



Photos (Top): Karl Nielsen



4 | Transportation



Photos (Bottom): Noah Berger



A LONG-RANGE VISION FOR TRANSPORTATION

The network of roads and transit routes crisscrossing the Bay Area makes it possible for residents and visitors to take millions of trips every day, whether commuting to work or school, shopping at local businesses, or meeting up with family and friends.

Even more importantly, the transportation choices available to a person or a family either expand or limit their options for stable housing and employment, quality healthcare and recreation. There is also a critical nexus between transportation and climate change, with the transportation sector currently producing over 40% of California's greenhouse gas (GHG) emissions.¹

Looking out to 2050, transportation investments and policies will be central components of the region's future vitality, building toward a well-connected, safe and multimodal regional transportation network. Compared to today, the transportation system will carry millions more passengers on its trains, ferries, buses and roads, but more people may telecommute as well. Strategies across the areas of transportation, housing, the economy and the environment will need to work in unison to reduce GHG emissions and meet California's ambitious climate goals while also increasing access to housing and job opportunities for all Bay Area residents.



Photo: Noah Berger

1 California Air Resources Board. 2000-2018 GHG Inventory (2020 Edition). <https://ww2.arb.ca.gov/ghg-inventory-data>



Photo: Karl Nielsen

ADVANCING EQUITY THROUGH TRANSPORTATION

An equitable transportation system is one that is safe, accessible, affordable and reliable in meeting the needs of all residents, but especially those with the fewest options. Safety ensures that no one is discouraged from making a trip out of fear for their well-being, whether on transit, in a personal vehicle or simply walking. Further accessibility enhancements on sidewalks, streets and transit are critical to enable the region's growing share of older residents, as well as people with disabilities, to move around the Bay Area as they choose.

Equity also means thoughtful consideration of who benefits from a transportation investment when prioritizing projects. In the short term, Plan Bay Area 2050 encourages investment in projects used primarily by people with lower incomes, like more frequent local bus service. An equitable transportation system is also one that does not exclude riders through high fares. Plan Bay Area 2050 calls for reform to transit fares regionwide that would lower fare costs across the board, particularly for riders that use multiple transportation systems, and serve those most in need by offering income-based fare discounts.

Strategies for Sustainable Connections to Opportunity

Plan Bay Area 2050 envisions a transportation system that, above all, prioritizes improved access to opportunity for all Bay Area residents. Strategies focus on meeting the needs of historically marginalized communities, ranging from more frequent bus service to safety-enhancing improvements for pedestrians and cyclists. Bold strategies that go beyond prior regional planning efforts to reduce climate emissions by higher margins and advance equity at the same time can demonstrate that climate and equity goals can go hand-in-hand. The plan's transportation strategies fall into three themes:

- 1. Maintain and optimize the existing transportation system:** First and foremost, the plan identifies funding to operate and maintain our existing system of transit routes, roads and bridges, laying a strong foundation for further investments and policies. Strategies include reversing pandemic-related cuts to total transit service hours, creating a seamless transit experience with reformed fare payments, addressing near-term highway bottlenecks, implementing road pricing on select corridors for long-term congestion relief, funding community-led transportation investments in Equity Priority Communities, and supporting ongoing regional programs and local priorities.
- 2. Create healthy and safe streets:** On top of this optimized system, roads would be made safer for all users — including drivers, cyclists, rollers (for example, people that use a wheelchair or scooter) and pedestrians — through context-specific speed limit reductions and a network of protected bike lanes and trails designed for people of all ages. Strategies include building a Complete Streets network and advancing a Vision Zero road safety policy to protect all road users.
- 3. Build a next-generation transit network:** Finally, a slate of investments in transit steers the Bay Area toward a 21st century system that meets the needs of a growing population and delivers fast, frequent and reliable service throughout the region. Strategies invest in improving the frequency and reliability of local transit, selectively extend regional rail and increase frequencies to address crowding, and build out the express lanes network with coordinated express bus service.



Photo: Courtesy of GoMentum Station

AUTONOMOUS VEHICLES

While autonomous vehicles (AVs), otherwise known as self-driving cars, may seem like a far-off technology, most new vehicles sold today already operate with some level of automation, including automatic braking and lane-drifting correction. In San Francisco, the California Department of Motor Vehicles has authorized autonomous vehicles to roam the streets without a backup driver at the wheel, testing out this emerging technology.² Greater degrees of automation and increased adoption of AVs could greatly shape transportation's future in the Bay Area. More automation may make longer-distance commutes more feasible, but it may also reduce the attractiveness of more sustainable travel modes like transit or biking while increasing congestion and greenhouse gas emissions. Poised to launch another revolution in transportation, autonomous vehicles are one of the largest sources of uncertainty in planning for the region's future.

As home to much of the technological innovation driving the shift to AVs, the Bay Area is uniquely situated to take advantage of the opportunities and consider the risks AVs present. Many governmental and non-governmental organizations in the Bay Area are planning for a world with AVs: the City of San José has advanced a series of pilot programs to develop infrastructure and collect data; the GoMentum Station in Concord is a robust AV testing facility with road networks, tunnels and railroad crossings that simulate real-world driving conditions; and the Bishop Ranch Office Park in San Ramon is piloting AV shuttles to transport workers around the office park, to name a few.

As it leads worldwide on AV innovation, the Bay Area has an opportunity to shape the future with thoughtful, equitable AV policies and best practices. The San Francisco Municipal Transportation Agency and the San Francisco County Transportation Authority recently developed their Guiding Principles for Emerging Mobility,³ a policy framework to evaluate new mobility decision-making; the Santa Clara Valley Transportation Authority is also developing an Automated Driving System Draft Policy; and the California Public Utilities Commission is working on a proposed framework for regulating two AV pilot programs. At the state level, the principles established by the California Multi-Agency Workgroup on Autonomous Vehicles and the strategies outlined in the California Transportation Plan 2050 provide statewide guidance on future policy decisions.

Plan Bay Area 2050 recognizes that AVs could fundamentally change the way transportation networks are designed and operated. AV adoption could shape the future of public transit, climate emissions, labor markets and access to opportunity. These concerns have been incorporated into planning and analysis work from the start: through the Horizon effort, MTC and ABAG released an *Autonomous Vehicles Perspective Paper*⁴ that assessed potential opportunities and challenges and recommended strategies that would support the Plan Bay Area 2050 vision in an AV-enabled future. All modeling work for the plan includes a fairly conservative assumption that 5% of vehicles will be autonomous by 2035, escalating to 20% by 2050.

2 Korosec, K. (2020, December 9). Cruise begins driverless testing in San Francisco. *TechCrunch*. <https://techcrunch.com/2020/12/09/cruise-begins-driveless-testing-in-san-francisco/>

3 SFMTA (© 2021). Emerging Mobility: 10 Guiding Principles. <https://www.sfcta.org/policies/emerging-mobility#panelguiding-principles>

4 MTC, ABAG and ARUP. (2018, June). *Autonomous Vehicles Perspective Paper*. <https://mtc.ca.gov/tools-resources/digital-library/2018-06-25-autonomous-vehicles-perspective-paperpdf>

STRATEGIES Maintain and Optimize the Existing System

As the Bay Area emerges from COVID-19-related restrictions, there is a unique opportunity to rebuild existing transportation systems to serve more people and operate more cost-effectively. All of Plan Bay Area 2050's transportation strategies build upon a strong foundation of existing infrastructure and services. A future transit system that is maintained in good working order, where transit service hours have been restored to their pre-COVID levels and transit fares are simplified across operators, would improve reliability and reduce costs for all passengers under the plan's vision. New options for planning and paying for a trip would be easily accessible and include all modes. Equity Priority Communities, which have historically been denied a seat at the table, would have access to significant funding to advance their priorities. A handful of road-widening projects would provide short- to medium-term congestion relief, before a new per-mile fee is applied on select highways with transit alternatives to help relieve congestion and significantly reduce harmful greenhouse gas emissions. This new approach to congestion management could raise billions of dollars for new transportation investments, leading the system to operate more efficiently, equitably and sustainably than ever before.

Around two-thirds of the transportation funding in Plan Bay Area 2050 is earmarked for **restoring, operating and maintaining the existing system**, in line with MTC's long-held pledge to "Fix It First." This approach includes reserving funds to pay for ongoing replacement of aging buses and other transit assets, regular paving of local streets and freeways, and a host of other necessary investments to ensure that the region's transportation system continues to provide reliable service. Furthermore, with transit systems forced to cut routes or reduce frequencies during the COVID-19 pandemic, Plan Bay Area 2050 charts the course for returning transit service to the levels that the Bay Area relied on before the pandemic.

Beyond investing in the existing system, Plan Bay Area 2050 aims to **enable a seamless mobility experience** that will help travelers navigate the many options available to them and make more sustainable choices. To start, a free modern mobile app that assists travelers with trip planning — including navigating across transit schedules or understanding parking or shared mobility options at each end of the trip — would help to gather information from disparate sources in one place. Once a trip is in progress, low-cost measures like schedule coordination between operators to reduce wait times at transfer locations, as well as wayfinding signage at key transfer hubs, would facilitate a smoother experience. Complementary investments in bike parking at transit stations and reforms to transit fares for multi-operator trips, described later in this chapter, further advance a seamless mobility experience under the plan's vision.

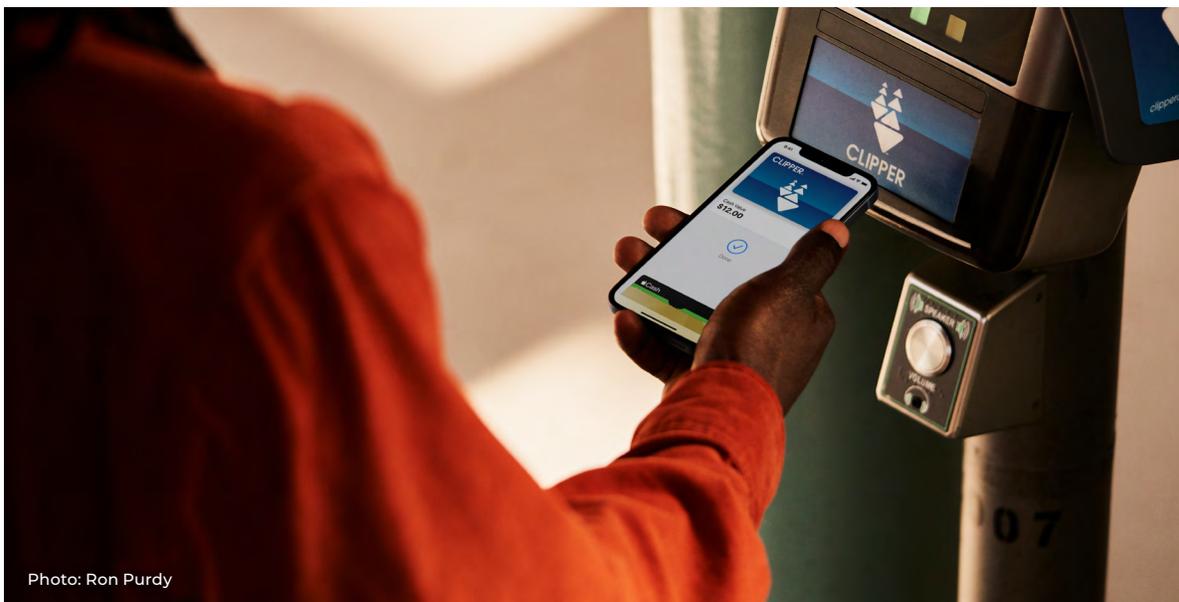


Photo: Ron Purdy



Photo: Karl Nielsen

CLIPPER® STARTSM WORKING TOWARD EQUITABLE REGIONAL STANDARDS

Cost should not be a barrier to riding transit. MTC, together with transit operators, social service agencies and community-based organizations, launched Clipper® STARTSM, a fare discount pilot program for adults in the Bay Area whose annual earnings are below 200% of the federal poverty level. Introduced in summer 2020, the approximately \$17 million pilot program currently enables fare discounts ranging from 20% to 50%, depending on the operator, with more than 20 participating transit providers. The program moves the Bay Area toward a more consistent regional standard for fare discounts, and it supports the vision of MTC and ABAG's Equity Platform by building upon efforts to make transit more affordable and expand transportation choices for residents with low incomes.

Another barrier to making transit within the Bay Area truly seamless and easy to navigate is the region's currently fractured fare structure, wherein dozens of transit operators each has its own set of fares and transfer discounts. Paired with schedule coordination and capital investments, a strategy to **reform regional fare policy** could simplify the experience of taking transit. Standardizing transit fares across the region's transit operators could greatly reduce fare costs and simplify decisions on how to get around. For regional trips, exploring fares that price trips based on distance, rather than the number of independent boardings, could reduce costs and work toward a more affordable transportation system.

While these reforms support transit riders of all incomes, targeted discounts applied uniformly for riders with low incomes, as well as young riders and people with disabilities, would make further progress toward Plan Bay Area 2050's affordability goals. MTC's analysis suggests that fare integration alone would be roughly revenue-neutral to operators, because it incentivizes an increase in overall transit usage, which offsets lower individual fares. However, income-based discounts, including a 50% discount for households with low incomes, would involve substantial fare losses. Funding would be needed to ensure that transit operators do not experience an overall loss in operating revenue that could disrupt service.

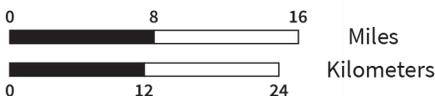
Strategies that strengthen the transit network and sway individual behavior away from single-occupancy driving are critical to Plan Bay Area 2050's approach to tackling traffic congestion. However, these strategies often require time to take hold. In the near term, Plan Bay Area 2050 includes a strategy to **address highway bottlenecks and improve interchanges** through a limited selection of widenings or road extensions to serve new developments. These road projects may help reduce congestion temporarily, though they will likely increase vehicle miles traveled in the long term, with any congestion relief benefits disappearing by the year 2050. As such, Plan Bay Area 2050 also includes a suite of long-term solutions to the region's congestion challenges, including road pricing, transit-supportive land use and transit improvements, that have been shown to succeed across a variety of future conditions.

MAP 4-1
Highway and Pricing Investments

- HIGHWAY WIDENING**
- New Carpool Lane
 - New General Purpose Lane
 - Major Interchange Improvement
- EXPRESS LANES**
- Existing/Under Construction
 - Existing Lane Conversion
 - New Single Lane
 - New Dual Lane
- PRICING**
- Existing Toll Bridge Corridor
 - New BATA Toll Corridor
 - Per-Mile Tolling (Plan Bay Area 2050 Strategy)
 - Congestion Pricing Zone
- REGIONAL TRANSPORTATION**
- Major Airport
 - Major Seaport
 - Highway and Interstate
 - Major Road

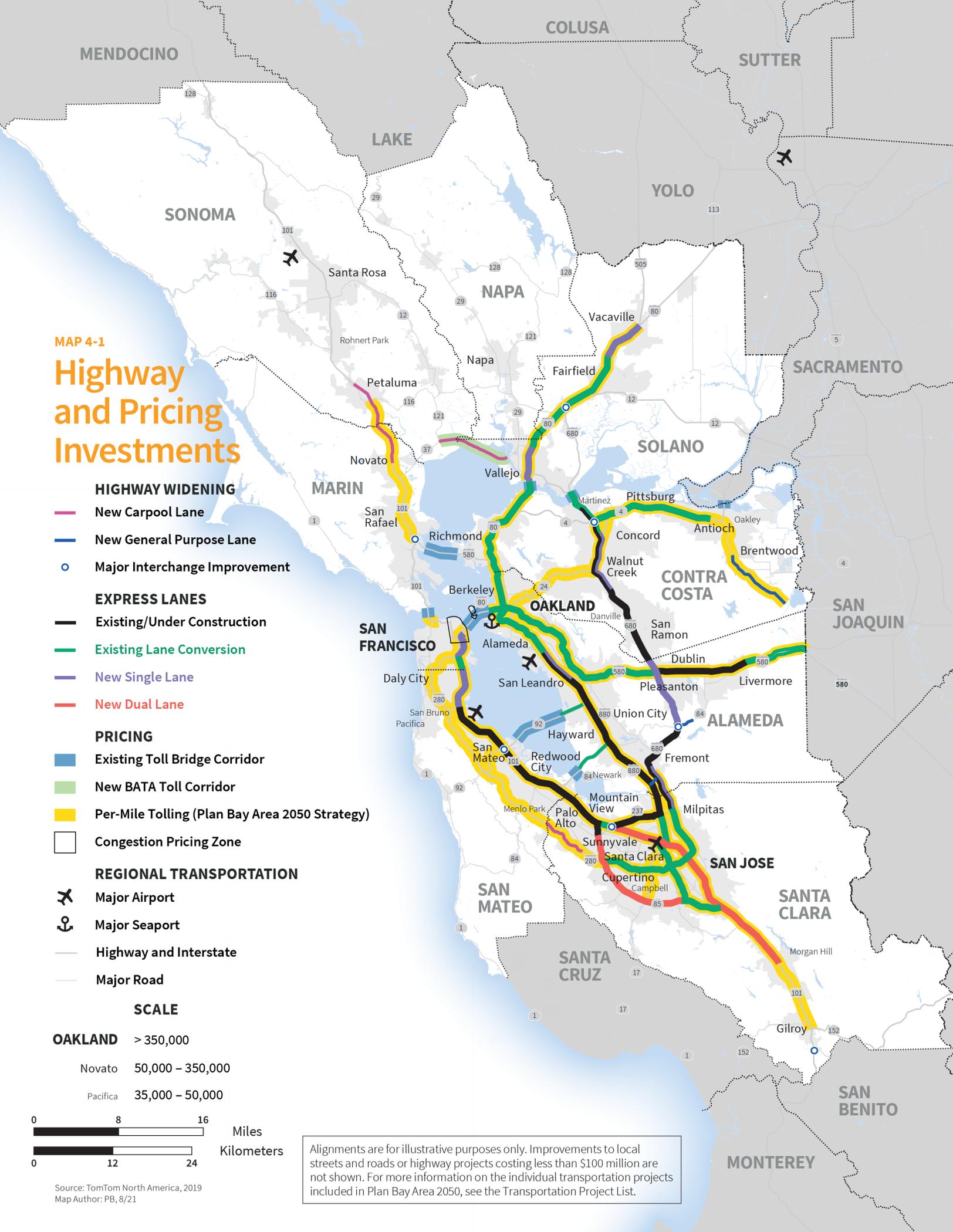
SCALE

- OAKLAND** > 350,000
- Novato 50,000 – 350,000
- Pacifica 35,000 – 50,000



Source: TomTom North America, 2019
 Map Author: PB, 8/21

Alignments are for illustrative purposes only. Improvements to local streets and roads or highway projects costing less than \$100 million are not shown. For more information on the individual transportation projects included in Plan Bay Area 2050, see the Transportation Project List.



One of the most impactful long-term solutions to congestion is road pricing. Road tolls are a way to reflect the true cost of driving and motivate drivers to consider more sustainable options. Plan Bay Area 2050 proposes **implementing per-mile tolling on select congested freeways where parallel transit options exist** to curb traffic congestion and climate emissions through 2050 and beyond, while generating new revenues for reinvestment in sustainable alternatives to driving. This strategy, applied on a limited number of freeway corridors throughout the region, would charge drivers a toll based on the number of miles driven, the number of passengers, and the time of day, with lower tolls charged to carpoolers and those traveling outside rush-hour periods.

To support equity goals and reduce this pricing measure's potentially regressive impact, households earning below the regional median income would receive a 50% discount. Importantly, revenue from tolling would be directly reinvested in improving transit alternatives, such as funding investments like express bus service, as well as in projects like electric vehicle charging infrastructure. An estimated \$25 billion in funding for transportation projects could be generated between 2030 and 2050, helping to fund transit investments for the latter years of Plan Bay Area 2050.

Historically and even today, decisions on which projects get implemented are largely top-down, with proposals and project selection coordinated by cities, counties or transit operators. These projects may not always align with the

priorities of those who have faced barriers to participating in such decision-making — namely, communities of color or those with lower incomes. To address this misalignment, the plan calls to **support community-led transportation enhancements in Equity Priority Communities**, which will require public agencies to dedicate funding specifically for these projects and build trusting, collaborative relationships with these communities. MTC has several existing programs that focus on facilitating grassroots planning and funding projects that benefit Equity Priority Communities. MTC's Community-Based Transportation Planning Program funds local planning efforts in Equity Priority Communities, and a variety of MTC funding programs consider benefits to people with low incomes when awarding competitive grants. Plan Bay Area 2050 reserves billions of dollars for this strategy, laying the groundwork for a future where systemically underserved communities are empowered to prioritize improvements to best meet their needs.

Finally, the plan includes a strategy to **advance other regional programs and local priorities**, enabling uninterrupted delivery of services that Bay Area residents rely on every day. Regionwide, services like motorist aid and incident management will continue to keep travelers safe, and real-time information will be available through 511®. A host of locally identified priorities complement these regional initiatives, providing small-scale but meaningful improvements, including intersection upgrades, local emissions reduction programs, and city- or county-led planning studies.

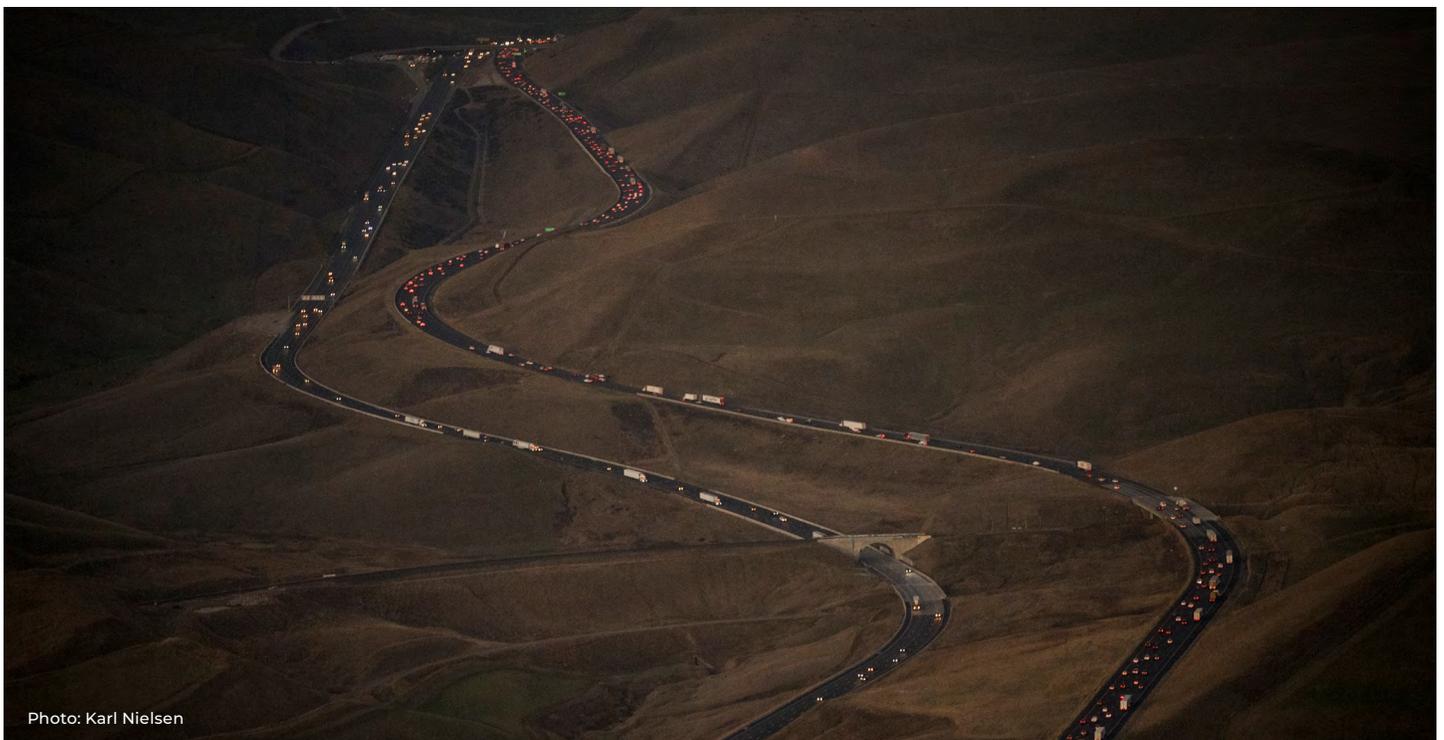


Photo: Karl Nielsen



MTC PARTICIPATORY BUDGETING PILOT

Shared decision-making, community power-building, deeper civic engagement, and alignment between community needs and funding decisions are essential to realizing Plan Bay Area 2050's equity goals. Participatory budgeting is one tool that public administrators and planners can use to lift up community members' voices, providing a democratic framework through which community residents directly decide how to spend part of a public budget.

In 2018, MTC launched a pilot program in partnership with advocacy groups and local officials in two Bay Area communities: San Francisco's Bayview and Vallejo. Residents, community-based organizations and government officials worked together for a year to identify key transportation challenges and potential solutions, and \$1 million in regional transportation funding was allocated to investments prioritized by the participants.

In the Bayview, participants identified safety on transit as a key concern and funded the creation of three Transit Assistant positions through the SFMTA Muni Transit Assistance Program. Transit Assistants ride buses and light rail trains to provide an unarmed safety presence that can de-escalate conflicts and deter vandalism. In Vallejo, participants identified gaps at the beginning and end of transit trips as a key priority, opting to fund wayfinding signage and improvements to sidewalks and bus shelters.

The pilots' success highlights several best practices for advancing equity: defining equity as a strategic priority within funding policy; clearly outlining program structure and process; applying diversity and inclusion metrics to program evaluation; and building collaborative relationships.



STRATEGIES Create Healthy and Safe Streets

Safety and health are top of mind for all Bay Area residents as a result of COVID-19's impacts. The pandemic revealed a renewed interest in biking and walking for commuting, health and leisure. As people spent more time in their own neighborhoods due to shelter-in-place orders, local leaders nationwide repurposed road space formerly in the exclusive domain of cars as car-free “slow streets” where people could walk, bike and roll.⁵ Slow streets programs and new parklets have cropped up around the Bay Area as people seek to spend quality, socially distanced time outdoors.⁶

Infrastructure and policy contribute to the safety and comfort of all travelers, including pedestrians, cyclists, skateboarders, and people who use wheelchairs or scooters. Many of these policy and infrastructure changes are attainable in the near term, and they would promote healthier, more environmentally friendly options for local trips like shopping at nearby businesses, as well as more convenient ways to access transit and avoid parking for longer-distance trips. Active transportation benefits both public health, through increased physical activity, and the environment, through zero-emissions travel.

Plan Bay Area 2050 lays the groundwork for a dramatic increase in active transportation trips, in recognition of the numerous co-benefits that these forms of transportation can provide. Infrastructure and policy approaches are combined to make conditions safer and more comfortable for active travelers of all ages. By 2050, protected bike lanes and off-street paths would be plentiful, connecting residents with commercial corridors, transit stops and community places. Vehicular speeds would be reduced, improving safety outcomes for everyone on the road and inviting more people to bike, walk and roll safely.

A foundational element of Plan Bay Area 2050's transportation network is a strategy to **build a Complete Streets network**, a planning term popularized nationally to describe streets that meet the needs of all users, including pedestrians, cyclists and rollers. Plan Bay Area 2050 envisions a well-connected network with 10,000 new miles of protected bike lanes and off-street paths, with particular emphases on connections to transit and investments in Equity Priority Communities. This strategy includes investments in regional multi-use trails, such as the California Coastal Trail, the Great California Delta Trail, the Iron Horse Regional Trail and the San Francisco Bay Trail, that are important assets for commuting or recreation. Aside from on-street infrastructure, a suite of complementary investments — including secure bike parking at transit stations, pedestrian lighting and intersection safety projects — supports a future where walking, biking and rolling are safe and comfortable choices for people of all ages and abilities.



Photo: Karl Nielsen

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- 5 Schaper, D. (2020, August 16). The Pandemic Is Changing How People Get Around. *NPR*. <https://www.npr.org/2020/08/16/902909092/the-pandemic-is-changing-how-people-get-around>
- 6 Rudick, R. (2020, June 9). Tracking Slow Streets in the Bay Area. *SF Streetsblog*. <https://sf.streetsblog.org/2020/06/09/tracking-slow-streets-in-the-bay-area/>



Photo: Karl Nielsen

ACTIVE TRANSPORTATION PLAN

Historically, cities and counties have led planning efforts for active transportation infrastructure like bike lanes, off-street multi-use paths or pedestrian safety improvements. Regional agencies like MTC and ABAG have played a complementary role through efforts such as maintaining and expanding regional facilities like the San Francisco Bay Trail, adopting a regional Complete Streets policy, and funding certain active transportation projects. Since 2014, in partnership with the state, the region has begun to take an even more active role, awarding over \$325 million to active transportation projects through competitive Active Transportation Program grants.

MTC last released a regional plan for bicycle infrastructure in 2009. In the following years, cities and counties completed active transportation plans of their own, building out hundreds of miles of bike lanes and off-street paths. Walking, biking and rolling trips may cross city or county boundaries, so a regional plan that coordinates the infrastructure buildout needed for these trips can help to create safe, seamless paths for the Bay Area's cyclists, pedestrians, rollers and other active travelers.

In 2020, MTC initiated work on a regional Active Transportation Plan, intended to serve as a blueprint to strategically guide active transportation policy

and investments. The Active Transportation Plan, anticipated for release in 2022, will support Plan Bay Area 2050's envisioned Complete Streets network, including the construction of 10,000 miles of new bike lanes and multi-use paths.

The Active Transportation Plan will also guide safety policies enacted at the local and regional levels in accordance with MTC's adopted Vision Zero policy, which fosters coordination throughout the region to eliminate traffic fatalities and serious injuries by the year 2030. This policy includes support for lower vehicular speeds and traffic calming elements described in the Plan Bay Area 2050 strategy to advance a regional Vision Zero policy.

Analysis from Horizon and Plan Bay Area 2050 found that investing in active transportation infrastructure can open up new destinations for people with low incomes and people with disabilities at a fraction of the price of higher-cost public transit infrastructure. Equity considerations will be front and center in the regional Active Transportation Plan, including partnerships with community-based organizations to identify priorities. The Active Transportation Plan will also coordinate with ongoing planning efforts like Community-Based Transportation Plans and local active transportation planning work.





Next, a strategy to **advance a regional Vision Zero policy** complements the regional network of safe bike lanes and trails by supporting additional safety projects and lowering vehicle speeds. Vision Zero⁷ is an internationally adopted framework that seeks to eliminate all traffic fatalities and severe injuries while increasing safe, healthy and equitable mobility for all. Prompting drivers to go more slowly is a key focus area of Vision Zero, given the strong correlation between higher speeds and higher likelihood of serious injury or fatality in the event of a collision.

Plan Bay Area 2050 advances the Bay Area toward Vision Zero through a combined emphasis on lower speeds and street design for safer travel. This includes both a policy to reduce speeds on freeways to 55 miles per hour and the introduction of context-specific speed limit reductions with speeds capped at between 20 to 35 miles per hour on local streets.

Enforcement is a key equity consideration for this strategy, and it will require thoughtful implementation to ensure that undue burdens are not placed on communities of color. Billions of dollars are allocated to fund infrastructure investments that slow down cars without the need for in-person enforcement. Design elements like speed bumps and roundabouts on local roads naturally reduce speeds and improve pedestrian comfort levels. On freeways where options for design interventions are more limited, automated speed enforcement, while not yet permitted in California, presents a promising path forward for enforcement without bias.

EXPLORING AUTOMATED SPEED ENFORCEMENT TO ADDRESS BIAS

Black drivers across the country are up to five times more likely than white drivers to be stopped and searched while driving,⁸ yet despite these racial inequities in traffic stops, speed enforcement remains a crucial tool to save lives. Automating traffic enforcement using safety cameras may be one way to reduce opportunities of bias in officer-initiated traffic stops. Enforcement by automated speed cameras in New York City has changed driver behavior significantly enough to reduce speeding by up to 60%. The National Highway Traffic Safety Administration reports that fixed speed cameras reduce injury crashes by 20% to 25%, and mobile speed cameras reduce injury collisions by 21% to 51%.⁹

Although over 100 communities across the United States use automated speed enforcement, this tool is not currently authorized in California. A change to state law is required before this technology would be available to local jurisdictions. The California legislature has considered two bills that would allow automated speed enforcement in some capacity, once in 2017 and again in 2021. While the bills prompted important discussions around equity and data privacy, neither was passed into law.

MTC has joined forces with San Francisco, Oakland, San José and a wide spectrum of advocacy organizations to advocate for the option to employ automated speed enforcement.

8 Pierson, E. et al. (2020). A large-scale analysis of racial disparities in police stops across the United States. *Nature Human Behaviour*, 4(7), 736-745. doi:10.1038/s41562-020-0858-1. <https://www.nature.com/articles/s41562-020-0858-1>

9 San Francisco Municipal Transportation Agency. (© 2021). Speed Safety Cameras. <https://www.sfmata.com/projects/speed-safety-cameras>

7 The Vision Zero Network. (© 2021). What is the Vision Zero Network? <https://visionzeronetwork.org/about/vision-zero-network/>

STRATEGIES Build a Next-Generation Transit Network

Prior to the pandemic, the Bay Area's transit system faced crowding on its busiest routes, long wait times for transfers and missing links with no transit service, among other challenges. While some major projects have been completed since the last regional long-range plan update in 2017 — for example, Bay Area Rapid Transit (BART) extensions to Antioch and Berryessa and bus improvements like the Alameda-Contra Costa Transit District (AC Transit)'s Tempo bus rapid transit line — further investments will be required to meet the Bay Area's needs as its population grows and transit ridership returns to pre-pandemic levels.

Coordinated investments in the region's rail network would provide an expanded and improved foundation for transit, with more frequent and reliable feeder bus and light rail service providing local connections. Express bus service would play a larger role in helping people move throughout the Bay Area, leveraging a contiguous network of express lanes that enables carpoolers and buses to bypass congestion. Transit fare reforms described earlier would reduce the cost of transit for riders with low incomes, lowering the cost barrier and allowing all residents to benefit from these improvements.

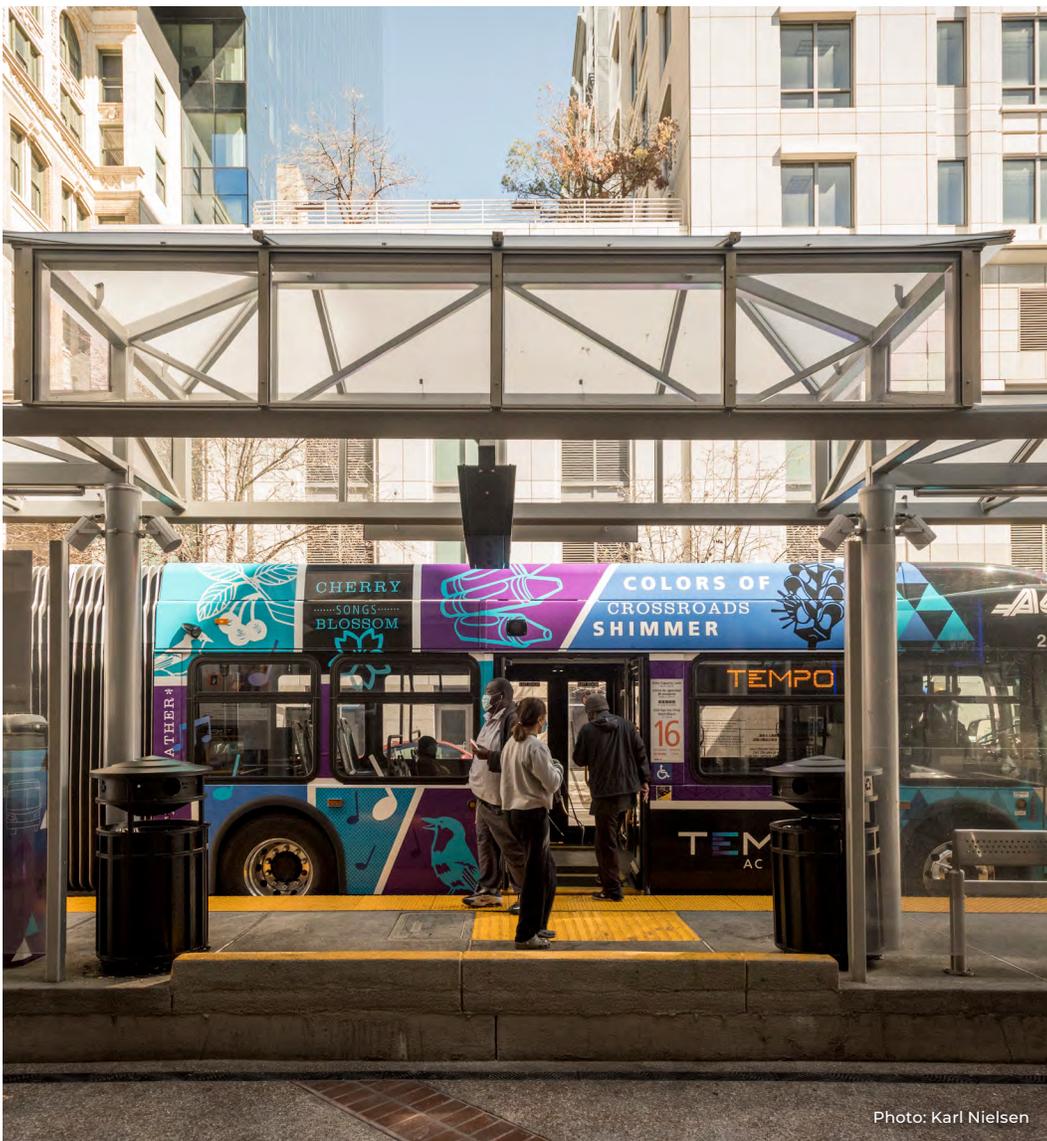


Photo: Karl Nielsen



Photo: Karl Nielsen

A REGIONAL APPROACH TO RECOVERY TRANSIT'S PATH FORWARD FOLLOWING COVID-19

In March 2021, transit operators began to grapple with serious funding shortfalls, ridership drops, service cuts, changing safety guidelines and existential questions about the future of public transportation during the onset of the COVID-19 pandemic. In response, MTC took action in May to coordinate at a regional scale by convening a task force to help the Bay Area's transit operators and other decision-makers work together during the pandemic. The Blue Ribbon Transit Recovery Task Force, which wrapped up in July 2021, was comprised of 32 members representing transit operators across the Bay Area, as well as local elected officials, the state Senate and state Assembly, the California State Transportation Agency, business and labor groups, and transit and social justice advocates.

The task force assisted in distributing over \$1 billion in federal COVID-19 relief funds, as well as guiding transit agencies' recovery planning and developing a Transit Transformation Action Plan. Through the task force process, Bay Area transit agencies and their partners ultimately unanimously approved 27 near-term actions to be taken in partnership with MTC, county transportation agencies and other partners. The actions prioritize equity, connectivity, efficiency and customer service, revolving around the themes of fare-payment coordination and

integration; customer information; transit priority on roadways to increase bus speeds and reliability; bus and rail network management reform; connected network planning; data collection and coordination; accessibility; and funding. Some actions build off of existing initiatives, while others represent bold new steps to address complex challenges. The Commission supported the Action Plan in September 2021.¹⁰

As transit operators and their partners continue the near-term work of implementing the 27 actions, Plan Bay Area 2050 presents a complementary long-range plan for transit recovery in the region. On top of restoring transit service to pre-pandemic levels, Plan Bay Area 2050's transportation strategies infuse billions of dollars into faster and more reliable transit, including new rail lines and express bus service. Highway and local road improvements, plus an expanded network of bike lanes and paths, complement this suite of transit strategies and optimize connections to transit to round out a recovery path for Bay Area public transportation. By coordinating near-term and long-range transit planning, these two efforts — the Transit Transformation Action Plan and Plan Bay Area 2050 — outline the region's commitment to building a system that meets the needs of all current and future Bay Area residents.

10 The Commission received and supported the Blue Ribbon Transit Recovery Task Force's Transit Transformation Action Plan at the September 22, 2021 Commission Meeting. The supporting materials are available online at: <http://mtc.legistar.com/gateway.aspx?M=F&ID=c871f4d9-59fa-4065-a385-f8221ce579ab.pdf>



Photo: Noah Berger

The first step in creating a next-generation transit network in Plan Bay Area 2050 is to **enhance the frequency, reliability and capacity of existing local transit systems**. Bus and light rail systems provide important connections for trips around town or as start or end points to longer trips around the region. Improvements that make these connections more convenient build toward a more connected future. Frequency boosts can reduce wait times and crowding; strategic extensions can serve new jobs and housing centers; and infrastructure upgrades like bus-only lanes can make transit faster and more reliable for all.

Investments in local transit, including more frequent service or “quick build” improvements like bus-only lanes or transit signal priority, could be implemented relatively quickly to make a major impact in a short amount of time. Furthermore, projects improving local transit service tend to benefit transit riders with lower incomes, translating investments to equitable outcomes.¹¹ Most investments within this strategy are prioritized for near-term implementation, allowing riders with lower incomes to reap the earliest benefits.

To strengthen the quality of baseline service, frequency boosts on bus and light rail service throughout the Bay Area would be implemented. This includes improvements on urban systems like AC Transit, Muni and VTA, as well as on suburban systems like Napa VINE, County Connection in Contra Costa County, and Sonoma County Transit. More frequent service would allow passengers to enjoy shorter wait times, more convenient service and less crowding as ridership recovers in a post-pandemic world.

Beyond frequency boosts, a range of infrastructure investments would improve speed and reliability for local bus and light rail passengers under Plan Bay Area 2050’s local transit strategy. Several of the region’s highest-ridership bus corridors would be transformed through bus rapid transit investments, including San Francisco’s Geary Boulevard, San Pablo Avenue in the East Bay, and El Camino Real in San Mateo and Santa Clara counties. In Santa Clara County, segments of downtown San José’s street-level light rail would be moved underground or elevated to bypass traffic congestion. Throughout the Bay Area, transit signal priority investments would help buses coast through green lights at a low cost.

11 MTC and ABAG. (2020, January). *Futures Final Report: Resilient and Equitable Strategies for the Bay Area’s Future*. <https://mtc.ca.gov/tools-resources/digital-library/horz-futures-reportweb-pdf>



Photo: Noah Berger

Rounding out this strategy, new local transit lines are envisioned to support areas forecasted for substantial new housing growth. This includes extensions of VTA light rail to Eastridge Mall and to Cupertino along Stevens Creek Boulevard, as well as new bus routes serving future development sites in Hunters Point and Candlestick Point in San Francisco and Alameda Point in the city of Alameda, among others.

Plan Bay Area 2050 also envisions an **expanded and modernized regional rail network**, with a set of investments that puts the Bay Area on the path toward a world-class rail system. The Bay Area's rail systems — BART, Caltrain, Capitol Corridor, the Altamont Corridor Express and Sonoma-Marín Area Rail Transit — are the backbone of

mobility in the region, carrying hundreds of thousands of passengers each day to their destinations. The anchor of a plan for rail in the Bay Area, looking out over the next three decades, is Link21, a new program to transform Northern California's passenger rail network with a new transbay crossing between Oakland and San Francisco at its core. This new crossing will provide much-needed capacity in the heart of the Bay Area and beyond.

Various studies contributed to the conclusion that a new transbay crossing is needed, including the Bay Area Core Capacity Transit Study, a joint effort of BART, Muni, AC Transit, Caltrain, the Water Emergency Transportation Authority (WETA), SFCTA and MTC.¹² A 2019 Horizon perspective paper titled *Crossings* also explored the relative

12 MTC. (2016, July). *Briefing Book: Core Capacity Transit Study*. <https://mtc.ca.gov/tools-resources/digital-library/ccts-briefingbook-july2016pdf>



Photo: Noah Berger

merits of seven different potential transbay crossings, finding that a new rail crossing served by BART, conventional rail, or both held substantial benefits for the Bay Area when compared to a road crossing or no change at all.¹³

Boosting the frequencies of the Bay Area's current rail systems can also provide better service for riders throughout the region, and a limited set of rail extensions or new rail routes can fill in gaps in the network. These extensions include BART's extension to downtown San José, the Caltrain downtown San Francisco extension, and the return of rapid transit service on the Dumbarton rail bridge.

Plan Bay Area 2050 also responds to the challenge of in-commuters, or people who live outside of the nine-

county Bay Area but commute into the region to work. Interregional commuters, many of whom commute via car due to a lack of competitive transit alternatives, see improved options under Plan Bay Area 2050's strategies. For those commuting into the Bay Area from the south, the plan includes investments that lay the foundation for California High-Speed Rail in the region. Commuters living east of the Bay Area in San Joaquin County can also expect to see a new rail connection through Valley Link, a commuter rail line that will connect the Dublin/Pleasanton BART station with the Central Valley. These new interregional services are integrated into the regional transit system via schedule coordination, allowing for easy transfers with minimal wait times.

13 MTC and ABAG. (2019, November). *Crossings: Transformative Investments for an Uncertain Future*. <https://mtc.ca.gov/tools-and-resources/digital-library/crossings-transformative-investments-uncertain-future>

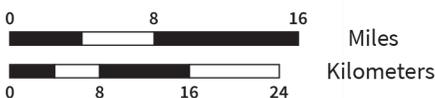
MAP 4-2

Regional Transit Investments

- FERRY**
 - Existing Ferry Service
 - New Ferry Service
- RAIL**
 - Existing BART Service
 - New BART Service
 - BART Frequency Boost
 - Existing Commuter Rail Service
 - New Commuter Rail Service
 - Commuter Rail Frequency Boost
 - New BART or Commuter Rail Crossing
- HIGH-SPEED RAIL**
 - New Rail Service
- GROUP RAPID TRANSIT**
 - New Rail Service
- Plan Bay Area 2050 Growth Geographies
- REGIONAL TRANSPORTATION**
 - Major Airport
 - Major Seaport

SCALE

- OAKLAND** > 350,000
- Novato 50,000 – 350,000
- Pacifica 35,000 – 50,000



Source: TomTom North America, 2019
Map Author: PB, 10/21

Alignments are for illustrative purposes only. For more information on the individual transportation projects included in Plan Bay Area 2050, see the Transportation Project List.

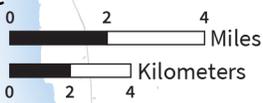


Alignments are for illustrative purposes only. Improvements to existing local bus frequencies are not shown. For more information on the individual transportation projects included in Plan Bay Area 2050, see the Transportation Project List.

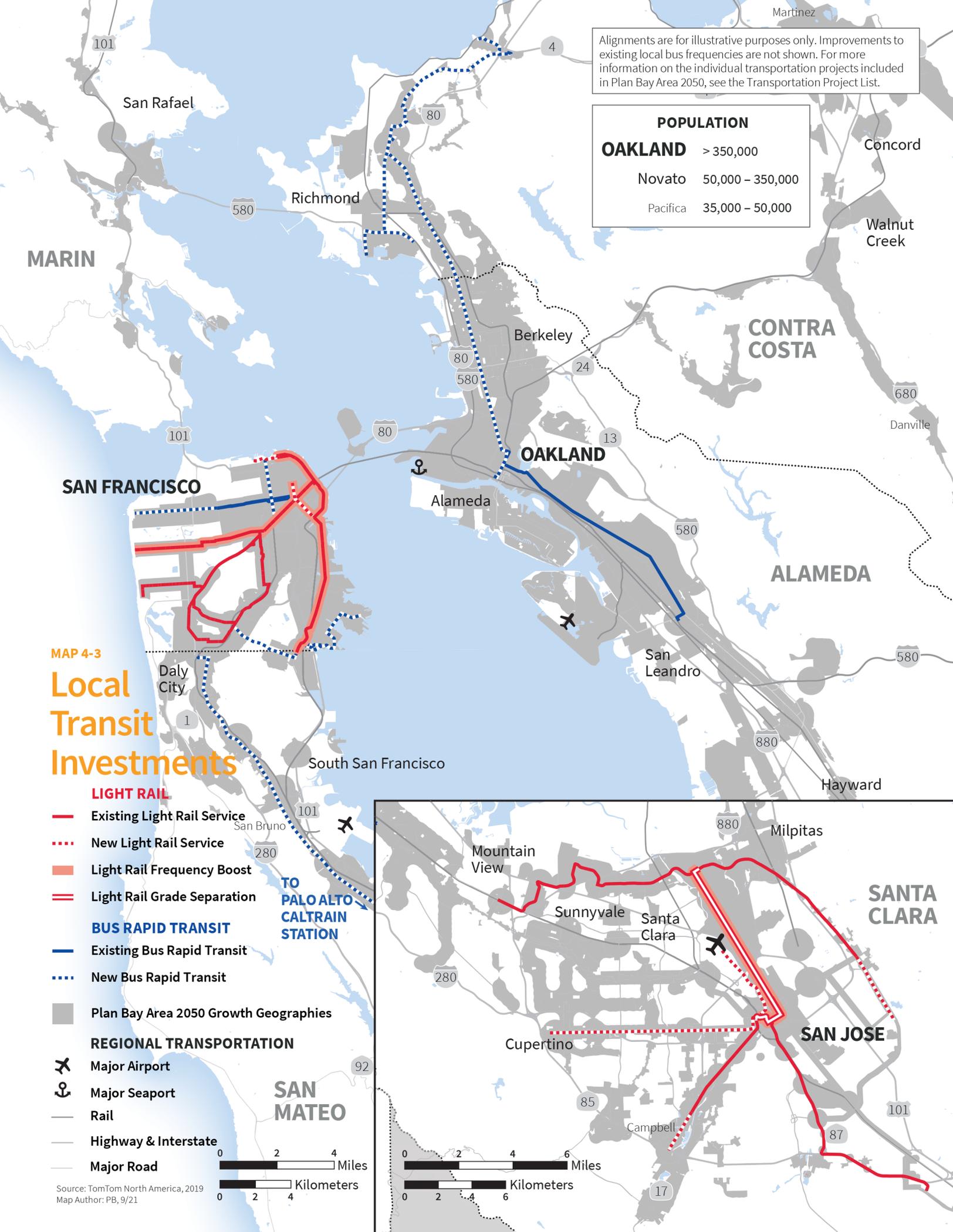
POPULATION	
OAKLAND	> 350,000
Novato	50,000 – 350,000
Pacifica	35,000 – 50,000

MAP 4-3
Local Transit Investments

- LIGHT RAIL**
- Existing Light Rail Service
- New Light Rail Service
- Light Rail Frequency Boost
- Light Rail Grade Separation
- BUS RAPID TRANSIT**
- Existing Bus Rapid Transit
- New Bus Rapid Transit
- Plan Bay Area 2050 Growth Geographies
- REGIONAL TRANSPORTATION**
- ✈ Major Airport
- ⚓ Major Seaport
- Rail
- Highway & Interstate
- Major Road



Source: TomTom North America, 2019
Map Author: PB, 9/21





CALIFORNIA HIGH-SPEED RAIL CONNECTING TO THE MEGAREGION — AND BEYOND

When it comes to transportation megaprojects, there is no project bigger than California High-Speed Rail, designed to connect the Bay Area, Central Valley and Los Angeles in under three hours. Approved by voters in 2008, construction is well underway in the Central Valley, with new viaducts being built to enable travel at more than 200 miles per hour through the heart of the Golden State. When completed, the project will allow Bay Area residents, commuters and visitors to reach destinations throughout California much more quickly, while avoiding congested highways and busy airports. Importantly, high-speed rail (HSR) also aligns with state and regional climate goals, providing a lower-emissions alternative to driving or flying within the corridor.

With a total cost exceeding \$80 billion, high-speed rail will create new opportunities for communities across the Bay Area, but none more so than in the four cities with HSR stations — San Francisco, Millbrae, San José and Gilroy. While each community has its own unique character and context, these hubs will provide the opportunity for affordable, seamless connections and easy access to destinations not just in the region but in the megaregion and beyond. Each HSR station area is identified as a Plan Bay Area 2050 Growth Geography — a focus point for future jobs and housing.

Certainly, not every Bay Area resident will be able to live within walking or biking distance of these four HSR stations. Existing regional rail systems like Caltrain, BART, VTA and Muni will provide connectivity at HSR rail hubs — creating a supportive “rail skeleton” for a next-generation transit network. Infrastructure projects like Caltrain Modernization, slated for completion by 2023, will also improve speeds and service frequencies for Bay Area residents to more

quickly connect to planned HSR stations. In the decades ahead, Plan Bay Area 2050 identifies a suite of dual-purpose improvements to provide better access to HSR. In the region’s core, this includes the extension of Caltrain/HSR to San Francisco’s Salesforce Transit Center, the modernization of San José’s Diridon Station and selective grade separations. Further south, grade separations, electrification and modernization investments throughout the Caltrain/HSR corridor extending through the Pacheco Pass would play an integral role in making the statewide vision a reality.

With a funding gap of at least \$15 billion to connect the Bay Area and the Central Valley, and approximately \$45 billion more needed to complete connections to Southern California, it is clear that the federal and state governments must play a central role in funding and delivering this megaproject. Significant and sustained funds from Washington, D.C., and Sacramento are critical to enacting the voter-approved vision. MTC and ABAG are well-positioned to take on a significant role in advocating for federal infrastructure dollars, as Congress considers major infrastructure packages in the months and years ahead.

Moreover, with the Bay Area poised to invest billions of dollars to remake this central corridor, a strong, shared regional vision is critical. MTC and ABAG will work closely with partners in Sacramento and Washington, D.C., to represent Bay Area residents’ priorities for rail connections throughout the region and beyond, including working to ensure that the next phase of construction prioritizes the “Valley to Valley” segment, connecting the Central Valley trunk line to the jobs-rich Bay Area.





Photo: Courtesy of California High-Speed Rail Authority

MAP 4-4

Express Bus Investments

EXPRESS BUSES

PREMIUM EXPRESS BUS

(Peak Headways of 15 Minutes or Less)

- Existing Route: Premium Express Bus Service
- ⋯ New Route: Premium Express Bus Service

EXPRESS BUS

(Peak Headways of 16–30 Minutes)

- Existing Route: Express Bus Service
- ⋯ New Route: Express Bus Service

Plan Bay Area 2050 Growth Geographies

REGIONAL TRANSPORTATION

- ✈ Airport
- ⚓ Major Seaport
- Highway and Interstate
- Major Road

SCALE

- OAKLAND** > 350,000
- Novato 50,000 – 350,000
- Pacifica 35,000 – 50,000



Alignments are for illustrative purposes only. Headways reflect 2050 conditions with Plan Bay Area 2050 projects implemented. For more information on the individual transportation projects included in Plan Bay Area 2050, see the Transportation Project List. Express bus routes with peak headways greater than 30 minutes and local bus routes are not shown.



Photo: Noah Berger

Ferries present another option for shoring up transbay capacity in the near term at a smaller scale. Plan Bay Area 2050 invests in new ferry service and increases in frequency to existing service to complement investments in regional transit. Such investments include new ferry service to Berkeley, Redwood City, Treasure Island, Mission Bay, Martinez, Hercules and Pittsburg, alongside frequency boosts across the Golden Gate and WETA systems.

Plan Bay Area 2050 includes a limited selection of freeway widening projects, with a larger focus on making better use of the existing freeway network. Express lanes have been a resource for Bay Area drivers since 2010, providing a reserved freeway lane that allows buses, carpoolers and fee-paying solo drivers to bypass congestion on several corridors throughout the region. The tolls on these lanes increase as traffic increases and decrease as traffic decreases to provide more reliable travel times. Plan Bay Area 2050 **builds an integrated regional express lanes and express bus network**, resulting in 600 miles of express lanes throughout the Bay Area that would enable fast and reliable express bus service and carpool trips. Robust regional express bus service complements regional rail and local transit, providing an improved option for regional trips without the need for extensive infrastructure upgrades.

Planning for express lanes is closely linked with the aforementioned strategy to implement per-mile tolling on select freeways with transit alternatives. Express lanes serve as a near-term investment in improving travel conditions, with per-mile tolling providing a medium-to long-term policy flexible enough to ensure that roads do not become overwhelmed with congestion as the Bay Area's population grows, even if driving were to become cheaper or more attractive. On corridors where per-mile tolling is proposed under Plan Bay Area 2050, the express lanes could convert to carpool- and bus-only lanes, ensuring that carpoolers and bus passengers continue to see the benefits of a priority lane on freeways.

FUNDING AND IMPLEMENTATION Transportation Strategies

Together, Plan Bay Area 2050's 12 transportation strategies move the Bay Area toward a more equitable future by ensuring that residents with low incomes can rely on the current system of roads and transit options, investing in more safe and healthy streets, and improving the region's transit network. Through advocacy, legislation, initiatives, planning and research over the next 30 years, MTC and ABAG can work with partners to secure a \$578 billion investment into our region's future mobility, ensuring that everyone — and especially those historically and systemically marginalized, underserved and excluded — can get where they need to go with safety and ease.



Photo: Karl Nielsen



Transportation Strategies — Cost: \$578 Billion

Maintain and Optimize the Existing System	T1. Restore, operate and maintain the existing system. Commit to operate and maintain the Bay Area’s roads and transit infrastructure while reversing pandemic-related cuts to total transit service hours.	\$389 BILLION
	T2. Support community-led transportation enhancements in Equity Priority Communities. Provide direct funding to historically marginalized communities for locally identified transportation needs.	\$8 BILLION
	T3. Enable a seamless mobility experience. Eliminate barriers to multi-operator transit trips by streamlining fare payment and trip planning while requiring schedule coordination at timed transfer hubs.	\$3 BILLION
	T4. Reform regional transit fare policy. Streamline fare payment and replace existing operator-specific discounted fare programs with an integrated fare structure across all transit operators.	\$10 BILLION
	T5. Implement per-mile tolling on congested freeways with transit alternatives. Apply a per-mile charge on auto travel on select congested freeway corridors where transit alternatives exist, with discounts for carpoolers, low-income residents, and off-peak travel; and reinvest excess revenues into transit alternatives in the corridor.	\$1 BILLION
	T6. Improve interchanges and address highway bottlenecks. Rebuild interchanges and widen key highway bottlenecks to achieve short- to medium-term congestion relief.	\$12 BILLION
	T7. Advance other regional programs and local priorities. Fund regional programs like motorist aid and 511 while supporting local transportation investments on arterials and local streets.	\$17 BILLION
Create Healthy and Safe Streets	T8. Build a Complete Streets network. Enhance streets to promote walking, biking and other micro-mobility through sidewalk improvements, car-free slow streets, and 10,000 miles of bike lanes or multi-use paths.	\$13 BILLION
	T9. Advance regional Vision Zero policy through street design and reduced speeds. Reduce speed limits to between 20 and 35 miles per hour on local streets and 55 miles per hour on freeways, relying on design elements on local streets and automated speed enforcement on freeways.	\$4 BILLION
Build a Next-Generation Transit Network	T10. Enhance local transit frequency, capacity and reliability. Improve the quality and availability of local bus and light rail service, with new bus rapid transit lines, South Bay light rail extensions, and frequency increases focused in lower-income communities.	\$32 BILLION
	T11. Expand and modernize the regional rail network. Better connect communities while increasing frequencies by advancing the Link21 new transbay rail crossing, BART to Silicon Valley Phase 2, Valley Link, Caltrain Downtown Rail Extension and Caltrain/High-Speed Rail grade separations, among other projects.	\$81 BILLION
	T12. Build an integrated regional express lanes and express bus network. Complete the buildout of the regional express lanes network to provide uncongested freeway lanes for new and improved express bus services, carpools and toll-paying solo drivers.	\$9 BILLION

NOTE: Numbers may not sum due to rounding.