

**THE
BIGGER
PICTURE**



Nine Ideas for a Connected San Francisco

**How better transportation can link
San Francisco neighborhoods to each
other and the region**

OCTOBER 2021

AECOM



**This report is a component of the SPUR Regional Strategy,
a vision for the future of the San Francisco Bay Area**
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Introduction

SPUR's Bigger Picture series proposes ideas for key locations in San Francisco, San José and Oakland, the Bay Area's three largest cities. Each exploration represents an opportunity to tackle major regional challenges through local planning processes. And, conversely, each suggests how big investments in infrastructure can — if planned carefully — bring about positive transformation for the immediate neighborhood.

This series is part of the SPUR Regional Strategy, an aspirational 50-year vision for the Bay Area and a roadmap to creating an equitable, sustainable and prosperous future. We partnered with AECOM to identify and explore locations that have important implications for the future of the region. Then we brought together community organizations, businesses and government leaders to identify opportunities and goals for these locations. We see them as great urban places that can uplift both the local community and the greater Bay Area — if decision makers keep that bigger picture in mind.

Rather than starting with a blank slate, these ideas build on the best efforts already underway, proposing bold new ways to make the most of existing plans and ensure that they work with — not against — one another. We also shine a light on some lesser-known proposals that we think deserve consideration. These ideas are not policy prescriptions but possibilities — offering one vision of what a more sustainable, equitable and prosperous future might look like.

This exploration focuses on transit investments that could better connect San Francisco residents to the city and to the region — meanwhile connecting the region to all that San Francisco has to offer. This vision builds upon the existing transportation systems, which primarily serve to bring Bay Area and San Francisco residents to San Francisco's downtown for work and play.

Our Vision for Connecting San Francisco Neighborhoods to Each Other and the Region

In 2070, the default choice for getting around San Francisco is to ride transit, bike or walk. Transit isn't just for commuting; it is the most convenient, affordable and safe way to move through the city day and night. Door-to-door travel by foot and bike is safe and easy on networks of protected bike lanes and slow streets. Battery-powered buses arrive every five minutes on all major routes, traveling out of traffic on dedicated bus lanes. It's hard to remember a time when these options weren't cheaper, more convenient and more fun than driving. This shift has reduced greenhouse gas emissions and air pollution, created more livable communities with deeper social connections, allowed local businesses to thrive and created far greater access to economic opportunity. Residents are healthier, and fewer lives are lost each year to crashes involving cars.

Major investments in transit service and infrastructure have improved access for historically underserved neighborhoods like the Bayview and the West Side. No longer separated from the rest of the city and the region, locals here have better access to jobs, schools, shops and services, entertainment, open space and the Bay. At the same time, these neighborhoods have been shielded from displacement pressures, and long-time residents have benefited from these public investments.

When it comes to longer trips, transit has surpassed driving as the best way to get around the Bay Area. A regional transit network designed around frequent and abundant service operates on a regular schedule, with timed transfers and seamless connections between operators. Transit stations serve as important anchors of community life, whether or not people are boarding a bus, train or ferry. This regional service is centered on passenger experience and is affordable to everyone.

These improvements have dramatically shortened travel times. People no longer avoid transfers but take advantage of the immense increase in accessible destinations. It's now possible to get from hub stations in San Francisco, Oakland or San José to most major Bay Area cities in 60 minutes or less, making the nine-county region function more like one unified metropolitan area. This investment has also primed San Francisco and other cities to accept new neighbors. The region has gracefully added 2.2 million new households since 2020, while becoming easier to get around.



San Francisco's Local and Regional Connections Today

Today the Bay Area is connected to San Francisco by rail, bus and ferry, with services primarily focused on bringing commuters from the rest of the Bay Area into downtown San Francisco. Neighborhoods adjacent to Market and Mission streets have easy access to the East Bay and the South Bay via BART. This is an example of how a regional service can connect neighborhoods to the region, not just to downtown. Meanwhile, BART service in this transportation corridor also functions as an express layer on top of the good local service provided by Muni trains and buses.

San Francisco's transit system today is based largely around Market Street and focuses on getting commuters to and from downtown. PHOTO BY SERGIO RUIZ



Unfortunately, many of San Francisco's other neighborhoods have poor access to regional transit service. Residents of neighborhoods like the Richmond need to travel well out of their way to downtown before they can access Caltrain to the Peninsula and the South Bay. Residents of southeast San Francisco must endure a long and unreliable T Third Muni Metro trip to access BART to the East Bay, although the launch of the 15 Bayview Hunters Point Express¹ has somewhat improved access.

¹ See: <https://www.sfcta.org/blogs/new-15-bayview-hunters-point-express>



San Francisco's Existing Rail Network
 Today, rail services are concentrated in just a few parts of the city. Many neighborhoods have poor access to regional transit service.

- Rail
- BART
- Muni / bus rapid transit

Muni, San Francisco's local transit service, is the largest operator in the Bay Area; prior to the COVID-19 pandemic, it carried 700,000 trips per day and over 50% of the region's low-income ridership². While downtown transit coverage is generally good, the network is less focused on getting from neighborhood to neighborhood. The neighborhoods furthest away from downtown in particular lack adequate and express cross-town routes, reducing local and regional job access for the people who live there.³ And while great strides have been made during the pandemic, San Francisco's buses

² <https://www.vitalsigns.mtc.ca.gov/transit-ridership>

³ See: https://connectsf.org/wp-content/uploads/ConnectSF_Statement-of-Needs-Report-Final.pdf

are still some of the slowest in the country⁴ because too many of them do not travel on dedicated lanes, get stuck in traffic and stop too frequently. The backlog of deferred investment and upgrades to the current Muni system (over \$3.83 billion as of 2020) results in too-frequent delays from breakdowns and malfunctions.⁵

San Francisco's buses are some of the slowest in the country, in part because most don't have dedicated lanes. PHOTO BY SERGIO RUIZ



Despite investments in making it easier and safer to walk and bike, as of 2019 the proportion of trips taken by walking and bicycle had not meaningfully increased over the previous five years.⁶ The prospect of a connected city-wide network of protected bike lanes and walkable corridors still seems far away.

4 The 2018 National Transit Database shows that SFMTA buses have the second slowest average speed for transit agencies with more than 10,000,000 unlinked annual passenger trips. See: <https://www.transit.dot.gov/ntd/data-product/2018-service>

5 https://www.sfmta.com/sites/default/files/reports-and-documents/2021/07/7-20-21_mtab_item_17_state_of_good_repair_-_report.pdf

6 See San Francisco's 2019 mode share report: <https://www.sfmta.com/reports/sustainable-transportation-mode-share>. Note that the report is a snapshot in time and does not provide information on historical mode share, which would allow comparison of mode share over time. A 2020 study using innovative survey methods indicates that there was a higher proportion of trips taken by walking than thought at the time of the 2019 report. See: *Results of the First Large-scale Survey of TNC Use in the Bay Area*, Bradley, Greene, Sana, Cooper, Castiglione, Israel and Coy, 2020, <https://trid.trb.org/view/1759971>

Why This Matters

Urban living would be impossible without transit: there simply isn't enough room to move the number of people who live and work in cities using cars. If everybody who commuted into San Francisco on BART were to drive, the city would need to build more than 50 new garages the size of the city's largest, at Fifth and Mission streets, destroying over a hundred city blocks. Transit also offers mobility to those who are not able to drive or who cannot afford a car, generates less air pollution and fewer greenhouse gas emissions than cars, and results in fewer deaths and serious injuries on our roads.

San Francisco's greenhouse gas footprint (both per capita and per job) is approximately half the regional average but is still well short of the city's long-term goals. Meeting those goals will require a transformative investment in getting people out of their cars, both for local and regional trips. To make this happen, San Francisco and the region need to deploy frequent, high-quality transit that serves today's needs and enables growth without adding car trips. The city must also prioritize walking and biking to help residents get around cheaply, quickly and with limited impact on others. All transportation modes, from subways to slow streets, need to be planned to work as one integrated, equitable and accessible system.

High-quality transit spares people the costs of car ownership and connects them to jobs, educational opportunities, and open space and recreation. PHOTO BY SERGIO RUIZ



Improved connections will spare people — especially those with low incomes — the significant costs of car ownership and connects more San Franciscans to the region's jobs, educational opportunities, and open space and recreation. Great public transit makes housing more affordable, too, by reducing the need for parking spots, which add to the cost to build new housing units.

9 Ideas for a Connected San Francisco

In the following pages, we propose a series of coordinated investments in San Francisco transportation that together could dramatically improve access within the city and connections to the region. This set of ideas is not the only solution, but illustrates the scale of transformation and integration that is possible and needed. Many of the projects listed here are currently in development. The decisions that shape these projects should prioritize equity, benefit both existing and future residents, and recognize the city's potential and its importance to the region.

IDEA 1

Complete Planned Projects to Better Connect San Francisco to the Region

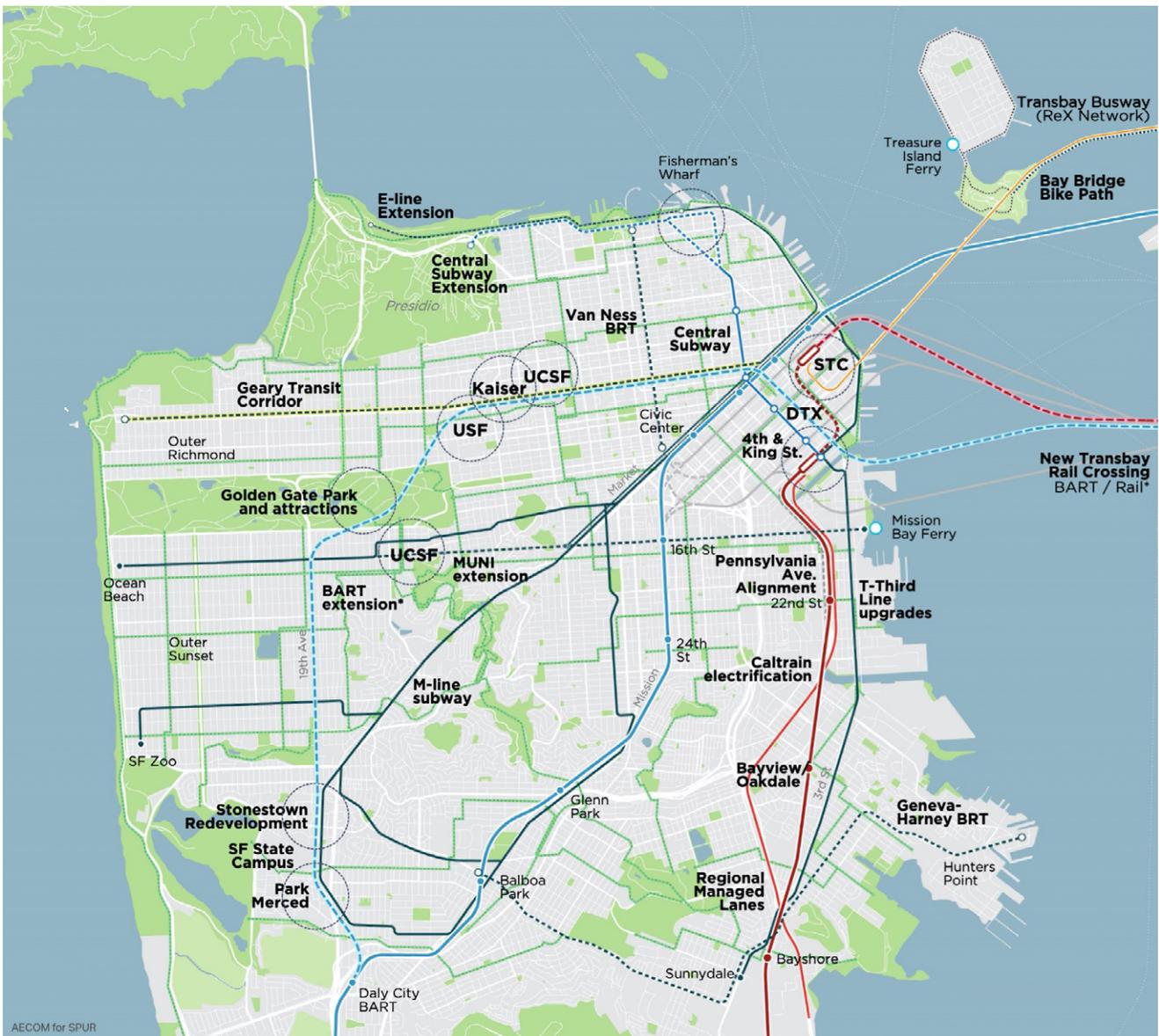
A number of projects that are planned or already under construction will be critical to connecting San Francisco to the region and itself. The vision outlined on page 5 depends on the following near-term projects moving forward without delay:

- Complete BART core capacity upgrades, which include adding enough train cars to the fleet so all trains running during peak times can be 10 cars long, and upgrading the electrical infrastructure and train control system to increase capacity by 30%, with trains running every two minutes through the Transbay Tube.
- Electrify Caltrain to lay the foundations for all-day, fast and frequent service on the corridor.
- Complete the Downtown Rail Extension (DTX) bringing Caltrain — and eventually high-speed rail — from Fourth and King station to the Transbay Transit Center. This would connect downtown San Francisco more seamlessly with San Francisco International Airport, San José, the Central Valley and Los Angeles, and would connect many San Francisco neighborhoods to the Peninsula and the East Bay through connections at the Transbay Transit Center. DTX should be built with three tracks to maximize the capacity of the line and allow future compatibility with a new rail crossing under the Bay.
- Complete the construction of a ferry landing in Mission Bay to provide one of the city's fastest growing neighborhoods with a direct and rapid regional connection to downtown and the East Bay.

- Enable bike trips between the East Bay and San Francisco, by connecting the existing bike path on the east span of the Bay Bridge to the new Treasure Island ferry terminal, which will provide frequent all-electric ferry service to downtown San Francisco.
- Convert existing lanes on Highway 101 and Interstate 280 into high-occupancy toll lanes to improve the reliability of existing Muni local express bus and SamTrans regional express bus routes, and to support a more extensive regional express bus network in the future.

Planned Transit Network and Links
 Completing rail projects that are currently planned or underway would connect San Francisco neighborhoods both to each other and to the greater Bay Area region.

- Rail
- BART
- Muni / bus rapid transit
- Potential Rail Extension
- Potential BART Extension
- Potential Muni / bus rapid transit
- Transbay Busway
- Regional Managed Lanes US-101/I-280
- Bay Bridge Bike Path to Treasure Island
- Trail Network and Potential Green Connection



The vision also depends on delivering in the medium term more than \$20 billion in Caltrain service improvements outlined in the agency’s business plan.⁷ This includes relocating Caltrain’s tracks under Pennsylvania Avenue to enable increased service levels without cutting off Mission Bay from the rest of the city, as frequent trains create long delays in crossing the tracks. These changes would allow trains to run every 7.5 minutes at rush hour and every 15 minutes during the rest of the day.

IDEA 2

Extend Regional Rail to Connect the West Side to the Peninsula, the East Bay and Beyond

SPUR proposes a new rail line to San Francisco’s West Side along Geary Boulevard. A Geary Boulevard rail line is a longstanding concept that was included in the original proposals for the BART system,⁸ where it was initially conceived as linking Marin County to the rest of the region.

SPUR proposes this line would link a series of major destinations on the westside, providing frequent rapid transit and regional access without a car. It could complement the 38 Geary Muni bus line (which carried over 60,000 riders a day before the pandemic), serve the U.C. San Francisco Mt. Zion and Kaiser hospital campuses and the University of San Francisco, cross Golden Gate Park (providing the entire region with access to destinations such as the California Academy of Sciences, the de Young Museum, Kezar Stadium and Golden Gate Park), serve U.C. San Francisco Parnassus, continue south through the Sunset District to 19th Avenue, Stonestown, San Francisco State University and Park Merced, and converge with the existing regional rail system either at Daly City Station or at Millbrae, depending on whether the tracks were conventional rail or BART technology.

This alignment would provide greater regional connectivity from the western neighborhoods of San Francisco to the East Bay and to northern San Mateo County and the Peninsula. This scale of transit investments would also allow the west side’s “high opportunity” neighborhoods, those with access to good schools and other tools for building wealth,⁹ to accommodate new neighbors and significant growth. Excellent regional transit access would allow this area to become more dense while reducing driving and congestion. Government must shield these neighborhoods from displacement pressures and intentional policies and investments would need to be in place for long-time residents to benefit from these massive public investments.

7 Draft 2040 Service Vision Fact Sheet, Caltrain, https://caltrain2040.org/wp-content/uploads/Caltrain_ServiceVisionFactSheet_V12-1.pdf

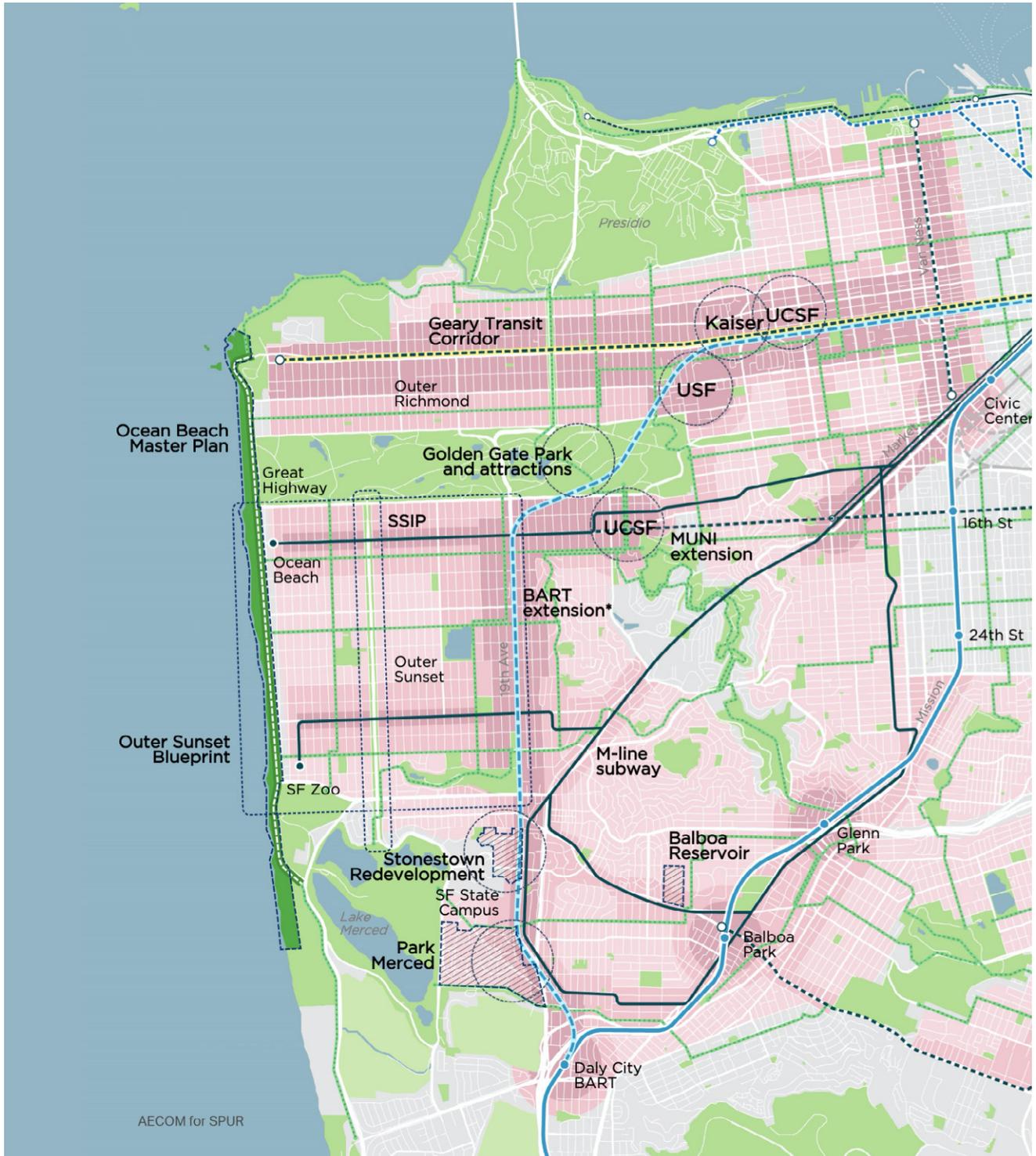
8 See: <https://live-heydaybooks.pantheon.site.io/catalog/bart-the-dramatic-history-of-the-bay-area-rapid-transit-system/>

9 High opportunity areas are defined by the California Fair Housing Task Force. See map at: <https://www.sfhousingelement.org/high-opportunity-areas>

Proposed Transit Service for SF's Western Neighborhoods

Large-scale investment in transit would support San Francisco's west side to accommodate new growth and neighbors — without adding cars and congestion.

-  Project Areas Planned or Underway
-  Potential Housing Growth
-  Potential BART Extension
-  Potential Muni / bus rapid transit
-  BART
-  Muni / bus rapid transit
-  Trail Network and Potential Green Connection



IDEA 3**Invest in New Transbay Transit to Connect the City with the East Bay and Beyond**

BART's Transbay Tube was built more than 50 years ago. It is overburdened and lacks redundancy (meaning multiple tracks between origins and destinations), which is necessary for efficient maintenance and resilience in a disaster. Any type of disruption in the tube impacts the entire BART network and beyond. BART successfully channeled decades of job growth into the Financial District along Market Street, cementing San Francisco's role as a global city and the region's preeminent transit-oriented job center.¹⁰ But the current system will not be able to handle the expected growth over the coming decades. This additional capacity across the Bay is the linchpin for enabling the Bay Area to provide greater access to high quality jobs while lowering the region's carbon footprint and making the entire Northern California megaregion competitive globally.¹¹

The cheapest and easiest solution to increasing transbay transit capacity and delivering a resilient transit system lies with expanding regional bus service. We recommend significantly expanding transbay bus frequency and dedicating existing lanes on the Bay Bridge and on its approaches to buses and very high occupancy vehicles, such as vanpools and larger shuttle buses. At relatively low cost, this could deliver significant transit capacity from the East Bay into San Francisco.

The Transbay Transit Center — with direct bus connections both east across the Bay Bridge and south to the Peninsula — could also serve as the center of a seamless, coordinated regional and inter-regional express bus network. Rapid express bus service to Sacramento, on dedicated lanes, could deliver travelers from the Transbay Transit Center to K Street in Sacramento in 1 hour and 15 minutes. This service could compete favorably with driving for most trips, and use existing road infrastructure as its “rails” by running buses on highway shoulders and existing highway lanes converted to bus lanes or high occupancy lanes. This regional express bus network could be as important as potential new rail connections for the future of San Francisco and the region.

In the long term, we also recommend one or more new rail crossings connecting the East Bay and San Francisco. A new transbay rail crossing for either BART, standard gauge rail or both could be delivered in a single tunnel or in two. This would provide critical redundancy across the transbay corridor, provide regional transit access to more communities and support the next generation of growth to San Francisco's transit-oriented employment centers. If the crossings include a standard-gauge connection, it would support direct rail services between the Peninsula (Caltrain and high-speed rail) and the East Bay, Sacramento and the Central Valley (ACE and Amtrak's Capitol Corridor and San Joaquins lines). This would allow access to a megaregional rail system that, with additional strategic investments, could be fast, frequent and seamlessly coordinated. It could also provide the transit backbone for the rise of multiple transit-oriented job centers around the Northern California megaregion.

¹⁰ Despite the changes wrought by the pandemic, San Francisco is still positioned to operate as the region's primary job center.

¹¹ See: <http://www.bayareaeconomy.org/report/megaregionimpactsofnewtransbayrailcrossing/>

Regardless of which rail technology is used for the actual crossing, standard gauge and BART rail systems should connect seamlessly, within fully integrated fares, branding and stations. Transferring between the two systems should be effortless and dependable. Such coordination will require new forms of transit network management to oversee planning all systems as one integrated network, and could potentially include a BART-Caltrain merger.

IDEA 4

Fully Electrify Local Transit, and Bring It Into a State of Good Repair

To connect all neighborhoods in the city to the region via the downtown transit hub at the Transbay Transit Center, and possibly a second transit hub on the westside, San Francisco's existing transit network needs to be brought into a state of good repair so it can be operated reliably and cost-effectively. In addition to the replacement of existing Muni light rail vehicles, which is currently underway, the Muni Metro subway and train control system, as well as Muni maintenance facilities, require major rehabilitation. Significant upgrades to Muni's maintenance facilities will also enable the full electrification of Muni's bus fleet. The city's \$3.83 billion state-of-good-repair needs¹² should be fully met, and a sophisticated asset management system deployed to reduce unexpected and costly breakdowns.

IDEA 5

Complete Planned Projects to Connect Neighborhoods Throughout the City

A number of plans and projects currently underway will be critical to connecting neighborhoods in San Francisco to each other. The vision outlined on page 5 depends on the following near-term projects moving forward without delay:

- Design and deliver a city-wide network of protected bike lanes and permanent slow streets, enabling San Franciscans to walk and bike safely throughout the city and to access regional destinations. This network could enable access to all major transit hubs, and to all the city's schools, parks, major cultural and medical institutions, and job centers. Today's active transportation infrastructure constitutes a fraction of what is needed. This is a particularly opportune moment to invest in bike infrastructure, as well as supporting low-income San Franciscans in purchasing electric bikes or accessing bike sharing services, as the advent of electric bikes makes biking often the fastest, most sustainable, most cost-effective way to get around the city.

12 https://www.sfmta.com/sites/default/files/reports-and-documents/2021/07/7-20-21_mtab_item_17_state_of_good_repair_-_report.pdf

- Deliver a Five-Minute Rapid Network, connecting neighborhoods across San Francisco with buses that run every five minutes, with a focus on first improving transit to underserved communities with poor transit connections. The San Francisco Municipal Transportation Agency, the San Francisco County Transportation Authority and San Francisco Planning have begun to plan this network,¹³ and a similar vision has been set out by the advocacy group San Francisco Transit Riders in their 30x30 campaign,¹⁴ which contemplates a network of rapid Muni routes that run end-to-end in 30 minutes by 2030, with buses arriving at least every 10 minutes. This Five-Minute Rapid Network should run exclusively on dedicated lanes, with improvements that get transit vehicles out of traffic throughout the network.

Five-Minute Network

A frequent and fast bus service, running on dedicated bus lanes out of traffic, should be the basis of San Francisco's transit network.



- As part of the Five-Minute Rapid Network, complete construction of the planned bus rapid transit projects on Van Ness Avenue, and commence the construction of bus rapid transit on Geneva Avenue and Geary Boulevard, delivering high-capacity transit along strategic connecting corridors.

¹³ See: <https://www.sfmta.com/press-releases/sfmta-and-connectsf-unveil-bold-vision-san-francisco-transit>

¹⁴ See: <https://sftransitriders.org/30x30/>

- Complete the new Bayview Caltrain Station, connecting the southeastern part of the city with downtown, the Peninsula and — through seamless connections at hub stations — the East Bay and North Bay. Fares from the Bayview Caltrain Station downtown should be equivalent to Muni fares to ensure equitable access.
- Upgrade T Third Muni Metro service and give transit vehicles priority over cars to deliver faster and more reliable service to and from southeast San Francisco, which has traditionally been underserved by transit.
- Complete construction of the Central Subway Extension to Chinatown, connecting Chinatown, SOMA, Mission Bay and the entire Third Street corridor.
- In collaboration with the National Park Service, extend the E Embarcadero streetcar line to Fort Mason Center and the Marina District through the Fort Mason Tunnel, creating an efficient rail link to thousands of hospitality jobs and major tourist destinations.

IDEA 6

Improve and Expand Muni's Subway Network

Muni has recently taken a significant step to expand beyond a Market Street-centric system with the construction of the Central Subway to Chinatown. The system should continue to grow, offering more San Franciscans, especially those in underserved neighborhoods, access to frequent underground rapid transit that connects them to the rest of the city and to regional transit hubs. Important components of an expanded Muni Metro network should include:

- Update Muni's train control system, invest in additional light rail vehicles and support facilities, reconfigure rail lines and provide full transit priority over other vehicles on surface streets to improve Muni Metro system capacity, reliability and speed.¹⁵ This would allow for three-car trains on the N Judah line, and four-car trains on the M Ocean line and in the subway from West Portal to Embarcadero.
- Extend the Central Subway from North Beach through Fisherman's Wharf, down Lombard Street and all the way to the Presidio, connecting dense development, tourism destinations and employment centers to the rest of the city rail network.
- Convert the N Judah into a new crosstown subway line, connecting the Inner Sunset, the 16th Street BART station and Mission Bay.
- Increase the capacity of the Muni Metro tunnel and fully underground the M Ocean View line to the southwest of West Portal, eliminating one of the critical constraints on Muni frequency, speed and reliability to and from downtown.

¹⁵ These improvements are collectively referred to as Muni Rail Core Capacity.

IDEA 7**Plan and Zone for Transit-Supportive Land Uses While Preventing Displacement**

Subways and other high-quality urban rapid transit have the power to shape San Francisco's growth, if given a supportive policy environment. If the city realizes the vision of a network of subway lines and five-minute-frequency rapid buses traversing the city in 30 minutes or less, all parts of the city will be transit accessible and could welcome additional growth. Zoning around stations along key transit corridors in particular should reflect the city's commitments to supporting transit, reducing carbon emissions, improving access to public space, and making San Francisco diverse, inclusive and affordable. This would also allow more residents to live in places that are deeply connected to the region. Community stabilization strategies should be implemented early in the process to prevent displacement and ensure that long-standing residents and their children can benefit from public investment in new service. New, denser growth can ensure high transit ridership, while fast, frequent transit allows for livable urban density that doesn't depend on driving, making for more pleasant neighborhoods. Supporting the evolution of these areas into amenity-rich neighborhoods centered around transit and active transportation, rather than driving, will help avoid further suburbanization and sprawl.

The construction of BART was fundamental to making downtown San Francisco the region's preeminent job center, largely without bringing new cars into the city. Greatly enhanced transit access can also shape the rest of city, allowing for compact development of housing, institutions and employment centers that are connected to the rest of the region with transit.

IDEA 8**Reimagine Transit Planning and Delivery**

The ambitious program of transit investment outlined in this report would be unlikely without a re-thinking of how to plan, fund and deliver transit in the city and across the region. Chronic time delays and cost overruns have resulted in sadly diminished expectations and aspirations for transportation projects.

To ensure the future success of the Bay Area, all transportation projects must be delivered cost effectively and within a reasonable timeframe. The risk of not doing so is that projects become not worth doing at all.

It need not be so. Many other countries are able to plan, deliver and operate complex infrastructure projects much more efficiently. A region as affluent and innovative as the Bay Area can learn from what works, if we choose to do so. In the recent report *More for Less*, SPUR looks at international examples and makes 10 policy proposals that will help deliver transit projects more quickly and cost-effectively.¹⁶

16 See: <https://www.spur.org/publications/spur-report/2020-09-29/more-less>

Finally, San Francisco must support the development of a transit network manager for the Bay Area, as proposed by the regional Blue Ribbon Transit Recovery Task Force¹⁷ and in SPUR's report *A Regional Transit Coordinator for the Bay Area*.¹⁸ This entity would enable regional transit to be run as one seamless system from the perspective of the rider, providing clear regional standards for all agencies operating transit in San Francisco and across the region for fares, schedules, route planning, hub design and customer information. Regional fare integration is particularly important, as it would ensure the greatest ridership gains and equity benefits for riders in San Francisco.

IDEA 9

Adopt Incentives to Reduce Congestion

Even with all of the above investments, San Francisco would still face continued bus transit speed and reliability challenges wherever streets remain congested. Further action is necessary to manage traffic congestion. In San Francisco's employment districts, congestion pricing — where cars are charged a small fee to enter downtown, with significant discounts for low-income drivers — is the best tool to reduce and manage roadway congestion.

Congestion pricing would achieve multiple goals. First, it would reduce congestion to a level that allows for fast and reliable bus transit. Second, it would communicate to drivers the costs they are imposing on others, for example the incremental congestion caused by a single-occupant car, which slows down a bus that dozens of riders depend on. This can encourage those with a choice to change their travel mode, time or destination — or not take the trip at all. Third, it would raise revenue from those who choose to drive despite the congestion fee and will dedicate the revenue to fund a more expansive and more frequent transit network. Congestion charges must be implemented in a manner consistent with San Francisco's equity priorities, so it would need to be discounted or waived for low- and moderate-income drivers. Research and modeling by the SFCTA¹⁹ has determined that practical, income-based congestion fees — which would be waived for the lowest income drivers and drivers with disabilities — would deliver net cost reductions for low-income drivers while dramatically improving transit performance.

Eliminating free street parking would help create more parking availability and reduce distracted driving and congestion as drivers look for parking spaces. This congestion, and the frequent double parking that results from a lack of immediately available parking spaces, slows transit and creates unsafe streets for pedestrians and cyclists. Fairly priced street parking could also generate revenue for expanded and more frequent bus service and street improvements, with the majority of the revenue dedicated to projects in the neighborhood where it was generated.

17 See: <https://mtc.ca.gov/about-mtc/committees/interagency-committees/blue-ribbon-transit-recovery-task-force>

18 See: <https://www.spur.org/publications/spur-report/2020-12-01/regional-transit-coordinator-bay-area>

19 See: <https://www.sfcta.org/downtown> and slide 21 at: <https://www.sfcta.org/sites/default/files/2020-06/PAC%205%20slides.pdf>

Case Studies

Crossrail London

PHOTO COURTESY OF AECOM



Crossrail, one of the most significant infrastructure projects ever undertaken in the United Kingdom, is planned to bring 1.5 million new riders into and across central London. When it is completed, Crossrail will connect more people to key employment, business and leisure hubs, improving journey times and access to opportunity.

Covering more than 60 miles from Maidenhead and Heathrow Airport in the west of London to Shenfield and Abbey Wood in the east, Crossrail will traverse the city via a 13-mile tunnel connected to London's Underground system. It will stop at 41 stations, and include 10 newly built stations and 30 station upgrades.²⁰ Service will run in a new tunnel that connects to several existing surface regional rail lines and will have numerous interchanges with the Underground without being an Underground line itself.

Lesson for San Francisco: San Francisco should think megaregionally when making significant transportation infrastructure investments, such as thinking about how a new rail connection across the Bay can benefit all 21 counties in the Northern California megaregion, not just San Francisco and the inner East Bay. By connecting areas of growth, key activity zones and job centers across the region, we will be able to bring benefits to many more San Francisco and Bay Area residents. Crossrail is planning to have integrated fares and service with the rest of the local and regional transit network, which is a critical idea for the Bay Area.

²⁰ See: <https://aecom.com/projects/crossrail/>

Exclusive Bus Lane Route 495 New Jersey

PHOTO COURTESY OF PORT AUTHORITY
OF NEW YORK AND NEW JERSEY



Completed in 1971, the New Jersey Route 495 XBL (short for “exclusive bus lane”) is a dedicated bus lane connecting the New Jersey Turnpike to the Lincoln Tunnel. A contra-flow lane, it allows buses to travel in the opposite direction of surrounding traffic during peak hours to make use of extra highway capacity in the non-peak direction. Over 1,850 buses use the route every day, carrying 18.5 million passengers per year. The XBL operates during the weekday morning peak, saving bus passengers 15 to 20 minutes compared to the normal I-495 route — a total of almost 5.5 million hours of commuting time a year.²¹

Lesson for San Francisco and the Bay Area: By prioritizing public transportation alternatives on freeways and roadways, especially key corridors like the Bay bridges, San Francisco can cost effectively deliver significant public transportation improvements that reduce reliance on private vehicles, travel times, congestion and emissions. Converting existing road capacity for use by transit is also the best way to leverage the massive existing public investment in roadways to meet climate, equity and prosperity goals.

²¹ See: <https://www.panynj.gov/bridges-tunnels/en/lincoln-tunnel/xbl.html>

New York Gateway

New York Metro Area

PHOTO COURTESY OF AECOM



The Gateway Program, a set of transportation projects proposed within a very congested 10-mile section of the Northeast Corridor, would increase transit resilience and capacity between Newark, New Jersey, and Penn Station in New York. Today, the route serves approximately 450 trains per day and over 200,000 daily passenger trips on Amtrak and NJ Transit. As the main rail connection between Manhattan, its western suburbs and the rest of the Eastern seaboard, the link presents a critical connection.

One of the key projects in the Gateway program is to build a second tunnel crossing the Hudson River. The existing 110-year-old tunnel is deteriorating due to age and intensive use, an issue exacerbated by damage sustained during Superstorm Sandy in 2012 and Hurricane Ida this year. Even when fully operational, it already presents a bottleneck for the Northeast Corridor, the busiest passenger rail line in the country. Any repair or upgrade work to the current two-tube tunnel will require closure of one of the tubes, reducing capacity further. The only way to avoid several years of reduced service is to build a second tunnel to maintain service levels during repairs and increase capacity and resilience in the long term.²²

Lesson for San Francisco and the Bay Area: To maintain critical local and regional rail connections, especially during disruptions such as natural disasters, investments must be made to increase capacity and resilience. Our transit network must prepare for multiple threats to our region: earthquakes, wild fires and flooding from sea level rise.

22 See: <https://rpa.org/work/campaigns/build-gateway> and <http://www.gatewayprogram.org/>

Rotterdam Centraal Station Rotterdam

PHOTO BY JURRIAN SNIKKERS



Rotterdam Centraal Station, rebuilt in 2014, is a multi-modal hub that brings together trains, buses, the subway, light rail, taxis and bicycle infrastructure to serve Rotterdam and other parts of The Hague metropolitan region. Station redevelopment and expansion was prompted by projections for growing transit ridership, up to 320,000 people by 2030, and the introduction of new high-speed rail.

Rotterdam Centraal was integrated into Europe's high-speed rail network via the high-speed line running from Amsterdam to the Belgian border. Connecting to this network reduces travel times between Rotterdam and Amsterdam from over an hour to 36 minutes. Travel time from Amsterdam to Paris has gone down from four hours to three hours.²³

One of the keys to the success of the station redevelopment was the integration of neighboring mixed-use development, creating an expanded center of activity for employment and cultural activities. The station faces onto the Weena, a large, busy commercial street lined with new high-rises that provides direct access to Rotterdam's urban center.²⁴

Lesson for San Francisco and the Bay Area: San Francisco can connect to planned statewide investments in high-speed rail to transform public transportation in the city and to build upon its role as the Bay Area's primary jobs center. Accompanying development around hub stations should provide integrated, multimodal public transportation services that support local and regional connectivity.

23 See: <https://www.railway-technology.com/projects/zuid/>

24 See: <https://www.spur.org/news/2016-09-22/lessons-diridon-rebuilding-rotterdam-centraal-station>



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