

# Muni Metro Capacity Study Draft Recommendations

September 2025





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# Welcome!

Thank you for joining this virtual open house for the Muni Metro Capacity Study. Here, you can learn more about the Study and our draft recommendations. You may also give us feedback. We will use this input as we work to develop a program of capital projects to expand Muni Metro capacity and address state of good repair over the next 10-15 years.

Provide your input via [our feedback form](#) by Sunday, October 19, 2025. You can also email the project team to provide feedback or request a presentation to your group at [TellMuni@SFMTA.com](mailto:TellMuni@SFMTA.com).

## What is the Muni Metro Capacity Study?

Muni Metro is experiencing both aging pains and growing pains. Much of the Muni Metro system's infrastructure is old and in need of replacement. At the same time, we are experiencing crowding in some portions of the system today. And we want to be prepared to handle higher ridership in the future, if needed.

The Study's goal is to develop a program of capital projects for the next 10-15 years. These projects would allow us to expand our system capacity. They would be combined with maintenance work to replace old Muni infrastructure. We refer to this maintenance work as "state of good repair."

This capital program will require funding. To secure funding, we aim to make it competitive for the Federal Transit Administration's Core Capacity grant program. This program has provided grants topping \$1 billion for transit systems like Muni Metro.

Modernizing Muni Metro by preparing a Core Capacity grant program was recommended in San Francisco's long-range transit vision, called the [ConnectSF Transit Strategy](#). The Muni Metro Capacity Study is focused on optimizing our existing Muni Metro system for this purpose. However, the ConnectSF Transit Strategy also identifies the need to build new rail lines in San Francisco, including extending the Central Subway and building a new subway under Geary and 19th Avenue.

*Note: In this Study, we use the term "capacity" to mean whether or not there is enough room on the train for everyone who wants to ride. If a train is very crowded, some riders may get passed up by a full train and have to wait for the next one. This Study focuses on identifying what we need to do so there will be enough room for riders in the future and no one gets passed up.*

# Study overview

## Muni rider needs

Muni Metro serves approximately 100,000 riders daily. We are working to address Muni Metro rider priorities through our Study's recommendations. We have heard rider needs through our Study's outreach as well as other SFMTA outreach.

### Riders want:



To know that what the train arrives,  
**there will be enough room for them to get on**



A well-maintained system that  
**won't unexpectedly break down and cause delays**



System to be **accessible for everyone**, including for people in wheelchairs, with strollers, or rolling luggage



System that is a **testament to our city's environmental values**



System that contributes to equity, ensuring it **meets the needs of historically underserved neighborhoods**

## The unique challenge of a 100-year-old system

Muni Metro's historical legacy affects how we envision the future. Muni Metro is one of only a handful of "legacy" systems in the country. Much of the system's origins date back over a hundred years. Muni Metro, as we know it today, was born in the 1970s. This is when Muni's streetcar lines began running in the Market Street subway. This unique history means Muni Metro is different from newer Metro systems. This includes operating on narrower streets. It also includes operating light-rail vehicles with moveable stairs.



*Figure 1: First day of revenue service in the Muni Metro Subway with passengers. Boeing Light Rail Vehicle on N Judah in Powell Subway Station, February 1980*

**Operating on narrower streets.** Some portions of the system operate on narrow streets and tight curves. The small streetcars that ran 100 years ago could navigate these conditions easily. But streets like these would not have been selected for today's larger, modern trains. These must adhere to modern standards for accessibility.



Figure 2: N Judah on 9th Avenue and Judah, October 18, 1940



**Light rail vehicles with stairs.** When the Market Street Subway was constructed, light rail vehicles with low floors were not commonly available. Subway platforms were built for vehicles that were higher above the ground. But we did not build platforms for all the stops at street level. This means our trains have to lower their stairs at street level and raise the stairs inside the subway. On much of the street-level stops of the system, riders must climb stairs to get on board.



Figure 3: Boarding at N Judah Stop in Inner Sunset, September 17, 2021

**Ramps for accessible boarding.** To make Metro stops on the street accessible for people of all physical abilities, we build ramps. These ramps take up street space. Sometimes, there are already driveways on the street and many of our streets are narrow. This makes ramps difficult to build at every Metro stop. The result is a system that is not fully accessible.



*Figure 4: L Taraval mini-high ramp for accessible boarding, September 13, 2024*



**Implications for the future.** The Study analyzed potential benefits of moving to a fully low-floor fleet in the future. It also looked at the significant construction impacts and resulting service impacts of lowering the subway platforms. This makes for a different calculus than if we were designing a system from scratch. You will see this in our recommendations. They have been informed by the constraints introduced from our legacy past.



*Figure 5: Example of low-floor streetcar in Portland, OR*

## Muni Metro today

As of 2025, Muni Metro is the fourth-busiest light-rail system in the nation. It's the second-busiest transit corridor in the Bay Area. Prior to the pandemic, overcrowding was common on Muni Metro. Riders often experienced slow, congested trips in the Market Street subway.

Currently, Metro ridership is at about 60% of pre-pandemic levels. As a result, we've been able to run less Metro service and still meet demand. This has also reduced Metro subway congestion and delays.

Muni Metro ridership has been growing each year since the pandemic. Now we are starting to see overcrowding again, particularly on the N Judah.

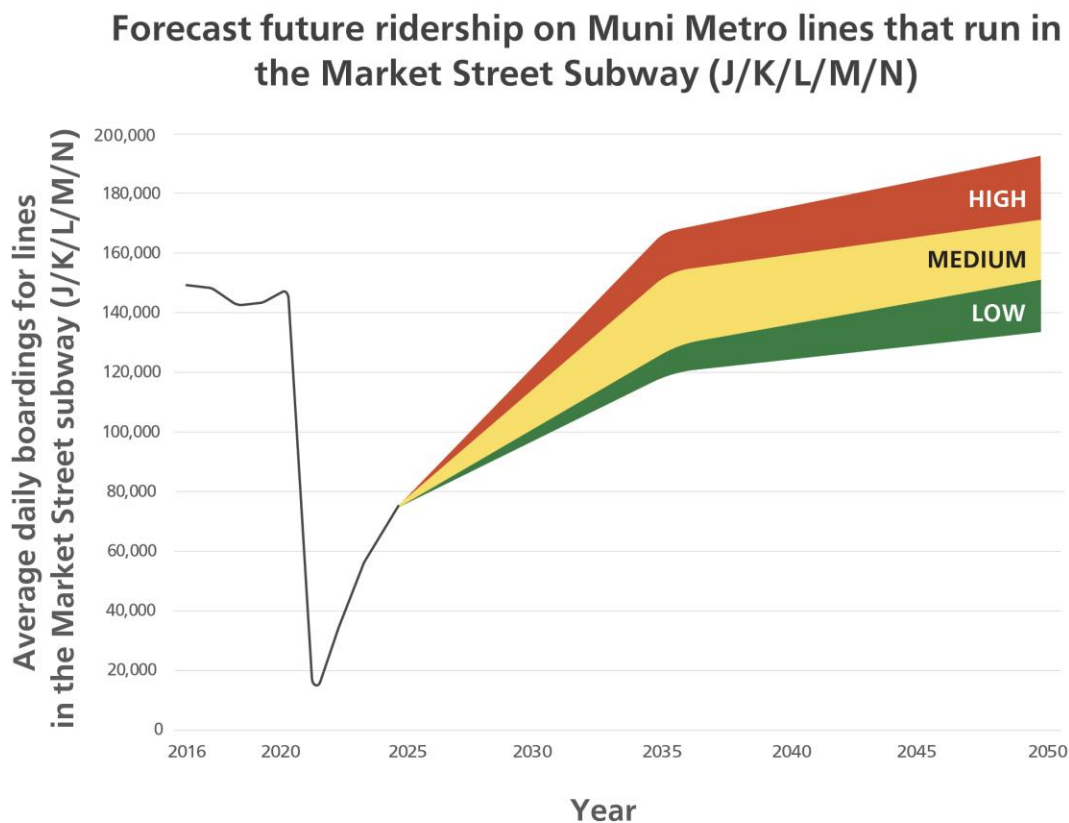


Figure 6: Crowding on the N Judah, 2024

## In the future, ridership will grow. We need to be prepared with the right investments.

More people and jobs are anticipated in San Francisco in the future. This growth could generate significantly more Muni Metro riders in the future.

We don't know how quickly growth will happen or when post-pandemic recovery will stabilize. That's why we looked at low-, medium-, and high-potential growth scenarios. This helps us to understand what mix of investments we may need to make. We want to ensure there is enough room on Muni Metro for future riders. Additional details on future ridership forecasting methodology is available in the appendix linked at the bottom of this document.



*Figure 7: Historical data is based on Automated Passenger Counters that collect boardings data on board light-rail vehicles.*

## Positioning for federal funding designed for systems like Muni Metro





The Muni Metro Capacity Study will identify a program of capital projects to ensure there is sufficient capacity for projected future ridership growth. This program would compete for a federal Core Capacity [Capital Investment Grant](#). The grant could provide \$1 billion or more that we could use to expand capacity. This is funding we critically need.

This grant is administered by the Federal Transit Administration (FTA). It is perfect for systems like Muni Metro. Our system has aging infrastructure overdue for replacement. We also need to expand capacity for growing ridership at the same time.

Right now is a challenging time for Muni. We are working to address a [financial crisis](#) so we can keep running Muni. It might seem strange to do a long-range study like this one in the midst of this crisis. But, we do not want near-term challenges to stop us from doing the long-range planning that we need. Grant opportunities like the Core Capacity program can take five or more years from application to grant. That's why we are doing this planning work now.

*Note: Many transit systems have plenty of capacity at most parts of the system and at most times of day. "Core capacity" refers to the parts of the system where more capacity is needed. These locations are typically where crowding is worst, are near major destinations like downtown, and are where multiple lines converge. For Muni Metro, our core capacity needs are most significant in the Market Street subway.*

These are some of the types of old Muni Metro infrastructure in need of replacement. We are investigating these for inclusion in a Core Capacity capital program.

Old infrastructure in need of replacement		Modern capacity-enhancing equivalent
 <b>Old track supported by tie-and-ballast</b> (ballast rock)	➔	<b>New track embedded in concrete</b> (direct fixation), designed to accommodate 3-car trains at higher frequency
 <b>Old traction power system</b> that was designed to run two-car trains	➔	<b>New upgraded traction power system</b> with more powerful substations designed to power 3-car trains at a higher frequency
 <b>Old standard switches</b> that allow a train to switch from one track to another	➔	<b>New upgraded switches</b> that allow trains to switch tracks at higher speeds
 <b>Old train control system</b> operating via floppy disk	➔	<b>New train control system</b> using modern technology (i.e. the Train Control Upgrade Project) and capable of reliably delivering more trains per hour in the Market Street Subway



## Future crowding

We expect that if Muni Metro frequency remains at today's levels, there would be overcrowding. This would happen in the Market Street Subway, the Twin Peaks Tunnel, and on portions of the N Judah and J Church. This would happen in the next 10 to 15 years, even in our lowest ridership growth scenario.

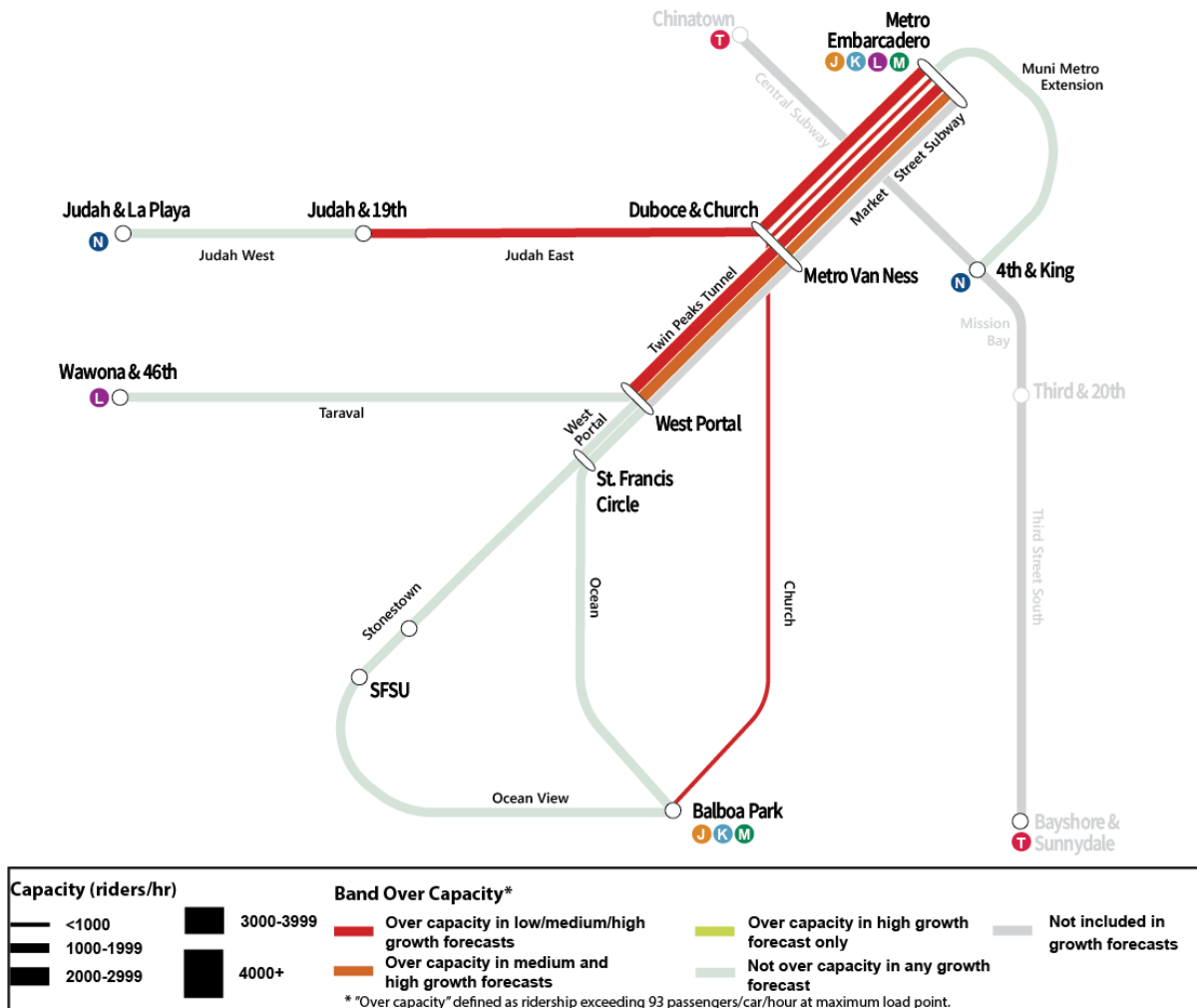
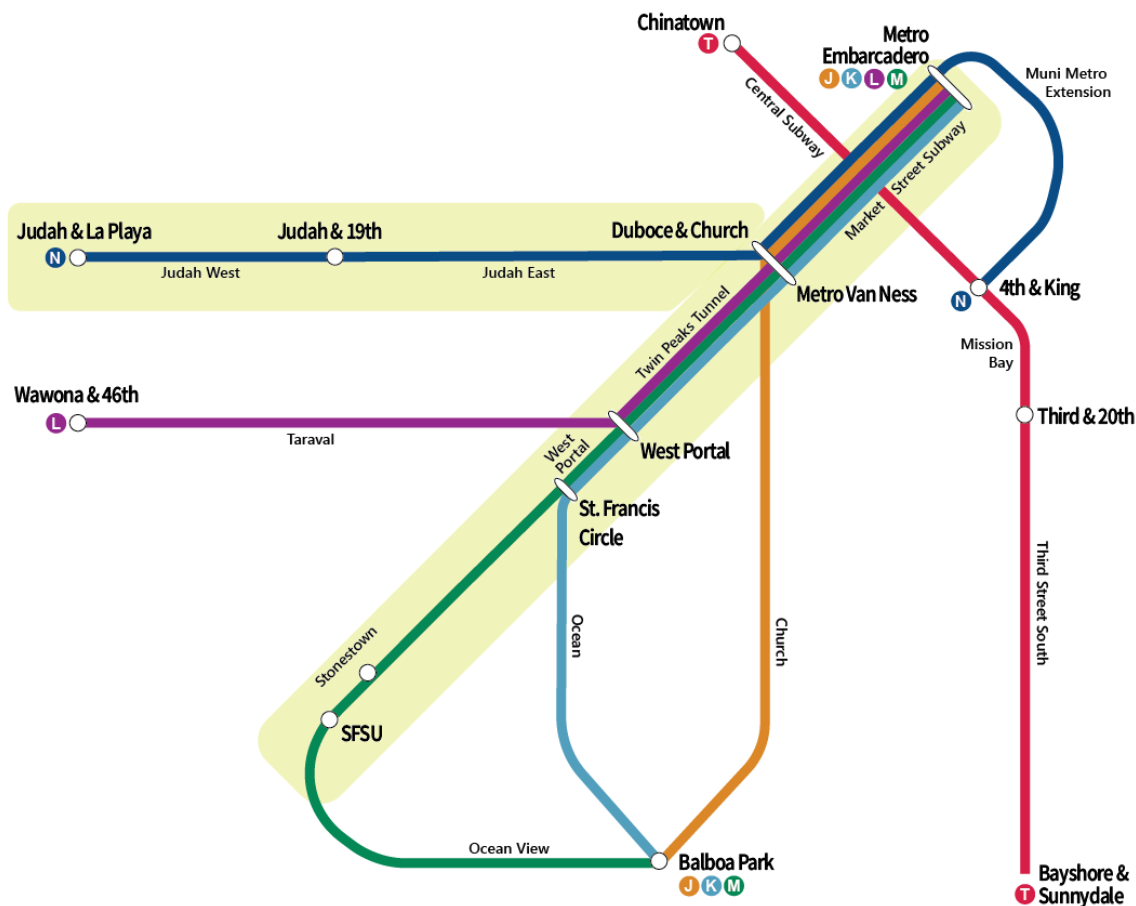


Figure 8: Forecast crowding in the next 10-15 years. This analysis assumes a planning capacity of 93 passengers per light-rail car.

## Where we need to invest

We have developed a draft recommended capital investment program to address this future overcrowding. It would focus on the Market Street Subway, Twin Peaks Tunnel, N Judah and the M Ocean View between West Portal and SF State. Investments along the M Ocean View corridor would help address overcrowding in the Twin Peaks Tunnel and the Market Street subway.

In addition, we would increase frequency to prevent overcrowding. We also would use other operational strategies throughout the rest of the system. For example, the forecast increase in overcrowding on the J Church could be addressed through increases in frequency. Together, these capital and operational strategies could solve our future capacity needs. This is true for all three growth scenarios.



## Draft recommendations

The draft capital program would include the following elements.

*Some of these strategies may not be needed if ridership is within the lowest future forecast. We recommend conducting additional planning and project development to ready these strategies for future consideration.*

- **Upgrade old infrastructure to add capacity.** This may include new light rail track, overhead wires and traction power.
- **Expand infrastructure that prioritizes transit.** This includes transit lanes, expanded signal priority, and signal pre-emption. It also could include crossing gates at select locations.
- **Upgrade infrastructure to accommodate three-car trains** on the N Judah and between SF State and downtown, including
  - **Boarding infrastructure for three-car trains**, including upgrades to station accessibility.
  - **Infrastructure to provide flexibility for different service patterns in the future.**

## Next steps

We want to tell you more about why these investments are recommended. But before we do, we want you to know that this is just the beginning. We are just starting to define potential future projects. First we would complete this Muni Metro Capacity Study. Then, specific projects would have to be developed further in partnership with the affected communities.

The SFMTA would launch separate projects for the N Judah and M Ocean View. Each would include planning and outreach to co-create block-by-block designs. These processes would also provide the opportunity to identify improvements to address broader community priorities.



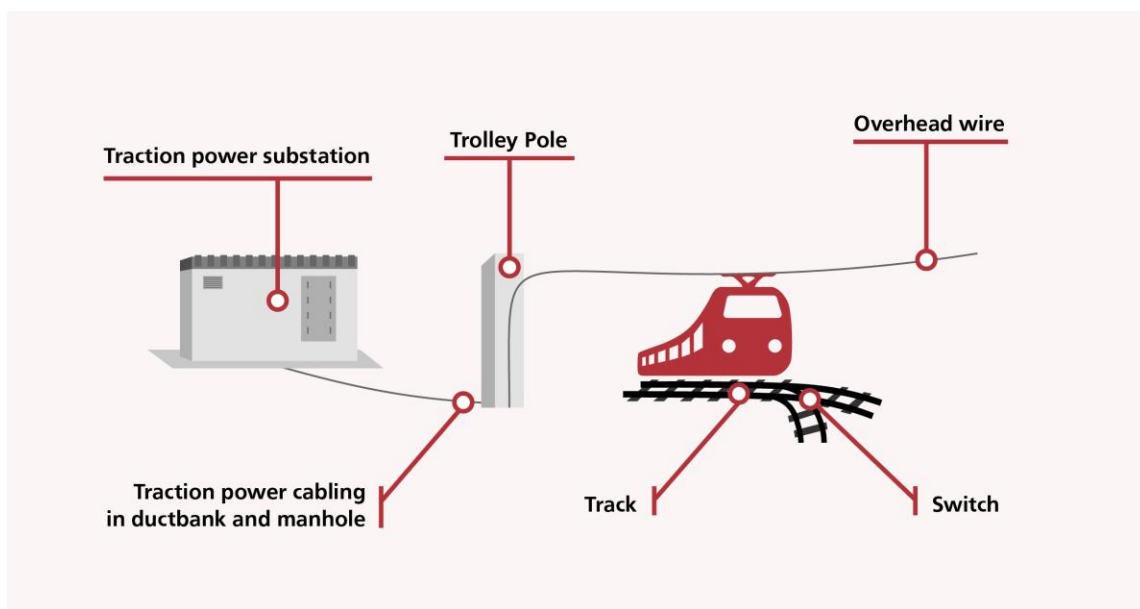
*Figure 9: Investments recommended by the Study would undergo additional community planning to co-create designs before seeking future approvals.*

## Upgrade old infrastructure to expand capacity

Both the N Judah and the M Ocean View have old light rail track that is at the end of its useful life. We anticipate installing new rail on the N Judah west of Arguello in the 2030s and on the M Ocean View a few years later.

Projects like these give us a timely opportunity to install modern, capacity-enhancing infrastructure. This is rather than simply replacing the existing, outdated infrastructure. We would need to complete more work to confirm the scope of these projects. Capacity-enhancing components could include:

- Modern track embedded in concrete
- New or upgraded traction power substations
- Upgraded switches
- Re-alignment of track



*Figure 10: Examples of capacity-enhancing infrastructure for the N Judah and M Ocean View. These could potentially be incorporated into future rail replacement projects.*

**Benefits:** We can attract more funding if we enhance capacity when we replace old infrastructure. This would allow us to address our backlog of infrastructure beyond the end of its useful life. Identifying this funding is critical. This affects our ability to deliver Metro service our riders rely on.



**Challenges:** Replacing old infrastructure is critical to keep Metro running reliably, but is expensive and disruptive. The L Taraval Improvement Project is a recent example of replacing old infrastructure like rail and overhead lines. The SFMTA's approach to construction mitigation is always evolving to respond to what we learn from past projects.

## Expanded infrastructure that prioritizes transit

Transit priority refers to changes to the street that improve transit speed and reliability. Muni Forward is our Transit Priority Program. We recommend continuing to apply the Muni Forward program's toolkit to on-street Metro locations that do not yet have these types of treatments. This includes consideration of transit lanes and transit signal priority where they are not yet in place. In addition, we recommend considering upgrades to more signals to provide transit signal pre-emption. We also recommend considering crossing gates at select locations.

*Note: "Transit signal priority" and "transit signal pre-emption" are both types of technology that make it more likely for trains and buses to get green lights. Pre-emption is a stronger form of priority. The Study recommends expanding these technologies. In the meantime, we continue to work to optimize locations that have this technology today.*

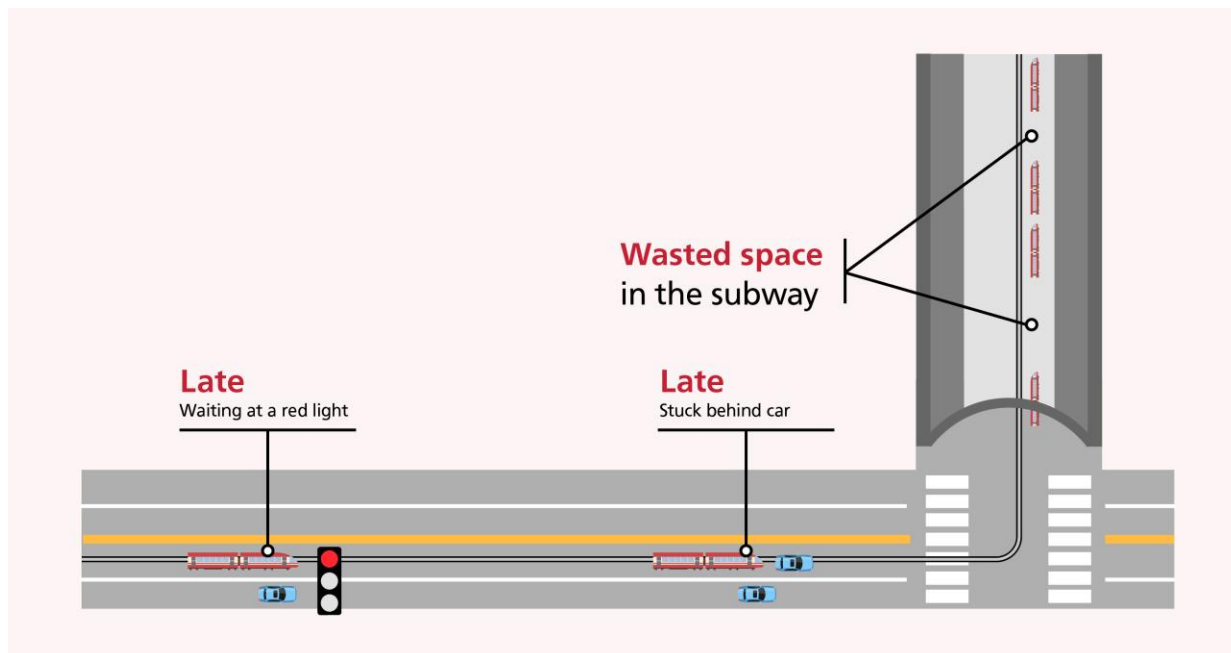


Figure 11: Today, Muni Metro's capacity is between 80 and 95% of what might be possible with perfect reliability. That's because transit priority treatments are not already in place in some parts of the system. Muni Metro trains sometimes run late in these locations

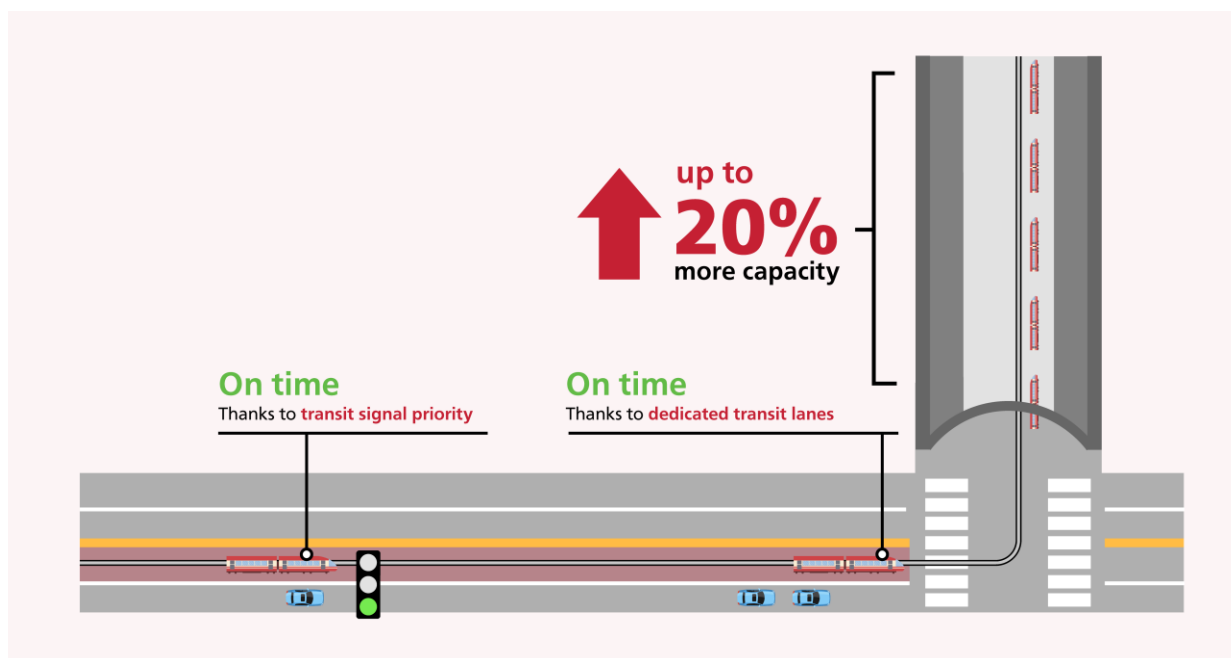
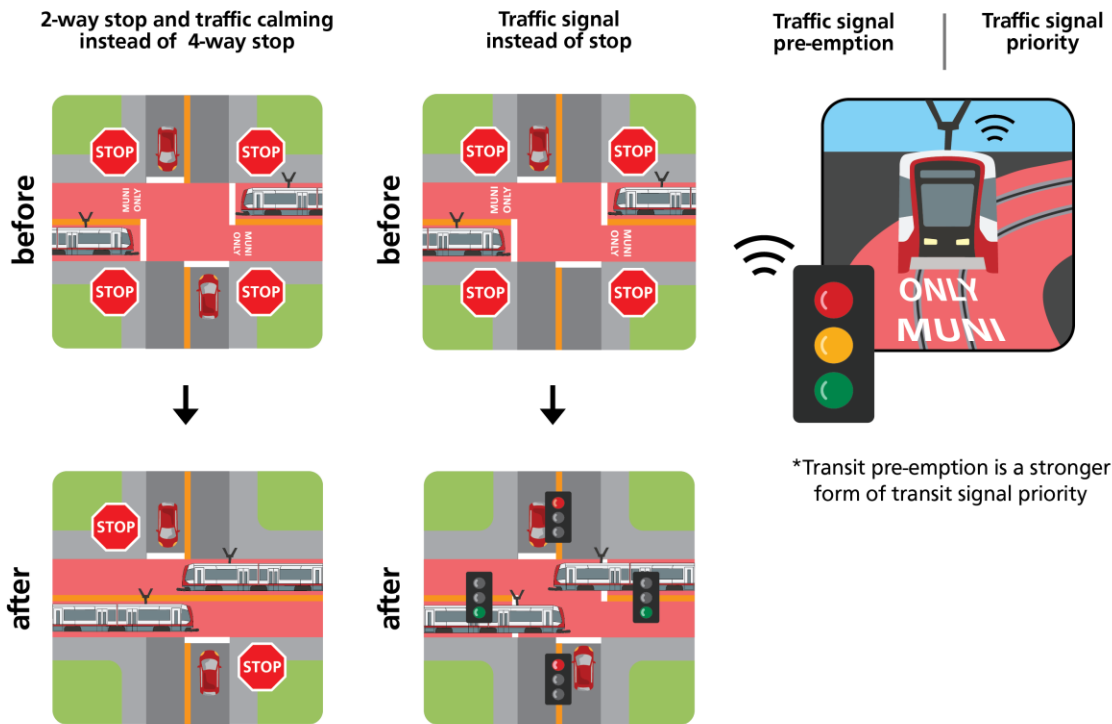


Figure 12: Transit priority investments help keep trains running reliably. They make trains more likely to arrive at tunnel entrances on time. On-time arrivals allow us to use all the available space within the busiest subway portions of the system.

## Increasing priority for transit at intersections



## Increasing priority for transit on the street



Figure 13: Much of Muni Metro already benefits from some transit priority. At the same time, opportunities exist to expand priority. Upgrades like these could be considered at locations that do not yet have them.



*Figure 14: Crossing gates may help improve the safety of transit signal pre-emption. Particularly, at unusual intersections where cars may be surprised by a stop light. A few examples are where the M Ocean View crosses Eucalyptus Drive, Ocean Avenue and 19th Avenue at Rossmoor Drive. This image is an illustration of possible upgrades at Ocean Avenue (existing conditions at top), including crossing gates.*

### **Benefits:**

Transit priority investments help keep trains running reliably. They make it more likely for trains to arrive at tunnel entrances on time. On-time arrivals help us use every slot available within the busiest subway portions of the system.

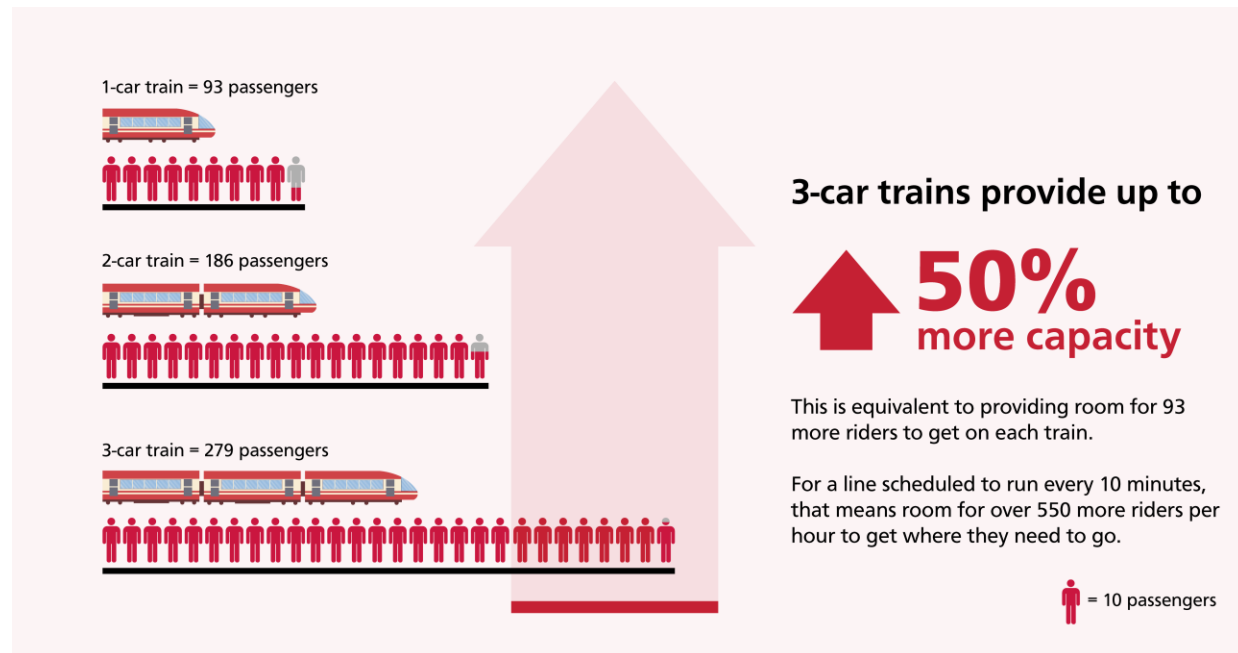
**Challenges:** Some transit priority infrastructure creates tradeoffs. For example, new transit lanes are created by repurposing other street space uses. These could include general travel lanes or parking.



Some forms of transit priority at intersections keep Muni Metro moving quickly. But people walking, biking and driving may have to wait a bit longer while trains pass. We may pursue crossing gates at some locations. If we do, they introduce a new equipment type for SFMTA to operate and maintain. These may require lane shifts and capital construction in some locations.

## Upgrade infrastructure to accommodate three-car trains

We recommend continuing to study upgrades to be able to operate three-car service in the future. We recommend pursuing upgrades for three-car service on the N Judah, as well as on the M Ocean View between SF State and downtown. If ridership growth is low, this upgrade may not be needed in the next 10-15 years. We recommend conducting additional planning and project development work to ready this strategy for future consideration.



## Boarding infrastructure for three-car trains, including upgrades to station accessibility

To provide a safe place for riders to board at each door of the train, some street space would need to be used to extend platforms or boarding islands for all doors of a three-car train. We recommend a different approach for the M Ocean View and the N Judah.

- **For the M Ocean View:** upgrade rail stops between West Portal and SF State with level boarding platforms so no one needs to use the stairs to get on a train.
- **For the N Judah,** upgrade rail stops along the N Judah with mini-high ramps. This provides level boarding at one door. This is similar to the below existing mini-high ramp on the J Church.

*Note: A “mini-high” is a ramp at a Muni Metro stop that provides accessible boarding at one door of a train.*



Figure 15: An example of a "mini-high" ramp

## Examples of boarding infrastructure upgrades for three-car trains



*Figure 16: Illustration of the Stonestown Station. Possible upgrades to accommodate three-car trains by lengthening the platforms are shown.*



With level boarding, trains can operate without moving the stairs up and down. People who need level boarding can choose to board any train. A few rail stops between West Portal and SF State do not have level boarding today. We recommend upgrading these.



*Figure 17: Photo illustration of possible upgrades to St. Francis Circle to provide level boarding*

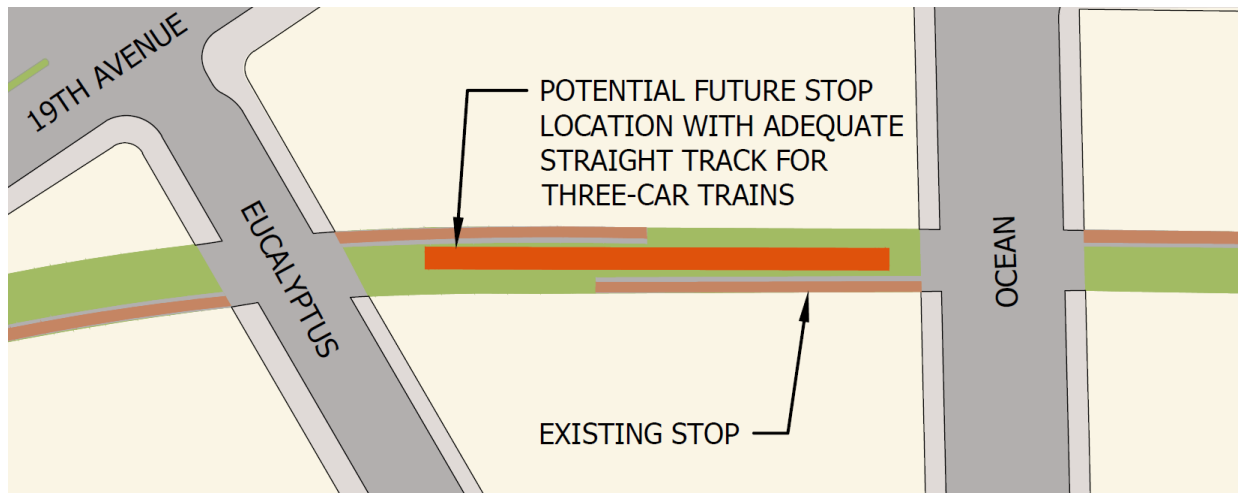


We studied what it would take to accommodate level boarding along the N Judah. Level boarding is difficult to fit along narrow streets (like the streets where the N Judah operates through Cole Valley and the Inner Sunset) along with other street functions. That's why we recommend mini-highs to improve accessibility along the N Judah.



*Figure 18: Photo illustration of possible upgrades to an example N Judah stop to provide level boarding*

In most cases, there would be no need to change rail stop locations to accommodate three-car trains. On the M Ocean View line, the very closely spaced stops at Ocean Avenue and Eucalyptus Drive would need to be consolidated. That's because stops have to be on straight track. The location identified below is the only place that has long enough straight track to do this with three cars. You would be able to enter the boarding area from both Ocean Avenue and Eucalyptus Drive. No other stops would have to be consolidated to make three-car service work. Other stop location changes could be considered if it helps with block-specific feasibility challenges like hills or driveways.



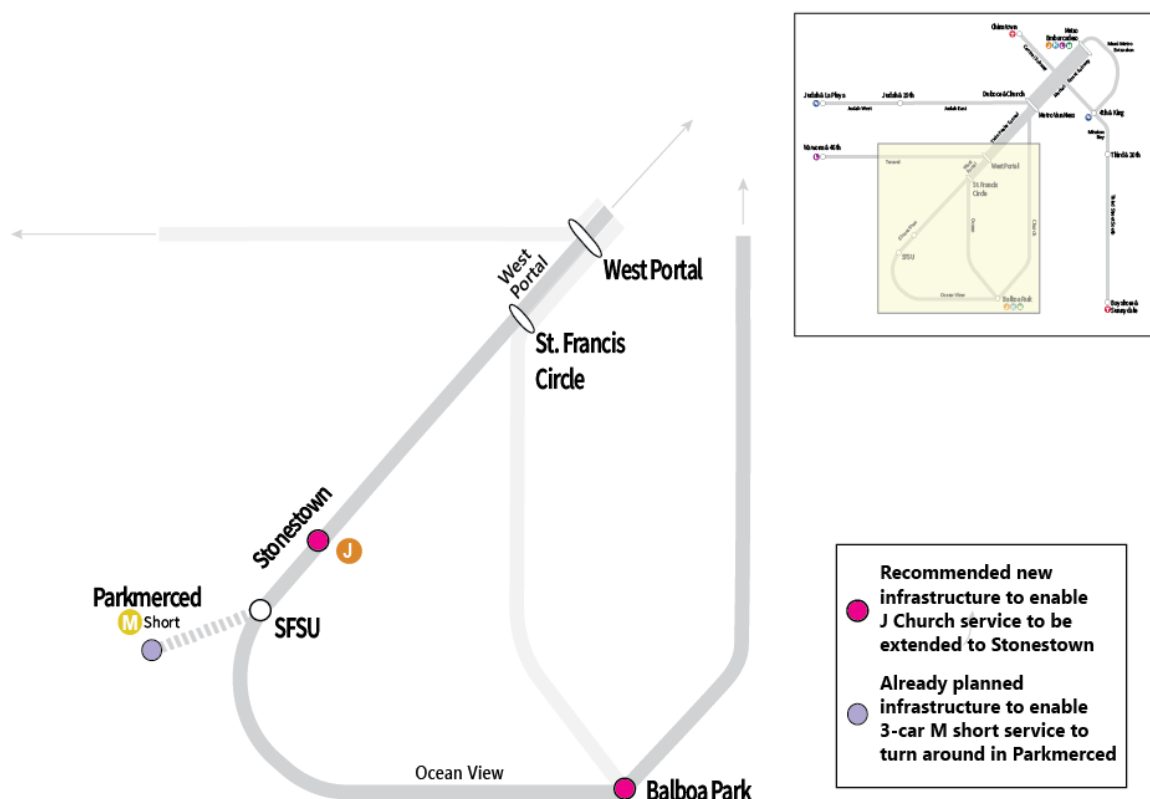
**Benefits:** Three- car trains would provide up to 50% more capacity. Boarding accessibility upgrades at street-level Muni Metro stops would make the system easier to use. This benefits all kinds of people. Those in wheelchairs, with mobility challenges, pushing strollers, rolling luggage and more. Level boarding also lowers wait time and improves travel time.

**Challenges:** Street space is limited. Using it for three-car trains and boarding platforms would mean less space for parking or other vehicle traffic. A boarding platform for a three-car train is about a block long. This platform could make it more difficult to access driveways.

## Infrastructure to provide flexibility for different service patterns in the future

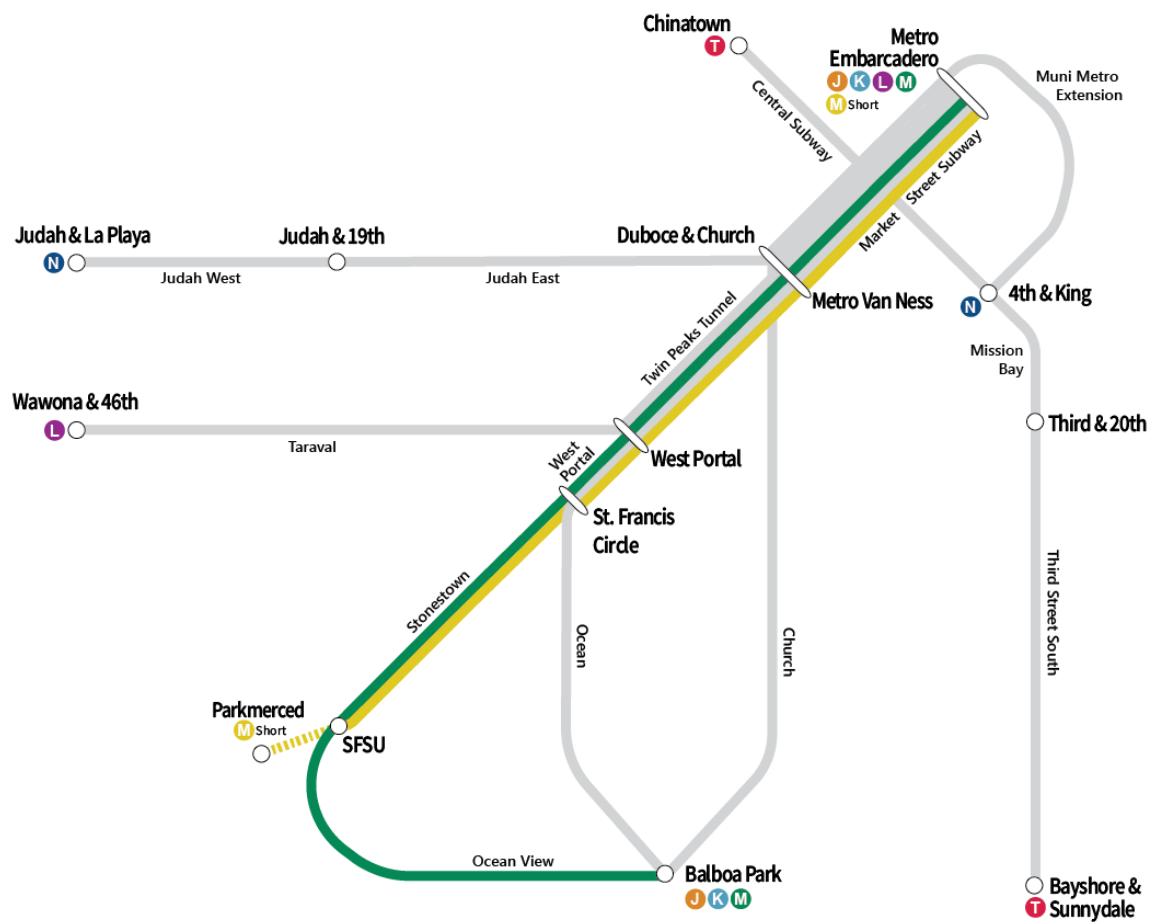
Approved plans call for three-car M Ocean View trains to turn around past SF State in Parkmerced. We also recommend building new infrastructure to make it possible to extend the J Church to Stonestown.

The infrastructure pictured here would provide operational flexibility. It would allow us to operate different service plans in the future. Any service changes would be explored later as a part of a community planning process.



\* If the Parkmerced Development does not build out as planned, this infrastructure could instead be provided in the median of 19th Avenue south of SF State

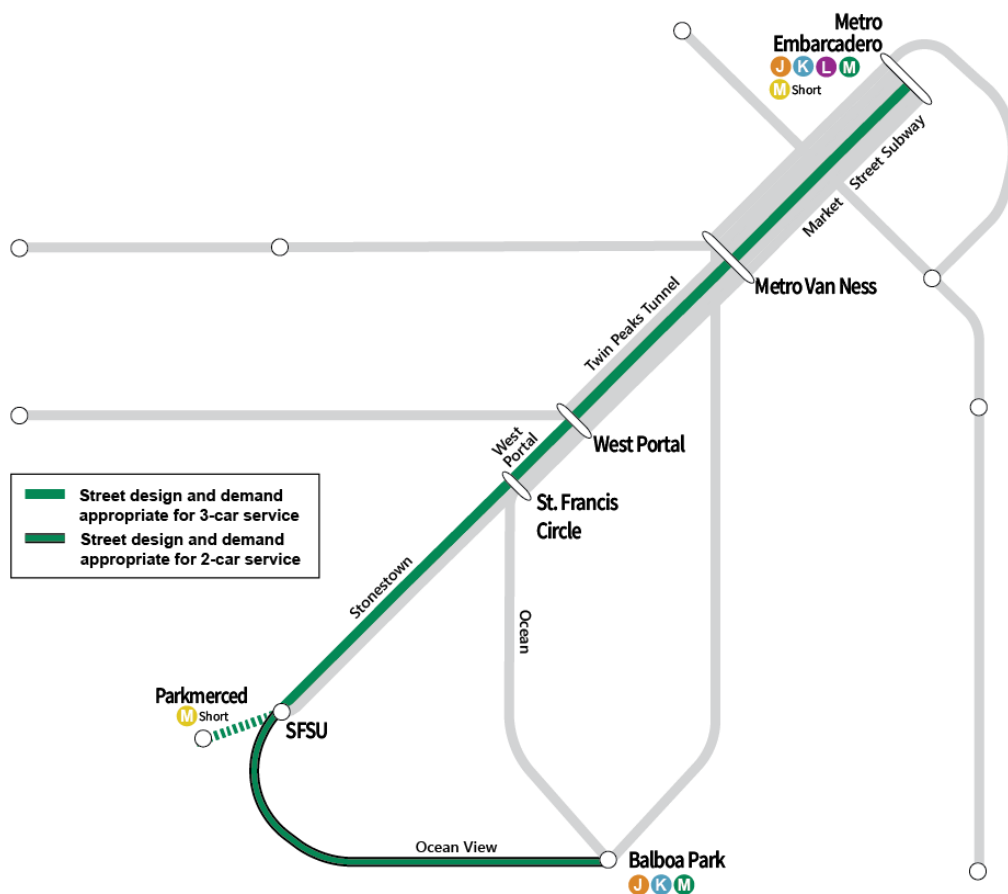
There is an existing plan to accommodate future three -car M Ocean View service. The San Francisco Board of Supervisors approved this plan in 2011. The existing plan would build a new rail stop in Parkmerced and a new rail terminal as a part of the new development. This would mean the M Ocean View would operate in two forms. Some M Ocean View trains would operate as an “M Short” between Downtown and Parkmerced. Others would continue to operate the entire line as an “M Long” between Downtown and Balboa Park. This would likely mean somewhat less frequent service on the M Long.



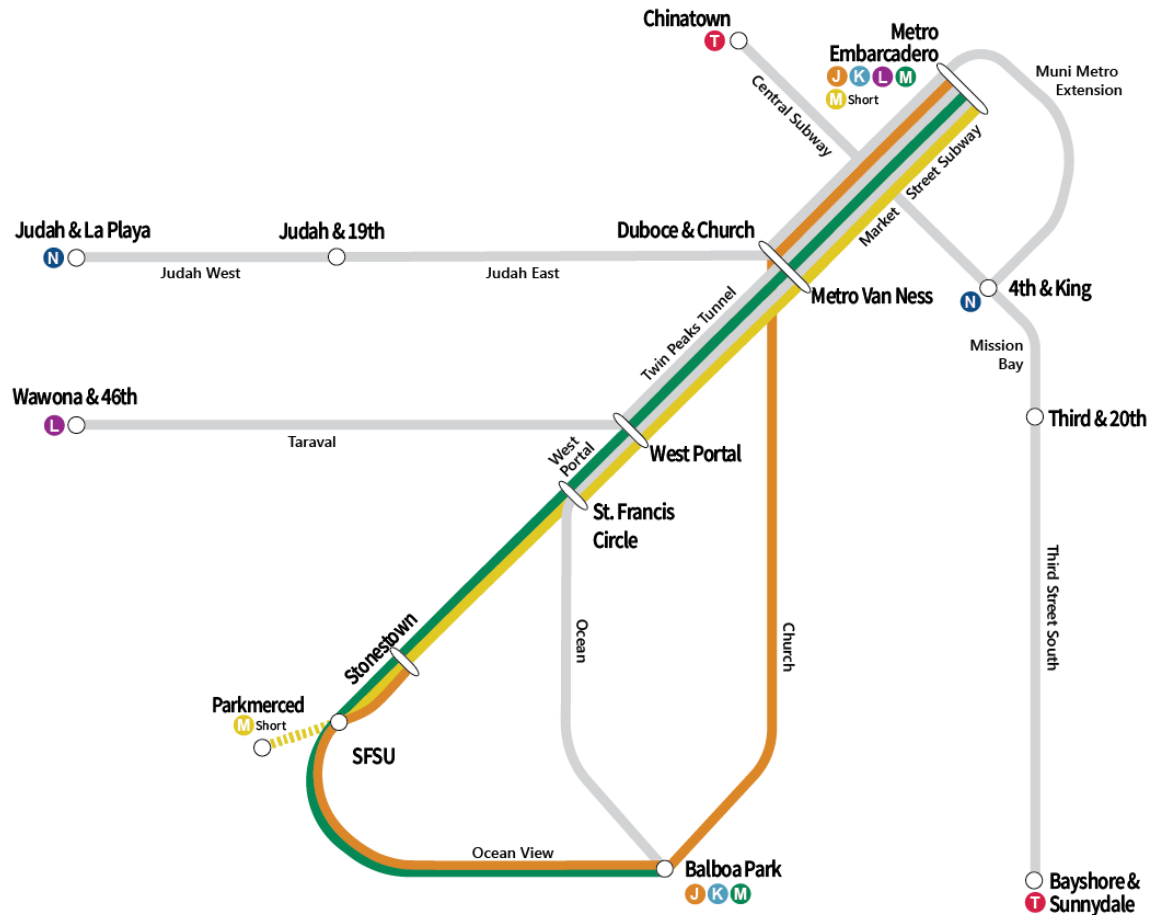
The plan was made because it would be difficult to operate three-car trains through the Oceanview for the following reasons:

- There is lower ridership so three-car service is not essential.
- There would be tradeoffs for street space to fit boarding islands for all doors of a three-car train.

However, operating short and long versions of a line is common in transit service design. Other local examples that operate a short and long version include the 30 Stockton and the 38 Geary.

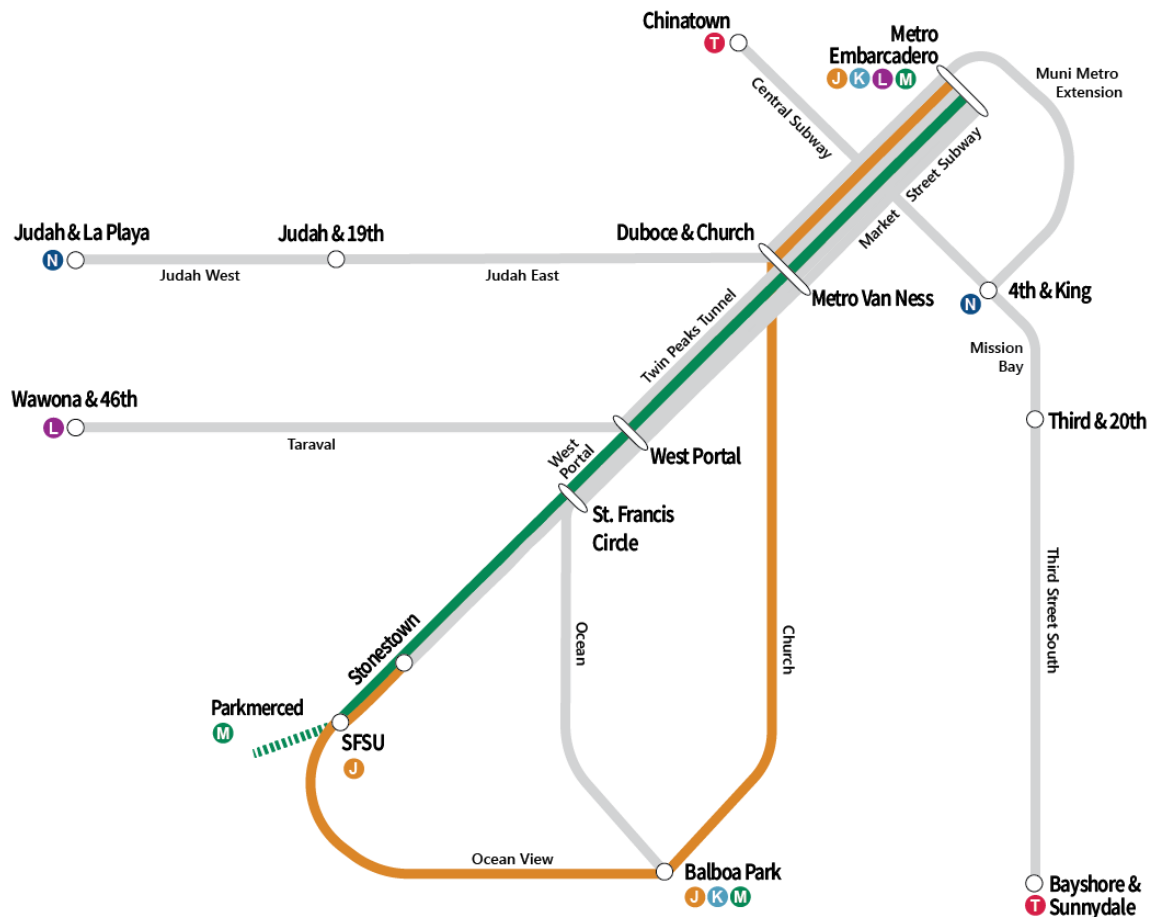


We are recommending new infrastructure to make it possible to extend the J Church to Stonestown. This would allow us to operate both M Long and J Church service through the Oceanview in the future. We would also increase J Church frequency, ensuring room for new riders. The combined frequency of the J Church and M Long could provide similar frequency in the Oceanview as today.





There is another option that we considered but are not recommending at this time. This option would be to swap J Church and M Ocean View service through the Oceanview (between SF State and Balboa Park). The J Church would run between the Embarcadero and Stonestown and the M Ocean View would only run between Parkmerced and downtown. This option is not forecast to be needed in the next 10-15 years. This option could be pursued in the longer-term future if ridership growth is very high. A future community process would take place to understand service priorities.



*Note: The future service plan for three-car M Ocean View service would be determined later as a part of a community planning process. **We recommend that combined service frequency in the Oceanview remain the same as today's frequency (every 10 minutes during weekday daytime hours).** Extending the J Church to Stonestown and continuing to operate some M Ocean View service to Balboa Park could accomplish this. Future service planning would also need to consider available operating budget.*

**Benefit:** This new infrastructure opens up the potential for new one-seat rides. This depends on the future service plan selected. New, one-seat rides could be possible on the J Church to major destinations like San Francisco State and Stonestown. The combined frequency could remain like today if both the J Church and M Long provide service in the Oceanview.

**Challenges:** There could be less frequent M Long service in the future. A different service plan could be confusing for riders to adjust to.

## Potential ideas for the longer-term future – 2040s and beyond

The scenario that reflects the highest potential future ridership levels in 2050 indicates that we may still run out of capacity in the subway. This is even with all the recommendations described above.

There are multiple ways additional capacity could be provided. Another line could be upgraded for longer trains. Or, we could consider service changes to provide more subway space for longer trains (and less subway space for shorter trains). No decision about this are needed right now. We will monitor ridership increases and subway performance to determine whether additional strategies like these are needed in the future. We would also consult more with the community before we take any action.

# Outreach

## How consultation with community members has guided the study

The recommendations shared above were informed by feedback. We received feedback through the following outreach methods:

- Six meetings with a Community Working Group. This group represents a broad cross section of Muni Metro community stakeholders
- Four Metro rider focus groups. These were held in English, Chinese and Spanish. They gave insight on what Muni Metro riders think about the strategies we are studying
- Presentations and meetings with community-based organizations

We also shared updates via our Study webpage and subscriber email updates.

There's more outreach to come! The Study does not approve or mandate any projects. It only recommends potential strategies. These could be advanced in future projects. Any projects that come from the recommendations would be further developed. This would be done with more extensive community-based corridor-focused outreach. Thank you to all the community members who helped shape the Study's draft recommendations.

## Key feedback that informed our Study's draft recommendations

Some key themes have emerged from the outreach we've done. It has directly shaped the Study's technical approach and draft recommendations.

- **Muni Metro's continued success is imperative.** There is broad agreement. It's important that Muni Metro continues to serve San Francisco's mobility needs.
- **Plan for multiple future scenarios.** This recognizes the uncertainty about ridership growth. We shifted from using one forecast to multiple forecasts. This better shows which strategies are likely needed. It also shows which are only needed if ridership grows the most.
- **Focus on rider priorities.** We framed Study recommendations in terms of how they will impact the Muni rider experience.
- **Set up future corridor-based outreach for success.** Some community members felt planning can seem like a competition between interests. Tradeoffs are inevitable. We agree future outreach should work to build consensus. It should reduce the impact of those tradeoffs.
- **Removing a line from the subway should be left as a last resort.** The Study does not recommend removing a line from the subway. Future exploration would only be considered if ridership increases significantly. It may also be considered if subway performance declines. Any work to consider removing a line from the subway in the future would include extensive community outreach.

## What's next?

Right now, we are soliciting feedback on the Study's draft recommendations. Later this fall (2025), we will consider revisions to our recommendations. These will be based on the feedback we receive. Then, we will bring a final report to the SFMTA Board of Directors for their acceptance later this year.

Decisions at this stage are about what recommendations and opportunities to continue to explore further. Then we will begin the next steps to enter the FTA's pipeline for Core Capacity grants. This includes additional project planning, environmental review and project development.

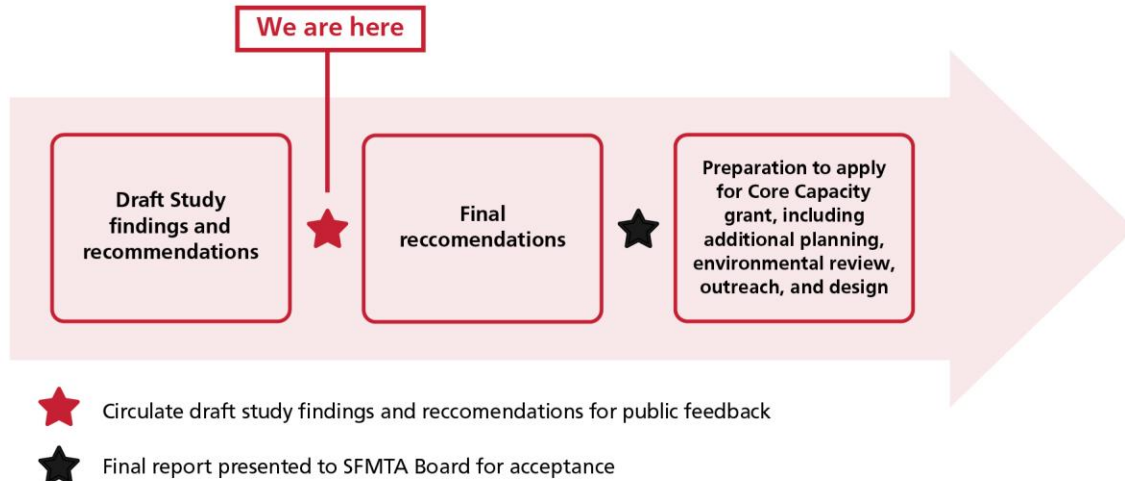


Figure 19: Timeline for the Muni Metro Capacity Study

## Tell us what you think

Thanks so much for learning about the Study. Please fill out [the feedback form](#) by Sunday, October 19, 2025, to tell us what you think about the draft recommendations.



## Want to learn more? Check out the full appendix

Questions about how we came up with these recommendations? Or why we did not recommend certain strategies? Review [the appendix](#) to dive deeper on the following topics:

- Forecasting of future ridership. This was used to inform which strategies are needed to accommodate future demand
- Additional information on potential strategies to accommodate demand by 2050
- Consideration of some strategies that are not recommended. One example is converting most of the Muni Metro system to low-floor vehicles. Another is system-wide upgrade to level boarding. A third is combining the L Taraval and K Ingleside into an all-surface line (also known as interlining).

## This Study was funded with the following grants:

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Thank you to our funders!

