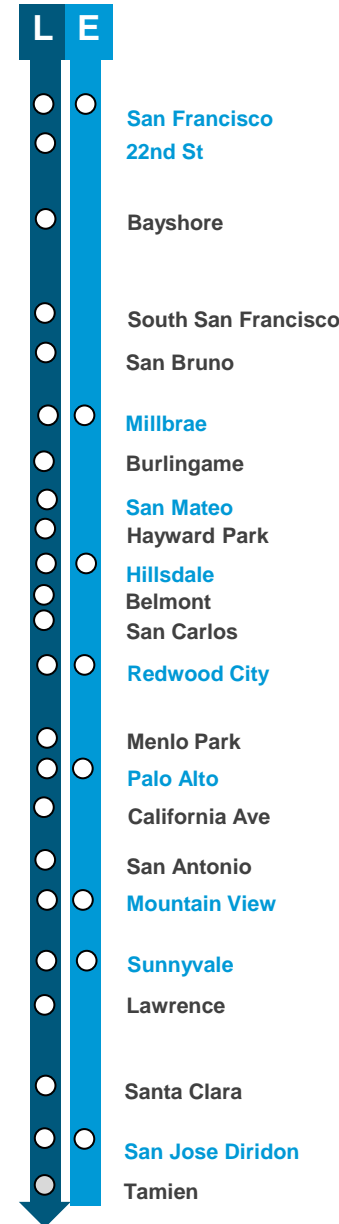
- One express train and one local train per hour
- 9 stations receive two stops per hour, *but headways vary between 10 and 50 mins*

Limited Pattern

- Two limited stop trains running at similar travel times in a skip-stop manner
- 9 stations receive two stops per hour *at even 30-minute headways*

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



South County

Ridership south of Tamien is currently at roughly 50 passengers per day. Proportionally, this mirrors the ridership decline for the system as a whole.

Overall recommendation is to provide two roundtrips per day south of Tamien – this maintains the current level of service

South county service would be increased as ridership recovers - up to an eventual 4 roundtrips per day.

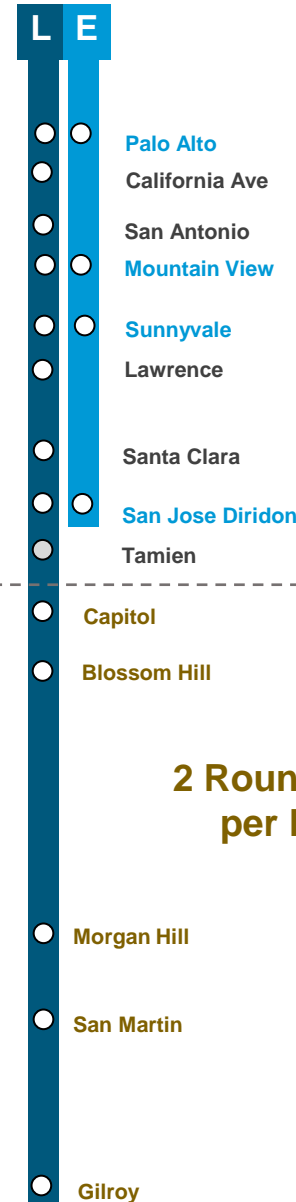
Local/Express Pattern

- 2 roundtrips to Gilroy per day
- Local service (most riders are traveling within Santa Clara County)

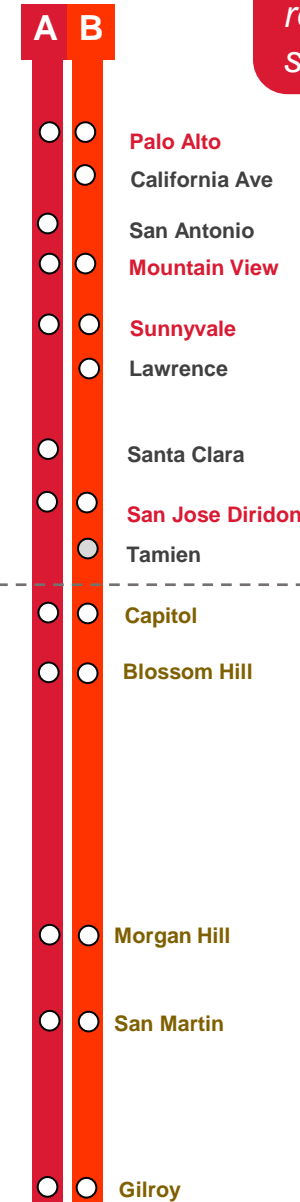
Limited Pattern

- 2 roundtrips to Gilroy per day (one on each pattern)

Local/Express



Limited



2 Roundtrips
per Day

Stopping patterns shown are preliminary recommendations and subject to change



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**



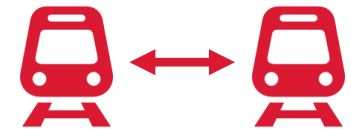
**2019
Ridership
& Triennial
Survey**



Equity



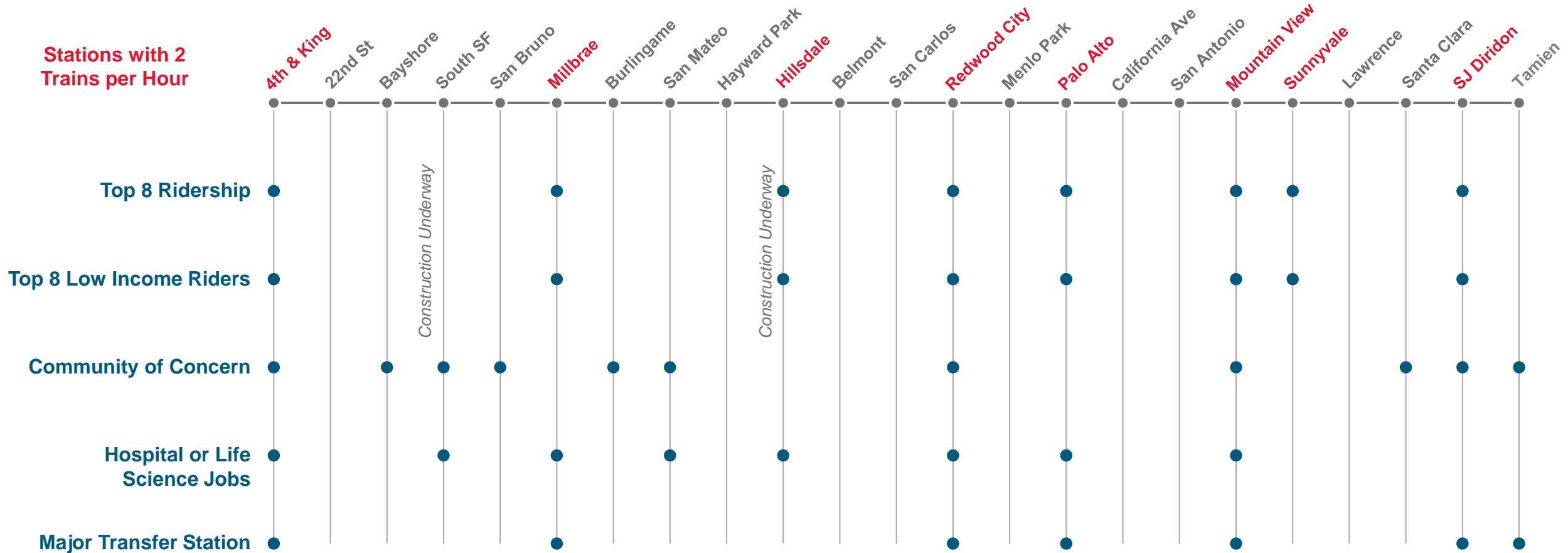
**Essential
Workers**



**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

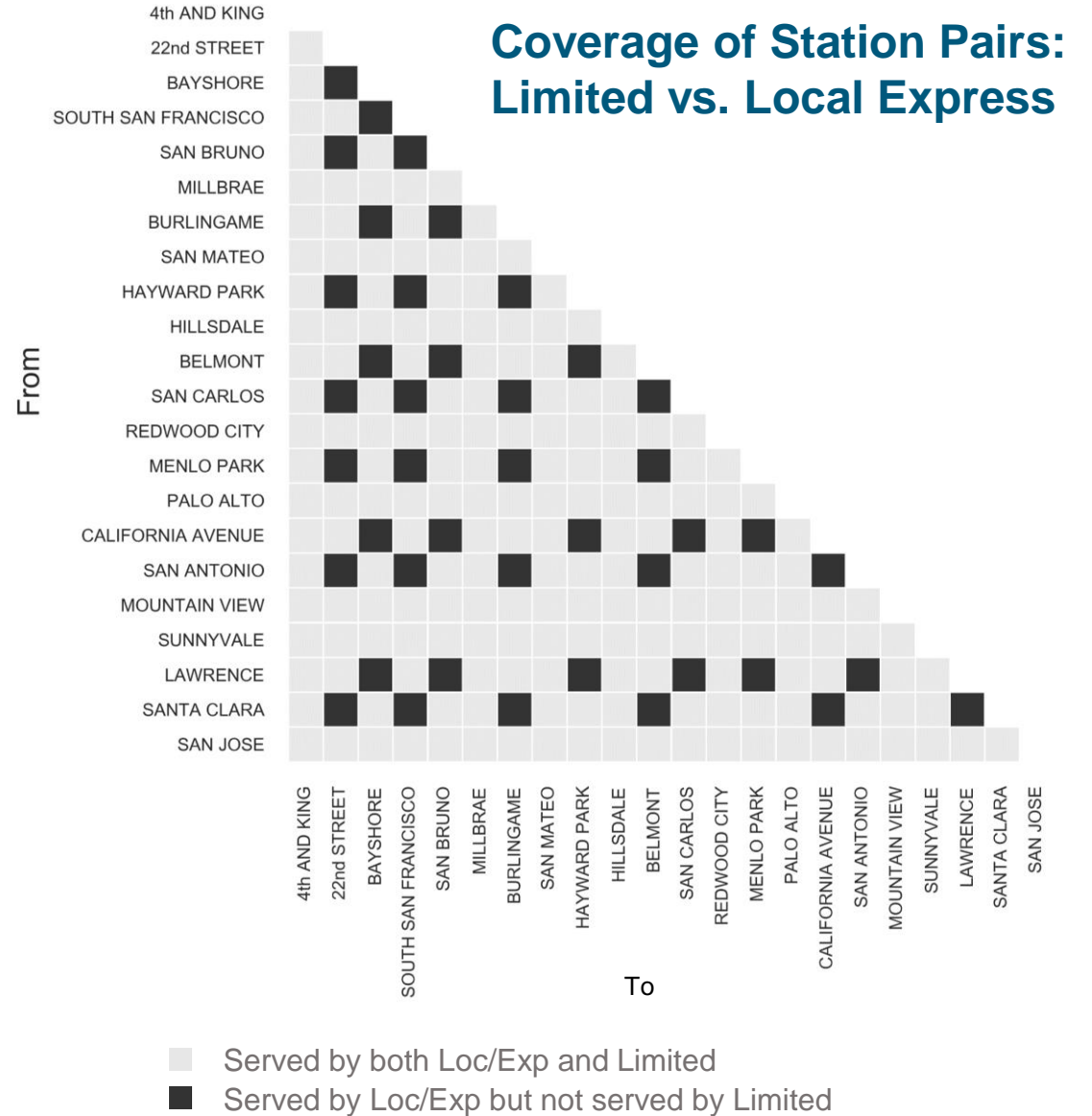
Local/Express provides fast travel times between major stations and slow travel times everywhere else

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.

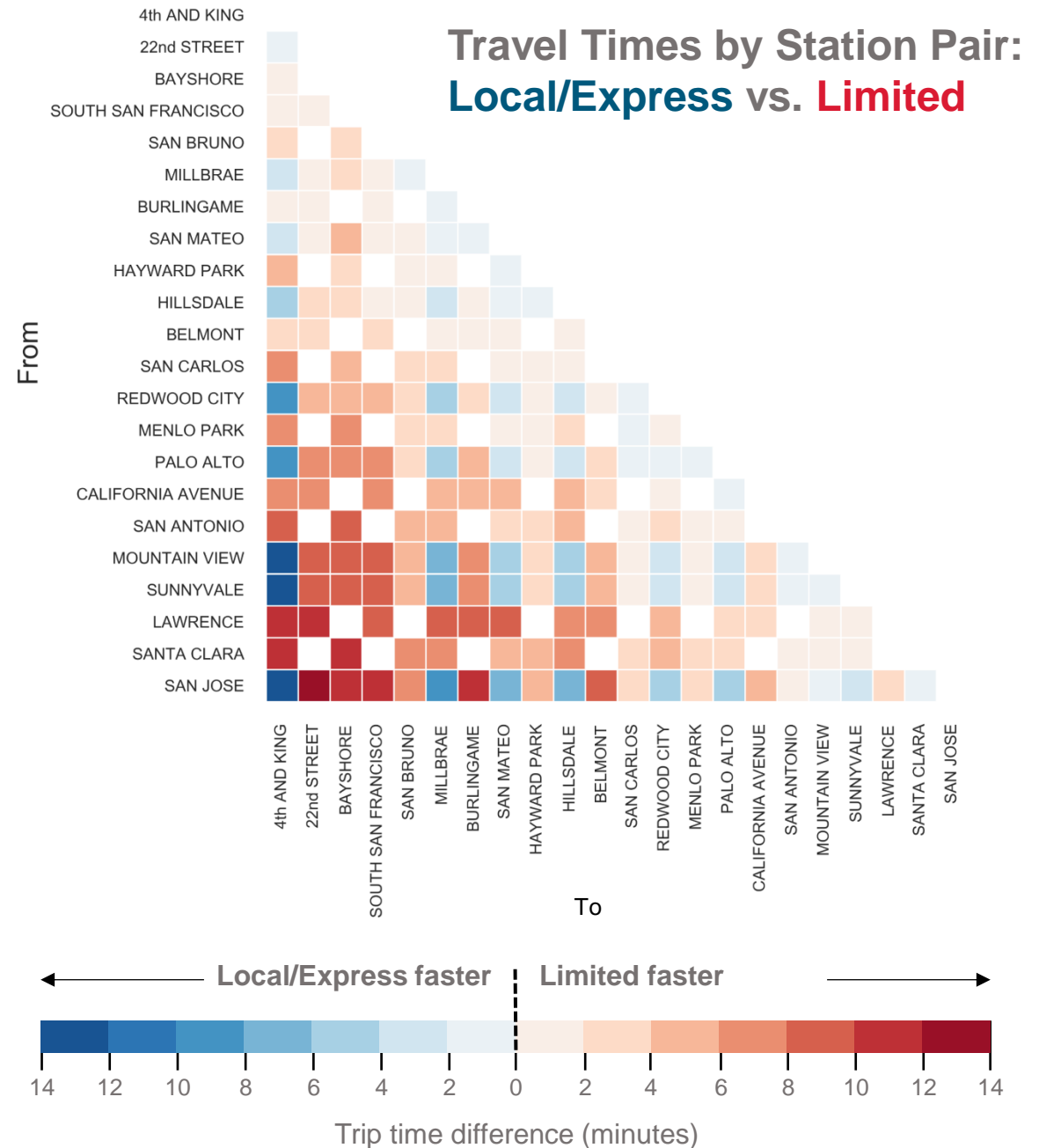
Local/Express would serve 100% of riders and station pairs.



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 th & King	65 or 91	79	
Palo Alto-San Mateo	17 or 25	21	
Diridon-Palo Alto	23 or 32	27	
Menlo Park-Millbrae	29	25	
Lawrence-Millbrae	53	45	
San Carlos-4 th & King	45	38	
Palo Alto-4 th & King	41 or 58	50	
Lawrence-4 th & King	79	68	



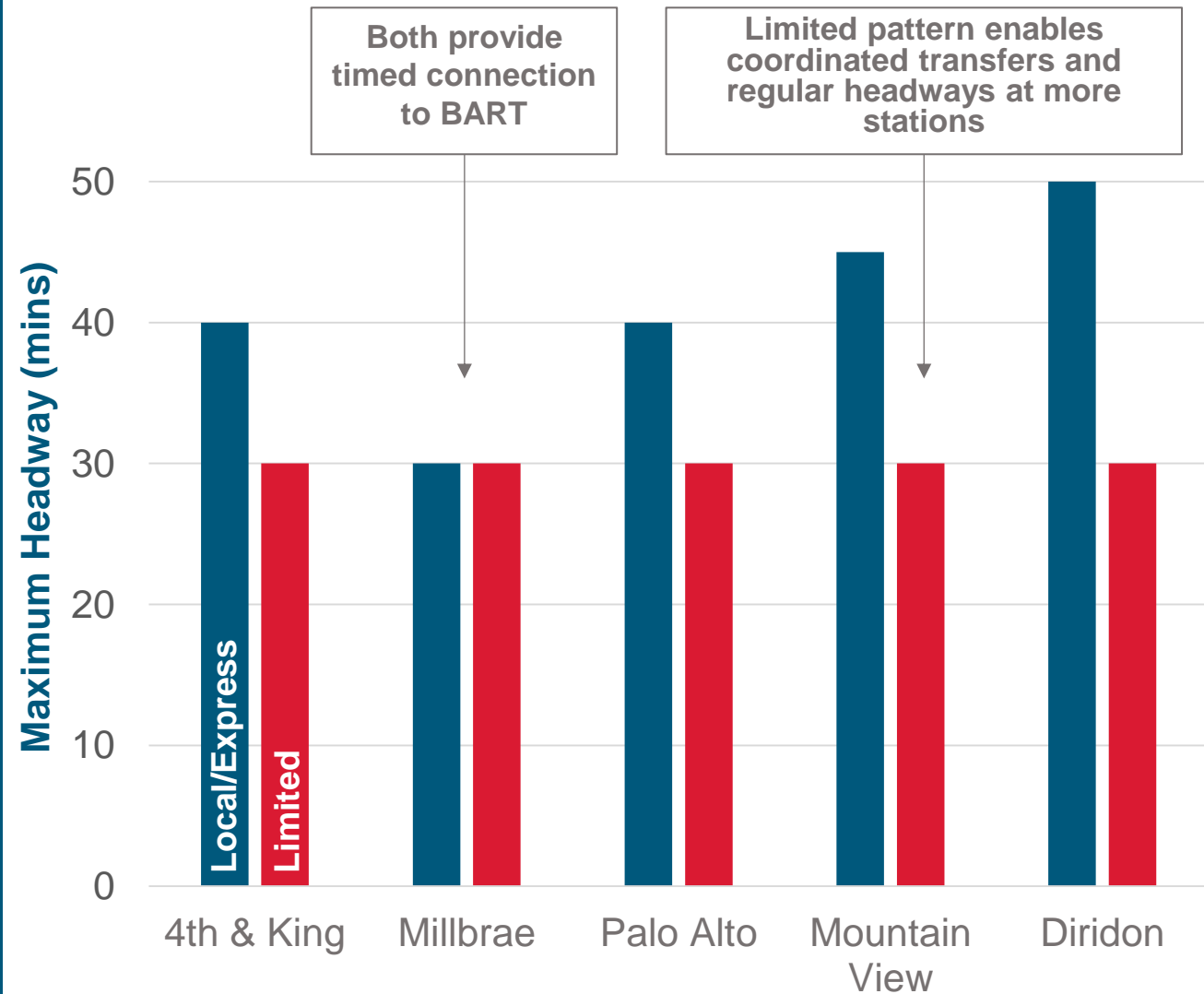
Headways & Connectivity

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.

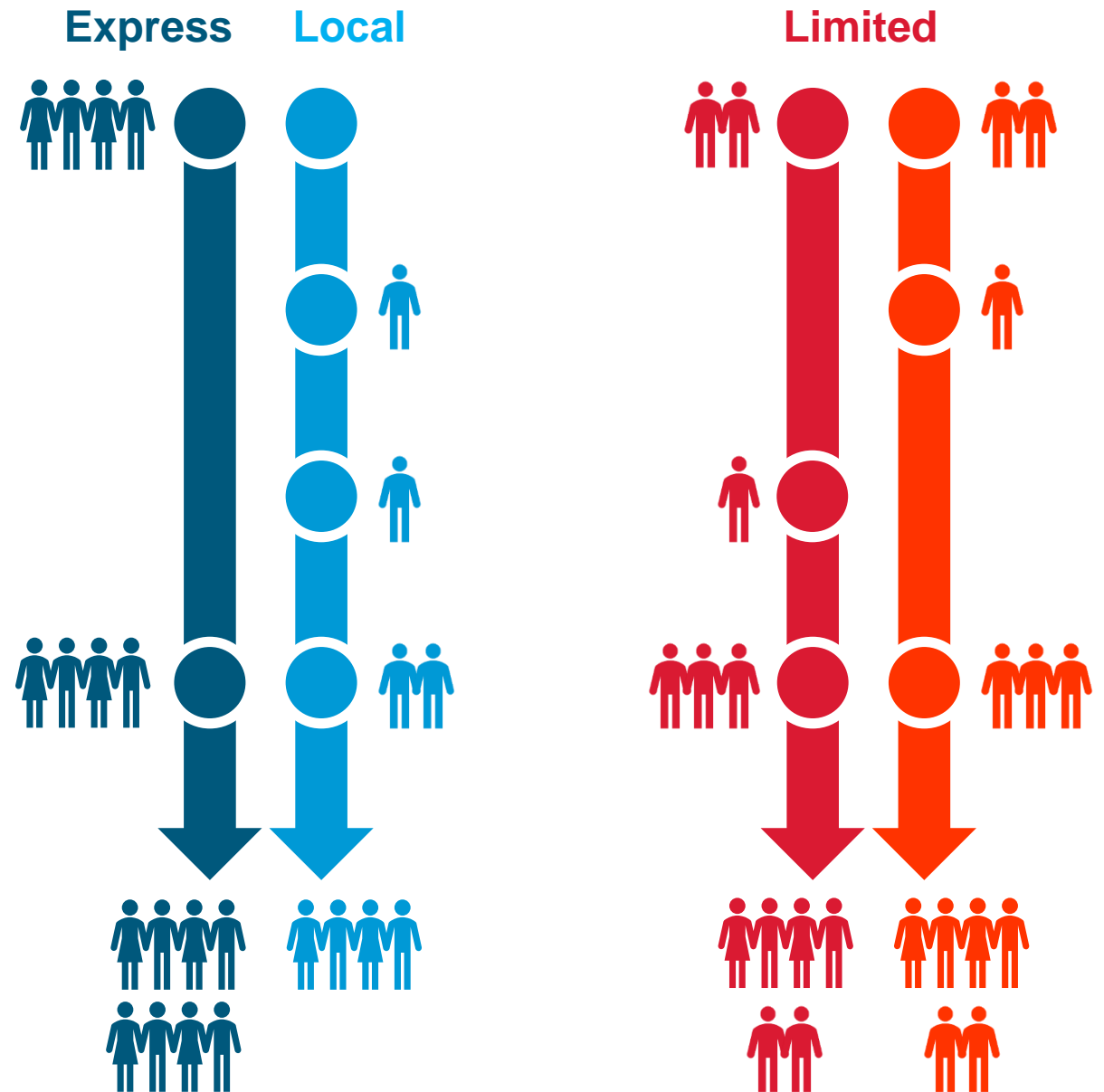
Local/Express provides variable headways of up to 50 minutes, which makes coordinating transfers more challenging.



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.

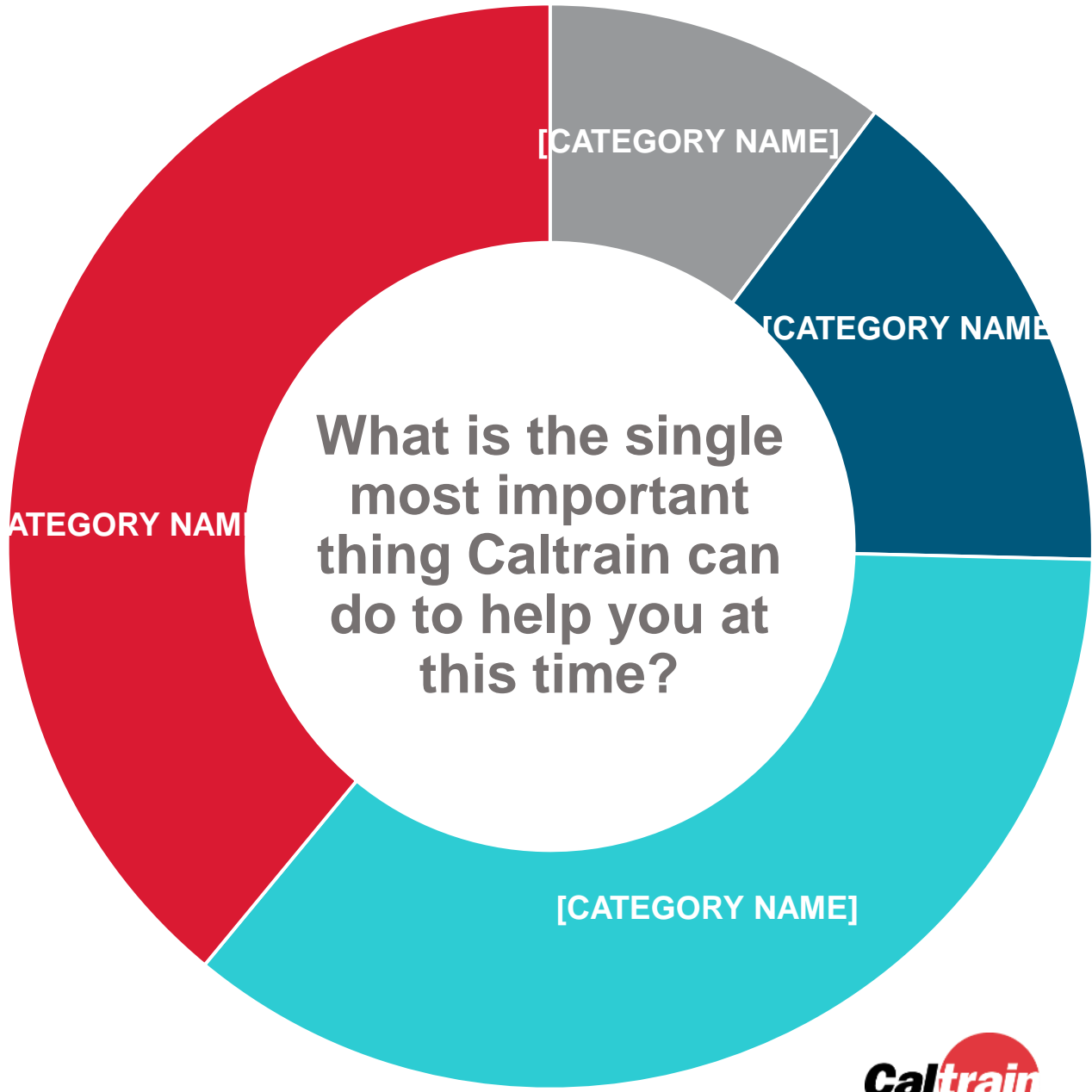
Skip Stop balances passenger loads by maintaining even headways and similar travel times.



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

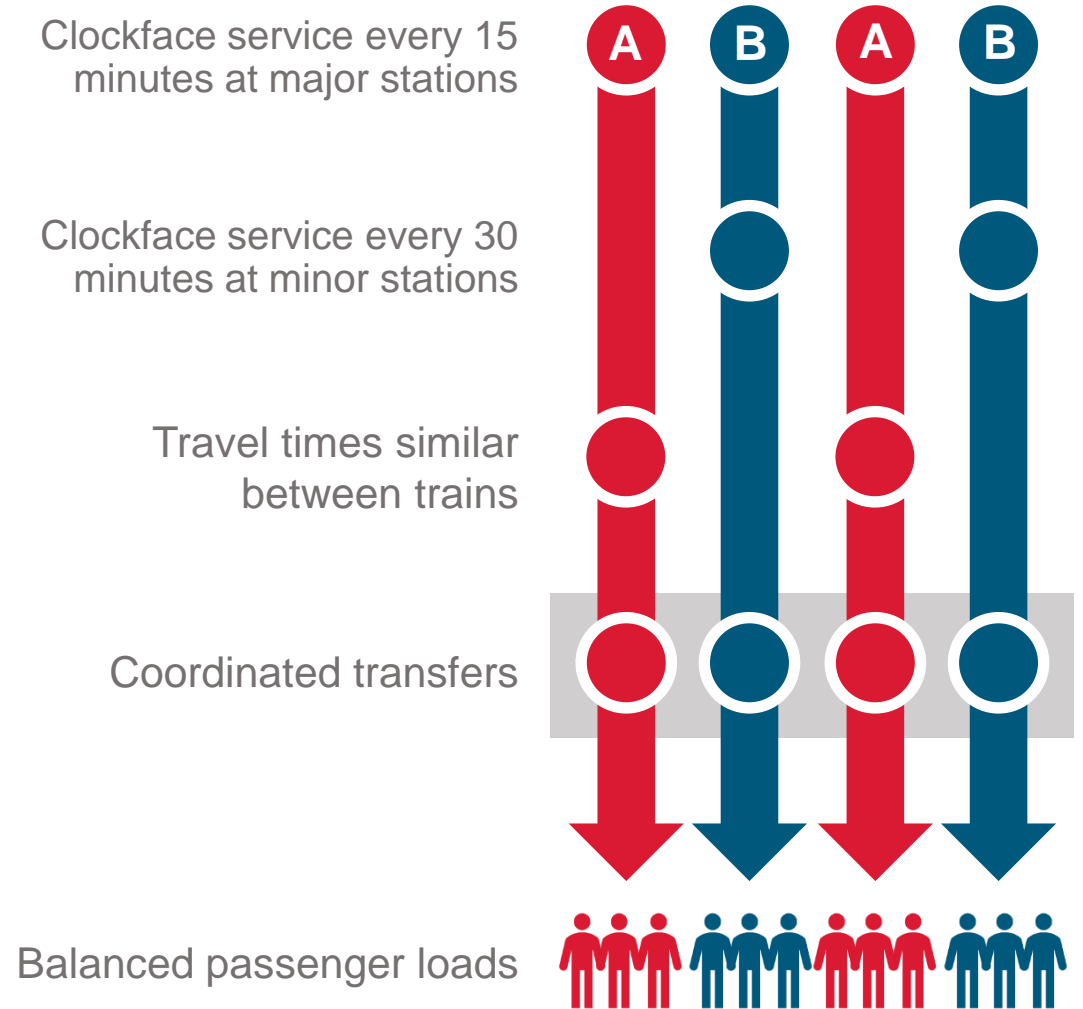
Scaling Up:

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



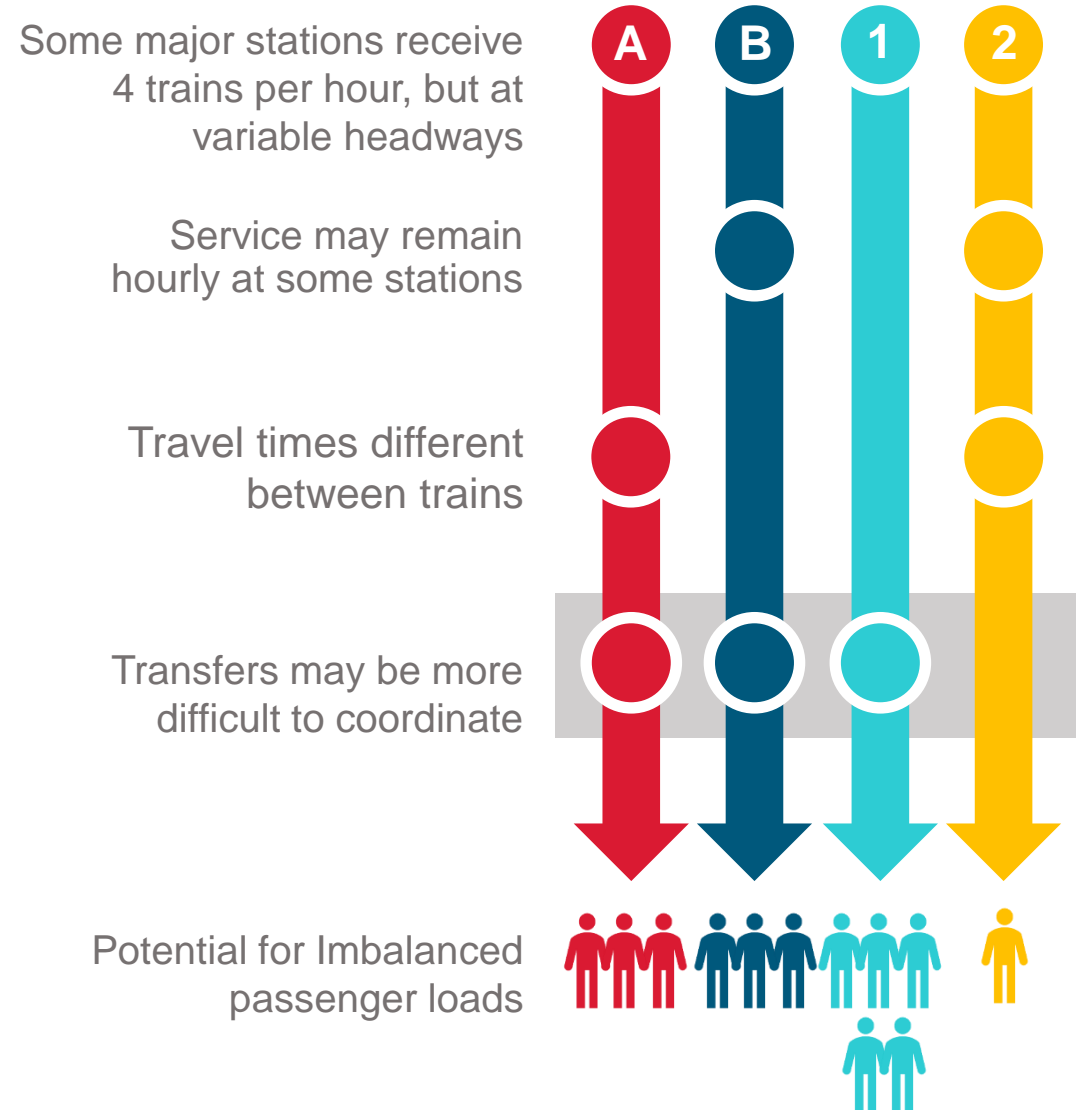
Scaling Up:

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

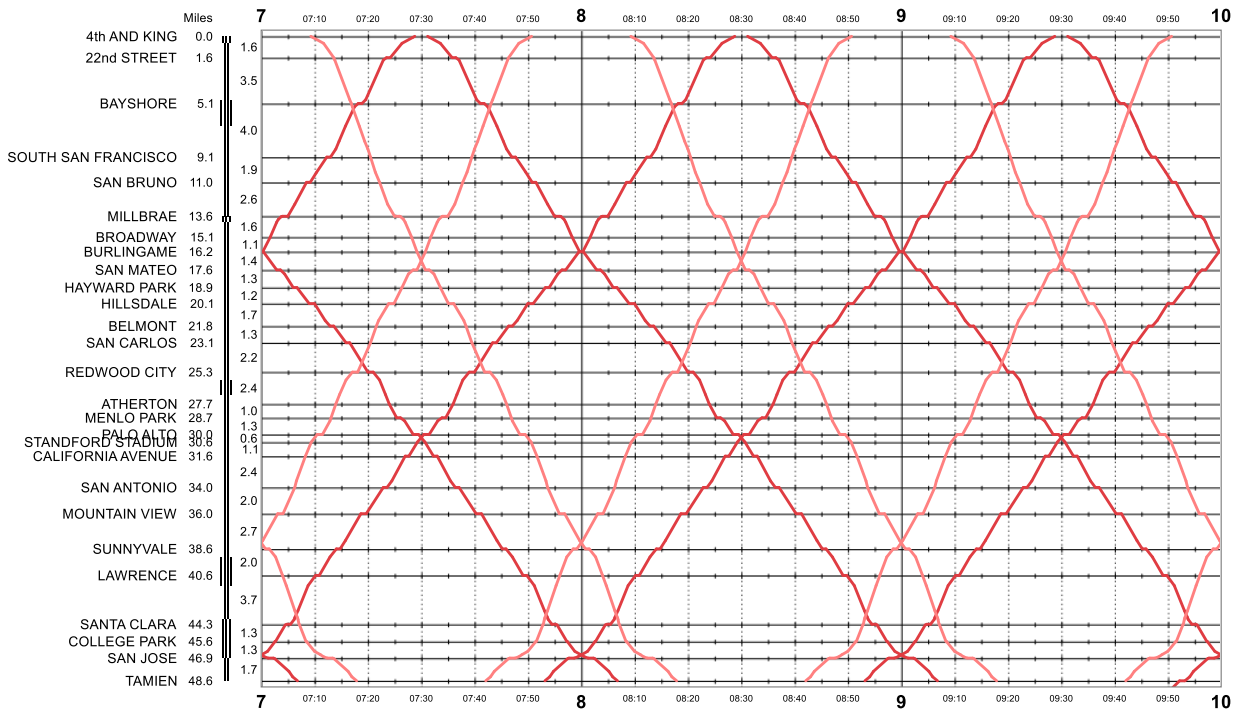
- Continue refinement of schedule and stopping patterns
- Complete financial analysis related to crewing and equipment utilization
- Coordinate with connecting and partner operators (BART, CCJPA, ACE, SFMTA, SamTrans and VTA)
- Solicit feedback from JPB, CAC and other stakeholder groups
- Confirm date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

