

Making Roads Work



for Transit

STRATEGIES TO ACCELERATE BAY AREA
TRANSIT PRIORITY TREATMENTS

Acknowledgments

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Executive Summary

In order for the Bay Area to meet its equity and sustainability goals, public transit needs to become faster and more reliable. This requires getting buses, light rail, and other transit vehicles out of traffic by giving them priority over other vehicles on roadways. The Bay Area's failure to create this priority has led to unacceptable outcomes: Transit riders experience slow and unreliable service. Attracting new riders is nearly impossible because transit speed and frequency don't compete well with driving. And cities and transit agencies have found it necessary to fund new, expensive underground infrastructures for transit in places where perfectly good above-ground public rights-of-way exist. Continuing to privilege private, often single-occupant, vehicles on roadways undermines transit and puts transit equity and sustainability goals out of reach.

A wide range of transit priority techniques have been proven to increase speed and reliability. Investments in these techniques would improve service for current riders and attract new riders who currently use cars for every trip. In addition, those investments would reduce operating costs, allowing transit agencies to deliver more with current resources.

The bad news: Most California transit agencies lack the authority to deliver bold transit priority interventions. As a result, transit priority projects are often watered down and delayed in a way that reduces or eliminates the benefits for transit riders. It's true that the California Department of Transportation (Caltrans) has the authority to drive transit improvements on multijurisdictional state highways, but the agency has not shown sufficient leadership on this front. On most local streets, where individual jurisdictions control decisions, local politics often favor private automobile needs over public transit efficiency. Consequently, one city on a major bus corridor can prevent the coordinated action needed to deliver fast and reliable bus service. In San Francisco, where one agency manages both transit operations and roadway authority, efforts to advance transit priority have progressed. However, many areas with less consolidated authority have struggled.

The good news: Transit operators and regional and state leaders agree on the need for transit priority interventions. Moreover, new tools to streamline environmental review have eliminated some procedural barriers to the fast delivery of transit priority interventions. In addition, forthcoming regional transit planning efforts by the Metropolitan Transportation Commission (MTC) and Caltrans are creating opportunities to define greater authority for and investment in transit priority efforts.

This report proposes policies, investments, and institutional reforms to support faster delivery of bold transit priority roadway changes that will get buses (and other forms of roadway transit) out of traffic. It details 16 broad actions that would demonstrate regional and state leadership, support transit operators, and create strong incentives for local jurisdictions to prioritize transit on their roadways. Among other recommendations, the report calls for the following:

- Caltrans, MTC, and California counties and cities should establish explicit transit priority policies.
 - Caltrans should issue a state policy directive that provides clear guidelines to Caltrans districts on how to support transit priority on the state highway network.

- MTC should establish an overarching regional policy to define performance goals for transit efficiency, define funding incentives, and provide guidelines for coordination between jurisdictions and operators.
- Counties and cities should establish tailored local policies, including transit-first policies that direct staff to elevate transit needs in roadway design and operations.
- Caltrans should prioritize transit performance when making changes on the state highway network and should improve staffing and procedures to better support local efforts to implement transit priority treatments.
- MTC should establish funding incentives that support local jurisdictions and transit operators to design and implement transit priority treatments. Local funding should be conditioned on jurisdictions’ willingness to efficiently approve transit priority projects.
- Local jurisdictions should streamline the delivery of bus projects by defining basic transit priority improvements that can be approved at the staff level.
- Transit operators should proactively design transit priority treatments to address delay and reliability problems and support regional transit priority network design, and they should play a greater role in enforcement of transit priority along transit routes.

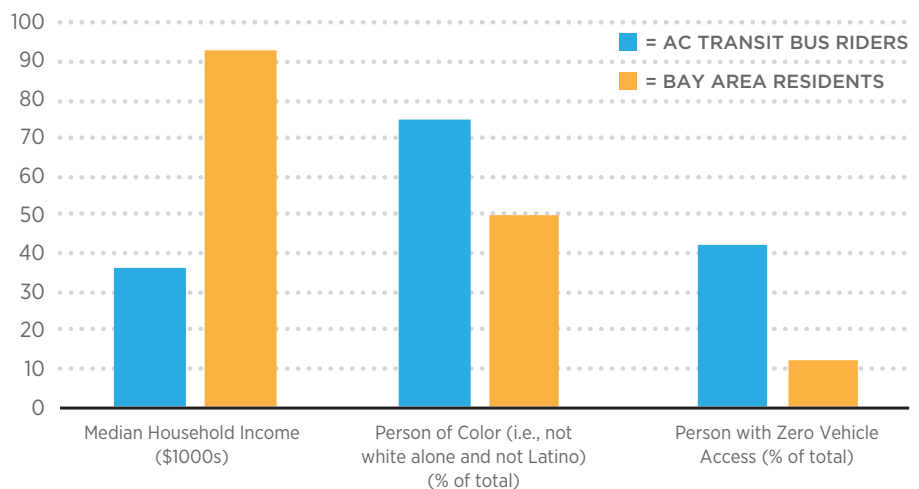
The recommendations in this report focus on buses on local streets and arterials but apply equally to other forms of transit that must interact with vehicle traffic (light rail, streetcars, trolleybuses, and cable cars). These recommendations will allow Caltrans, MTC, and California counties and cities to seize on momentum for transit priority roadway treatments. These treatments can increase transit speed and reliability. Streamlining their delivery would improve transit performance for today’s transit riders, and increased service quality would attract new riders. Critically, it would improve equity outcomes, given that bus riders are disproportionately people with low incomes, people of color, and people lacking automobile access.

Bus Rider Population Compared With General Population

Using AC Transit as an example, data show that bus riders, on average, make far less income, are far more likely to be people of color, and are far less likely to have access to a vehicle when compared with the general population.

Source: US Census and AC Transit 2018 ridership survey

Note: Post-pandemic data indicate that these disparities have only increased since the COVID-19 outbreak.



Chapter 1:

Delivering on Transit Equity and Environmental Sustainability Goals

Public transit must become the best travel option for many types of trips in order to support the region's equity and environmental sustainability goals.¹ Because transit that operates on public roads is often slow and unreliable, transit vehicles should, where possible, have priority over private automobiles.

Transit vehicles that travel or interact with mixed traffic on public roads may need, at certain points along their route or during certain times of the day, transit priority. These vehicles include transit vehicles that have an exclusive right-of-way (light rail, bus rapid transit) yet interact with mixed traffic at intersections and on shared travel lanes.

Transit priority treatments — also referred to as transit priority measures, interventions, projects, or actions — are changes to the physical roadway layout, traffic controls, signal operations, and traffic enforcement that are designed to improve transit efficiency, speed, and reliability. These treatments help buses — the focus of this report — and other transit vehicles bypass traffic congestion, experience less delay at traffic signals, and move more predictably on local streets and arterials.

Why Transit Priority Matters for Equity

A typical bus trip can generate multiple frustrations for riders. Buses are outmaneuvered by other vehicles. They get stuck behind double-parked vehicles, sit at intersections for an extra light cycle or two because the signal turns red while passengers are boarding, or cannot pull out of bus stops because of congested traffic lanes. These problems make buses slow and unreliable, leaving riders unable to get where they're going in an acceptable amount of time and requiring them to budget extra travel time every single day.

Despite these challenges, many people rely on buses as their primary way to get around. Bus riders are disproportionately people with low incomes, people of color, older adults, youth, and people with mobility challenges who lack the ability to drive. Policymakers often fail to value the costs in time — as well as in stress, frustration, and dignity — for these groups in the same way that they do for private automobile drivers. Political underrepresentation, especially of

¹ Plan Bay Area 2050 assumes that transit daily boardings and daily passenger miles will more than double from 2015 to 2050, even though transit ridership has dropped precipitously since the pandemic. See MTC, *Plan Bay Area Draft Environmental Impact Report*, 2021, page 3, https://www.planbayarea.org/sites/default/files/documents/2021-06/3.15_Transportation_DEIR.pdf.

What About Transit on Freeways?

A previous SPUR report, *Freeways of the Future*, described the types of infrastructure and institutional changes necessary for freeways to serve as high-capacity, reliable bus transit corridors.^a

The institutional environment for improving transit speed and reliability on freeways is quite different from the environment for improving surface streets and, to the degree that Caltrans is more clearly in charge, significantly simpler. Local jurisdictions' resistance to transit priority — the central dynamic discussed in this report — is less relevant for freeway environments. That said, any leadership Caltrans provides for transit priority implementation on surface streets would support implementation of transit priority on freeway corridors as well.

^a Jonathon Kass and Arielle Fleisher, *Freeways of the Future: Delivering a Fast and Reliable Regional Bus Network on Existing Freeway Lanes*, SPUR, January 2021, <https://www.spur.org/publications/spur-report/2021-01-21/freeways-future>.

Black and Latino people, is one reason that policymakers have not paid sufficient attention to how well buses function.

People with the privilege of choosing how they travel are using transit in record-low numbers, especially for commute-oriented trips.² Sustained flexibility to work remotely in some job sectors has made it even easier for those employees to work from home, which has further reduced their need for transit. People who don't need to put up with buses caught in traffic simply don't.

Growing segregation of the transit system is inequitable, unsustainable, and inefficient. Not only does it leave transit-dependent populations with a rotten travel experience, but it also ignores the significant role that buses and other roadway transit vehicles can and must play in the transportation system.

Making buses faster and more reliable can address some of the inequities embedded in the current transit system. With proper prioritization on our roadways, buses are well suited to deliver many more people to destinations in a less stressful, less polluting, and less costly manner than private vehicles. Making buses faster and more reliable opens greater access to opportunity and everyday necessities and can therefore help restore and regrow ridership. But transit operators report that decisionmakers consistently fail to value the ridership growth that would result from bus speed and reliability improvements. Generally, cities and counties have the power to make local road decisions, and they have wielded it to prioritize convenience for cars.

² Changes in BART rider demographics between 2018 and 2022 reveal increases in riders without access to a vehicle (up from 31% to 53%), those identifying as non-white (up from 65% to 75%), and those with annual household incomes under \$50,000 (up from 26% to 51%). See BART, BART Facts 2022, <https://www.bart.gov/sites/default/files/docs/BARTFacts2022.pdf>.

Why Transit Priority Is a Good Investment

Roadway changes that make buses faster and more reliable (both infrastructure buildouts and operational changes to give buses greater priority) deliver worthy benefits. When buses can complete a given route in less time and on a more consistent schedule, transit operators can deliver more services without the expenditure of additional resources. Put another way, transit operators with efficient, reliable buses have more resources to increase the frequency of services, to expand services, or simply to avoid cuts in services that might otherwise have been necessary given rising operating costs and the expiration of federal COVID-19 relief funds for transit. Increasing services to make customers feel respected and to grow their numbers is critical to making transit sustainable.

At this time of increasing congestion, extraordinary transit fiscal challenges, and ridership that is increasingly skewed toward people with low incomes and people of color, the region and state need to properly empower, fund, and encourage transit agencies, cities, and counties to deliver the many wins that follow from transit priority investments.

How the Bay Area Can Deliver Transit Priority Benefits

Our region and our state must make changes to funding and institutions in order to rapidly deploy transit priority treatments on our roadways. This report makes 16 recommendations to align funding, leverage state and regional authorities to support transit-efficient roadway design, elevate near-term actions to fix immediate transit-delay hot spots, and empower transit agencies to design roadway changes and traffic and parking enforcement mechanisms that would speed up transit. In taking these actions, the Bay Area would rapidly improve bus speed and reliability, delivering immediate benefits to current and future riders and setting the tone for a Bay Area where public transit is a dignified, dependable, and attractive way to travel.

Chapter 2:

Making Transit Faster and More Reliable

Transit priority treatments include a wide range of roadway design, operations, and enforcement actions that can help buses and other transit vehicles avoid traffic congestion, reduce signal delays, and move more predictably on all types of roads. Transit priority treatments include:

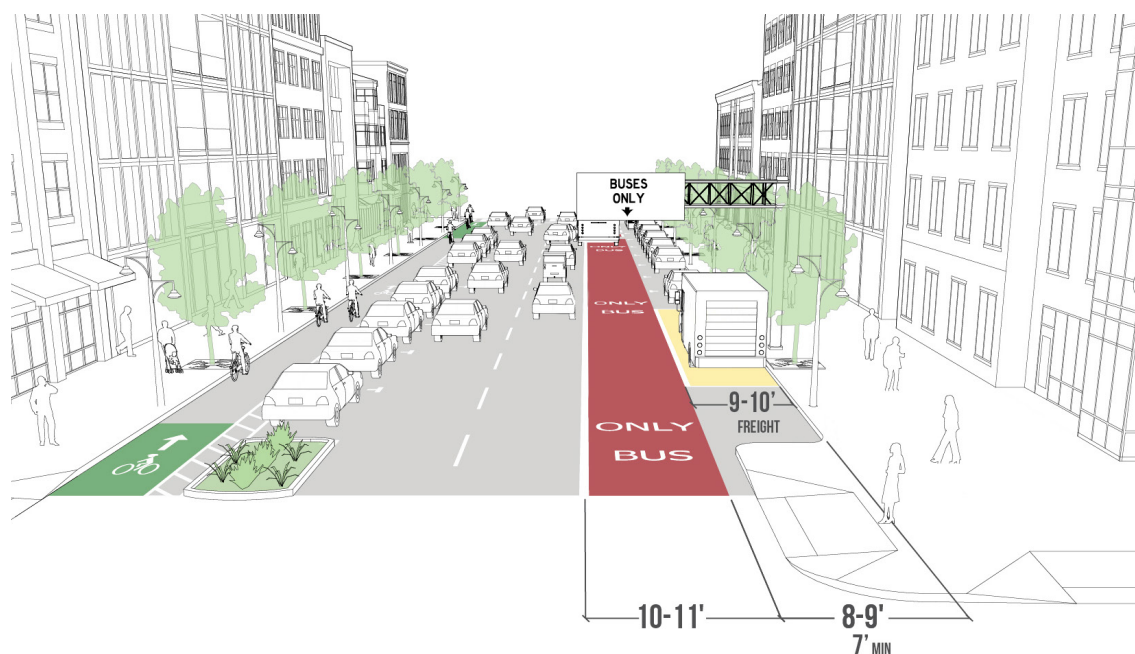
- Dedicated transit-only lanes reserved for the exclusive use of transit vehicles
- Transit signal priority, which adjusts traffic signal timing in real time to minimize delay of transit vehicles — for example, by reducing the length of a red light for transit vehicles or by extending an existing green light for approaching transit vehicles
- Queue jump lanes to help transit vehicles move to the front of traffic waiting at a signal
- Strategic enforcement designed to minimize vehicles blocking transit stops and transit routes
- Turn restrictions and exceptions designed to minimize disruption to transit movements or to give transit vehicles special privileges to make otherwise restricted turns
- Bus stop placements and physical configurations designed to maximize boarding/alighting efficiency and reduce delays

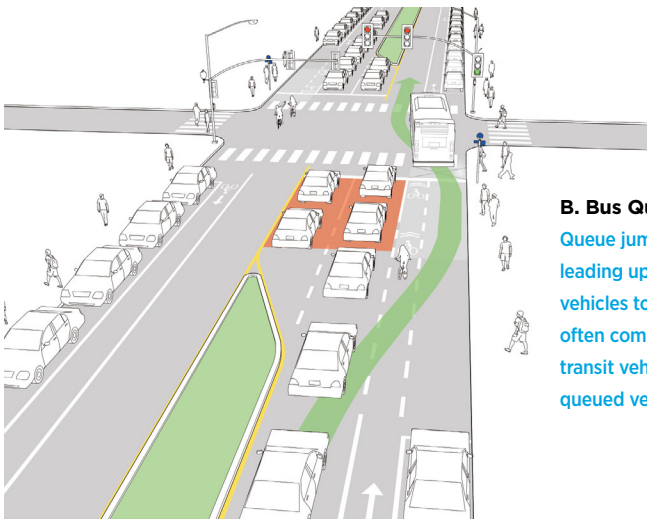
EXHIBIT 1

Categories of Transit Priority Treatments

A. Transit-Only Lane (Curbside)

Dedicated transit lanes reserve a travel lane exclusively for transit vehicles. The illustration shows a parking-adjacent transit lane, but dedicated transit lanes can take many forms, including curbside, center, peak-hour, or contra-flow transit lanes.





B. Bus Queue Jump Lane

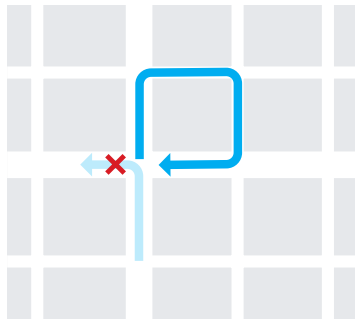
Queue jump lanes are short, dedicated transit lanes leading up to an intersection or signal to allow transit vehicles to jump in front of the vehicle queue. They are often combined with transit signal priority to permit transit vehicles to cross intersections ahead of other queued vehicles.



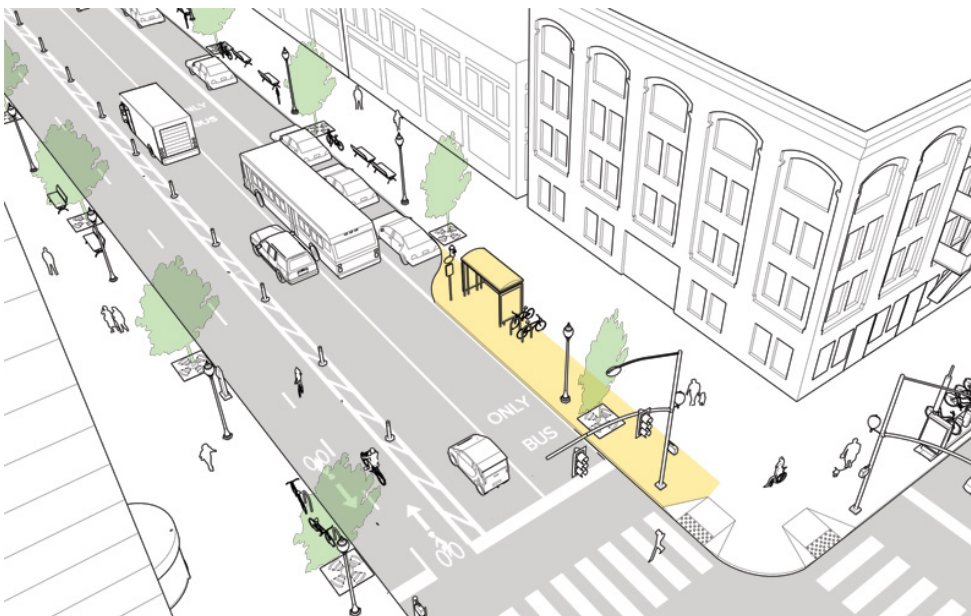
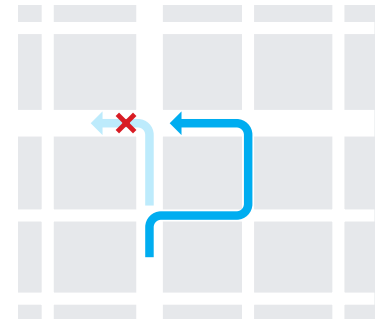
C. Traffic Control Exceptions

Turn restrictions and exceptions can improve bus efficiency by creating more direct routes for buses and minimizing conflicts with other vehicles. In the illustration, the two circuitous paths might be avoided by exempting transit vehicles from turn restrictions. In other scenarios, non-transit vehicles may be prohibited from making turns that would interfere with a bus route.

Three Rights



Right-Left-Left



D. Bus Bulbs

Bus bulbs reduce the amount of time required for bus stops because buses do not need to pull out and then pull back into the traffic lane. Bus bulbs also create a more comfortable space for waiting passengers and often support boarding using multiple doors.

Source: National Association of City Transportation Officials (NACTO), Transit Street Design Guide, <https://nacto.org/publication/transit-street-design-guide/>.

Other organizations and jurisdictions have recently developed excellent guidance on these tools:

- King County Metro's *Transit Speed and Reliability Guidelines and Strategies*
- District Department of Transportation's *Bus Priority Program Toolbox*
- National Association of City Transportation Officials' (NACTO) *Transit Street Design Guide*
- NACTO's *Move! That! Bus!*
- TransLink's *Transit Priority Toolkit*
- Southern California Association of Governments' *Transit Priority Best Practices*³

Some types of transit efficiency improvements fall within the control of transit operators. These improvements include transit route design, bus stop spacing, schedule design, and fare payment policies (such as all-door boarding and off-board fare payment). Because these improvements can largely be implemented without the approval of municipalities, they are not addressed in this report.

Benefits of Transit Priority Treatments

The benefits of transit priority roadway treatments are widely documented and fall into several categories (see Exhibit 3 for impact, cost, and examples):

- **Better service:** Faster travel and greater reliability for transit riders make transit attractive.
- **Operating savings for transit agencies:** Faster and more predictable travel times mean that a given transit route can deliver the same service with fewer buses and fewer operators. These savings can be used to support new or more frequent service or to mitigate potential fare increases or service cuts that may have resulted from funding shortfalls.
- **Network benefits:** Coordination of transit service across multiple routes becomes more realistic when transit travel times are more reliable due to transit priority treatments. Riders can connect to more destinations via transit, and transit operators have more options for how to design efficient service by linking routes in a coordinated fashion.
- **Safety benefits:** Prioritized transit reduces conflicting interactions between buses and other vehicles and improves passenger boarding environments.
- **Benefits to other priority vehicles:** Transit priority treatments may allow vehicles such as carpools, private shuttles, or vanpools to share restricted, less congested lanes with transit vehicles. Emergency responders can also use transit priority infrastructure to bypass traffic.

³ See (1) King County Metro, *Transit Speed and Reliability Guidelines and Strategies*, August 2021, <https://kingcounty.gov/-/media/depts/metro/about/planning/speed-reliability-toolbox.pdf>; (2) District Department of Transportation, *Bus Priority Program Toolbox*, March 2021, <https://ddot.dc.gov/node/1527011>; (3) NACTO, *Transit Street Design Guide*, <https://nacto.org/publication/transit-street-design-guide/>; NACTO, *Move! That! Bus! Tactics for Transforming Transit in Two Years*, <https://nacto.org/wp-content/uploads/2022/08/MoveThatBus-FINAL.pdf>; (4) Translink, *Transit Priority Toolkit*, Vancouver, B.C., TransLink, 2020, https://www.translink.ca/-/media/translink/documents/plans-and-projects/bus-projects/bus-speed-and-reliability/transit_priority_toolkit.pdf; (5) Southern California Association of Governments, *Transit Priority Best Practices: Regional Dedicated Transit Lanes Study*, June 2022, <https://scag.ca.gov/post/transit-priority-best-practices-report-0>.

EXHIBIT 2

Who Benefits from Transit Priority?

Transit priority treatments will deliver broad benefits. Ultimately, they deliver equity by improving affordable bus travel and sustainability and by creating a transit network that successfully serves more customers.

Source: SPUR

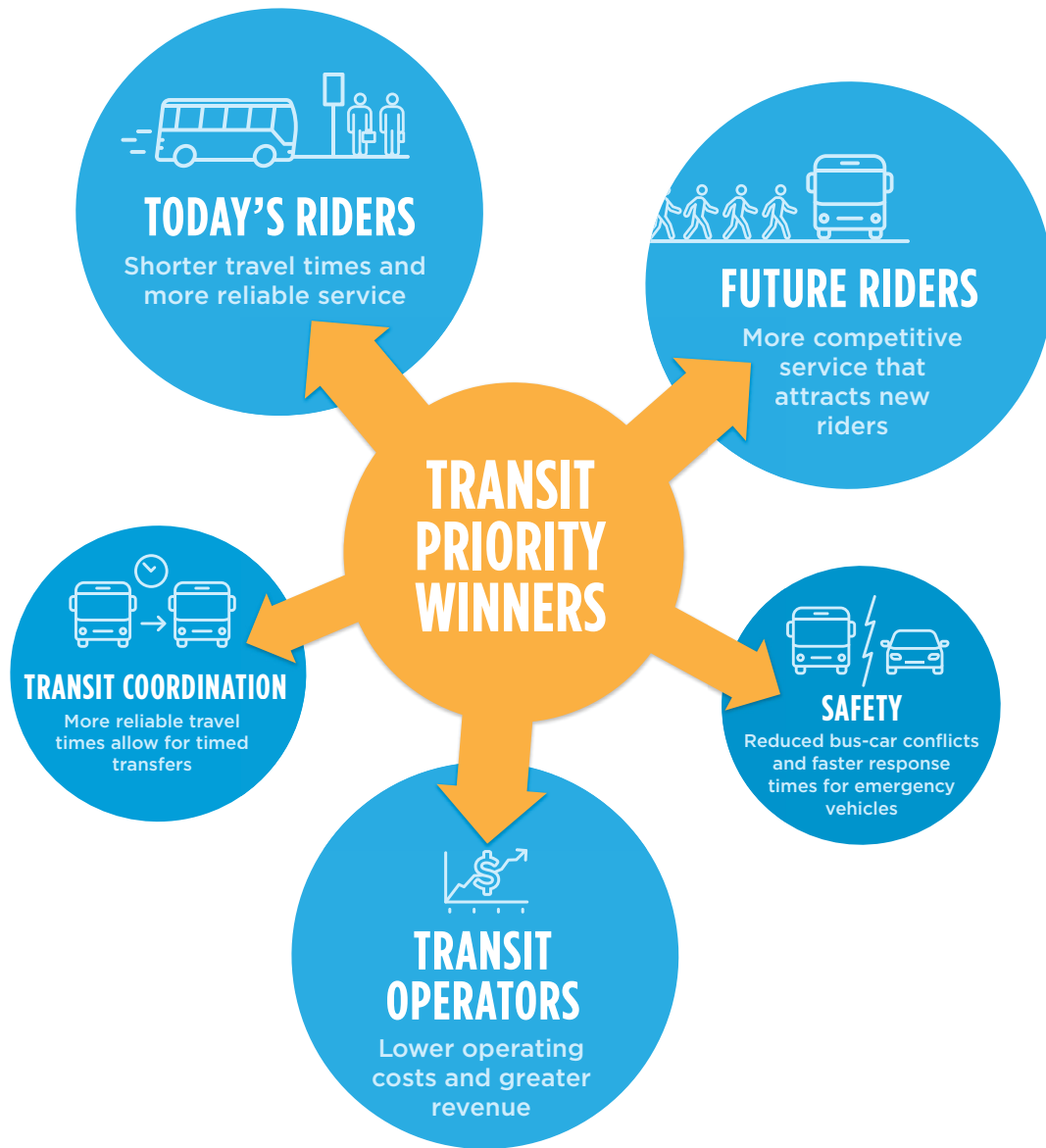


EXHIBIT 3
Examples of Transit Priority Tools, Benefits, and Cost

Nearly all of these tools can be deployed in a coordinated fashion along a transit corridor, or they can be implemented as spot improvements to address focused congestion and transit reliability problems.

Source: SPUR
Note: SFMTA = San Francisco Municipal Transportation Agency; AC Transit = Alameda-Contra Costa Transit

TRANSIT PRIORITY TOOL	DEFINITION	EXAMPLE BENEFIT	EXAMPLE COST	EXAMPLE IMPLEMENTATION SITE
Dedicated Bus Lane	A lane only for buses to keep transit vehicles out of congested mixed traffic, thereby reducing travel time. Configurations include a median lane for buses only and a right lane that other vehicles may enter only for right turns or parking. A dedicated bus lane may have specific time restrictions, meaning that during some hours other vehicles can use it.	Up to 50% reduction in travel time ^a	\$200,000 to \$1 million per mile ^b	SFMTA Route 14/14R, Mission St., San Francisco
Queue Jump Lane	A lane segment leading up to an intersection that is reserved for buses, allowing them to skip ahead of the traffic queue.	Up to 20% reduction in travel time ^c	\$5,000 to \$17,000 per queue jump lane ^d	AC Transit, Route 51 A/B, Oakland/Berkeley
Transit Signal Priority	Transit signal timing modified to avoid bus delay, either by a signal change when a bus is present or timing of signals to match typical bus travel speeds.	Up to 20% reduction in travel time ^e	\$5,000 to \$150,000 per intersection ^f	AC Transit Route 51 A/B, Oakland/Berkeley
Arterial Bus/HOV Lane	HOV lanes on arterials or express lanes that are specifically designed to reduce congestion for buses.	Early examples show 10% reduction in travel time ^g	\$250,000 per mile ^h	Lombard St. (US 101) and Park Presidio Blvd. (US 1) in San Francisco
Bus Stop Placement and Configuration	Designs to maximize boarding and alighting efficiency, including those that allow buses to stop in the lane of traffic, that move stops to the far side of intersections, and that lengthen stops to better accommodate buses.	5- to 20-second saving per stop for bus bulbs ⁱ	\$15,000 to \$75,000 per bulb ^j	AC Transit Route 51 A/B, Oakland/Berkeley
Strategic Enforcement	Enforcement targeted to address vehicle violations that cause bus delays, including bus automated camera enforcement.	Up to 20% delay reduction for cameras ^k	\$9,500 per bus for cameras ^l	SFMTA bus-mounted camera enforcement Los Angeles' Flower St. targeted enforcement
Turn Restrictions and Exceptions	Turn restrictions for non-transit vehicles, or restriction exemptions for buses to reduce bus delays.	Highly variable	\$100 to \$250 per sign ^m	SFMTA Church St. transit-only lane

^a Based on data from the District Department of Transportation (DDOT) for Flower Street in Los Angeles; Bus Priority Program Toolbox, DDOT, March 2021, <https://ddot.dc.gov/sites/default/files/dc/sites/ddot/DDOT%20Bus%20Priority%20Toolbox.pdf>.

^b Bus Priority Best Practices Synthesis for the National Capital Region, Foursquare Integrated Transportation Planning and ICF, November 2020; <https://www.mwcoo.org/file.aspx?&A=dwskH3tbrRnEFOLeNGCbfmUMIOqclIy%2FOYBC%2FPeH638%3D>.

^c Based on data from DDOT for West Valley City Utah (see reference a).

^d Including signal for queue jump lane, in cases where an existing lane or shoulder space is already available. [National Academies of Sciences, Engineering, and Medicine. 2007. Bus. Rapid Transit Practitioner's Guide. Washington, DC: The National Academies Press, pg 4-39. https://doi.org/10.17226/23172.](https://doi.org/10.17226/23172)

^e Based on data from DDOT for George Avenue in Washington, D.C. (see reference a).

^f Cost range depends on whether existing intersection software and controller equipment can be used. Based on Portland Transit Priority Treatments (see reference d) and interviews with Oakland Department of Transportation staff.

^g Based on Golden Gate transit estimates for San Francisco's Lombard Street HOV 2+ lanes.

^h Based on \$800,000 to implement an approximately 3.2-mile pilot project for San Francisco's Lombard Street and Park Presidio Blvd. HOV 2+ lanes. (See Item 14 in April 20, 2021, SFMTA Board staff report at https://www.sfmta.com/sites/default/files/reports-and-documents/2021/04/4-20-21_item_14_traffic_modifications_-_park_presidio_lombard_temp_emergency_hov_lanes.pdf.)

ⁱ NACTO, Transit Street Design Guide, April 2016, <https://nacto.org/publication/transit-street-design-guide/>.

^j PEDSAFE, "Pedestrian Safety Guide and Countermeasure Selection System," <http://www.pedbikesafe.org/pedsafe/countermeasures.cfm>.

^k SFMTA, Transit-Only Lane Enforcement, 2015, https://www.sfmta.com/sites/default/files/projects/2015/TOLE%20one%20pager_v4.pdf.

^l Gross cost, not considering amounts defrayed by fine revenue; see Research, Development & Transfer Program, DDOT, Automated Enforcement of Bus Lanes and Zones: Final Report, May 2019, <https://rosap.nhtl.gov/viewdot/62781>.

^m FHWA, "Maintaining Traffic Sign Retroreflectivity: Impacts on State and Local Agencies," April 2007, <https://www.fhwa.dot.gov/publications/research/safety/07042/chapter2.cfm#:~:text=Assume%20an%20average%20cost%20of%20of%20its%20useful%20life>.

Corridor Versus Spot Improvements

Transit priority treatments can be applied in a coordinated fashion along an entire transit corridor or can be focused on specific locations along a corridor where delay or reliability problems are greatest. Both approaches are important, and different circumstances call for different responses.

Corridor solutions may be required when transit priority treatments involve a major change in how space is allocated among cars, buses, bikes, and other modes. This level of investment is sometimes necessary to create a significant change in the transit experience. Major corridor projects for transit create an opportunity to build broad public and political support, and they can dramatically increase the number of transit riders. However, these projects take many years, sometimes decades, to plan and implement.

AC Transit developed a “tempo line” in dedicated bus lanes running from San Leandro through Oakland, greatly reducing bus delays and creating a high-quality customer experience. However, the improvements, including 46 new, high-quality boarding platforms, cost \$232 million and took more than 20 years to plan and construct. To deliver transit priority improvements throughout the region, transit agencies, cities, and counties will need to make funding and institutional changes.

Source: Sergio Ruiz



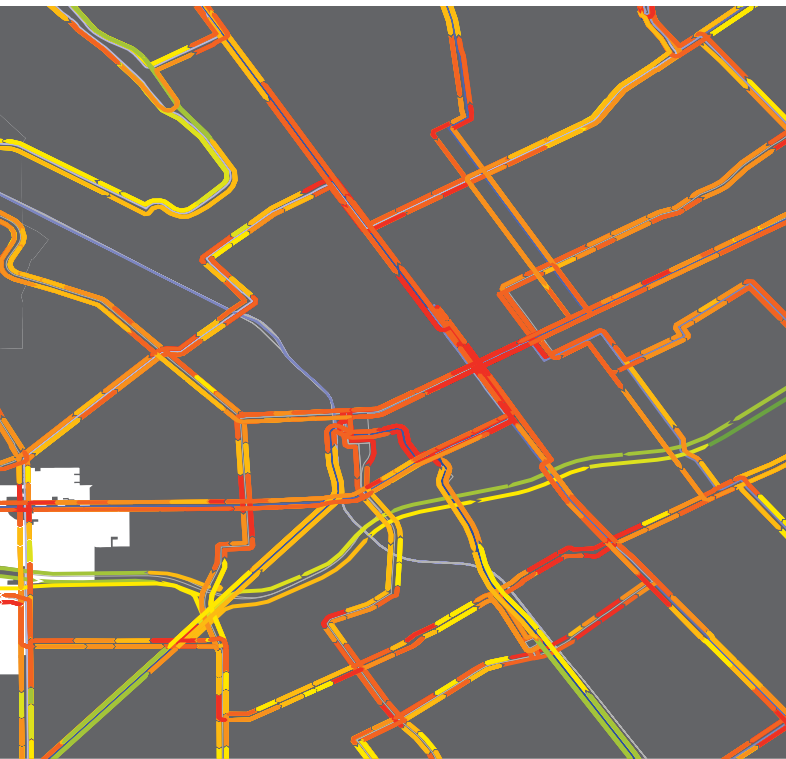
Spot improvements are interventions located in confined areas where buses experience delays. Spot improvements may address consistent delays that routinely slow bus travel time or sporadic delays that make buses less reliable. Transit agencies and local jurisdictions may choose to tackle the most severe bus delay spots first or to tackle areas with the easiest and cheapest solutions. In theory, spot improvements can deliver a lot of value by focusing infrastructure and operational changes on areas where buses encounter the most serious challenges. Spot improvements may also deliver results more swiftly than corridor improvements because each location where a bus challenge is solved yields incremental improvements to the speed and reliability of the entire bus route.

Some transit agencies — particularly those lacking authority over local roads — find corridor interventions to be more efficient than spot improvements. Because each engagement of an individual transit agency on a roadway change can involve negotiations with local jurisdictions and contracting arrangements, the resulting complexity creates an incentive for agencies to pursue improvements for one larger coordinated corridor action. The downside of this corridor strategy is that it eliminates opportunities for flexibility, prioritization, and more responsive solutions.

That said, high-ridership bus lines sometimes deserve significant corridor redesigns that deliver major speed and reliability gains, making for a safer and more pleasant customer experience. These redesigns can take decades and cost hundreds of millions of dollars, as was the case for the Van Ness Bus Rapid Transit project in San Francisco and the Tempo Line in the East Bay. In other cases, however, corridor improvements can be delivered affordably and reasonably quickly. For example, Muni Forward corridors often cost about \$10 million per mile and can be delivered in less than two years.

When transit operators can prioritize transit service to quickly increase quality of life through spot improvements, they should have the tools to do so. Spot improvements may lack the transformational impact of a full new corridor design, but over time, they can yield a high-performing corridor that builds ridership through its growing speed and reliability.

A. Downtown San José and Environs



B. Downtown San Francisco and Environs



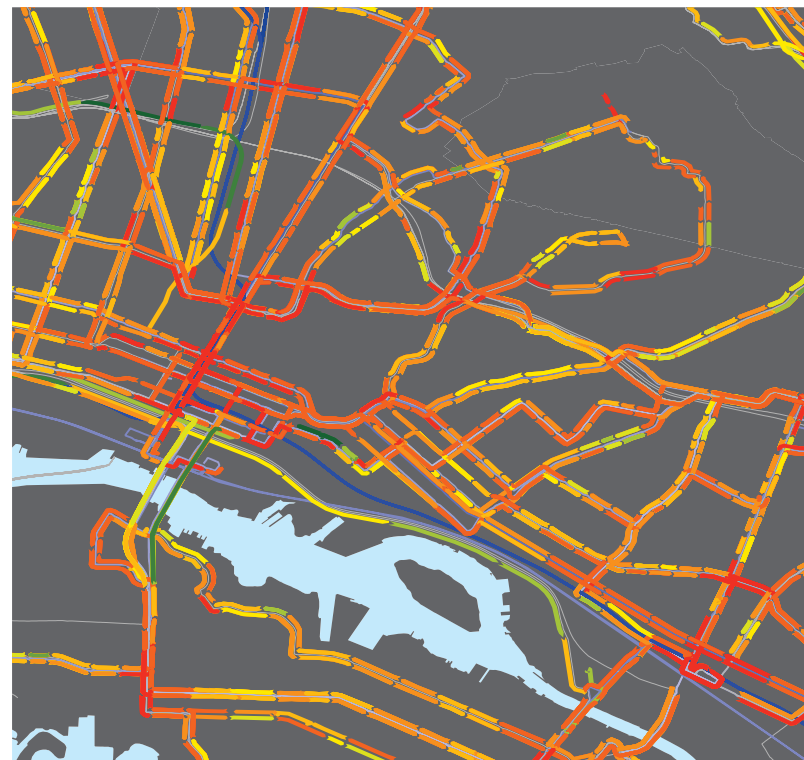
EXHIBIT 4

Bus Delay in San Francisco, Oakland, and San José

Some bus delays demand design and operational changes across miles of roadway. But many bus delays occur on a single block or portion of a block. With the right institutional arrangements, these delays could be addressed with more affordable and faster-to-implement spot improvements.

Source: SPUR

C. Downtown Oakland and Environs



Challenges in Delivering Transit Priority Treatments

Despite their many benefits, few transit priority roadway improvements are planned, built, and constructed. These projects face many challenges, including the following:

- **Competing interest in limited roadway space:** In many cases, advantages for transit come at the real or perceived expense of other roadway users, most significantly private vehicles, both moving and parked. Transit priority treatments may mean less space for cars and trucks, less space for parking, and increased turning or signal restrictions. Given the predominance of private vehicles on California roads, these trade-offs create obvious political challenges for policymakers.
- **Failure to prioritize fast and reliable transit:** Some jurisdictions along important transit corridors simply don't have many transit riders and see little reason to value transit priority within their boundaries. These jurisdictions' inaction — and sometimes hostility to transit priority treatments — has broad impacts. A few jurisdictions' failure to act can sabotage reliability along an entire corridor, negatively impacting adjacent jurisdictions, which may be eager to improve transit performance, and diminishing the transit experience for riders using any route that passes through the roadway segment causing delay.
- **Cost and complexity of infrastructure changes:** Although some transit priority projects require only paint or traffic signs, many require complex infrastructure changes. Significant roadway reconstruction is often needed to create dedicated transit lanes or queue jump lanes, and costly signal technology upgrades are sometimes necessary to improve signal timing or allow for transit signal priority.
- **Not enough bus frequency to justify the space:** Many corridors where transit vehicles get stuck in traffic have infrequent bus service. This makes it difficult to justify the space or the cost of some of the more effective transit priority designs, particularly dedicated lanes, both from a political and cost-benefit perspective.
- **Lack of transit expertise on city staff:** Public works and transportation departments rarely have staff focused on transit priority roadway treatments. Transit priority work is often viewed as the responsibility of the transit provider.
- **Lack of accessible funding for transit priority treatments:** Historically, there has been little funding for transit priority tools. In contrast, new funding sources for brand-new transit corridors, transit extensions, and bicycle and pedestrian projects have focused cities' attention on those types of projects.

The Ease and Complexity of Transit Signal Priority

Transit signal priority can greatly improve transit reliability. It often faces less public resistance than other transit priority techniques because no physical space is taken away from other roadway users. Moreover, additional signal time for buses occurs only when it is needed — for example, when a bus is approaching a red light and an accelerated change to a green light would allow the bus to adhere to its schedule.

Although the politics of transit signal priority can be easier to navigate than the politics of other transit priority tools, implementation can be tough. Transit signal priority requires a high level of coordination across multiple agencies. A bus traveling through multiple jurisdictions will need to have equipment that can communicate with all signals along the route. This technology coordination can become even more complex when multiple bus carriers are using signal priority and when some traffic signals are incompatible with the preferred technology. For this reason, it makes sense to have strong state and regional leadership on signal priority.

This report does not include detailed recommendations for transit signal priority, a topic with many full guidebooks dedicated to it.^a

^aSee, for example, H. Smith, B. Hemily, and M. Ivanovic, *Transit Signal Priority (TSP): A Planning and Implementation Handbook*, ITS America, May 2005, https://nacto.org/docs/usdg/transit_signal_priority_handbook_smith.pdf; and National Academies of Sciences, Engineering, and Medicine, *Transit Signal Priority: Current State of the Practice*, National Academies Press, 2020, <https://doi.org/10.17226/25816>.

Given these challenges, San Francisco's ambitious work to implement transit priority roadway improvements is particularly noteworthy. Unusually, the city's transit operator, the San Francisco Municipal Transportation Agency (SFMTA), also is responsible for roadway design and operations. San Francisco's success in implementing transit priority treatments on its roads demonstrates what can be done when transit performance is strongly integrated into roadway design and operation.

Petaluma Transit, Santa Rosa City Bus, and Union City Transit, like SFMTA, govern both transit and roadway priorities. These agencies report successful coordination with public works departments on signal and roadway changes that improve bus performance.

Other transit operators in the region and in other states have figured out how to partner with local departments of transportation to deliver transit priority projects. Seattle, Washington, for example, has dedicated transit priority staff who proactively coordinate such projects with transit operators and the department of transportation. Some of these cities have used city transit plans as a tool for coordinating the work of all the actors involved in delivering transit priority.

San Francisco’s Bold Action on Transit Priority

The San Francisco Municipal Transportation Agency (SFMTA) has been able to deliver transit priority projects relatively quickly because the agency is responsible for both the transit network and the city roadway network. In addition, SFMTA is supported by the city’s strong Transit-First Policy and has the equivalent of roughly 14 full-time staff working on planning and preliminary engineering for transit priority projects.

Temporary and Quick-Build Transit Priority Programs

SFMTA has elevated transit priority efforts through several interrelated programs, including its long-standing Muni Forward Program, the COVID-responsive Temporary Emergency Transit Lane Program, the Transit Delay Hot Spots Program, and the related Transit Priority Quick-Build Program.

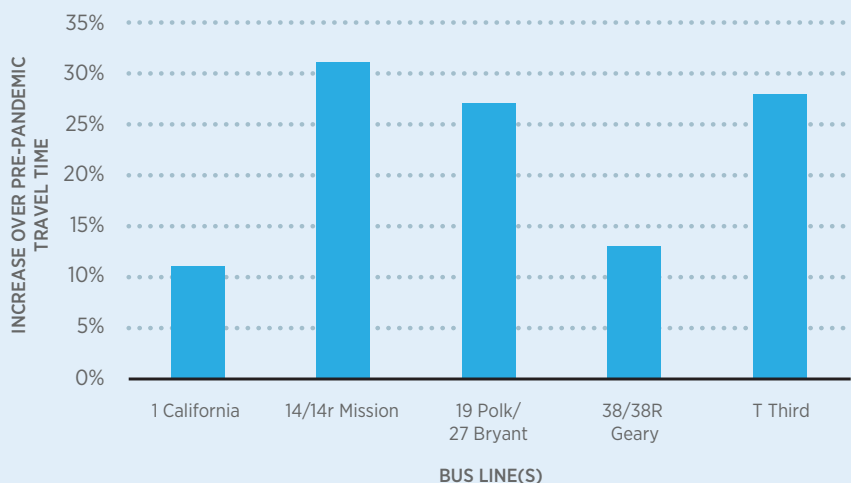
The Muni Forward Program, which began in 2014, has delivered reliability improvements, including dedicated transit lanes, bus bulbs that speed up boarding, and transit signal priority, along more than 70 miles of transit corridors.^a The resulting speed and reliability improvements increased ridership on Muni Rapid bus lines by 23% over a five-year period prior to the pandemic (2015–2019). SFMTA prioritized these transit improvements on the basis of ridership data, customer information, and equity considerations, including areas with high percentages of low-income households and people of color.

Following COVID lockdowns, SFMTA initiated the Temporary Emergency Transit Lane Program to ensure that essential workers and others relying on transit could move efficiently and that the bus network would not become overcrowded.^b Through this program, the agency delivered more than 15 miles of transit and HOV lanes across 12 bus lines in less than two years. A recent evaluation found that travel time improvements by line ranged from 11% to 31% even as traffic volumes approached pre-pandemic levels.^c

Temporary Emergency Transit Lane (TETL) Program Travel Time Savings Over Pre-Pandemic Levels

The TETL Program increased bus travel times by amounts ranging from 11% (on the 1 California line) to 31% (on the 14/14R Mission line) even as traffic volumes rose to nearly pre-pandemic levels.

Source: SFMTA, Evaluation of Temporary Emergency Transit Lanes, May 2022, <https://www.sfmta.com/reports/evaluation-summary-temporary-emergency-transit-lanes>.



As part of its Transit Priority Quick-Build Program, Muni is focusing on the 10 points along the Muni network with the greatest delays, where buses slow to an average of 4 miles per hour.^d Even where these hot spots are not in high-ridership locations, the resulting delays undermine reliability for the entire bus line and cost Muni significant resources. SFMTA is finding that many hot spots can be addressed quickly with affordable solutions.

Major Corridor Transit Priority Projects

Even as it elevated quick-build and temporary transit priority treatments, SFMTA continued to pursue bold and transformative corridor improvements for buses. For instance, the agency delivered major bus priority improvements in the Geary corridor and the Van Ness corridor. The Geary Rapid Project yielded 18% travel time decreases and a 37% travel time reliability improvement on one of the highest-ridership lines in the region.^e The Van Ness Bus Rapid Transit (BRT) Project yielded 35% travel time decreases in the northbound direction and a 35% increase in ridership in just the first six months of its debut.^f

Successful results notwithstanding, the time and expense required for these larger projects make clear that temporary, quick-build, and spot improvement strategies for transit priority have been critical to SFMTA's delivery of results for customers. Van Ness BRT took several decades for planning and construction and cost \$346 million with associated utility upgrades.^g

A Long Road to San Francisco's Current Successful Strategies

SFMTA's action on transit priority has accelerated in recent years, but the seed for such action was planted long ago. Fifty years ago, San Francisco's Transit-First Policy called for the types of transit priority interventions promoted in this report.^h They included:

- Dedicated bus lanes
- Turn restrictions for cars to avoid delaying transit vehicles
- Bus bulbs to accelerate boarding and alighting
- Strategic parking enforcement along transit routes
- Transit signals timed specifically for buses
- Strict enforcement against double parking and other transit lane interference

These concepts were prompted, in part, by a SPUR study in 1972.

With SFMTA's demonstrated successes in transit priority, the region and state should encourage and implement similar treatments.

^a SFMTA, Muni Forward, <https://www.sfmta.com/projects/muni-forward>.

^b SFMTA, Temporary Emergency Transit Lanes, <https://www.sfmta.com/projects/temporary-emergency-transit-lanes>.

^c SFMTA, *Evaluation of Temporary Emergency Transit Lanes*, May 2022, <https://www.sfmta.com/reports/evaluation-summary-temporary-emergency-transit-lanes>.

^d SFMTA, "Quicker Transit Fixes Through Muni's New Quick-Build Program," March 2020, <https://www.sfmta.com/blog/quicker-transit-fixes-through-munis-new-quick-build-program>.

^e D. Sindel, SFMTA, "Riders Are Feeling the Difference on Geary," December 2022, <https://www.sfmta.com/blog/riders-are-feeling-difference-geary>.

^f R. Cano, "S.F.'s Van Ness BRT Created a Ridership Boom for Muni. Here's What the Data Shows," *San Francisco Chronicle*, November 3, 2022, <https://www.sfchronicle.com/sf/article/S-F-s-Van-Ness-BRT-created-a-ridership-boom-17556984.php>.

^g SFCTA, Van Ness Improvement Project, <https://www.sfcta.org/projects/van-ness-improvement-project>.

^h City and County of San Francisco, Transit-First Policy, March 1973, https://www.sfmta.com/sites/default/files/reports-and-documents/2018/03/1973_transit_first_resolution_189-73.pdf.

Momentum on Transit Priority Action

Many factors are converging to create an opportunity for bold transit priority treatments that will improve bus service. These factors include new commitments from MTC and other regional actors, state legislation to temporarily exempt sustainable transportation projects from the California Environmental Quality Act (CEQA), and interest in transit priority from state transportation agencies. But advancing local, regional, and state efforts requires incentives and changes in institutional relationships.

Bay Area Transit Transformation Action Plan

In July 2021, MTC published the Bay Area Transit Transformation Action Plan, developed by the Blue Ribbon Transit Recovery Task Force, which reflected broad representation from transit operators, regional and state policymakers, local jurisdictions, and transit advocates.⁴ Task force participants showed strong consensus on the urgency of delivering transit priority treatments. To expedite these treatments on key corridors, the plan recommends the following:

- A Caltrans directive to expedite bus priority design exceptions
- Legislation to remove barriers to transit priority implementation
- Funding for the design and delivery of prioritized near-term transit corridor projects
- A cooperative agreement process to expedite transit travel time improvements
- Implementation of a transit priority policy and a corridor assessment for improving bus speed and reliability on high-transit corridors and arterials

CEQA Exemption for Transit Priority Projects

Senate Bill 922 (Wiener, 2022) created a statutory exemption from CEQA for sustainable transportation projects until the year 2030. With respect to transit priority infrastructure, the exemption applies to the following:

- Changes to traffic signals and signage
- Installation of ramp meters
- Conversion of mixed-traffic lanes to dedicated transit lanes, including transit queue jump lanes, shared turning lanes, and turn restrictions
- Narrowing of lanes to allow for dedicated transit lanes or transit reliability improvements
- Widening of existing transit travel lanes through street parking restriction or removal
- Installation of transit bulbs and transit boarding islands

⁴ MTC, Bay Area Transit Transformation Action Plan, July 2021, https://mtc.ca.gov/sites/default/files/documents/2021-09/Transit_Action_Plan_1.pdf.

Bigger Role for the California State Transportation Agency and California Department of Transportation in Transit Priority

The California State Transportation Agency (CalSTA), which coordinates policies and programs across all state transportation modes, and the California Department of Transportation (Caltrans), which manages the state highway system and helps coordinate intercity rail, have both shown willingness to play larger roles in prioritizing transit.

In July 2021, CalSTA adopted the Climate Action Plan for Transportation Infrastructure (CAPTI), which calls for state transportation infrastructure investments to “aggressively combat and adapt to climate change while supporting public health, safety and equity” and to invest in dedicated bus lanes, transit signal priority, and other “highway solutions that improve transit travel times and reliability.”⁵

In December 2021, Caltrans adopted the Complete Streets Director’s Policy, calling for coordinated action across the agency to ensure that state transportation roadway investments consider the needs of transit vehicles and transit customers.⁶

CalSTA, Caltrans, and other agencies have partnered on the California Integrated Travel Project (Cal-ITP) to facilitate travel planning and payments across California. In 2022, as part of this program, Caltrans launched the Better Buses for California Initiative, which consolidated real-time bus location data to identify transit delay locations and which called on transit operators, local jurisdictions, and the public to identify opportunities to improve transit speed and reliability.⁷

Caltrans District 4, which covers the nine-county Bay Area region, will initiate work on a transit plan for the region in 2023. This work is an opportunity to consider the potential for transit priority treatments, particularly on the state highway system. Because a Caltrans district has never led a transit plan, the work may serve as a model for other Caltrans districts wishing to support transit performance.

The transit plan proposes to develop strategies and actions that track closely with this report’s recommendations:

- Streamline transit priority improvements.
- Collect performance metrics for transit priority infrastructure.
- Develop an equity-focused prioritization methodology for transit-supportive infrastructure.
- Identify transit elements to include in major state funding programs such as the State Highway Operations and Protection Program (SHOPP).
- Make use of funding opportunities in SHOPP, California’s Road Repair and Accountability Act (Senate Bill 1, enacted in 2017), and federal funding programs.

⁵ CalSTA, Climate Action Plan for Transportation Infrastructure, July 2021, <https://calsta.ca.gov/-/media/calsta-media/documents/capti-july-2021-a11y.pdf>.

⁶ California Department of Transportation, Complete Streets Director’s Policy (DP-37), <https://dot.ca.gov/-/media/dot-media/programs/sustainability/documents/dp-37-complete-streets-a11y.pdf>.

⁷ Caltrans, “Better Buses for CA,” <https://caltrans.brightidea.com/BetterBusesforCA>; California Integrated Travel Program (Cal-ITP), “California Transit Speed Maps,” <https://analysis.calitp.org/rt/README.html>.

Metropolitan Transportation Commission's Connected Network Plan

MTC is in the early stages of an 18-month process to develop a transit plan for the nine-county Bay Area. The Connected Network Plan focuses on strategic investments necessary to deliver a coordinated and connected regional transit network. The plan will consider not only how transit priority treatments can support specific transit corridors but also how speed and reliability improvements can create broader network benefits. For example, improved bus reliability supports a transit schedule design that coordinates transfers between different transit lines, making it possible to serve many more destinations with the same resources.

Chapter 3

Recommendations: Delivering Bold Transit Priority Interventions

The following recommendations are intended to better align the interests of those who control and fund roadway improvements with the transit performance objectives of transit operators and their riders. Some recommendations will require work at multiple levels of government. Others can be implemented by single tiers of government: state, regional, county, local, or transit district.

Cross-Cutting Recommendations

These recommendations involve multiple levels of government and fall into four categories: establishing policies that prioritize transit, establishing transit priority performance metrics and targets, embracing spot improvements and quick-build techniques, and supporting regional and subregional experts to support transit priority designs.

RECOMMENDATION 1

Establish policies that prioritize transit.

A single transit priority treatment can require action on multiple fronts, including capital roadway investments, modified traffic operations, and parking/traffic enforcement. An overarching transit priority policy would support coordination of these efforts as well as coordination of multiple transit priority treatments. Agencies would be more efficient and more effective in delivering these treatments if they established a transit priority policy.

Caltrans

Caltrans should publish a set of coordinated transit priority policies as an official director's policy. Caltrans is a complex state agency, with multiple distinct divisions and 12 districts across the state, each with varied cultures, histories, and practices. Establishing transit priority as a central objective for Caltrans requires a clear and ambitious directive from the department's top leadership. For Caltrans, policy directives often come in the form of a Caltrans director's policy, such as the Complete Streets Director's Policy (DP-37), issued in 2021.⁸ For policies that affect only part of the agency, a Caltrans deputy directive may be issued by the most relevant deputy director — for example, the Managed Lane Facilities Deputy Directive, issued in 2015.⁹

⁸ Caltrans, Complete Streets Directors Policy (DP-37), December 2021, <https://dot.ca.gov/-/media/dot-media/programs/sustainability/documents/dp-37-complete-streets-at1y.pdf>.

⁹ Caltrans, Managed Lanes Facilities Deputy Directive (DD-43-RI), May 2015.

Formal headquarters action would signal that Caltrans is serious about transit priority. As a means of implementing the goals of CAPTI and supporting recommendations of the Bay Area Transit Transformation Action Plan, the Caltrans director should publish a set of coordinated transit priority policies as an official director's policy. This policy should incorporate the recommendations described in "Caltrans Recommendations" (see page 31).

A transit priority directive could be a stand-alone policy, or it could be incorporated into an existing director's policy. The best place to incorporate transit priority policy into an existing Caltrans directive is the Complete Streets Director's Policy.¹⁰ This policy seeks to change practices in roadway design to better accommodate more sustainable and affordable travel modes, such as walking, biking, and transit use. Although the existing policy speaks to the need for roadways to better accommodate transit, it does not provide substantive recommendations for transit in the way that it does for walking and biking, leaving transit priority improvements without clear guidance or support from Caltrans headquarters.

MTC

MTC should establish an overarching regional transit priority policy describing how transit priority treatments support regional goals and defining MTC's authority, strategy, and tools to support the delivery of the treatments. Because MTC is neither a transit agency with deep expertise in transit operating efficiency nor a local jurisdiction with direct control of roadways, it is important to define MTC's role and interest clearly.

An MTC transit priority policy should include the following:

- A summary of existing MTC policies and plans that encourage and prioritize roadway changes that would improve bus speed and reliability
- Goals and metrics for transit priority performance
- Criteria for prioritizing funding for transit priority treatments
- Guidelines for coordinating treatments across jurisdictions and transit operators
- A framework for conditioning local government's eligibility for transportation funds on its compliance with regional transit priority policies

A regional transit priority policy should reflect input from transit operators, county transportation agencies, local jurisdictions, Caltrans, and transit advocates.

¹⁰ See note 8.

MTC's Previous Efforts to Tie Transit Priority Improvements to Funding

In 2012, MTC's Transit Sustainability Project and Transit Performance Initiative funded important transit priority corridor projects such as Alameda-Contra Costa Transit's (AC Transit's) Route 51, San Francisco Muni's Mission Street, and Livermore-Amador Valley Transit Authority's Dublin Boulevard. To encourage local jurisdictions to incorporate transit priority improvements on transit corridors, the policy required that jurisdictions adopt a complete streets policy as a condition for accessing a significant portion of regional discretionary funds through the One Bay Area Grant Program. In theory, jurisdictions have to account for transit riders in roadway design. In practice, however, they have focused on transit agency ridership, productivity, and financial stability and have not demonstrated substantial local leadership on transit priority treatments. MTC's past work on the Transit Performance Initiative suggests that funding incentives must focus on delivering transit priority treatments rather than on broad measures of transit performance.

County Transportation Agencies

County transportation agencies (CTAs) should establish county-level transit priority policies that define what the county will do to expand, encourage, and streamline the delivery of transit priority treatments.¹¹ County transit priority policies are best enumerated in countywide transportation plans, which, by state law, play a key role in transportation coordination.¹² In this way, such policies can be integrated with other modal priorities, corridor plans, and funding priorities. During 2023, MTC will be updating guidelines that establish what CTAs must include in countywide transportation plans. MTC's countywide transportation guidelines should require these plans to include a transit priority advancement policy.

Local Governments

Local governments should create transit-first policies that describe how they will prioritize transit performance in local decision-making. Such policies tell staff that they are expected to seek methods for delivering transit priority. This directive changes the dynamic during collaboration between city staff and transit operators.

Transit-first policies provide general guidance rather than a prescription for handling each type of transit priority intervention. Such policies typically:

- State that it is a goal of the city to prioritize bus speed and reliability in roadway design and operations

¹¹ CTAs have varying roles in each county. In San Francisco, where the SFMTA operates transit and roadways in the same geography as the CTA, it may not make sense to have a separate policy at the CTA. In San Mateo County, which has two countywide transportation entities (the San Mateo County Transportation Authority and the City/County Association of Governments), MTC discretion will be required to determine the best entity to establish a countywide transit priority policy.

¹² MTC, *Guidelines for Countywide Transportation Plans*, March 2020, https://files.mtc.ca.gov/pdf/ctp/CTP_2000_Guidelines.pdf.

- Identify corridors and procedural steps for applying the policy
- Provide direction to staff on how to demonstrate a transit-first approach

San Francisco established one of the Bay Area's first transit-first policies more than 50 years ago; San José adopted its transit-first policy in 2022.¹³

In recent years, San Francisco has relied heavily on its transit-first policy to rapidly implement bus lanes and other transit priority improvements on most high-ridership lines. In San José, staff at the county's transit agency, the Valley Transportation Authority (VTA), report that the newly adopted transit-first policy has already improved the quality and outcomes of local decisions about roadway transit priority investment. Local decisionmakers are generally willing to make bolder commitments in the context of a broad policy discussion about prioritizing bus speed and reliability than in the context of specific choices about individual road segments or intersections.

Transit Operators

Transit operators should establish transit priority policies that define the actions they will take to promote transit priority and assign responsibility for the actions within the agency.

Although transit operators often lack the authority to implement transit priority roadway changes, they play a vital role in identifying, advocating for, designing, and often funding such roadway changes. Transit priority policies at transit agencies should commit operators to

- Identifying causes for transit delay as well as roadway infrastructure or operational changes that could improve conditions.
- Engaging with roadway authorities regarding locations that require priority action and making specific recommendations for solutions as well as engaging with planning authorities to incorporate transit priority initiatives in transportation and general plans.
- Identifying where enforcement should be prioritized to support transit speed and reliability
- Routinely and proactively collecting data to quantify the benefits of transit priority improvements and adjusting investment priorities accordingly

In addition to establishing their own transit priority policies, transit operators should promote transit priority policies that are effective for local jurisdictions. For example, VTA developed a framework that cities in Santa Clara County can use to develop their own transit-first policies.¹⁴ VTA enumerated how transit priority helps achieve city policies and goals in a clear and easily shareable format, helping city staff communicate the agency's message to local decisionmakers.

¹³ SFMTA, "San Francisco's Transit-First Policy Turns 50," March 2023, <https://www.sfmta.com/blog/san-franciscos-transit-first-policy-turns-50#:~:text=Adopted%20on%20March%2019%2C%201973,streetcar%20and%20cable%20car%20tracks>; City of San José, "Transit First Policy," July 2022, <https://sanjose.legistar.com/View.ashx?M=F&ID=11100098&GUID=D9C99876-B678-4161-A827-ED8A1010F3C3>.

¹⁴ VTA, "The Role of Local Government and Transit First Policies," <https://www.vta.org/cdt/role-local-government-transit-first-policies-home-page>.

Such guidance can also help local transit advocates to be more effective promoters of transit priority projects.

RECOMMENDATION 2

Establish transit-priority performance metrics and targets.

State, regional, county, local, and transit operator governments should each establish clear performance metrics and performance outcomes for transit priority treatments.¹⁵ These are some common metrics:

- Transit travel time reliability — that is, consistency in the amount of time required to travel a roadway segment during a given time of day
- Average transit travel speed
- Average transit travel speed relative to automobile travel speed
- Delay, or the additional time that transit riders spend on a given segment relative to the time required during free-flow travel conditions
- Passenger delay — that is, delay weighted by the number of passengers experiencing the delay (if two buses take the same amount of time to travel a given congested roadway segment and one bus has twice as many passengers, that bus would have double the passenger delay)

In establishing performance targets, an agency should define a standard for transit performance or a level of improved transit performance for corridors with transit priority treatments. Such performance targets may take the form of a percentage increase in speed or reliability expected along corridors with a certain threshold of transit ridership or transit bus frequency. For example, in its countywide transportation plan, a county transportation agency might establish that all corridors with more than 200 transit passengers per hour during the peak period must increase average transit speeds by at least 10% or achieve an average transit speed of 12 miles per hour.

The advantage of using transit priority performance targets is that establishing them need not focus on any specific type of transit priority treatment. Decisions could be left to local stakeholders and government agencies collaborating on specific transit corridors. All that matters is that the combination of transit priority treatments successfully delivers bus performance improvements, as defined by the performance targets.

¹⁵ Natural Resources Defense Council (NRDC) describes many such metrics; see NRDC, *Bus Priority Toolkit: Key Messages and Evaluation Methods*, May 2021, <https://www.nrdc.org/bio/zak-accuardi/new-toolkit-supports-bus-priority-implementation>.

RECOMMENDATION 3

Embrace spot improvements and quick-build techniques.

Quick-build transit priority treatments use low-cost materials and installation methods to deliver fast and affordable interventions where transit vehicles are delayed. Unlike most roadway infrastructure, such treatments are generally not designed to endure for decades. Quick-build projects can accelerate project delivery, enable design iteration and experimentation, and relatively quickly allow riders to experience better transit performance while longer-term solutions can be planned.

Quick-build projects require caution when they rely on nonstandard materials that are less costly and quick to install. Such materials may weather poorly, be less comfortable for users, and be less attractive. In some cases, such as using paint to delineate transit-exclusive lanes, quick-build approaches appear to be adequate. In other cases, such as installing plastic bollards and removable bus pads, quick-build installations have, at times, caused a backlash. Quick-build approaches should generally include a timeline for a transition to permanent installations.

This bus boarding platform at San José State University is an example of a quick-build transit priority treatment. Because this quick-build installation (shown below) worked well, the San José DOT has since upgraded to permanent materials, as is often advisable with quick-build treatments.

Source: SJ DOT



Quick-build transit priority projects should be a priority across all levels of government.

- **Caltrans** should establish funding and streamline policies to encourage quick-build transit priority treatments on state highways and on transit routes that feed into the state highway system.
- **MTC** should ensure that transit priority funding streams are flexible to support quick-build opportunities and that funding application timelines are suited to quick-build design and installation schedules.
- **County and local jurisdictions** should establish expedited approvals for implementing quick-build transit solutions.
- **Transit operators** should identify hot spots where quick-build solutions could be quickly tested to deliver immediate relief from congestion and should determine whether these solutions show promise in broader and more permanent applications. Operators should notify road authorities and MTC about quick-build opportunity sites in order to capture funding and implementation opportunities.

The potential effectiveness of quick-build action on a citywide scale is best demonstrated by SFMTA's Temporary Emergency Transit Lane Program (see "San Francisco's Bold Action on Transit Priority," pages 19–20).

The leap from successful pilot to permanent transit priority treatment has become far simpler thanks to recent state legislation eliminating California Environmental Quality Act review for most transit priority treatments. SPUR's research found that agencies quickly began using this new law to implement bus lanes.¹⁶ Before its enactment, agencies might have sought to pursue large projects in order to consolidate cumbersome environmental reviews. Now they might find it more reasonable to take the more incremental quick-build approach — installing small interventions tailored to specific bus delay problems and, over time, converting these small interventions to permanent infrastructure, either as funding is available or in conjunction with overlapping roadwork.

RECOMMENDATION 4

Help regional and subregional experts support transit priority designs.

Planning, design, and implementation of transit priority treatments requires expertise. Practitioners must be well versed in the best ways to deliver efficient transit and balance other objectives such as bicycle and pedestrian safety. Practitioners must be skilled in communicating with the decisionmakers and the public. Larger transit operators sometimes have significant expertise and can serve as technical advisors not only for projects sponsored by transit operators but also for projects sponsored by cities and small agencies that often lack in-house expertise in transit priority.

¹⁶ Laura Tolkoff and Kenji Anzai, *Accelerating Sustainable Transportation in California*, SPUR, April 2022, <https://www.spur.org/publications/white-paper/2022-04-13/accelerating-sustainable-transportation-california>.

MTC, CTAs, and large transit operators should create a community of practice to support the design and delivery of transit priority treatments. These agencies could hire and share regional and subregional experts who support transit operators and local jurisdictions in the planning and design process. Alternatively, MTC could hire on-call consultants and make them accessible to transit operators and local jurisdictions as needed. In addition, MTC, CTAs, and large transit operators could organize regional or subregional working groups that share challenges, progress, and innovative solutions relevant to transit priority treatments.

MTC recently funded positions at both MTC and AC Transit to lead transit coordination efforts, creating an opportunity to develop a transit priority community of practice.

Caltrans Recommendations

As noted above, a policy directive from Caltrans headquarters is necessary to advance state leadership on transit priority, but even without defining an overarching policy directive, Caltrans could take many specific actions to support transit priority on the state highway network. Ideally, each of these actions would be included in such a directive or in any other formal declaration by Caltrans of its commitment to improve bus speed and reliability.

Caltrans has three key roles in advancing transit priority. One key role is to support changes to the state highway network to ensure that its many high-ridership bus routes are fast and reliable. Such changes include, for example, approving the conversion of current general-purpose lanes to bus/HOV lanes or coordinating with a transit operator to install traffic signal technology that accommodates transit signal priority operations.

EXHIBIT 5
Examples of High Ridership Bus Corridors on State Routes in the Bay Area
 Some of these bus lines would benefit or have already benefitted from Caltrans support for transit priority interventions.

Sources: See table notes.

STATE ROUTE OR U.S. HIGHWAY	PRIMARY TRANSIT ROUTE	JURISDICTIONS	ESTIMATED CORRIDOR WEEKDAY RIDERS
SR123	AC Transit (72/72M/72R)	Oakland, Emeryville, Berkeley, Albany, El Cerrito, Richmond	12,500 ^a
SR82	SamTrans (ECR) VTA (22, 82, 522)	Burlingame, San Bruno, San Mateo, Redwood City, Menlo Park, Mountain View, Sunnyvale, and many others	10,000 ^b
SR185	AC Transit (Tempo Line)	Oakland, San Leandro	13,500 ^c
US101 San Francisco	SF Muni (28 & 49)	San Francisco	20,000 ^d
US1	SF Muni (28)	San Francisco	17,500 ^e

^a ACTC, *San Pablo Avenue Corridor Project: Phase 1 Executive Summary*, August 2020, https://www.alamedactc.org/wp-content/uploads/2020/08/SanPabloAvenue_ExecutiveSummary_FINAL.pdf.

^b Samtrans, *El Camino Real Bus Rapid Transit Phasing Study*, December 2014, https://www.samtrans.com/files/samtrans/Assets/_Planning/BRT/SamTrans+ECR+BRT+Phasing+Plan+Study.pdf.

^c As of December 2022, per AC Transit staff.

^d R. Cano, "It Took 27 Years and \$300 Million. Will S.F. Van Ness BRT Improve Traffic Congestion?" *San Francisco Chronicle*, March 2, 2022, <https://www.sfchronicle.com/sf/article/S-F-Van-Ness-transit-project-is-ready-after-17027218.php>.

^e J. Fitzgerald Rodriguez, "28-19th Avenue Muni Project to Improve Safety, Speed," *San Francisco Chronicle*, July 9, 2015, https://www.sfgaminer.com/news/28-19th-avenue-muni-project-to-improve-safety-speed/article_fe714eff-3ad3-5acb-82cd-b301fe39cd67.html.

A second key role for Caltrans is to demonstrate leadership in coordinating the implementation of transit priority treatments. Caltrans is uniquely positioned to lead when it comes to multi-jurisdictional corridors. Its standards and performance requirements for state highways already guide how local jurisdictions' streets must evolve. Though they often chafe at the idea of outside agencies dictating what can and cannot be done on city streets, local jurisdictions are accustomed to such requirements from Caltrans. Caltrans should show what can be accomplished when an authority for multijurisdictional corridors demands roadway designs and operations that prioritize transit speed and reliability.

If Caltrans were to require aggressive implementation of transit priority improvements on state routes, the resulting lessons would inform efforts on other high-ridership corridors that currently lack a clear authority capable of demanding suitable bus priority improvements. Caltrans leadership on state highways would inform strategies that could be deployed by MTC, CTAs, or other subregional coordinating bodies.

As important as showing leadership is knowing when and how to get out of the way. Many agencies have expressed concern at how transit priority efforts have been weakened, slowed down, stalled, or avoided altogether because of Caltrans pushback, inaction, or unpredictability. For example, jurisdictions describe Caltrans mandating additional traffic studies that delay projects for more than a year or getting mired in conflicting Caltrans staff opinions that thwart essential state approvals.

The third key role for Caltrans (and CalSTA) is to leverage roadway and transit funding to reward actions that deliver transit priority projects. Such incentives can take several forms:

- Dedicating a portion of new Federal Infrastructure Investment and Jobs Act and Inflation Reduction Act funds specifically to transit priority projects
- Mandating that applications for certain competitive state funds (for example, Solutions for Congested Corridors) must commit to meeting state performance targets for bus speed and reliability in the corridor by incorporating transit priority treatments
- Requiring project sponsors to identify opportunities for transit priority treatments to transit operators in order for projects to be included in state funding programs such as the State Transportation Improvement Program (STIP) and the State Highway Operations and Protection Program (SHOPP)
- Requiring local policies to establish how transit priority treatments will be routinely evaluated in roadway improvement projects as a condition of receiving local roads funds through California's Road Repair and Accountability Act (SB 1).

RECOMMENDATION 5

Prioritize fast and reliable transit on the state highway system.

In evaluating transit priority projects, Caltrans must prioritize bus reliability and travel time even when these improvements could increase low-occupancy vehicle congestion on the state highway

system. The projects should include both urban arterial improvements and freeway bus priority treatments, such as creation of direct access lanes and installation of safe, accessible, convenient, and comfortable freeway-adjacent bus stops and stations.¹⁷

The following actions should be part of Caltrans efforts to prioritize fast and reliable bus service in the department's project delivery activities, investments, and ongoing maintenance and operations.

5a. Establish bus performance targets and identify infrastructure and operational changes to achieve them.

On state highway corridors with frequent bus service or proposed frequent bus service, Caltrans should establish performance targets that define acceptable outcomes related to bus service in the corridor. The targets could include, for example, average bus speed, bus reliability, and the maximum number of people that the corridor can accommodate. The targets should be established in coordination with transit operators, MTC, and local jurisdictions.

In collaboration with these entities, Caltrans should identify infrastructure and operational changes that are expected to achieve bus performance outcomes, along with contingency measures that should be implemented if performance targets are not being met. For example, Caltrans might work with transit operators and local agencies to implement transit signal priority along a state highway corridor. These partners could then agree on a plan for queue jump lanes if transit signal priority is insufficient to deliver target bus speed and reliability improvements.

Calling for Caltrans to demand ambitious bus performance outcomes does not mean that Caltrans must lead the design of transit priority treatments. Transit operators and local jurisdictions do not view that type of design to be an area of Caltrans expertise. Rather, operators and local jurisdictions would play a major role in identifying actions to deliver on state performance targets.

5b. Develop a list of automatic and expedited design exceptions.

Transit priority treatments sometimes require exceptions to Caltrans design standards.¹⁸ For example, putting in a transit-only lane where there was once parking will sometimes require a reduction in the width of adjacent travel lanes. Caltrans should establish an automatic or expedited approval for lane widths that are somewhat narrower than typical Caltrans design standards when such exceptions are necessary to deliver transit priority treatments. Expedited approval for exceptions to line-of-sight, signage, and striping requirements are also commonly needed to deliver these treatments.

Defining cases that merit such exceptions could reduce project approval times, prevent project stalls, and, most importantly, help transit operators and local jurisdictions think more proactively about the areas in which exceptions would deliver meaningful improvements.

¹⁷ SPUR's *Freeways of the Future* describes a wide range of freeway interventions to support efficient bus operations on existing freeways. See: Jonathon Kass and Arielle Fleisher, *Freeways of the Future: Delivering a Fast and Reliable Regional Bus Network on Existing Freeway Lanes*, SPUR, January 2021, <https://www.spur.org/publications/spur-report/2021-01-21/freeways-future>.

¹⁸ Caltrans, *Highway Design Manual, 7th Edition*, updated May 2022, <https://dot.ca.gov/programs/design/manual-highway-design-manual-hdm>.

A Solution for Infrequently Used Bus Lanes: Arterial HOV Lanes

Dedicated bus lanes sometimes fail to garner public or political support when bus service is not frequent enough to justify the space that is lost for private vehicle travel or parking. Dedicated bus lanes with sporadic use frustrate motorists sitting in traffic. Such lanes can harm efforts to win support for dedicated transit lanes.

Arterial high-occupancy vehicle (HOV) lanes — essentially carpool lanes on city streets — deliver transit speed and reliability improvements without prompting the backlash that can come from infrequently used transit lanes. In addition, they benefit carpoolers. Arterial HOV lanes have been implemented extensively in Texas and other states, but not in California.^a

SF Muni established California's first urban arterial HOV lanes on a state highway as a pilot project on Lombard Street and Park Presidio in San Francisco. This project restricted the right travel lane to vehicles with two or more occupants as well as right-turning vehicles, leaving curb parking in place. SF Muni is considering whether to restrict the lanes to vehicles with three or more occupants to keep them uncongested for transit vehicles. A preliminary evaluation showed an approximately 10% travel time savings for transit vehicles.^b Although not reported, travel time savings for HOVs requiring vehicles to carry two or more occupants were likely similar. Installation required primarily asphalt paint and signage.

Right-lane arterial HOV lanes that leave curb parking in place are the cheapest and easiest to implement but come with challenges. Enforcement is difficult because non-HOVs are permitted to be in the HOV lane when making right turns and when pulling in and out of curb parking spaces. A single-occupant vehicle must usually drive through multiple intersections in the HOV lane to be identified as a violator.

In addition, the legal presence of single-occupant vehicles that are parking and making right turns further diminishes the efficiency of the HOV lane for transit vehicles.

Left-lane arterial HOV lanes are possible and eliminate some of the enforcement and efficiency challenges, but they often entail much greater costs due to the need for median bus boarding platforms. This design also creates the challenge of buses interacting with left-turning vehicles.

Ongoing advances in the reliability of automated HOV enforcement technology offer hope for easier management of urban arterial HOV lanes that can deliver speed and reliability improvements for buses and HOVs alike, while overcoming political constraints in areas with infrequent bus use.^c

^a Katherine F. Turnbull, *Arterial Street High-Occupancy Vehicle (HOV) Lanes in Texas*, Texas Transportation Institute, January 2002, <https://static.tti.tamu.edu/swuttc.tamu.edu/publications/technicalreports/60042-1.pdf>.

^b SFMTA, Presentation on Park Presidio Lombard HOV Lanes Pilot Extension, September 6, 2022, <https://www.sfmta.com/reports/9-6-22-mtab-item-12-park-presidio-lombard-hov-lanes-pilot-extension>.

^c See SPUR Digital Discourse, "Life in the (Not So) Fast Lane," August 31, 2022, <https://www.spur.org/events/2022-08-31/life-not-so-fast-lane>.

5c. Expedite approval to change HOV occupancy requirements to elevate bus performance.

Decisions about who gets access to freeway high-occupancy vehicle (HOV) lanes or arterial HOV lanes affect whether the lanes can support fast and reliable bus service. These decisions may involve vehicle occupancy requirements, hours of HOV lane operation, and lane use by clean-air vehicles. When HOV lanes are not performing in a way that supports buses, they are also not working well for other high-occupancy vehicles, so there is broad interest in adjusting access requirements to ensure that HOV lanes are uncongested.

Increasing restrictions on the vehicles that can legally access HOV lanes would require more effective enforcement of existing HOV requirements. Two-person carpool drivers are understandably frustrated when they are excluded from HOV lanes while single-occupant vehicles continue to disregard access rules without repercussions.

RECOMMENDATION 6

Support transit priority through strong Caltrans staffing.

Transit operators and other local and regional transportation practitioners frequently express concerns about Caltrans leadership on transit priority. Commonly reported challenges are that Caltrans prioritizes private automobile performance, has limited experience with transit operations and performance, and cannot transform Caltrans staff feedback into a coherent department perspective that is also aligned with the state's sustainability and equity goals.

These challenges should be tackled head on, and the department's current leaders in Sacramento and in many Caltrans districts are eager to do so. Given its authority, funding capacity, and roadway expertise, Caltrans can become a key player in supporting transit priority treatments. The following immediate actions can help Caltrans staff support transit priority projects:

→ **Dedicate staff and establish new internal procedures to expedite transit priority projects.**

Any Caltrans district that includes state highways with frequent transit should be required to have a team dedicated to transit priority, with expertise and training in bus operations and transit priority. At least one individual should be available to work closely with local jurisdictions and transit operators on details of transit priority treatments and to serve as an intermediary with other Caltrans staff in evaluating transit priority proposals. Like Caltrans' designated bicycle and pedestrian coordinators, transit priority coordinators could serve as technical advisors within the Caltrans office and as reliable points of contact for local agencies striving to advance transit goals.

→ **Assign an accountable project manager to transit priority projects.** Caltrans should promptly assign a project manager for bus priority projects that require Caltrans approval. That manager should serve as the point of contact for the projects and be responsible for consolidating and ensuring the internal consistency of Caltrans comments and requests related to the projects.

-
- **Deliver timely, consolidated comments.** For transit priority projects, Caltrans should provide a consolidated agency response to designs within 30 days of submission. That response should be transmitted by the project manager (see above). Caltrans should respond to questions and requests for clarification within 30 days.
 - **Avoid delays associated with traffic analyses.** Caltrans should neither reject nor significantly delay (for example, by more than three months) the implementation of transit priority proposals in order to do detailed traffic analyses unless the analyses relate directly to achieving the desired transit efficiencies. (Exceptions may be necessary for certain traffic analyses, such as those relating to potential safety risks.)

MTC Recommendations

MTC must support counties, cities, and operators in delivering transit priority treatments. MTC should establish these treatments as a regional priority and implement funding incentives to speed their delivery.

MTC is well positioned to take leadership on transit priority matters.

First, MTC's existing policy commitments necessitate action to improve bus efficiency. For example, meeting Plan Bay Area 2050's climate, mobility, and equity targets depends on a 20% transit mode share. MTC's assumptions for achieving this outcome include implementing bold transit priority improvements, such as transit signal priority, dedicated bus lanes, and queue jump lanes.¹⁹ In addition, MTC's Transit Transformation Action Plan commits to increased funding for transit priority treatments, cooperative agreements to implement them, and proactive work with Caltrans to deliver transit priority requirements and incentives.

Second, MTC's role in prioritizing roadway and transit funding requires MTC to ensure that transportation investments deliver the greatest possible benefit. Transit priority treatments can increase the capacity of the transportation network and therefore tie directly into MTC's funding responsibilities.

Third, MTC's equity goals require transportation investments that improve access and mobility for people of color and people with low incomes. These communities use transit at higher rates, making investments that improve bus speed and reliability an important obligation for MTC.

In short, MTC needs to play a central role in supporting transit agencies and local governments to implement transit priority treatments. The Bay Area Transit Transformation Action Plan acknowledges this role and calls for actions such as greater funding for transit priority and support for cooperative agreements between jurisdictions and operators.

¹⁹ Examples of Plan Bay Area 2050 investments include \$300 million for VTA local bus modernization projects (under RTP project 21-T10-064) and \$2 billion for AC Transit rapid bus modernization (under RTP project 21-T10-073).

RECOMMENDATION 7

Establish a regional transit priority network.

Working with transit operators, local jurisdictions, and relevant county, regional, and state agencies, MTC should define a regional transit priority network and identify corridors where it seeks to streamline construction of transit priority projects. MTC should use this network to prioritize funding of these projects.

Within the network, MTC should provide incentives for all relevant authorities, in particular local jurisdictions, to help deliver transit priority treatments. It could condition discretionary roadway funds, such as those available through the One Bay Area Grant Program, on implementing these treatments. It could also fund development of the treatments and provide access to on-call regional transit priority experts.

The regional transit priority network should include corridors that are the most important transit routes, including those with high ridership and frequent bus service. Passenger ridership matters because it represents the number of people who experience delays when buses are caught in congestion. Bus frequency matters — even in areas where buses are not loaded with passengers — because buses experiencing delays on a congested segment cannot efficiently serve other segments where passengers may be waiting.

To ensure geographic diversity, the regional transit priority network should include at least one corridor in each county representing the county's highest passenger and bus volumes. Additional corridors should be considered if they have particularly high levels of transit delay.

Designating a regional transit priority network would help ensure that the most important transit priority projects are not delayed or weakened by purely local concerns.

MTC recently approved an interim structure for regional transit network management.²⁰ The entity responsible for this management is a committee comprised of MTC's executive director, large transit operators' general managers, and selected small operators' general managers. This entity is also the most logical entity to establish and update the regional transit priority network.

²⁰See MTC Resolution No. 4564, "Near-Term Regional Network Management (RNM) Framework Recommendations," <https://mtc.legistar.com/LegislationDetail.aspx?ID=6016767&GUID=8304FC07-E2B6-413E-9A10-EE1F15C2C937>.

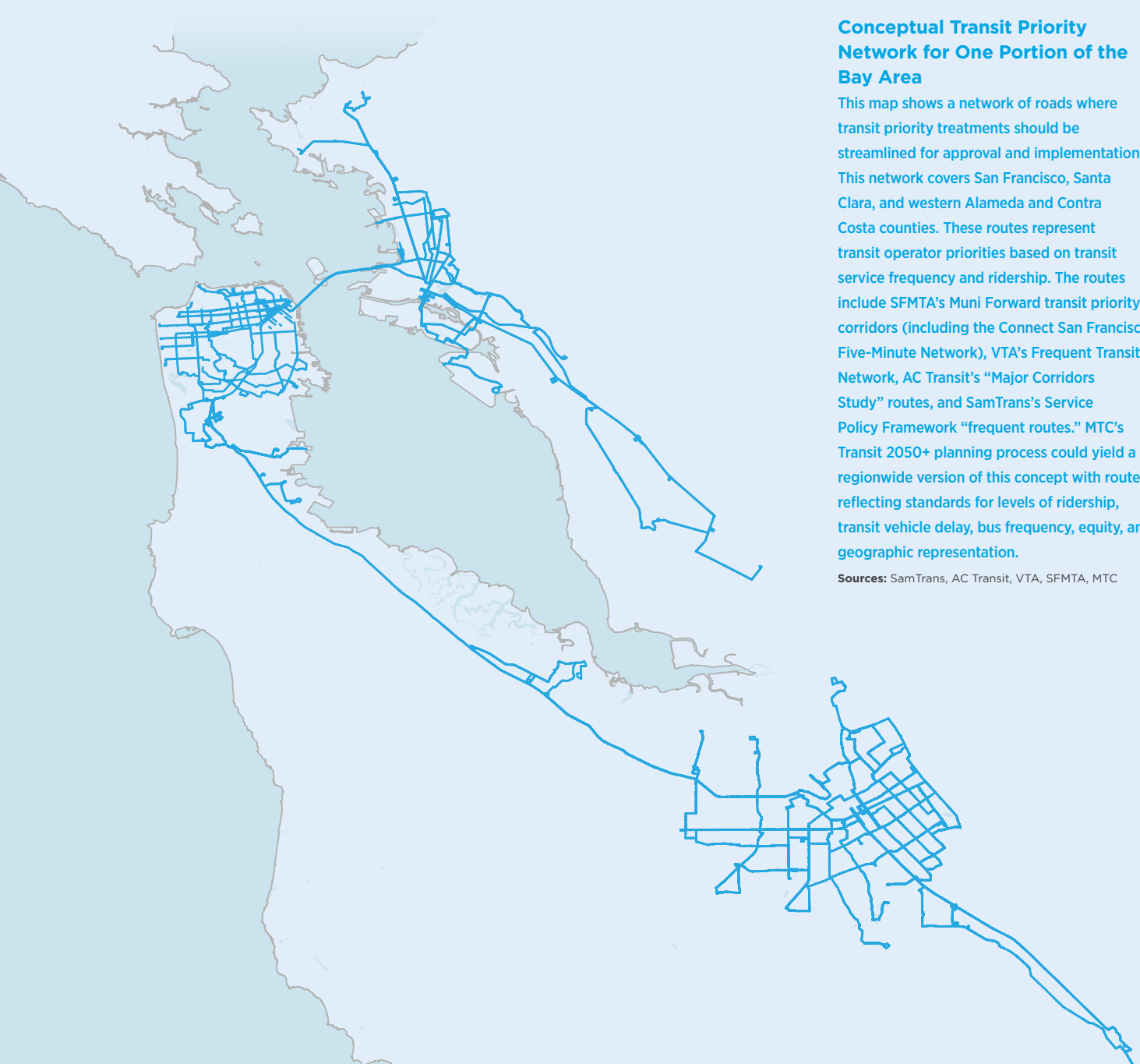
Regional Transit Priority Network Concept

A regional transit priority network is a network of roads where special measures to accelerate transit priority projects are justified given transit ridership, service frequency, number of transit routes, transit vehicle delays, equity considerations, and other factors. Within this network, local interests' ability to diminish or prevent transit priority proposals would be limited, either through state authority for certain roadways or through state and regional funding incentives. The network should include corridors across the region where transit operations are frequent, well used by customers, and relevant to regional travel patterns.

Conceptual Transit Priority Network for One Portion of the Bay Area

This map shows a network of roads where transit priority treatments should be streamlined for approval and implementation. This network covers San Francisco, Santa Clara, and western Alameda and Contra Costa counties. These routes represent transit operator priorities based on transit service frequency and ridership. The routes include SFMTA's Muni Forward transit priority corridors (including the Connect San Francisco Five-Minute Network), VTA's Frequent Transit Network, AC Transit's "Major Corridors Study" routes, and SamTrans's Service Policy Framework "frequent routes." MTC's Transit 2050+ planning process could yield a regionwide version of this concept with routes reflecting standards for levels of ridership, transit vehicle delay, bus frequency, equity, and geographic representation.

Sources: SamTrans, AC Transit, VTA, SFMTA, MTC



RECOMMENDATION 8

Create a permanent regional funding program to support delivery of transit priority projects.

MTC, in collaboration with the state, should establish funding incentives to encourage roadway interventions that improve transit efficiency. A long-term funding program is essential because building a pipeline of transit priority treatments takes time. Transit operators and local partners must have confidence that funding will be there when these projects are ready to move forward.

Transit priority projects are currently funded from a wide range of sources, including flexible federal funding (through MTC's One Bay Area Grant Program), Federal Transit Administration "small starts" grants, and local sales tax measures. These sources do not provide sufficient funding, nor are they reliable enough to motivate transit operators to build a pipeline of project proposals.

8a. Provide incentives for cities, counties, and transit operators to elevate transit priority in their plans and policies.

Transit priority treatments inherently require trade-offs among modes. For that reason, local transit priority policies should identify how jurisdictions will ensure that transit priority needs are considered in roadway planning, construction, operations, and maintenance; which transit delay conditions require near-term action; and which approaches the jurisdictions plan to take to balance transit priority with other needs in a given corridor.

Transit priority incentives for cities, counties, and transit operators should include funding to support the development and adoption of transit priority plans and policies and funding conditioned on having a transit priority policy and demonstrating continuous improvement across performance outcomes.

8b. Fund delivery of transit priority projects.

Barriers to implementing transit priority projects, including those erected by local jurisdictions, have led a number of transit operators to sharply limit resources for designing and campaigning for such projects. To encourage operators to invest in transit priority projects, MTC should provide dedicated funding for them.

In addition, MTC should designate a funding source specifically for cities and counties to lead on design and installation of transit priority projects. Many transit operators contend that such projects would proceed more efficiently if local jurisdictions took more responsibility for the outcomes. The region needs more examples of local jurisdictions that are not transit operators taking the lead on projects.

8c. Fund spot improvements and quick-build transit priority treatments.

MTC should designate annual funding specifically targeted for quick-build transit priority projects. A specific funding source would encourage all operators and jurisdictions to consider quick-build options, creating a pipeline of such projects. Quick-build projects could include the following:

- Spot improvements, such as striping a queue jump lane, modifying signal timing to favor transit at a congested intersection, or relocating bus stops to improve operational efficiencies
- Short road segment improvements, such as focused enforcement of illegal loading and double parking in a commercial district
- Full-corridor improvements, such as converting a parking lane to a part-time transit lane

MTC should designate funds specifically for projects that require less than 24 months to deliver.

RECOMMENDATION 9

Encourage local jurisdictions to streamline transit priority approvals.

MTC should create an additional funding incentive for local jurisdictions to streamline their process for approving transit priority treatments. These treatments can get bogged down in local opposition, particularly when they alter parking or travel lanes for single-occupant vehicles. In some cases, these impacts deserve broad community discussion, particularly when there are legitimate safety risks, equity concerns, or major business impacts.

But in other cases, transit priority treatments can be expedited, and less extensive community engagement is necessary. In these cases, jurisdictions seeking funding for treatments should be required to (1) create a one-stop permitting process for coordinating and consolidating requirements and approvals from all relevant jurisdiction departments and (2) establish guidelines that empower staff to approve minor roadway transit priority actions so that individuals participating in multijurisdiction working groups are able to make commitments on behalf of their jurisdictions. The incentive for such local streamlining could include eligibility for One Bay Area Grant Program funding or eligibility for other funding, as described above.

RECOMMENDATION 10

Make transit priority enhancements a routine part of ongoing roadway and traffic signal projects.

MTC — in consultation with transit operators, CTAs or major local departments of transportation, and Caltrans — should develop a checklist of transit efficiency enhancements that must be considered as part of routine repaving, roadway and signal maintenance, and other roadway projects. This checklist should focus on transit priority treatments that can be accomplished without major additional expense:

- Bus stop relocations
- Turn restrictions or exemptions
- Parking removals
- Signal-phase modifications
- Transit signal priority
- Passive traffic signal retiming
- Queue-jump lane installations

The recommended checklist could augment MTC's existing complete streets checklist, which asks whether transit agencies have had project review opportunities.²¹ Other questions to consider for the checklist:

- Is the project on the regional transit priority network?
- Are bus delays along the segment routine? If so, could transit priority treatments mitigate them?
- Are there plans for future bus service within the project area that should be considered?

Local Jurisdiction (City and County) Recommendations

In most cases, local jurisdictions have the greatest authority to support or reject transit priority treatments. Local jurisdictions will be more likely to approve transit priority treatments if funding incentives are tied to transit performance outcomes (such as speed and reliability improvements). Local jurisdictions could take several actions to be better partners in implementing transit priority projects, most critically by adopting transit-first policies. Transit operators, consultant experts, and local practitioners also point to the following recommendations.

RECOMMENDATION 11

Streamline local approval for simple transit priority actions.

MTC, in consultation with CTAs, should identify particular transit priority treatments for streamlined delivery. When a transit operator proposes one of these treatments on the regional transit priority network, local jurisdictions should establish an automatic approval unless they identify an overriding safety risk. Regional and county discretionary transportation funds for roadway improvements should be conditioned on local jurisdictions' adoption of such policies. Streamlined transit priority treatments should include those that involve no significant construction, local maintenance obligations, or major impacts on roadway capacity. Some examples:

- Removal of a limited amount of parking (say, fewer than two spaces or less than 20% of spaces) from a single block face to accommodate queue jump lanes, bus stop relocations/extensions, or loading zones that eliminate double parking
- Relocation or extension of bus stops
- Restrictions on or exemptions for turns
- Removal of parking spaces in front of bus flag stops

²¹ MTC, Complete Streets Policy, updated April 2023, <https://mtc.ca.gov/planning/transportation/complete-streets>.

RECOMMENDATION 12

Empower staff to approve basic transit priority treatments.

Local jurisdiction staff often participate in multijurisdiction (state, regional, and county) meetings to identify and coordinate desirable transit priority treatments. To accelerate delivery of these treatments, local jurisdictions should establish guidelines that empower staff to approve certain roadway transit priority actions on behalf of their jurisdictions.

RECOMMENDATION 13

Create one-stop permit approval.

For transit agency requests, local jurisdictions should create a one-stop permitting process that coordinates and consolidates requirements and approvals from all relevant jurisdiction departments. In addition, local jurisdictions should waive permit fees for transit priority projects.

Transit Operator Recommendations

Transit agencies have been doing much of the work to push transit priority solutions in the Bay Area. In many corridors, transit operators are best positioned to evaluate transit priority investments because, with proper resources, they have the expertise and data to do the following:

- Quantify passenger travel time and service reliability improvements associated with different transit priority treatments
- Quantify potential operational savings
- Prioritize roadway design and operations changes that deliver the greatest customer, efficiency, and ridership benefits
- Compare the benefits and costs of transit priority treatments for customer performance relative to other transit investments such as bus frequency enhancements or route adjustments

However, transit operators are often in a weak position to advance changes to roadway infrastructure and operations, both because they lack such authority and because transit riders' interests are often outweighed by private vehicle and near-term business interests. Many of the preceding recommendations are intended to better align the interests of those who control and fund roadway improvements with the transit priority objectives of many transit operators and MTC.

The following recommendations focus on areas in which transit operators possess authority to take action.

RECOMMENDATION 14

Develop a pipeline of transit priority roadway project designs.

Transit operators should dedicate staff to identifying locations and corridors with speed and reliability problems and recommending solutions. The solutions should reflect the timeline for planned roadway construction or operational changes that could create opportunities to implement transit priority changes in a more efficient and integrated manner. Transit operators' ability to coordinate their efforts with jurisdictions' efforts would be enhanced if jurisdictions proactively notified agencies of planned roadwork where transit is frequent.

RECOMMENDATION 15

Promote inclusion of high-ridership and other priority routes in a regional transit priority network.

MTC will be developing a plan for the region's transit network in the Transit 2050+ process, which will generate a regional vision for transit priority. Operators should participate actively in this regional process, identifying routes that must be prioritized for faster delivery of transit priority treatments on the basis of ridership, levels of delay, equity considerations, and importance for network coordination.

RECOMMENDATION 16

Invest in bus-mounted automated enforcement cameras.

Double parking, illegal parking, and inappropriate loading create significant bus delay and reliability challenges. These practices not only block bus lanes and transit stops but also create vehicle congestion, further impacting bus performance, and even lead to hazardous conditions for transit customers, pedestrians, and other vehicles. Public transit agencies should be empowered to enforce a range of parking violations that consistently decrease transit speed and reliability. Options include the following:

- Recent state legislation extended, through 2027, transit operators' authorization to issue automated tickets to drivers blocking bus lanes or bus stops on the basis of evidence captured by automated cameras on buses.²² This legislation should be expanded to allow transit operators to issue citations to owners of vehicles that commit parking violations on any bus route, not solely in transit-only lanes and at transit stops.
- MTC should ensure that the installation and operation of automated parking citation cameras is eligible for transit priority funding or should identify other sources of funding.
- Local elected officials are often sensitive to programs that involve vehicle citations, even when implemented in a fair and equitable manner. MTC should track the implementation of automated parking enforcement cameras by transit operators. If local discussions suggest

²² See California Assembly Bill 917 (Bloom), 2021, https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=20210220AB917.

that further incentives are needed to promote the deployment and active use of such cameras, MTC should require that deployment and use as a condition for transit operators to receive regional discretionary funds.

Enforcement is essential to transit priority, but fines often undermine economic security for low-income communities. To receive funding assistance, agencies should be required to introduce policies that ensure fines are equitable. Such policies should make fines means-based (reduced for those with less ability to pay) and should expand ability-to-pay programs.

Bottom Line

Policy changes and funding programs are necessary to get transit out of traffic congestion and to improve bus speed and reliability on city streets and arterials. Interventions must acknowledge the immense challenges transit agencies currently face in trying to deliver transit priority projects. Regional and state funding programs must inspire transit operators and local jurisdictions to collaborate on fixing road conditions that delay transit vehicles. Programs are needed to support both coordinated transit corridor investments (such as bus lanes, transit signal priority, and arterial HOV lanes) and hot-spot and quick-build solutions for locations that experience consistent transit delay.

This call for investments in transit priority treatments comes at a time when there are extraordinary demands for new resources to support transit. But funding for transit priority complements efforts to create more sustainable funding for transit operations. Transit priority treatments would deliver not only better service but also more affordable transit operations and increased ridership. Moreover, they would help transit become more competitive on streets where private automobiles now rule. State, regional, and local governments should support these changes by dedicating resources, particularly roadway investments, to broad adoption of transit priority projects.

Appendix: Summary of Recommendations

Cross-Cutting Actions

ACTOR(S)

<p>Establish transit priority policies and performance targets that elevate the importance of transit priority treatments and empower staff to take the initiative on such treatments.</p>	<p>Many</p>
<p>Caltrans, in coordination with CalSTA, should establish a transit priority policy directive defining how Caltrans will deliver and support transit priority treatments on the state highway system.</p>	<p>Caltrans and CalSTA</p>
<p>MTC should establish a transit priority policy that includes regional performance standards and conditioned funding to encourage the design and implementation of transit priority roadway treatments. The policy should include:</p> <ul style="list-style-type: none"> - A summary of existing MTC policies that encourage and prioritize roadway changes that will improve bus speed and reliability - Goals and metrics for transit priority performance - Criteria for prioritizing funding for transit priority treatments - Guidelines for coordinating across jurisdictions and transit operators 	<p>MTC</p>
<p>In its 2023 Guidelines for Countywide Transportation Plans, MTC should incorporate basic requirements for how CTAs must address transit priority.</p>	<p>MTC</p>
<p>CTAs should establish county-level policies defining how the agency will expand, encourage, and streamline the delivery of transit priority treatments. Countywide transportation plans should integrate transit priority with other modal priorities, corridor plans, and funding priorities.</p>	<p>CTAs</p>
<p>Local governments should establish transit-first policies that, at a minimum:</p> <ul style="list-style-type: none"> - Prioritize, as a municipal goal, bus speed and reliability in roadway design and operations - Identify corridors and procedural steps for applying the policy - Provide guidance to staff on how to demonstrate a transit-first approach 	<p>Local jurisdictions</p>
<p>Transit operators should establish transit priority policies that define operator initiatives to promote transit priority treatments and assign responsibilities for such actions within the agency.</p>	<p>Transit operators</p>
<p>Establish transit priority performance metrics and targets with regard to:</p> <ul style="list-style-type: none"> - Transit travel time reliability - Average transit travel speed - Average transit travel speed relative to automobile travel speed - Transit delay - Passenger delay 	<p>All: state agencies, MTC, counties, local jurisdictions, transit operators</p>
<p>Embrace quick-build transit priority projects. Establish dedicated funding to support transit priority solutions that can be implemented quickly and adjusted in response to performance.</p>	<p>All: state agencies, MTC, counties, local jurisdictions, transit operators</p>
<p>Help regional and subregional transit experts support the design and implementation of transit priority treatments. Create a community of practice and technical support so that smaller jurisdictions and operators have access to the expertise needed to deliver transit priority treatments.</p>	<p>CalSTA, MTC, counties, large transit operators</p>

Continued

Caltrans and Other State Actors

ACTOR(S)

Issue a state-level policy directive on transit priority roadway interventions (also discussed under cross-cutting poliies above) that includes at least the two following Caltrans recommendations.	Caltrans or CalSTA
Prioritize fast and reliable transit on the state highway system.	Caltrans

In evaluating transit priority projects, prioritize bus reliability and travel time even when these improvements could increase low-occupancy vehicle congestion.

Identify design exceptions that will be automatically approved to support transit priority treatments.

Expedite changes to HOV access criteria to elevate bus performance.

Support transit priority through Caltrans staffing and efficient procedures.	Caltrans
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Dedicate staff and establish new internal procedures to expedite transit priority projects.

Deliver timely, consolidated comments.

Minimize traffic analysis delays.

Assign a project manager to transit priority projects.

MTC and Other Regional Actors

ACTOR(S)

Establish a regional transit priority network that defines corridors where approval and delivery of transit priority treatments will be streamlined.	MTC, Caltrans, transit operators
Create a permanent regional funding program to support transit priority planning and implementation.	MTC

Provide incentives for cities, counties, and transit operators to tailor their own transit priority policies and plans.

Provide funding to support detailed project design and implementation, including construction and regulatory changes.

Provide funding specifically targeted for quick-build transit priority interventions.

Create funding incentives that encourage local jurisdictions to streamline transit priority approvals.	MTC, Caltrans District 4
Make transit priority enhancements a routine part of ongoing roadway and traffic signal projects.	All: state agencies, MTC, counties, local jurisdictions, transit operators

Continued

Local Jurisdictions

ACTOR(S)

<p>Establishing local transit-first policies.</p>	<p>Cities/counties</p>
<p>Streamline local approval for simple transit priority actions, including:</p> <ul style="list-style-type: none"> - Small reductions in curb parking spaces to accommodate interventions such as queue jump lanes, bus stop relocations/extensions, access to bus flag stops, or loading zones that eliminate double parking - Bus stop relocations or extensions - Turn restrictions or exemptions 	<p>Cities/counties</p>
<p>Empower staff to approve basic transit priority treatments. Authorize staff collaborating with transit operators, other jurisdictions, and regional/state actors to commit to certain transit priority treatments without requiring approval from elected officials.</p>	<p>Cities/counties</p>
<p>Create one-stop permit approval for transit priority treatments.</p>	<p>Cities/counties</p>

Transit Operators

ACTOR(S)

<p>Develop a pipeline of transit priority plans and designs. Operators should identify spot locations and corridors with poor bus speed and reliability that can be addressed through transit priority treatments. When possible, operators should coordinate such treatments with the timeline for planned roadway construction or operational changes in the corridor.</p>	<p>Transit operators</p>
<p>Engage in designing the regional transit priority network (see above) and promote the inclusion of high-ridership and other priority routes.</p>	<p>Transit operators</p>
<p>Invest in bus-mounted automated enforcement cameras and expand the types of traffic violations for which they can be used.</p>	<p>Transit operators, local jurisdictions, state agencies, MTC</p>



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