



Plan BayArea **2040**

FINAL

Adopted
July 26, 2017



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Plan BayArea **2040**

Regional Transportation Plan and
Sustainable Communities Strategy
for the San Francisco Bay Area
2017-2040

Adopted July 26, 2017



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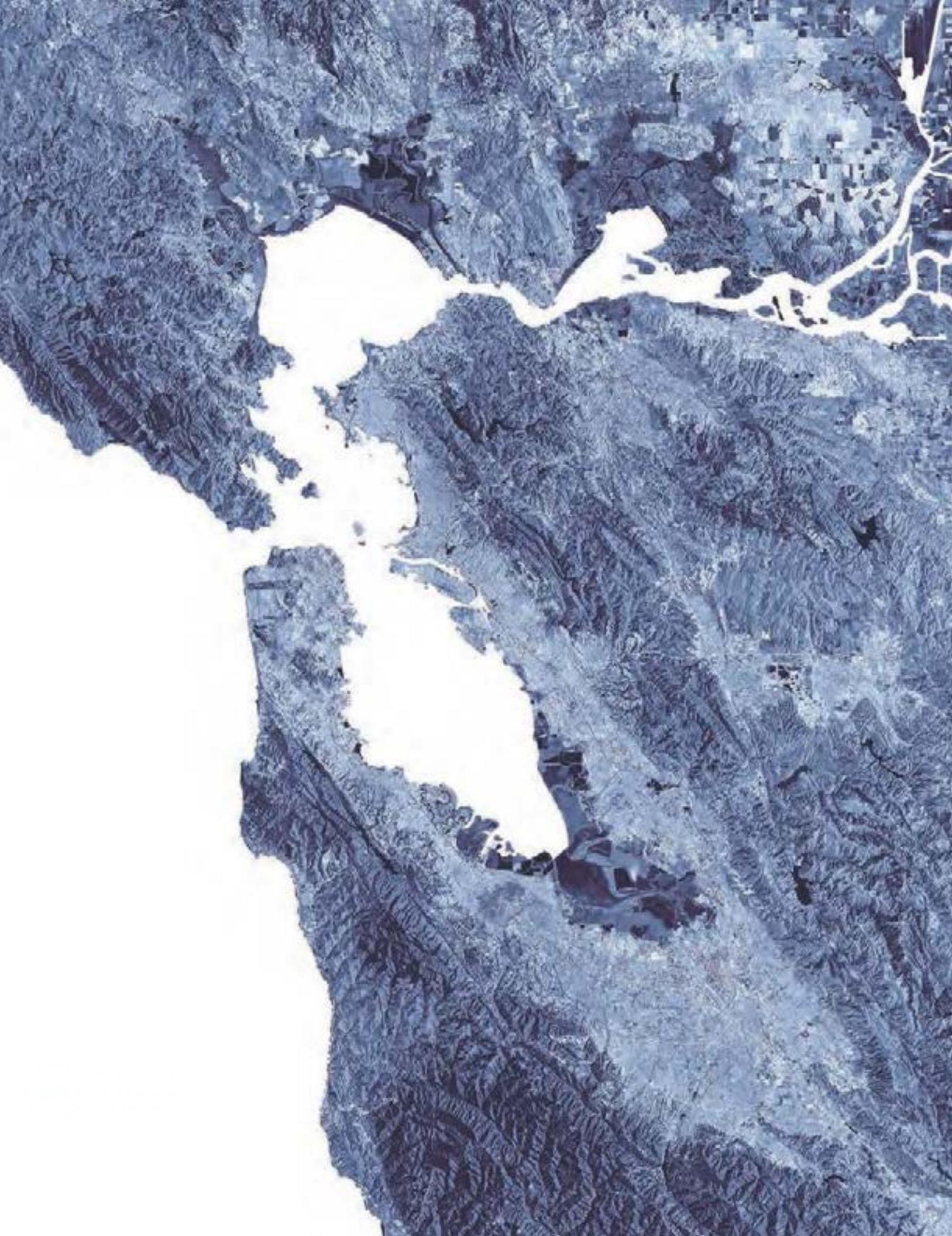
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The iconic Golden Gate Bridge and beautiful beaches make the Bay Area one of the world's most popular regions to visit and call home.
Credit: Unsplash, Creative Commons



Welcome to Plan Bay Area 2040,

an updated long-range Regional Transportation Plan and Sustainable Communities Strategy for the nine-county San Francisco Bay Area. This document discusses how the Bay Area will grow over the next two decades and identifies transportation and land use strategies to enable a more sustainable, equitable and economically vibrant future. Starting with the current state of the region, this document describes Plan Bay Area 2040 and its goals, a proposed growth pattern and supporting transportation investment strategy, and key actions needed to address ongoing and long-term regional challenges.

Plan Bay Area 2040 is a limited and focused update of the region's previous integrated transportation and land use plan, Plan Bay Area, adopted in 2013.





An aerial view over Contra Costa County.
Credit: Karl Nielsen

The Bay Area Today

The San Francisco Bay Area since the 1800s has drawn people from around the world seeking fortune, education, innovation, natural beauty and a near-perfect climate — and sometimes all of the above. Through cycles of boom and bust, the Bay Area has grown to be the fourth largest metropolitan region in the United States today, with over 7.7 million people residing in the nine-county, 7,000 square-mile area. In recent years, the Bay Area economy has experienced record employment levels during a tech expansion surpassing the “dot-com” era of the late 1990s.

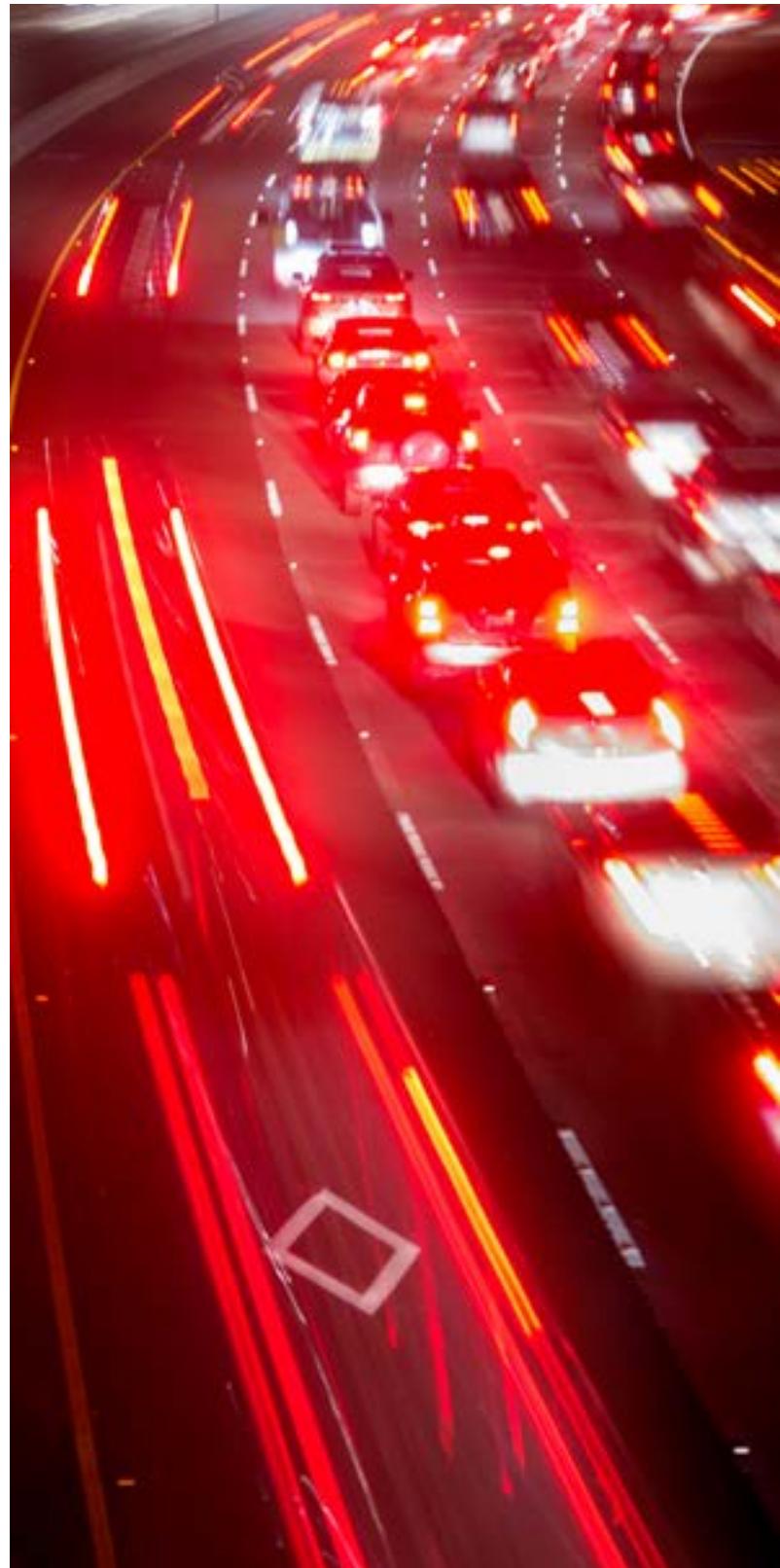


Biking and walking are popular methods of transportation for San Francisco residents.
Credit: Noah Berger

The latest boom has extended not only to the South Bay and Peninsula — the traditional hubs of Silicon Valley — but also to neighborhoods in San Francisco and cities in the East Bay, most notably Oakland. In addition to bringing vitality and wealth, the rapidly growing and changing economy has also created significant challenges: adequate and affordable housing for people of all income levels, the displacement of long-time residents and a transportation system stretched past its limits.

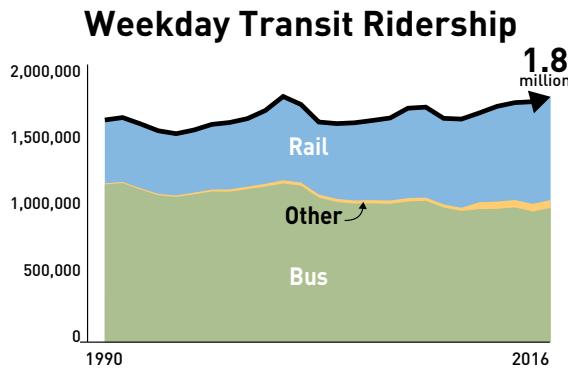
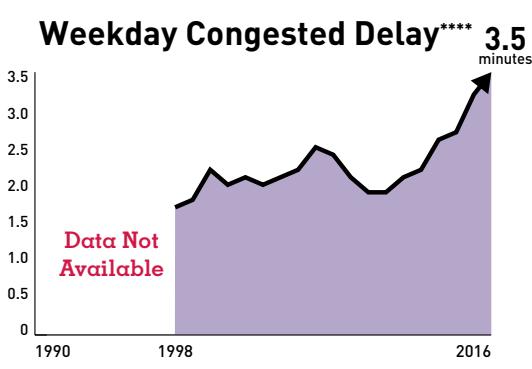
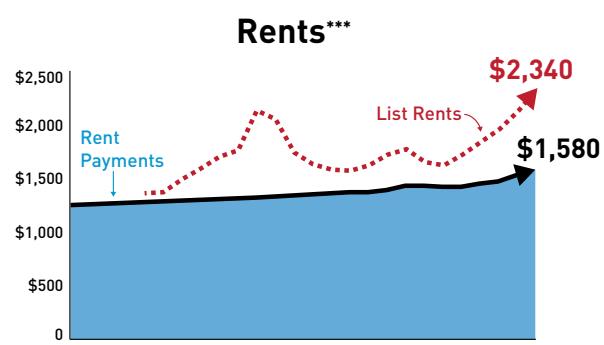
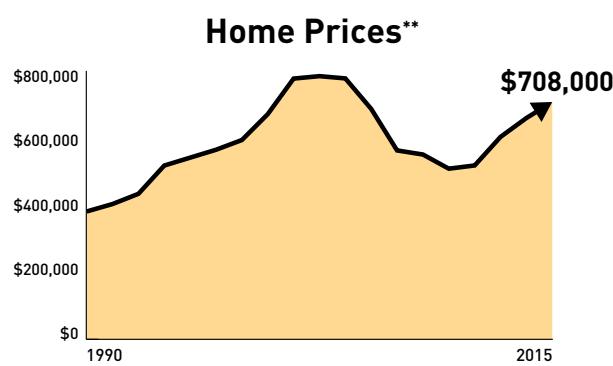
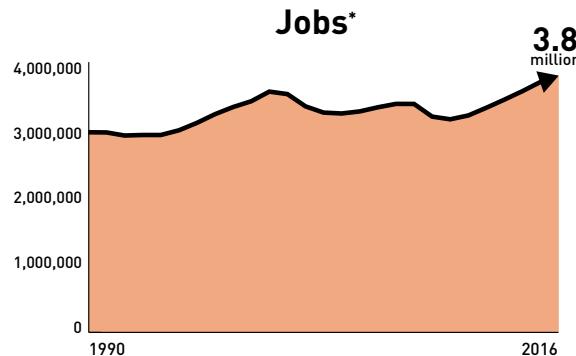
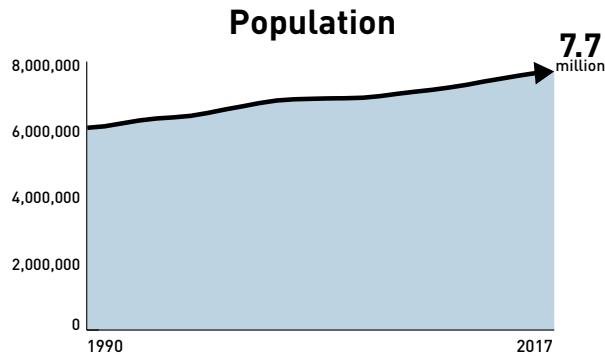
Today a very successful economy has contributed to housing, transportation and environmental challenges that pose a risk to the region's dynamism and diversity. Plan Bay Area 2040 addresses these challenges with a focus on urgent regional needs.

As an update to the region's long-range transportation plan and sustainable communities strategy, Plan Bay Area 2040 projects household and employment growth in the Bay Area over the next 24 years, provides a roadmap for accommodating expected growth, and connects it all to a transportation investment strategy that strives to move the Bay Area toward key regional goals for the environment, economy and social equity.



A booming regional economy has led to record congestion on the Bay Area's freeways. Credit: Noah Berger

VITAL SIGNS What's the latest pulse of the Bay Area?



For more information and the latest data, go to vitalsigns.mtc.ca.gov

FIGURE 1.1 A snapshot of the Bay Area's "Vital Signs."

For 25 years the Bay Area has seen steady population growth coupled with "boom-and-bust" jobs cycles. Population and employment are now at their highest levels ever. Over this time home prices and list rents have fluctuated significantly and are now at or near record levels. Freeway congestion delay per commuter and weekday rail ridership are also currently at record levels.

Source: Vital Signs; U.S. Census Bureau, 1990–2017; California Employment Development Department, 1990–2016; Zillow, 1997–2015; U.S. Census Bureau/American Community Survey, 1990–2015; realAnswers, 1994–2015; Metropolitan Transportation Commission, 1998–2016; Federal Transit Administration, 1991–2016



The Bay Area faces a severe housing crisis.
Credit: iStock

The Regional Housing Crisis

No matter what, the future will bring major challenges. Overburdened infrastructure, climate change, disruptive technological innovation, and the changing regional and national economy are just some of the many issues that will call for coordinated and concerted regional action. One challenge above all, however, requires immediate attention: housing.

The Bay Area's housing affordability and neighborhood stability crisis has been decades in the making. Although the housing crisis has many components, its foundation is clear: there simply is not enough housing, whether market-rate or affordable, given the growing number of residents and jobs.

Instead of increasing housing supply to accommodate household and employment growth, for example,

many local governments slowed permitting over time. Concurrently, the state and federal governments have pulled back financial support for affordable housing. Given a limited supply of both market-rate and affordable housing, combined with strong demand driven by exceptional regional economic performance, rents and home prices have risen rapidly. Today the Bay Area may have the most severe housing crisis of any of the nation's large metro areas and, at this time, there are limited policy tools to help address the problem at a regional level.

Supply, Demand and the Impacts of Income Inequality

The Bay Area's rate of housing construction first started to lag in the mid-1970s. Each subsequent decade has seen lower levels of overall housing

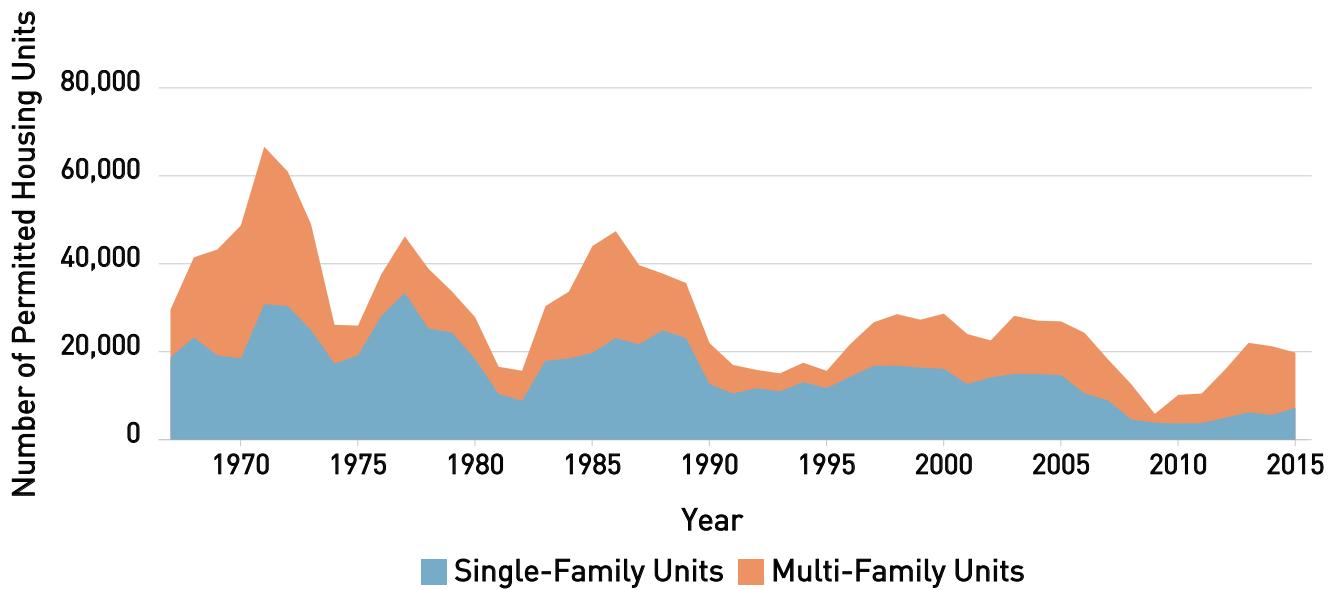


FIGURE 1.2 The historical trend for annual permitted housing units in the Bay Area.

This graph shows the historical trend of permitted units for both single-family and multi-family units in the Bay Area, stretching back several decades. As can be seen, annual growth in permitted units stagnated even during the employment booms of the 1990s and 2010s.

Source: Vital Signs; Construction Industry Research Board, 1967–2010; California Homebuilding Foundation/Construction Industry Research Board, 2011–2015

permitting, as seen in Figure 1.2. Since 1990, other metropolitan regions with strong economies and growing populations, such as Washington, D.C., Seattle and Denver, have permitted housing units at significantly higher rates than the Bay Area. New housing construction in the Bay Area has been much more akin to slower growing, older metropolitan regions such as Philadelphia and New York.

There has been a particular mismatch between employment growth relative to the housing supply. Overall, the Bay Area has added nearly two jobs for every housing unit built since 1990. The deficit in housing production has been particularly severe in terms of housing affordable to lower- and middle-wage workers, especially in many of the jobs-rich, high-income communities along the Peninsula and in Silicon Valley. The booming regional economy combined with increased household formation among the millennial generation has further contributed to an evermore-acute housing crunch.

The widening income gap between high- and low-income households has further exacerbated the housing crisis. As seen in Table 1.1, the total number of households in the nine-county Bay Area increased by 20 percent from 1990 to 2015. The vast majority of this growth, however, was concentrated among households earning \$150,000 or more annually, with the remaining growth among households earning less than \$35,000 a year. Over a period spanning 25 years, there was a net decrease in the number of households earning between \$35,000 and \$149,999 in the Bay Area, as these households declined from 64 percent to 52 percent of total households in the region.

These dynamics have had significant implications for the Bay Area housing market. With the increased number of higher income households and most income growth going to the top 20 percent, demand for housing has remained very strong at the upper end of the market. Conversely, it has become more difficult for low- and middle-wage households to compete for

market-rate housing as a larger pool of high-wage workers bid up a limited housing supply. This has further intensified competition for scarce affordable housing opportunities.

Policy Contributors to the Housing Crisis

What led to such a mismatch between housing supply and demand? Why does the Bay Area today lack so much needed housing, especially housing affordable to low- and moderate-income households? The causes of this situation are complex and there are many competing interpretations of the available evidence, including a range of economic and demographic factors that extend beyond the Bay Area itself.

Generally, however, the policy drivers — things that local, regional and state governments have the power to address or alleviate — fall into a few interrelated categories: regulatory barriers and tax policy challenges that act to restrict the production of all types of housing, especially infill development; and insufficient support for affordable housing.

Regulatory Barriers and Tax Policy Challenges

Although the availability of developable land in the Bay Area is limited due to topography and protected conservation lands, state and local regulations often prevent instead of promote higher-density, mixed-use development in urban infill areas. Lengthy review processes in many communities stall transit-oriented projects long enough to make them infeasible, leading to the loss of grant funding and private investment that would otherwise flow into cities along with desperately needed new housing. The California Environmental Quality Act (CEQA) often acts as another obstacle to both affordable and market-rate housing. Although CEQA has been essential for improving air quality and protecting natural habitats, the law is sometimes used as a litigation tool for blocking projects that are otherwise designed to advance California's environmental policy objectives, such as reducing greenhouse gas (GHG) emissions.

In addition, the current approach to taxation creates incentives to attract development that maximizes sales tax revenues and minimizes costs for public services (such as schools, police and social services),

Bay Area Household Income*	1990		2015		Change from 1990 to 2015	
	Number of Households	Percent of 1990 Total**	Number of Households	Percent of 2015 Total**	Growth/(Decline) in Households	Percent of Household Growth
Less than \$35,000	446,000	20%	550,000	20%	104,000	+23%
\$35,000 to \$74,999	645,000	29%	625,000	23%	(20,000)	-4%
\$75,000 to \$149,999	785,000	35%	793,000	29%	8,000	+2%
\$150,000 or more	375,000	17%	741,000	27%	366,000	+80%
Total Households	2,251,000		2,709,000		458,000	+20%

* Income shown in inflation-adjusted 2015 dollars.

** Values may not sum due to rounding.

TABLE 1.1 A comparison of the number of households by income level in the Bay Area over a 25-year period from 1990 to 2015.

From 1990 to 2015, households earning more than \$150,000 a year have greatly increased their share of the total number of households in the region and comprised a vast majority of the regional growth in households over the same period. As a share of total households, those earning between \$35,000 and \$149,999 have declined significantly and in absolute numbers have either stagnated or decreased.

Source: U.S. Census Bureau, 1990; U.S. Census Bureau/American Community Survey, 2015 (Social Explorer)



Affordable and low-income housing options are in short supply in the Bay Area.

Credit: MTC Archives

rather than encouraging more balanced approaches to land use. This trend — the so-called “fiscalization of land use” — has discouraged housing development and small business growth in many communities. The tax revolt measures of 40 years ago, such as Proposition 13 and other restrictions on new funding sources, caused many jurisdictions to view housing as a “fiscal loser” because property tax rates were capped below the cost of delivering services compared to retail or commercial development. Commercial property owners also often lack the motivation to develop vacant parcels since the cost of holding these properties is relatively low and a potential windfall from rising land values over time is relatively high.

Finally, as part of the 2011 Budget Act, the California Legislature approved the dissolution of the state’s 400+ redevelopment agencies. California is now one of a small number of U.S. states without tax increment financing to support urban infill development.

Reduced Support and Insufficient Progress in Building Affordable Housing

In addition to the regulatory and tax policy challenges cited above, recent years have seen major reductions in funding for affordable housing programs at both the state and federal levels. There has also been insufficient progress in the production of “naturally occurring” affordable housing — unsubsidized rental units that are affordable to low- and moderate-income households. This has severely affected the region’s low- and moderate-income households by further reducing the supply of new and existing affordable housing, whether government-subsidized or market-rate, especially given median wage deflation from 2000–2013.

Since 2000, for example, there have been cuts of over 50 percent to federal affordable housing programs, and most remaining federal funds go to rehabilitation rather than increasing supply. At the state level, the aforementioned dissolution of redevelopment agencies eliminated a large source of funding for affordable housing, including a loss of more than \$200 million for the Bay Area in 2011 alone, according to Enterprise Community Partners and the Non-Profit Housing Association of Northern California.

The production of housing affordable to low- and moderate-income households has lagged behind production of housing affordable to higher-income households, with the most significant shortfall occurring in the moderate or middle income category — housing that is typically produced by the market without subsidy in most metro regions. From 1999 to 2014, the Bay Area issued permits for only about 35 percent of the units required to meet the needs of vulnerable populations such as low-income families, seniors and the homeless. This left over 100,000 needed affordable housing units unbuilt.

At the same time, much of the older housing stock that typically forms the backbone of “naturally

occurring” affordable housing is located in higher density, transit rich areas that have experienced gentrification pressures and the loss of affordable units, further exacerbating the challenges of sluggish affordable housing production. Moving forward, the annual funding needed to build an adequate supply of low- and moderate-income housing through cost-restricted units rather than through market mechanisms is estimated at \$1.4 billion annually, according to the Association of Bay Area Governments (ABAG).

Impacts on the Region's Present and Future

The housing crisis raises major concerns about negative impacts to the region. Affordability, a primary concern of Bay Area residents, continues to be a major challenge. This in turn poses risks to the

Bay Area's socioeconomic diversity, transportation system, environmental goals and robust economy.

Housing Affordability

Housing affordability has significantly worsened over time. Home prices are at record levels in some counties and near record levels in the rest. Rent payments have almost doubled in real dollars since the 1970s. While median wages are close to the top nationally, the Bay Area has by far the highest median home sale prices of any major metro region in the country, as shown in Figure 1.3. The region is now also home to three of the five most expensive rental markets in the nation, according to Zillow.

The prospects and benefits of home ownership are simply out of reach for many Bay Area households. Amid the affluence and new wealth generated in the post-recession era, approximately 24 percent of

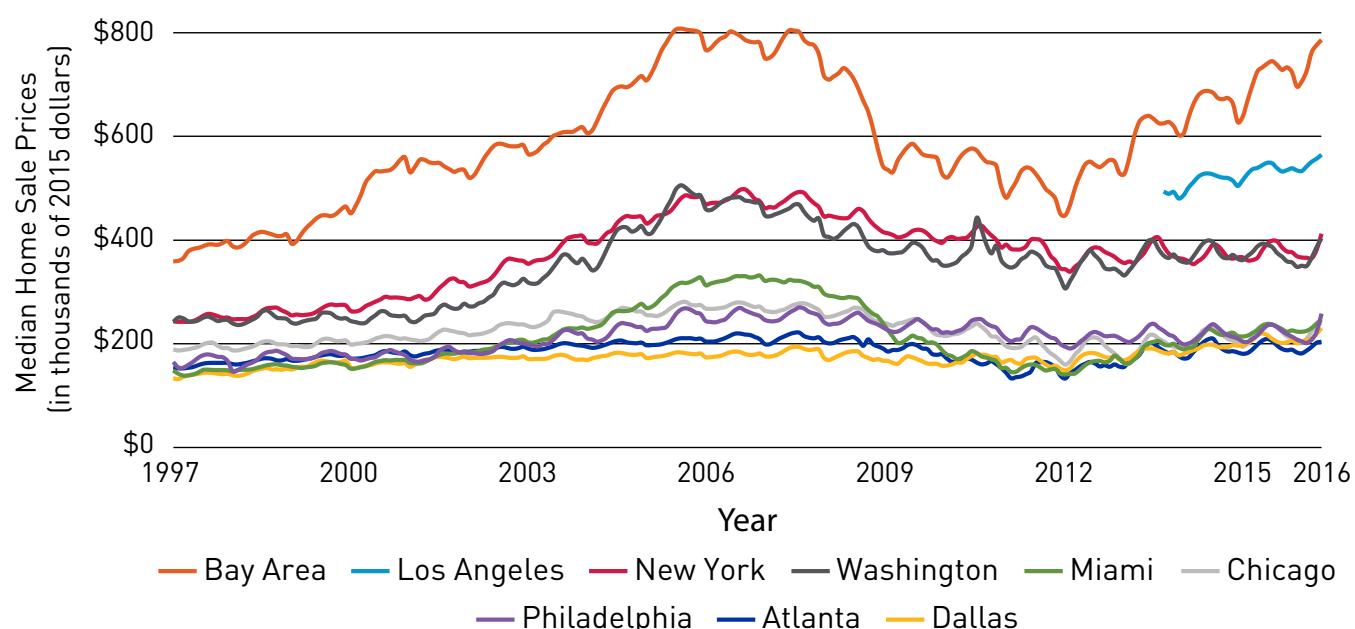


FIGURE 1.3 Median home sale prices by metro area from 1997 to 2016.

Over the last 20 years the Bay Area has seen one of the “spikiest” real estate markets in the country, with bigger booms and busts than other large metros. In particular, prices have risen much faster in the Bay Area coming out of the recent Great Recession.

Source: Vital Signs; Zillow, 1997–2016

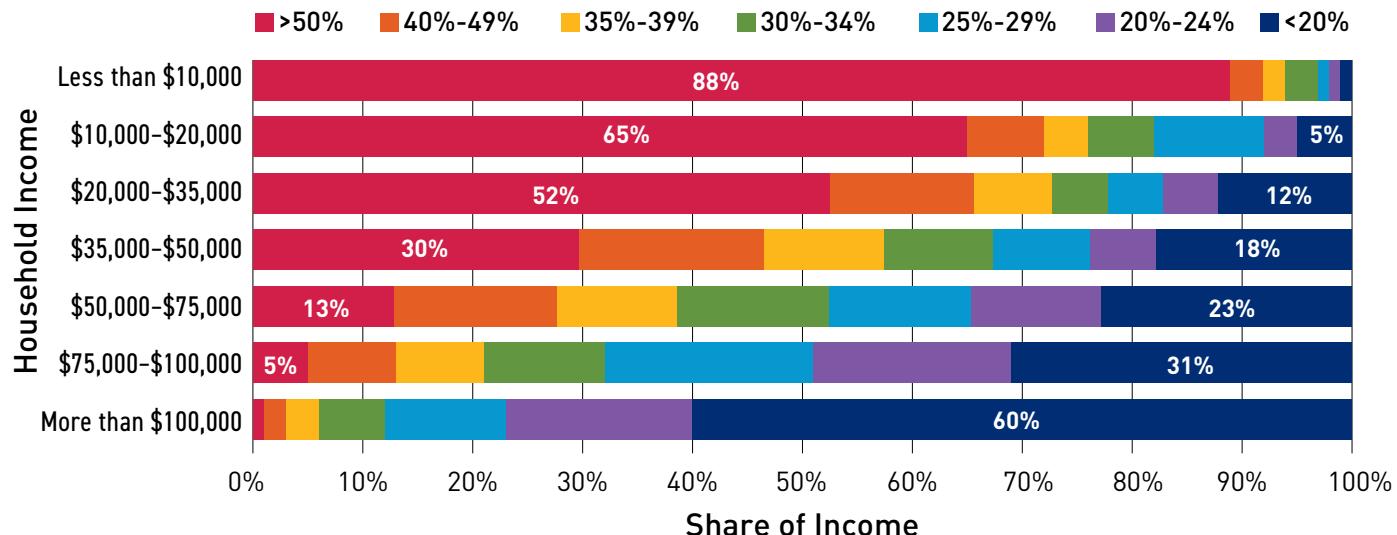


FIGURE 1.4 Share of income spent on housing by Bay Area households in 2015, segmented by income level.

A significant majority of households earning less than \$35,000 in the Bay Area spent more than 50 percent of their household income on housing in 2015.

Source: Vital Signs; U.S. Census Bureau/American Community Survey, 2015

the Bay Area's population lives below 200 percent of the federal poverty level, and the vast majority of households with annual incomes below \$50,000 experience an excessive housing cost burden, as shown in Figure 1.4.

Displacement and Quality of Life Concerns

While the cost of housing has increased significantly for both owner and renter households, renters are also at higher risk for displacement during periods of growth and expansion. Currently there are hundreds of thousands of lower-income households at risk of displacement in the Bay Area, with the majority of them living in San Francisco, Santa Clara and Alameda counties.

The lack of adequate tenant protections — or availability of subsidized or “naturally affordable” market-rate units in neighborhoods with quality transit service and other amenities — has accelerated the displacement of lower-income residents and even many businesses from the region’s core urban areas. As shown in Map 1.1, displacement is no longer just a San Francisco problem, but a region-wide challenge.

Given insufficient support for affordable housing, many individuals who perform important but lower-paying jobs face either substandard or overcrowded and unhealthy housing; costly, long-distance work commutes; or sometimes even homelessness — the most severe expression of the region’s housing shortage. Rising prices in the region’s core have driven many lower-income households to outlying jurisdictions farther away from jobs, transit and amenities, even as low- and middle-wage job growth has been concentrated in three counties: San Francisco, San Mateo and Santa Clara. This shift contributes to increased development pressures on open space and agricultural lands, more pollution from passenger vehicles, adverse health impacts, higher transportation costs, and greater levels of highway and transit congestion.

Transportation

The impacts of the booming economy and wider housing crisis, and the resulting disconnect between where people live and work, has contributed to record levels of freeway congestion and historic crowding on transit systems like Bay Area Rapid Transit (BART), Caltrain and San Francisco’s Municipal Railway (Muni).

MAP 1.1 Bay Area displacement trends.

Scholars at UC Berkeley looked at regional housing, income and other demographic data to analyze and predict where gentrification and displacement are occurring or likely to occur in the future. Among the researchers' key findings is that not only are many low-income neighborhoods experiencing displacement, high-income neighborhoods are also rapidly losing their existing low-income populations. In addition, "[n]eighborhoods with rail stations, historic housing stock, and rising housing prices are especially at risk of losing low-income households."

Source: Urban Displacement Project/University of California, Berkeley, 2016

MAP 1.1

Bay Area Displacement Trends

DISPLACEMENT TYPOLOGIES

Lower Income Tracts

Not losing lower income households, or very early stages



At risk of gentrification or displacement



Undergoing displacement



Advanced gentrification



Moderate to High Income Tracts

Not losing lower income households, or very early stages



At risk of displacement



Undergoing displacement



Advanced exclusion



2010 POPULATION

Oakland

> 350,000



50,000–350,000



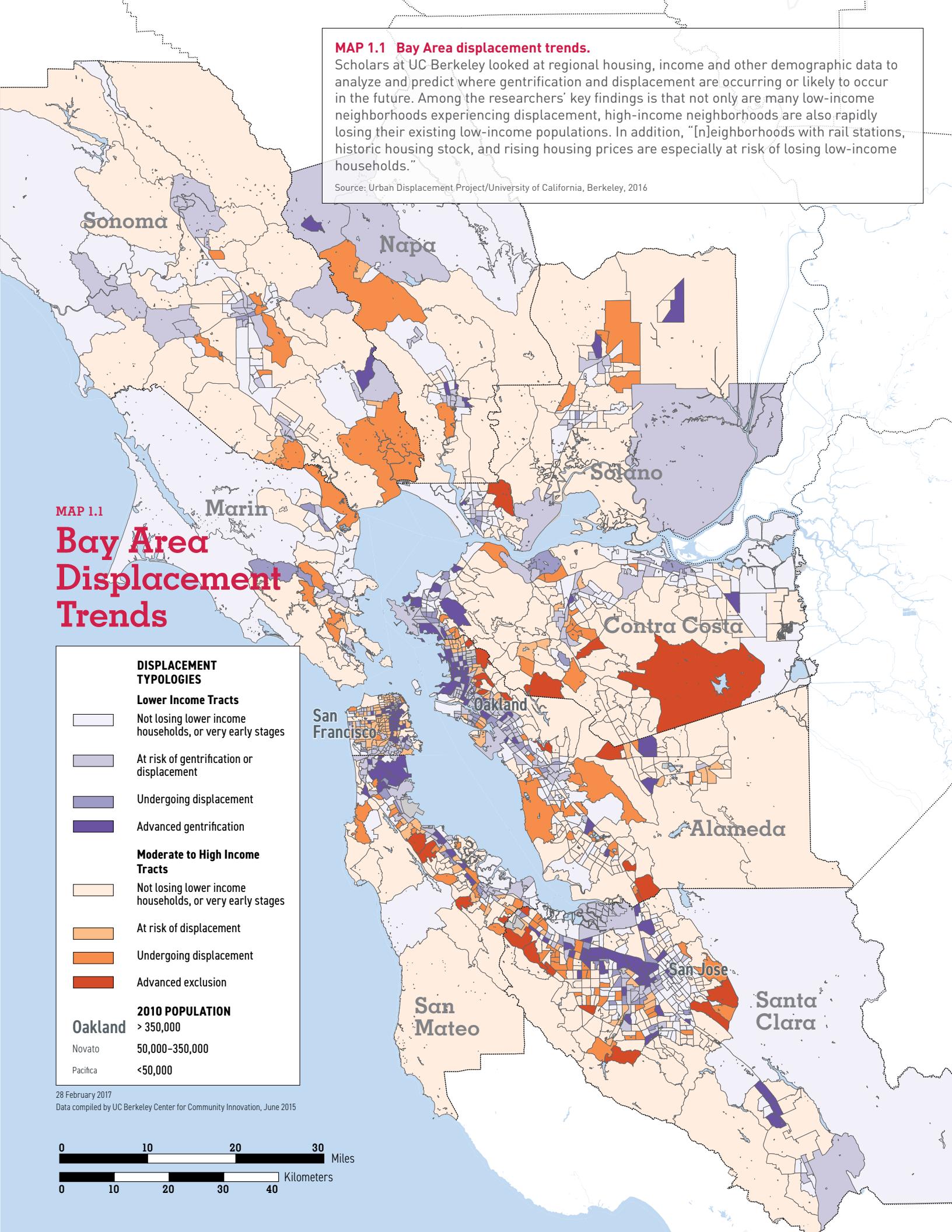
<50,000

28 February 2017

Data compiled by UC Berkeley Center for Community Innovation, June 2015

0 10 20 30 Miles

0 10 20 30 40 Kilometers



Beyond the Bay Area

While roughly 97 percent of the Bay Area workforce lives in the nine-county region, ongoing regional affordability challenges mean thousands more households are moving east to the San Joaquin Valley and the Sacramento metro area every year. Although home prices are lower, these areas lack the same proximity to higher-paying jobs as some Bay Area communities. While many have relocated by choice, others have been displaced by gentrification and rising rents.

Goods movement hubs have also increasingly chosen to locate just east of the region's boundaries, taking advantage of lower land prices and prevailing wages. At the same time, firms want to remain in close proximity to the Bay Area, both to deliver goods to the region's residents and businesses and to maintain access to existing seaports, airports and industrial facilities.

These two trends — combined with limited transportation capacity — have resulted in growing congestion, especially at the Interstate 580 Altamont Pass gateway in eastern Alameda County and the Interstate 80 gateway in Solano County. In both cases, neighboring counties are taking on housing and commercial development unable to occur in the highly regulated, high-cost Bay Area development market. Senate Bill 375 (Steinberg, 2008) was enacted to encourage regions like the Bay Area to find solutions to this challenge, which has disproportionately affected lower-income residents and burdened them with hours-long commutes on crowded roads, buses or trains. In contrast to the original Plan Bay Area, Plan Bay Area 2040 plans for enough housing to accommodate not only the initial forecast of households but also the additional increment of projected in-commuters. At the same time, MTC is working collaboratively with the Sacramento and San Joaquin regions to improve transportation connectivity and boost the competitiveness of the “megaregional” economy.



California State Capitol Building
Credit: Henri Sivonen, Creative Commons

For example:

- Overall commute time is at the highest level on record, as are time spent and miles traveled in highway congestion. As of 2015, the Bay Area's most notorious traffic bottlenecks included U.S. 101 in San Francisco and Interstate 80 (I-80) in Alameda and Contra Costa counties.
- Average weekday BART ridership is at the highest level on record. Two out of three BART trips now begin or end at the four downtown San Francisco stations, with Montgomery and Embarcadero stations approaching 90 to 100 percent station capacity during peak periods. Peak direction, rush-hour trains regularly exceed BART's standard maximum of 107 passengers per car.
- Caltrain's daily ridership more than doubled in the last 10 years, from approximately 30,000 in 2006 to a record 62,400 in 2016. The 10 highest-demand trains operated by Caltrain now have ridership exceeding 100 percent of seated capacity.

- Muni continues to be the region's most heavily-used transit system; ridership has grown by six percent in the last decade. Morning peak-hour ridership in the Market Street tunnel has grown by one-third in the last five years and several Muni Metro lines are at capacity during peak travel times.

These congestion and capacity challenges are already imposing costs on the Bay Area in terms of environmental impacts and lost time, and are likely to increase in the future without meaningful action to improve the jobs-housing balance in the region.

Productivity and Economic Output

Over the medium- and long-term, the Bay Area's housing crisis and its attendant transportation challenges could act as a significant drag on the region's future economic growth and dynamism. Companies will have to contend with an artificially limited employment base, potential workers will be denied access to the benefits of a highly productive



Peak direction, rush-hour trains on BART regularly exceed 100 percent capacity.
Credit: MTC Archives

regional economy and a maxed-out transportation network at peak hours could limit the growth of regional job centers.

There is a significant body of research showing that housing supply constraints lead to significant productivity, income and welfare losses. Researchers at UC Berkeley and the University of Chicago estimated the United States loses out on trillions of dollars in potential economic output because of regulatory housing supply constraints in just two regions: the New York metro area and San Francisco Bay Area.

Researchers at Harvard have posited that the increasing prevalence of land use restrictions has led to increased income inequality over the last 30 years compared to the period from 1940 to 1980, when workers' ability to move from low- to high-productive regions led to income convergence and decreased inequality.



Agricultural land in Brentwood, Contra Costa County.
Credit: Karl Nielsen

Our Legacy of Leadership in the Environment, Transportation and the Economy

The challenges of the housing crisis are undeniably daunting. However, the Bay Area has risen to the occasion many times to address seemingly intractable policy issues. Whether for the environment, transportation or economy, the Bay Area has a history of coming together to address shared challenges.

Environmental Achievements

Local and regional actions in the 20th century protected the Bay Area from unchecked sprawl, degrading air quality and a shrinking bay. Starting in the 1960s amidst a regional outcry over pollution and the filling of the bay, the San Francisco Bay Conservation and Development Commission was created to discourage bay fill and restore wetlands. Since 1969, the surface area of San Francisco Bay has grown by nearly 19,000 acres. Similarly, the Bay Area Air Quality Management District (Air District) was tasked with improving the region's air quality. Between 1999 and 2015, for example, regional annual average particulate matter concentrations declined by 39 percent. These air quality improvements are estimated to have added a full year to residents' lifespans, according to the Air District.

A strong local movement to protect greenfields from development also emerged during the latter half of the 20th century to protect farmland and open space. Local governments adopted urban growth boundaries and helped lead a "focused growth"

MAP 1.2 Historical development pattern and agricultural lands.

Source: California Department of Conservation, 2014

Sonoma

Napa

Solano

Marin

Contra Costa

San Francisco

Alameda

Santa Clara

San Jose

San Mateo

MAP 1.2

Historical Development Pattern and Agricultural Lands

HISTORICAL DEVELOPMENT PATTERN



Developed Area in 1990



New Urban Development on Non-Urbanized Land (1990–2014)

AGRICULTURAL LANDS



Farmland



Grazing Lands

ROADS



Freeway



Major Road

2010 POPULATION

Oakland > 350,000

Novato 50,000–350,000

Pacifica <50,000

28 July 2017

0 10 20 30 Miles

0 10 20 30 40 Kilometers

Map is for general information. For more information on local zoning or designations for a particular site or parcel, please contact your city or county.

strategy with support from environmental groups and regional agencies to limit sprawl, expand recreational opportunities, and preserve scenic and natural resources. Despite strong economic growth and population increases since the end of the Great Recession, the Bay Area has experienced less greenfield development than in decades past, a result that can be attributed to these local policies. Nonetheless, our success at protecting open space has further constrained our ability to build the housing needed for a growing population.

“Self-Help” in Transportation

Faced with declining support from the federal and state governments, the Bay Area adopted a “self-help” approach toward funding transportation. Starting with a pioneering effort led by Santa Clara County in 1984, eight of the nine Bay Area counties have enacted local transportation sales taxes.

Bay Area voters also approved Regional Measure 1 in 1998 and Regional Measure 2 in 2004, which together raised tolls on the Bay Area’s seven state-owned

toll bridges — and billions of dollars for important transportation projects in the bridge corridors and their approaches, as seen in Map 1.3. Altogether, voter-approved “self-help” measures generated some \$2.5 billion for Bay Area transportation in 2016 alone, as shown in Figure 1.5. Although the region has many transportation needs and challenges, these needs can be alleviated through sufficient and continued resource investment coupled with more efficient use of our existing infrastructure.

(Re)Inventing the Economy

Faced with a rapidly changing and evolving world, the Bay Area has reinvented its economy several times in the last half century. An economy dependent on defense spending and financial headquarters in the 1980s was transformed first by an explosion in high-tech manufacturing and later by software and computer-related design and services as semiconductor and computer manufacturing shifted offshore. More recently, new innovations from social media to biotechnology have been incubated in the region. The Bay Area today is widely recognized as the global center for technological innovation, with

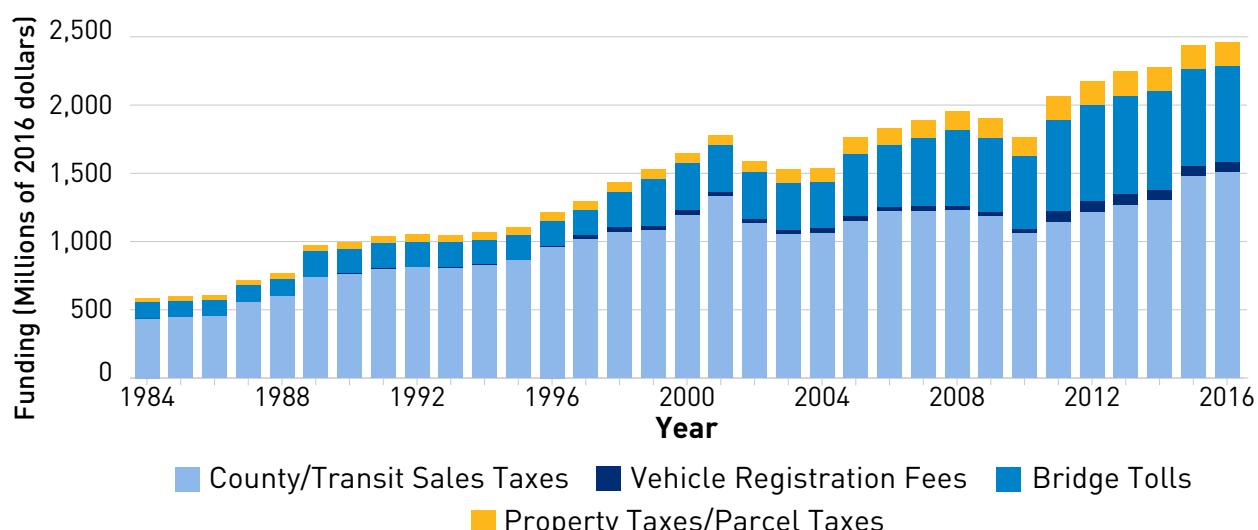


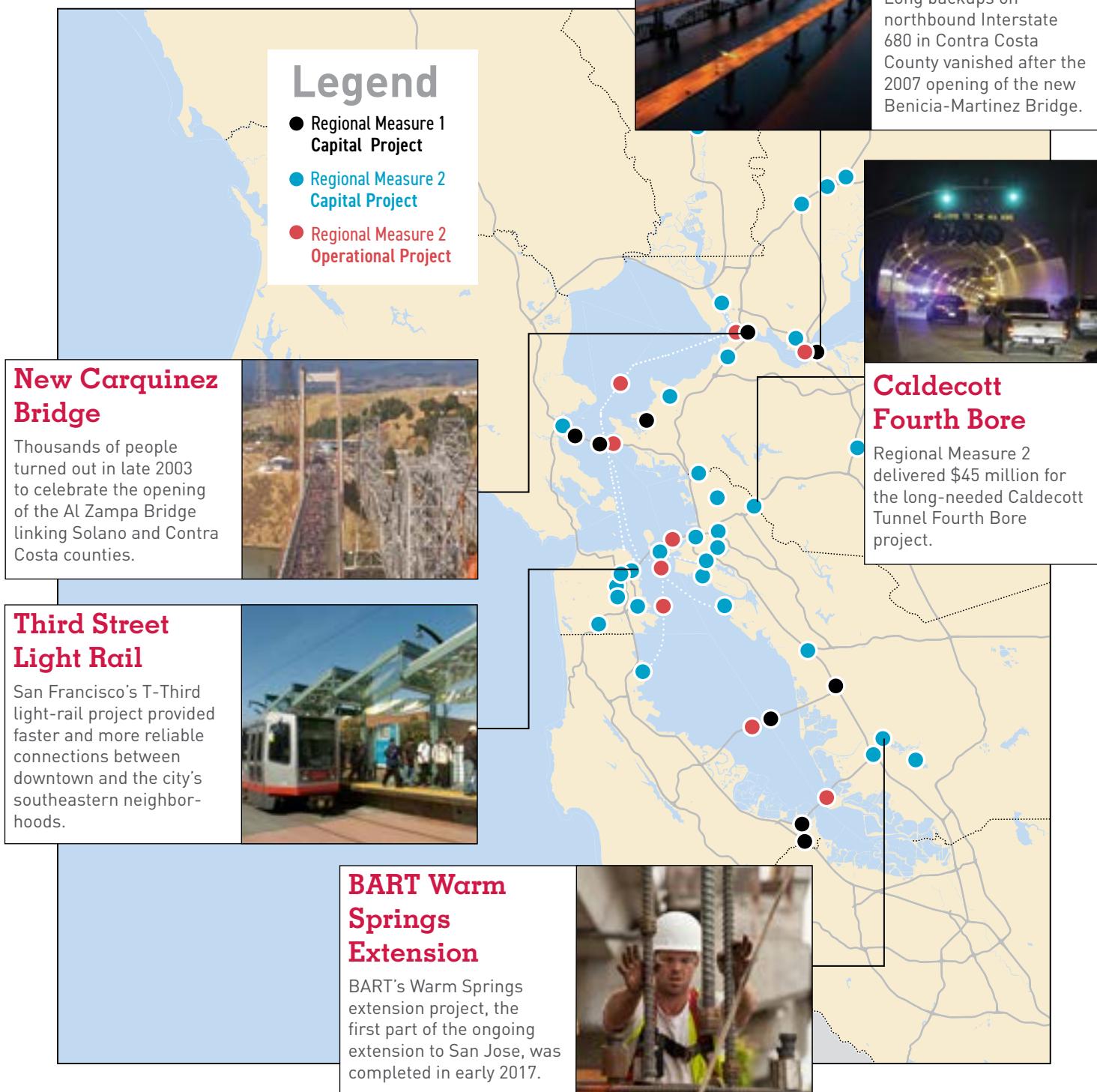
FIGURE 1.5 “Self-Help” funding for transportation in the Bay Area.

Bay Area voters have approved a variety of measures beyond transit operator revenues and the typical local, state and federal sources to help fund transportation needs.

Source: Metropolitan Transportation Commission, 2016

MAP 1.3

Key Projects Delivered by Voter-Approved Regional Measures



countless metropolitan regions across the world trying to replicate the Bay Area's success.

Although the reinvention of the Bay Area economy was aided by a number of fortunate events, it was also facilitated by the deliberate effort of people and institutions. As demonstrated by a research team at UCLA, dense networks of business, government, academia and civil society saw the emergence of the new economy and actively worked to ensure its health and success in the region.

close to jobs and transit; clean air; clean water; a protected shoreline; and healthier, wealthier and more resilient communities in a great, 21st century metropolitan region.

A Call to Action

What all these examples show is that the Bay Area can solve serious problems when citizens and key institutions — including business, government, academia and the non-profit sector — work together toward common goals.

Thus far, the Bay Area's residents and communities have not made the same commitment to solve the housing crisis. Yet there is no more time to wait. Failure to establish regional consensus and take concerted action will put the Bay Area's historic economic, environmental and transportation accomplishments at risk. Unlike many other policy areas, housing policy is something local governments have significant control over.

The Bay Area must therefore pursue a multi-pronged strategy that emphasizes the construction of new homes for residents of all incomes, the protection of the region's most vulnerable households, and the need to advocate for more financial resources to pursue local and regional solutions. This strategy — and the avenues through which it may be executed — is further discussed in the final section of this document, "Action Plan."

If the Bay Area rises to this challenge, future residents will be able to look back and say that the region built on its past successes to achieve broadly shared goals: abundant and affordable housing



The region's future depends on sustainable
solutions to the housing crisis.
Credit: monkeybusinessimages



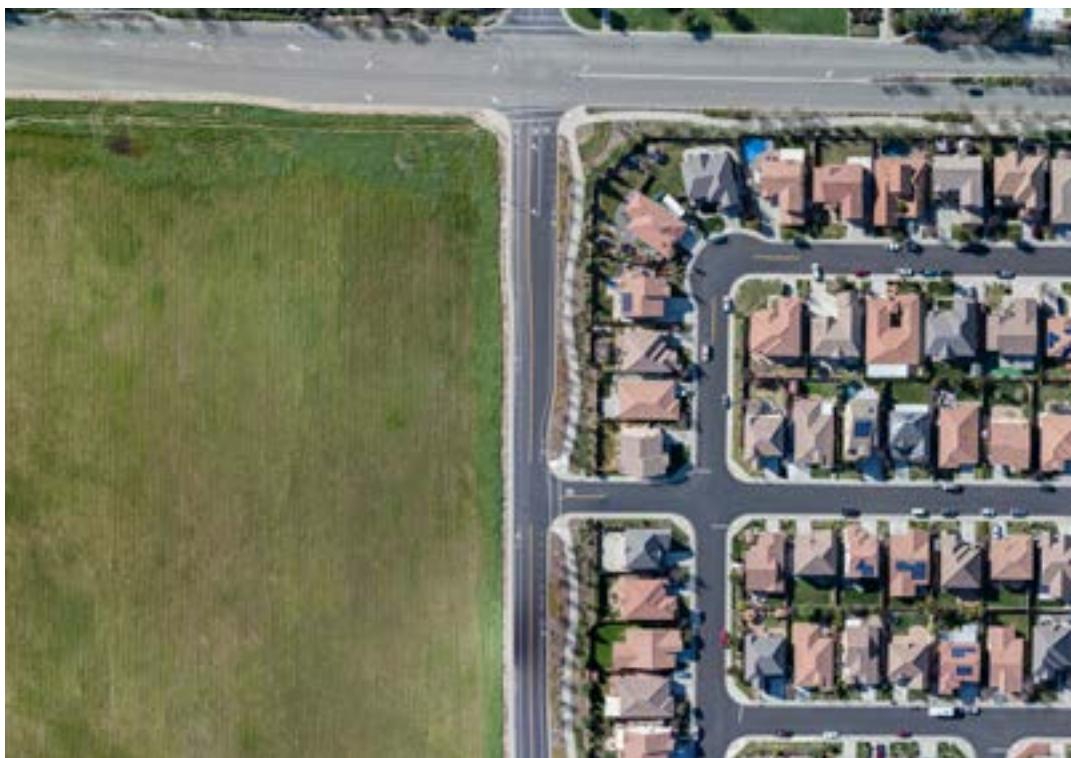


An aerial view over Napa County.
Credit: Karl Nielsen

WHAT

What is Plan Bay Area 2040?

Plan Bay Area 2040 is a state-mandated, integrated long-range transportation and land use plan. As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB).



Development in Vacaville, Solano County.
Credit: Karl Nielsen

The region adopted its previous plan — Plan Bay Area — in July 2013. As the Bay Area's first regional transportation plan to include a Sustainable Communities Strategy, the original Plan Bay Area charted a course for reducing per-capita greenhouse gas emissions through the promotion of more compact, mixed-use residential and commercial neighborhoods near transit.

Plan Bay Area supported Priority Development Areas (PDAs) selected and approved by city and county governments with planning grants, technical assistance, and prioritization for regional and state transportation and affordable housing funds.

Plan Bay Area 2040 is a limited and focused update that builds upon the growth pattern and strategies developed in the original Plan Bay Area but with updated planning assumptions that incorporate key economic, demographic and financial trends from the last four years.

What Does Plan Bay Area 2040 Do?

Plan Bay Area 2040 provides a roadmap for accommodating projected household and employment growth in the nine-county Bay Area by 2040 as well as a transportation investment strategy for the region. Plan Bay Area 2040 details how the Bay Area can make progress toward the region's long-range transportation and land use goals.

Plan Bay Area 2040:

- Describes where and how the region can accommodate 820,000 new projected households and 1.3 million new jobs between now and 2040;
- Details a regional transportation investment strategy given \$303 billion in expected revenues from federal, state, regional and local sources over the next 24 years; and

MTC and ABAG

The Metropolitan Transportation Commission (MTC) is the transportation planning, financing and coordinating agency for the nine-county San Francisco Bay Area. MTC is the federally designated Metropolitan Planning Organization and the state designated Regional Transportation Planning Agency for the region. MTC is responsible for preparing and updating a long-range regional transportation plan every four years that identifies the strategies and investments needed to maintain, manage and improve the region's transportation network.

The Association of Bay Area Governments (ABAG) serves as the Council of Governments for the region. As required by state law, ABAG updates the Regional Housing Need Allocation (RHNA) every eight years, allocates specific housing targets to individual cities and counties, and develops the regional forecast of jobs, population and housing. MTC and ABAG recently consolidated their staffs to more effectively and efficiently develop an integrated long-range transportation and land use plan.

- Complies with Senate Bill 375, the state's sustainable communities strategy law, which integrates land use and transportation planning and mandates both a reduction in greenhouse gas emissions from passenger vehicles and the provision of adequate housing for the region's 24-year projected population growth.

Plan Bay Area 2040 encompasses the entire Bay Area, including the nine counties and the 101 cities and towns that make up the region. The plan is constrained by the amount of expected transportation revenues and expected household and employment growth.

Plan Bay Area 2040 neither funds specific transportation projects nor changes local land use policies. Importantly, individual jurisdictions retain all local land use authority. But Plan Bay Area 2040 does

set a roadmap for future transportation investments and identifies what it would take to accommodate expected growth.

Engaging the Public

Developing a multibillion dollar plan for the region is no simple task. It is a multiyear process involving four regional agencies, nine counties, 101 towns and cities, elected officials, transit operators, planners, community-based organizations, business organizations, non-profits and the general public.

Despite this complexity, public participation is critical to an open process in which all interested residents have the opportunity to provide input and share their vision for what the Bay Area should look like decades

Connecting the Dots: Plan Bay Area 2040 and the California Transportation Plan 2040

Plan Bay Area 2040 establishes a vision for the Bay Area that closely aligns with the broad goals of the state of California. The plan's goals to promote economic vitality, ensure social equity and protect the environment link to the policy framework established in California Transportation Plan 2040 by the California Department of Transportation. Central to both plans are carbon dioxide (CO₂) emissions reduction targets designed to tackle climate change in the years to come. Similarly, both plans prioritize fixing an aging transportation system, focusing future growth and directing increased funding toward non-auto modes of travel. Both multiyear planning efforts reflect a relatively consistent vision for moving forward for the region's 8 million people and the state's 39 million people. The key to implementation will be working together across local, regional, state and federal levels to achieve these shared goals.

Connecting the Dots: Plan Bay Area 2040 and the Air District's 2017 Clean Air Plan

The Bay Area Air Quality Management District (Air District) is the region's air pollution control agency. In April 2017, the Air District adopted the [2017 Clean Air Plan](#), which provides a regional strategy to protect public health and the climate. The Clean Air Plan describes how the region will continue progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution. The Clean Air Plan further defines a vision and a regional climate protection strategy for transitioning to a post-carbon economy and achieving ambitious greenhouse gas reduction targets for 2030 and 2050. While Plan Bay Area 2040 has a requirement to reduce per-capita CO₂ emissions from passenger vehicles by 2035, the Air District's plan addresses a much wider range of pollutants from a much larger number of sources. To that end, Plan Bay Area 2040 is "one piece of the puzzle." Additional policies and investments beyond Plan Bay Area 2040 are needed to meet the Air District's more ambitious targets.



Plan Bay Area 2040 is "one piece of the puzzle" in helping the region achieve its ambitious clean air and climate protection goals.
Credit: 1Flatworld

from now. Highlights from Plan Bay Area 2040's public participation process included over 190 public meetings, of which 27 were open houses (three in each of the nine Bay Area counties); partnerships with five community organizations working in low-income communities and communities of color; public hearings on the draft plan and its environmental impact report; a robust online presence; numerous meetings with local elected officials, planning directors and transportation officials; two summits with Native American tribal leaders; a housing forum; and a telephone poll of some 2,040 Bay Area residents.

For more information on Plan Bay Area 2040's outreach and engagement process, please see the Public Engagement Program Report and the Native American Tribal Outreach Report.

Setting Goals and Targets to Address Challenges

After receiving feedback from stakeholders and the public, MTC and the ABAG Executive Board established seven goals and 13 performance targets to measure Plan Bay Area 2040's effectiveness in addressing the major challenges facing the region.

Senate Bill 375 mandates two of these targets. First, Plan Bay Area 2040 must address climate change by reducing per-capita CO₂ emissions from cars and light-duty trucks. Second, Plan Bay Area 2040 must include sufficient housing for all of the region's projected population growth, regardless of income.



Public meetings were held in all nine counties to discuss the plan's development.
Credit: Karl Nielsen

Goal		Target*	
	Climate Protection	1	Reduce per-capita CO ₂ emissions
	Adequate Housing	2	House the region's population
	Healthy and Safe Communities	3	Reduce adverse health impacts
	Open Space and Agricultural Preservation	4	Direct development within urban footprint
		5	Decrease share of lower-income households' budgets spent on housing and transportation
	Equitable Access	6	Increase share of affordable housing
		7	Do not increase share of households at risk of displacement
	Economic Vitality	8	Increase share of jobs accessible in congested conditions
		9	Increase jobs in middle-wage industries
		10	Reduce per-capita delay on freight network
		11	Increase non-auto mode share
	Transportation System Effectiveness	12	Reduce vehicle operating and maintenance costs due to pavement conditions
		13	Reduce per-rider transit delay due to aged infrastructure

* Complete target language as adopted by the Commission and ABAG Executive Board can be found at: <http://planbayarea.org/the-plan/plan-details/goals-and-targets>. Target language shown above is summarized for brevity.



TABLE 2.1 Final adopted goals and performance targets for Plan Bay Area 2040.

Plan Bay Area 2040 includes seven goals and 13 performance targets covering three broad areas: the environment, equity and the economy. These aggressive and aspirational targets enable the plan to be evaluated by its performance in areas identified as key regional concerns, including equitable access, economic vitality and transportation system effectiveness. The performance targets were the result of a robust public process and reflect MTC and ABAG's commitment to go beyond Plan Bay Area 2040's legal requirements.

Source: Metropolitan Transportation Commission - Resolution No. 4204, Revised, 2015

MTC and the ABAG Executive Board voluntarily adopted 11 additional targets as shown in Table 2.1. Key goals for Plan Bay Area 2040 included tackling the Bay Area's inequities through improved affordability and lessened displacement risk, ensuring a robust economy, and protecting the environment for future generations. These targets are aggressive and some are quite aspirational. Yet they reflect MTC and ABAG's commitment to take a more holistic view

of the possibilities of integrated regional planning by going beyond the plan's legal requirements.

For more information on the development of Plan Bay Area 2040's performance targets, please see the [Performance Assessment Report](#).

The next section, "Forecasting the Future," will review the primary inputs to Plan Bay Area 2040.





An aerial view over Santa Clara County.
Credit: Karl Nielsen

HERE

Forecasting the Future

What will the Bay Area look like in 2040? This chapter provides an overview of the primary “inputs” to Plan Bay Area 2040: 24-year regional household, employment and transportation revenue forecasts. These forecasts form the basis of the proposed land use pattern and transportation investment strategy described in the next section, “Strategies and Performance.”



The Professional/Managerial sector is expected to grow in the Bay Area by 2040.
Credit: Kompania Piwowarska, Creative Commons

Employment and Household Projections

ABAG and MTC forecast that between 2010 and 2040 the Bay Area will see increases in the number of jobs, population and households. Key features of the regional forecast include:

- Growth of 1.3 million jobs between 2010 and 2040, with nearly half of those jobs — over 600,000 — already added between 2010 and 2015.
- An increase of over 2 million people between 2010 and 2040. Almost one-fourth of this projected growth occurred between 2010 and 2015.

- An increase of approximately 820,000 households. Only 13 percent of this growth occurred between 2010 and 2015, as household formation was held back in part by post-recession financial conditions and a lack of housing production. The pace of future household growth is expected to increase as the population ages and more working-aged adults enter the region.

These 2040 projections, as shown in Table 3.1, represent a moderate increase over 2040 estimates from the original Plan Bay Area and incorporate the region's strong growth since 2010.

For more information on Plan Bay Area 2040's employment and household projections, please see the [Regional Forecast of Jobs, Population and Housing](#).

	2010	2040
Employment	3.4 million	4.7 million
Population	7.2 million	9.6 million
Households	2.6 million	3.4 million

TABLE 3.1 Bay Area population, employment and household projections.

Source: Association of Bay Area Governments, 2016



The new Warm Springs BART station opened in spring of 2017, bringing rapid transit closer to job growth in the South Bay.
Credit: Karl Nielsen

	Sector	Job Growth Trend
	Construction	
	Health/Education	
	Professional/Managerial	
	Transportation/Utility	
	Agricultural/Natural Resources	
	Manufacturing + Wholesale	

TABLE 3.2 Job growth trends in select Bay Area employment sectors by 2040.

The Bay Area is projected to see strong employment growth in sectors such as construction, health and education, and professional and managerial services. Manufacturing and resource extraction industries are expected to continue declining, as they have for decades.

Source: Association of Bay Area Governments, 2016

Employment

With an additional 1.3 million jobs in the Bay Area, increasing numbers of residents are expected to work in professional and service-sector jobs as well as in health and education. Construction jobs, which were still depressed in 2010, will also expand.

Despite increases in output and demand in all sectors, employment is projected to decline in a few sectors due to higher productivity or relocation to lower-cost sites outside the region. Jobs in manufacturing and resource extraction industries, for example, have been declining for decades and are expected to continue decreasing.

Table 3.2 illustrates select employment sectors that are expected to either grow or decline by 2040.

Employment growth in the region is expected to slightly outpace the nation, with the Bay Area's share of total U.S. employment continuing to expand.

Households

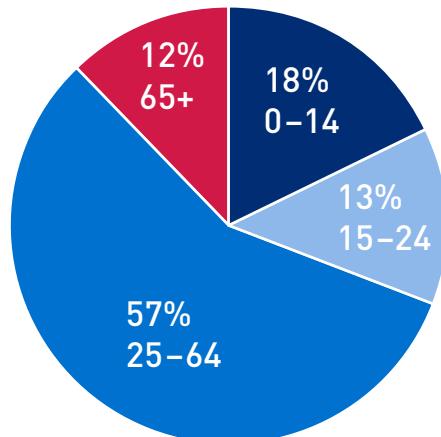
With an additional 2 million people, the Bay Area's residents in 2040 will be older and more diverse, as shown in Figures 3.1 and 3.2. The number of school-aged children (5 to 17 years old) will decline in relative terms, while the number of people 65 and over will account for more than half of all population growth in the region.

This segment of the population will grow to approximately 22 percent of the population by 2040, an increase from roughly 12 percent in 2010. By 2040, there will be no clear majority or plurality in terms of

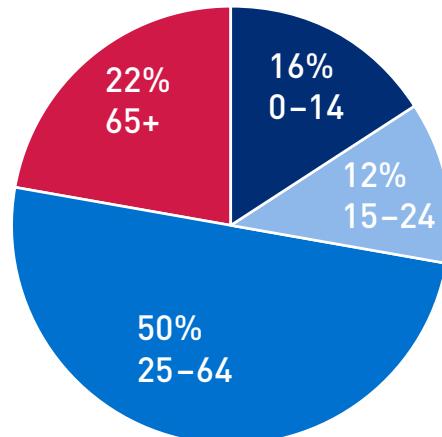
race/ethnicity in the Bay Area. As population groups, Whites, Hispanics and Asians/Other will each account for approximately one-third of the region's population.

Projections of household growth assume that household size will be constrained by costs and affected by a greater share of multigenerational households, plus more two-person senior households as the gap between male and female longevity narrows. In addition, barring action by policymakers,

"in-commuting" by individuals — those who commute into the region from surrounding areas but might otherwise live closer to their jobs if they were able to find housing to suit their needs — could increase by as many as 53,000. In the following section, Plan Bay Area 2040 presents a development pattern to build enough housing within the region to accommodate the household growth associated with all demographic change and employment growth, including in-commuter households.



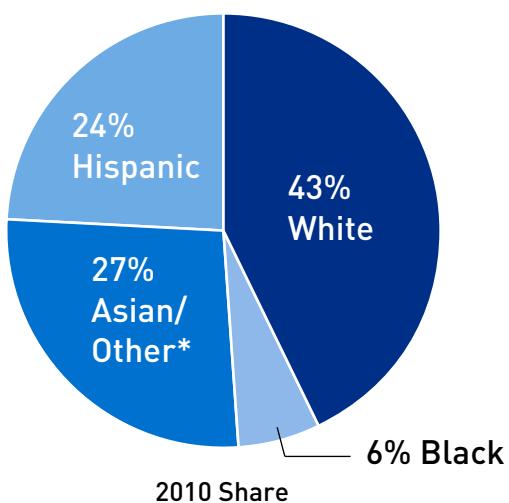
2010 Share



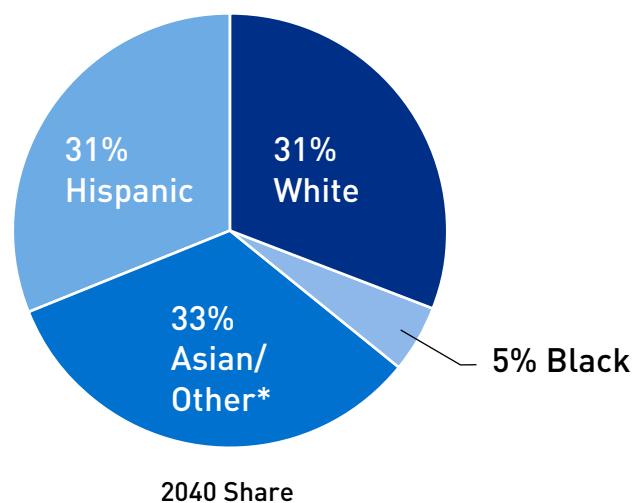
2040 Share

FIGURE 3.1 Bay Area population by age, 2010 and 2040.

Source: Association of Bay Area Governments, 2016



2010 Share



2040 Share

*Asian/Other refers to Asian, Pacific Islander and other multiracial/multiethnic categories.

FIGURE 3.2 Bay Area population by race/ethnicity, 2010 and 2040.

Source: Association of Bay Area Governments, 2016

Transportation Projections

Concurrently with jobs and household projections, Plan Bay Area 2040 estimates how much it will cost to operate and maintain the existing transportation system over the next 24 years, as well as the amount of revenues reasonably expected over that time period. What are the costs to provide existing transit service every year through 2040? What are the costs of maintaining the existing transportation infrastructure through 2040? How much money is available to pay for these two components? Answering these questions, as well as identifying the locations of future housing and job centers, is important for determining where to spend the Bay Area's transportation resources.

Estimating Costs to Operate and Maintain Existing System

MTC worked with local jurisdictions, transit operators and the California Department of Transportation (Caltrans) to develop cost estimates for operating and maintaining the Bay Area's transit system, local street and road network, the state highway system, and local and regional bridges.

The costs to operate and maintain the highway system also include a growing need to maintain the hardware required for traffic management projects like ramp meters and dynamic signs. As shown in Table 3.3, to reach a state of good repair — meaning that roads are maintained at their optimum levels, transit assets are replaced at the end of their useful lives and existing service levels for public transit are maintained — the Bay Area will need to spend an estimated total of \$254 billion over the next 24 years.

For more information on Plan Bay Area 2040's needs assessment for transit and roads, please see the [Transit Operating and Capital Needs and Revenue Assessment](#) and the [Local Streets and Roads, Bridges and State Highway Needs Assessment](#).

Requests for Modernization and Expansion Projects

MTC also worked with partner agencies to determine funding needs for projects that would expand capacity and increase system efficiency beyond operating and maintaining the existing system.

Mode	Cost* to Maintain Existing Asset Condition (\$ Billions)	Cost* to Achieve Ideal Asset Condition (\$ Billions)
Local Streets and Roads	\$ 43	\$ 49
State Highways**	20	20
Local Bridges**	2	2
Regional Bridges**	16	16
Transit Capital	29	47
Transit Operating***	120	120
Total	\$230	\$254

* In year-of-expenditure dollars.

** Costs associated with maintaining existing conditions are not available for highways and bridges, so the costs for ideal asset condition are listed in both categories.

*** Transit operating costs are only for maintaining existing conditions.

TABLE 3.3 Costs to operate and maintain the existing transportation system.

Source: Metropolitan Transportation Commission, 2016

In the Call for Projects for Plan Bay Area 2040, transit agencies requested almost \$200 billion for transportation projects. Combined with the funding required to provide existing transit service and improve asset conditions, identified transportation needs and project requests for the region between now and 2040 totaled nearly half a trillion dollars.

Gauging Our Financial Resources

Like other metropolitan regions, the Bay Area receives transportation funding from a vast array of federal, state, regional and local sources. As shown in Figure 3.3, the total 24-year forecast of expected transportation revenue for Plan Bay Area 2040 is \$303 billion, estimated in year-of-expenditure dollars.

What differentiates the Bay Area from many other regions is the significant share of local and regional funding — approximately two-thirds of forecasted revenues are from regional and local sources such as transit fares, dedicated sales tax programs and bridge tolls.

Making up the remainder of revenue sources are state and federal revenues (mainly derived from fuel taxes) and anticipated revenues (unspecified revenues from various sources that can reasonably be expected to become available within the plan horizon).

For more information on Plan Bay Area 2040's financial assumptions, please see the [Financial Assumptions Report](#).

Committed Revenues and Expenditures

Only a modest share of the \$303 billion in transportation funding is flexible. The vast majority of funding is committed to specific purposes or projects because of the revenue source or voter-approved expenditure plans.

Projects could also have prior funding commitments due to an ongoing project timeline. In determining funding assumptions for Plan Bay Area 2040, the Bay Area must first take stock of these existing and ongoing commitments.

As shown in Table 3.4, half of the region's existing commitments relate to operating and maintaining transit, with the majority of this funding comprised of locally generated transit fares and county sales taxes.

The remaining committed funds are directed to operate and maintain roads or are committed to specific projects (such as those under construction today). The remaining revenues are considered "discretionary," meaning they can be flexibly applied to various transportation purposes within the constraints of the funding source.

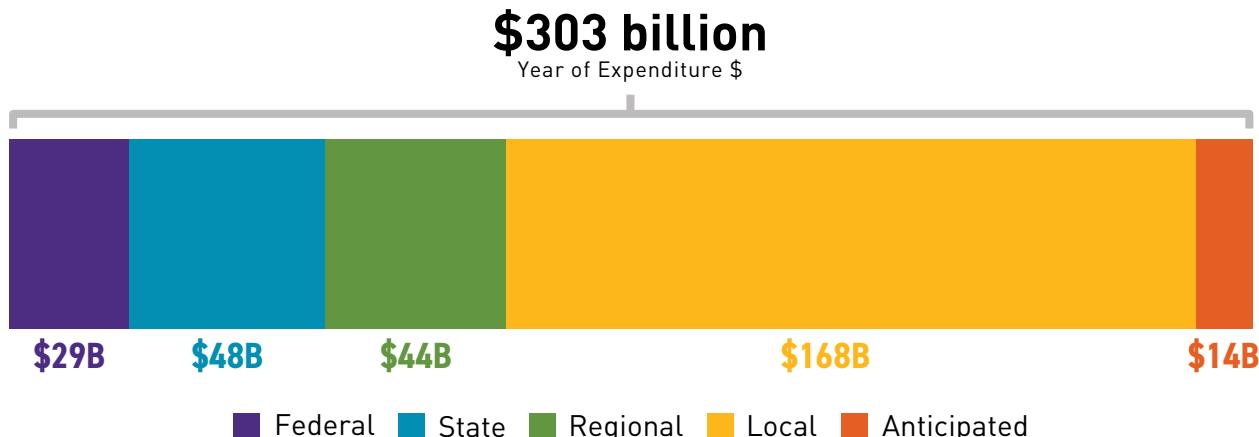


FIGURE 3.3 Forecasted transportation revenues for Plan Bay Area 2040.

Source: Metropolitan Transportation Commission, 2016



Construction is currently underway on San Francisco's Central Subway Project.
Credit: Noah Berger

Discretionary funds are important not only because of their flexibility, but also because they reflect future revenues the region can leverage to influence policy and implementation. These future discretionary revenues total \$74 billion, approximately 24 percent of the total projected Plan Bay Area 2040 revenues, as shown in Table 3.5.

The next section, “Strategies and Performance,” will explain the forecasted development pattern of household and employment growth, and how transportation funding resources will be invested to support it.

Revenue Purpose	Revenue* (\$ Billions)	Share of Committed Funding
Funding for Transit Operations and Maintenance	\$115	50%
Funding for Road Operations and Maintenance	58	25%
Funding Already Committed to Projects**	54	24%
Debt Service	3	1%
Total***	\$229	100%

* In year-of-expenditure dollars.

** Funding that is already committed to projects includes funding commitments made in previous years that will continue to be spent within the timeframe of the plan.

*** Values may not sum due to rounding.

TABLE 3.4 Committed revenues by function for Plan Bay Area 2040.

Source: Metropolitan Transportation Commission, 2016

Fund Source	Discretionary Funding* (\$ Billions)
Federal: FTA Programs for Transit Capital, STP/CMAQ, New Starts/Small Starts/Core Capacity, National Highway Freight Program	\$27
State: Cap and Trade, STA, High Speed Rail, STIP, ATP	8
Regional: Future regional gas tax and bridge toll increases, AB1107, and remaining revenue from existing bridge tolls**	13
Local: TDA	13
Anticipated/Unspecified***	14
Total****	\$74

* In year-of-expenditure dollars.

** These revenues do not include future Bay Area Express Lane toll revenues which are considered committed revenues.

*** Anticipated revenues reflect new state and federal revenues that are unknown at this time but likely within the plan period.

**** Values may not sum due to rounding.

TABLE 3.5 Discretionary funding sources for Plan Bay Area 2040.

Source: Metropolitan Transportation Commission, 2016





An aerial view over Solano County.
Credit: Karl Nielsen

Strategies and Performance

Given the state of the Bay Area today and the 24-year forecast of jobs, households and transportation revenues, how will the region get from where it is now to where it needs to be in the future? MTC and ABAG developed a variety of land use and transportation scenarios that distributed the total amount of expected growth across the region.

These scenarios were evaluated against adopted performance targets to measure how well they addressed regional goals, including climate protection, transportation system effectiveness, economic vitality and equitable access. Based upon performance and feedback, MTC and ABAG developed and adopted a Final Preferred Scenario. This scenario provided both a regional pattern of household and employment growth by the year 2040 and a corresponding transportation investment strategy.



Community input is a vital part of transportation and land use planning.
Credit: Karl Nielsen

Focused Growth

Plan Bay Area 2040 largely reflects the foundation and regional growth pattern established in the original Plan Bay Area. Plan Bay Area 2040's core strategy is "focused growth" in existing communities along the existing transportation network. This strategy allows the best "bang for the buck" in achieving key regional economic, environmental and equity goals: It builds upon existing community characteristics, efficiently leverages existing infrastructure and mitigates impacts on areas with less development. Key to implementing the focused growth strategy are Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) identified, recommended and approved by local governments.

- **Priority Development Areas (PDAs) -**

Plan Bay Area 2040 focuses growth and development in nearly 200 PDAs. These existing neighborhoods are served by public transit and have been identified as appropriate for additional, compact development.

- **Priority Conservation Areas (PCAs) -**

Plan Bay Area 2040 helps preserve over 100 regionally significant open spaces which have a broad consensus for long-term protection but which face nearer-term development pressures.

PCAs and PDAs complement one another:

By promoting compact development in established communities with high-quality transportation access, there is less development pressure on the region's vast and varied open spaces and agricultural lands.

Motivating Smarter Land Use Decisions

Given existing real estate market conditions, land use controls and infrastructure needs, many PDAs may not be able to accommodate forecasted growth and may require additional policy interventions to increase their development potential. As a result, MTC and ABAG modeled a range of policy and investment strategies in Plan Bay Area 2040 to increase development potential in PDAs and influence the overall regional growth pattern, as shown in Table 4.1. These policies can help motivate land use and support the success of a focused growth strategy in the locally identified PDAs that already house much of the Bay Area's existing development.

These measures are not prescriptive, and there are many potential public policy options that could help the Bay Area attain its adopted targets. The strategies presented here are simply illustrations of the significant steps it would take to accommodate expected future growth within existing communities while striving toward the region's 2040 economic, environmental and equity goals. Growth can, of course,

- Assign higher densities than currently allowed by cities to select PDAs
- Keep current urban growth boundaries in place
- Preserve and incorporate office space caps in job-rich cities
- Assume all for-profit housing developments in cities with PDAs make 10 percent of units deed-restricted in perpetuity
- Reduce the cost of building in PDAs and Transit Priority Areas (TPAs) through eased parking minimums and streamlined environmental clearance
- Assume subsidies stimulate housing / commercial development within PDAs
- Assess commercial development fee based on Vehicle Miles Traveled to improve jobs-housing ratio and to fund affordable housing in PDAs

TABLE 4.1 Key land use assumptions.

Source: Metropolitan Transportation Commission, 2016

bring challenges such as limited water resources, funding for schools, and traffic congestion, in addition to benefits. Working with jurisdictions to appropriately balance different interests while implementing these or other similar policies will be key to achieving the land use goals of Plan Bay Area 2040.

For more information about Plan Bay Area 2040's land use model and assumptions, see the [Land Use Modeling Report](#).



Sonoma City Hall
Credit: A Yee, Creative Commons

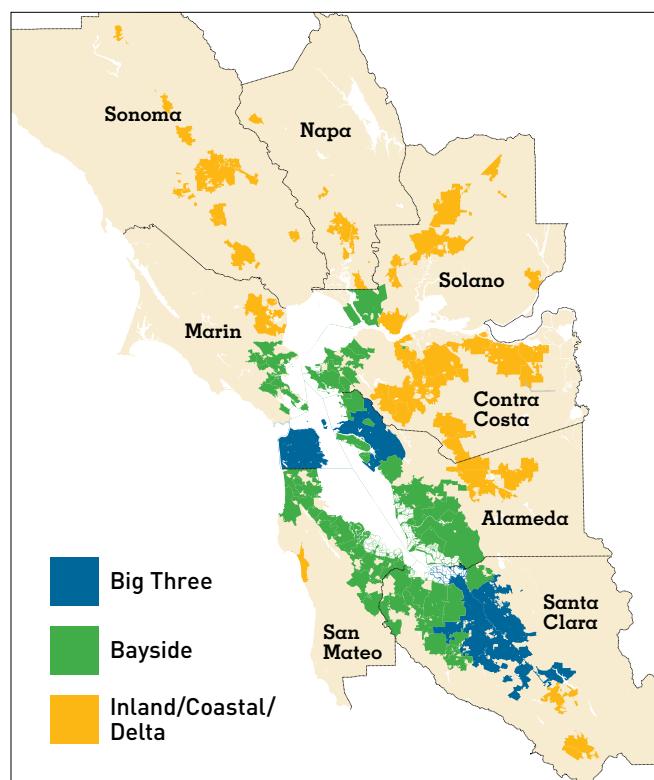
Local Control

It is important to emphasize that the region's cities and counties retain local land use authority and that local jurisdictions will continue to determine where future development occurs. Plan Bay Area 2040 is supported through implementation efforts such as neighborhood-level planning grants for PDAs and local technical assistance. The plan does not mandate any changes to local zoning rules, general plans or processes for reviewing projects; nor is the plan an enforceable direct or indirect cap on development locations or targets in the region. As is the case across California, the Bay Area's cities, towns and counties maintain control of all decisions to adopt plans and to permit or deny development projects.

As stated in California Government Code Section 65080(b)(2)(K), "[n]othing in a sustainable communities strategy shall be interpreted as superseding the exercise of the land use authority of cities and counties within the region... Nothing in this section shall require a city's or county's land use policies and regulations, including its general plan, to be consistent with the regional transportation plan or an alternative planning strategy."

Plan Bay Area 2040 also does not establish new state-mandated [Regional Housing Needs Allocation](#) (RHNA) numbers for any jurisdiction. RHNA operates on an eight-year cycle, with the next iteration not due until the next update to the plan in 2021.

Because RHNA numbers are not at stake this cycle, MTC and ABAG have characterized this update to the Bay Area's long-range plan as limited and focused.



MAP 4.1 Bay Area subregions.

Source: Metropolitan Transportation Commission, 2016



Cooperation and consensus will be key to achieving the plan's ambitious goals.
Credit: Rawpixel

Overview of Household and Employment Growth Pattern

Overall, the regional pattern of households and employment in 2040 is not significantly different from the pattern observed in 2010. Plan Bay Area 2040 concentrates both household and employment growth in the “Big 3 Cities” of San Jose, San Francisco and Oakland, as well as the east and west Bayside corridors along the region’s core transit network.

As shown in Map 4.1, the Bay Area’s 101 cities and towns are classified into three key “subregions” in order to conceptualize the regional growth pattern presented in Plan Bay Area 2040:

- **Big 3 Cities** — the Bay Area’s three largest cities: San Jose, San Francisco and Oakland
- **Bayside** — generally describes cities directly adjacent to San Francisco Bay, including Hayward, San Mateo, San Rafael and Richmond
- **Inland, Coastal and Delta** — generally describes cities just outside of Bayside, such as Walnut Creek, Dublin, Santa Rosa, Antioch, Brentwood and Fairfield

By 2040, the Big 3 Cities and Bayside subregions will contain 72 percent of the Bay Area’s total households and 77 percent of the region’s total jobs, which is a slightly higher concentration of households and jobs compared to 2010. As shown in Tables 4.2 and 4.3, Big 3 Cities will see about 46 percent of the region’s household growth and about 44 percent of the region’s job growth, while Bayside communities will see about 33 percent of the region’s household growth and 40 percent of projected employment growth.

Inland, Coastal and Delta areas will see comparatively less growth. The concentration of housing and jobs in PDAs also will remain significant, with 77 percent of the Bay Area’s household growth and 55 percent of its job growth occurring in PDAs.

In terms of employment, Plan Bay Area 2040 anticipates a modest shift from the growth pattern adopted in the original Plan Bay Area and incorporates the substantial employment growth experienced since 2010 in Bayside communities and in the cities of San Jose, San Francisco and Oakland. These areas contain the majority of the Bay Area’s commercial space, both now and in the future.

As shown in Maps 4.2 and 4.3, 83 percent of all household and employment growth will be in four of the Bay Area’s nine counties: Santa Clara, Alameda, San Francisco and Contra Costa. On both an absolute and percentage basis, the five remaining counties will see modest growth over the next 24 years.

Emphasizing higher levels of growth in PDAs and building upon what already exists means that many neighborhoods, particularly established single-family home neighborhoods, will see minimal change in the coming decades. Approximately 70 percent of projected household growth will be concentrated in just 15 Bay Area cities, as will 74 percent of employment growth. Besides the Big 3 Cities, other cities such as Richmond, Emeryville, Concord and Mountain View will also serve as key locations for the Bay Area’s future households and jobs.

For a complete list of household and employment numbers by jurisdiction, please see the [Land Use Modeling Report](#).

The concentrated household and employment pattern presented here further underscores the need for a Bay Area transportation system that is efficient and well-maintained. Otherwise, a focused growth strategy cannot succeed.

Subregion	Year 2010, Forecast Baseline	Year 2040, Proposed Plan	Difference, 2010–2040	Share of Regional Growth	% Growth, 2010–2040	Annual Growth Rate
Big 3 Cities	801,000	1,173,000	373,000	46%	+47%	+1.6%
Bayside	1,031,000	1,303,000	272,000	33%	+26%	+0.9%
Inland, Coastal, Delta	776,000	950,000	175,000	21%	+23%	+0.8%
Total Households*	2,610,000	3,430,000	820,000		+31%	+1.0%
<i>In PDAs</i>	553,000	1,182,000	629,000	77%		
<i>Outside PDAs</i>	2,055,000	2,244,000	189,000	23%		

TABLE 4.2 Household growth by Bay Area subregion.

*Values may not sum due to rounding.

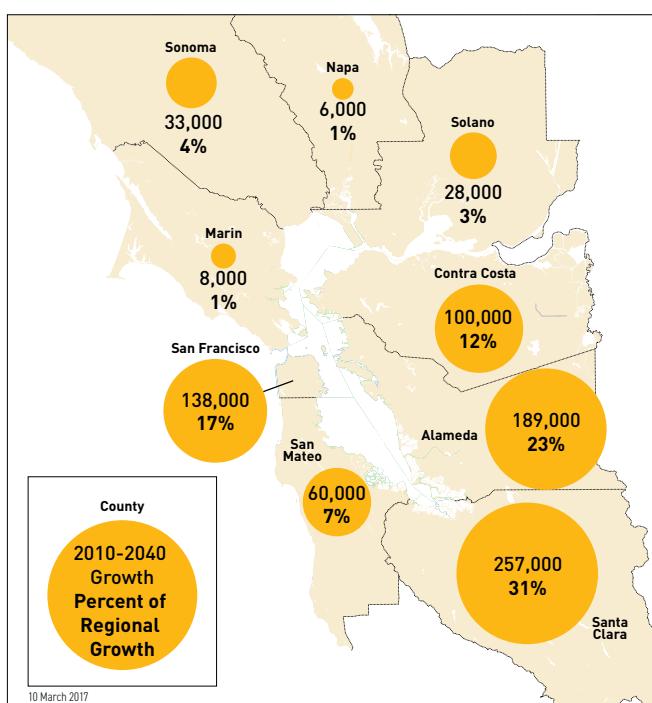
Source: Metropolitan Transportation Commission, 2016

Subregion	Year 2010, Forecast Baseline	Year 2040, Proposed Plan	Difference, 2010–2040	Share of Regional Growth	% Growth, 2010–2040	Annual Growth Rate
Big 3 Cities	1,143,000	1,700,000	557,000	44%	+49%	+1.6%
Bayside	1,407,000	1,913,000	507,000	40%	+36%	+1.2%
Inland, Coastal, Delta	874,000	1,085,000	212,000	17%	+24%	+0.8%
Total Employment*	3,420,000	4,700,000	1,280,000		+37%	
<i>In PDAs</i>	1,433,000	2,140,000	707,000	55%		
<i>Outside PDAs</i>	1,989,000	2,559,000	570,000	45%		

TABLE 4.3 Employment growth by Bay Area subregion.

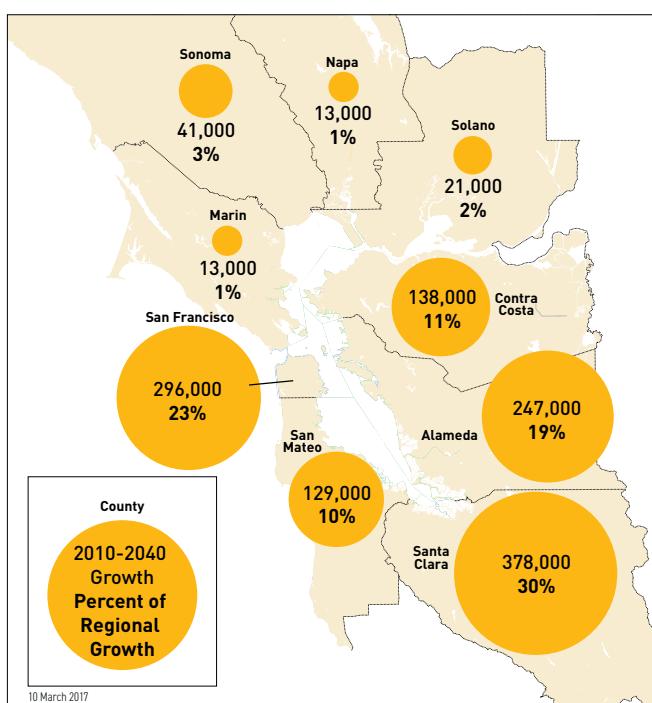
*Values may not sum due to rounding.

Source: Metropolitan Transportation Commission, 2016



MAP 4.2 Household growth by county.

Source: Metropolitan Transportation Commission, 2016



MAP 4.3 Employment growth by county.

Source: Metropolitan Transportation Commission, 2016



Passengers board an AC Transit bus.
Credit: MTC Archives

Key Transportation Strategies, Investments and Projects

Plan Bay Area 2040 develops a blueprint for short-term and long-term transportation investments to support the plan's focused growth strategy. Investment

priorities for the next 24 years reflect a primary commitment to "Fix It First," a key emphasis area in the original Plan Bay Area as well.

As shown in Table 4.4 below, approximately 90 percent of Plan Bay Area 2040's investments focus on operating, maintaining and modernizing the existing transportation system. Plan Bay Area 2040 also directs almost two-thirds of future funding to investments in public transit, mostly to ensure that transit operators can sustain existing service levels through 2040.

Investment Strategy	Local/ Committed Funding* (\$ Billions)	Regional Discretionary Funding* (\$ Billions)	Plan Investment* (\$ Billions)
Operate + Maintain			
Transit Capital Preservation	\$ 11	\$21	\$ 32
Transit Operations	104	16	120
Highways, Local Streets and Bridge Preservation	58	8	66
Operate + Maintain Subtotal**	172	46	218
Modernize			
Transit Modernization and Efficiency	11	10	21
Roadway Performance	12	5	17
Support Focused Growth	7	4	11
Modernize Subtotal**	30	19	50
Expand			
Transit Expansion	15	6	21
Roadway Expansion	9	1	10
Expand Subtotal**	23	8	31
Debt Service + Cost Contingency	3	2	5
Total**	\$229	\$74	\$303

* In year-of-expenditure dollars.

** Values may not sum due to rounding.

TABLE 4.4 Plan Bay Area 2040 funding distribution.

Source: Metropolitan Transportation Commission, 2016

- **Operate + Maintain:** This strategy includes projects that replace transit assets, pave local streets and state highways, and operate the transit system.
- **Modernize:** This strategy includes projects that improve the existing system without significantly increasing the geographical extent of the infrastructure. Electrifying Caltrain and portions of the express lane network are two major investments in this category.
- **Expand:** This strategy includes projects that extend fixed-guideway rail service or add lanes to roadways. Extending Caltrain to downtown San Francisco and BART into Silicon Valley, as well as implementing express lanes on U.S.101 in San Mateo and Santa Clara counties, are major investments in this category.
- **Debt Service + Cost Contingency:** This includes on-going debt service and financing costs as well as a cost contingency for expansion projects.

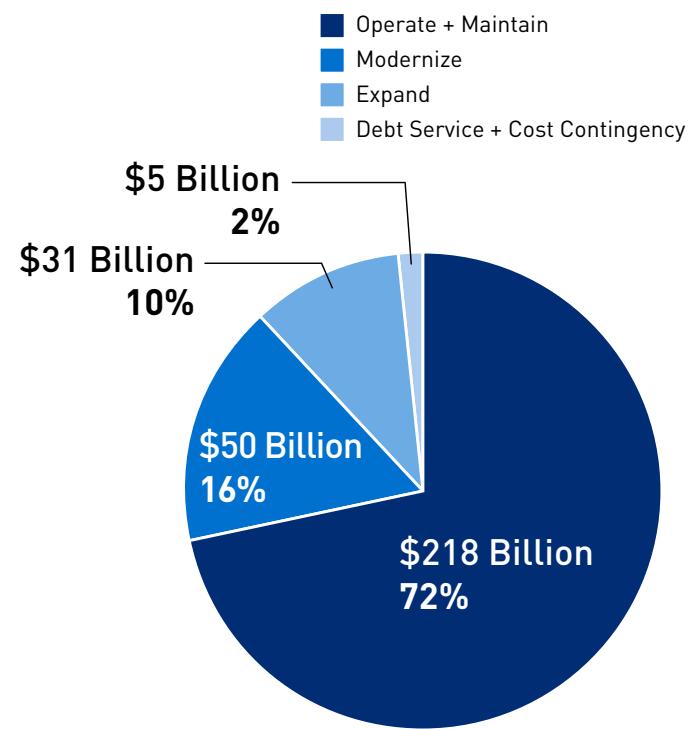


FIGURE 4.1 Plan Bay Area 2040 funding distribution.

Source: Metropolitan Transportation Commission, 2016

Rank	Project	Investment* (\$ Billions)
1	California High-Speed Rail (Bay Area Segment)	\$8.5
2	Regional Express Lanes	6.0
3	BART to Silicon Valley (Phase 2)	5.5
4	BART Transbay Core Capacity Project + BART Metro Program	4.6
5	Caltrain Extension to Transbay Transit Center**	4.1
6	Caltrain Electrification (Phase 1)	2.4
7	Clipper	1.7
8	San Francisco Muni Fleet Expansion	1.3
9	Bay Area Forward	1.0
10	Treasure Island Mobility Management Program	1.0

* Investment values are costs within the plan period and include operating expenses; shown in year-of-expenditure dollars.

** Does not include \$109 million already expended on the project.

TABLE 4.5 Top 10 Plan Bay Area 2040 investments.

Source: Metropolitan Transportation Commission, 2016

Environmental Impacts and Mitigation Measures in Plan Bay Area 2040

The Environmental Impact Report (EIR) for Plan Bay Area 2040 discloses potential environmental impacts and recommended mitigation measures of implementing the plan. The EIR includes a Mitigation, Monitoring, and Reporting Program that identifies who will be responsible for implementing identified mitigation measures and the required timing for implementation.

The EIR addresses impacts associated with projected growth and impacts associated with the projected land use and assumed transportation projects. Where a significant or potentially significant impact may occur, mitigation measures are provided.

Significant unavoidable impacts are those that cannot be mitigated to a less-than-significant level. To the extent that an individual project adopts and implements all feasible mitigation measures described for each significant impact, many of the impacts listed would be reduced to a less than-significant level. However, neither MTC nor ABAG can require local implementing agencies to adopt most of the mitigation measures, and it is ultimately the responsibility of a lead agency for each project to determine and adopt mitigation.

Therefore, several impacts have been identified as significant and unavoidable for purposes of the program level review. Projects taking advantage of CEQA streamlining provisions of SB 375 must apply the mitigation measures described in the EIR as necessary and feasible to address site-specific conditions. For more information on environmental impacts and mitigation measures in Plan Bay Area 2040, review the [Draft Environmental Impact Report](#) and [Draft EIR Appendices](#) and the [Final Environmental Impact Report](#) and [Final EIR Appendices](#).

The allocation of committed funds supports growth in the Bay Area's established communities, directing approximately 72 percent of these funds to operate and maintain existing infrastructure, as shown in Figure 4.1. Table 4.5 lists the 10 highest-cost Plan Bay Area 2040 modernization and expansion investments.

For more information about Plan Bay Area 2040's transportation investment strategy, see the [Investment Strategy Report](#).

Strategy 1. Operate and Maintain

Plan Bay Area 2040 directs the vast majority of funding to maintain the assets and infrastructure of the existing transportation system. Plan Bay Area 2040 fully funds transit operating needs for existing transit services while also funding the majority of remaining high-priority transit capital needs (mostly replacing vehicles and fixed guideway infrastructure such as rail tracks and power systems). When evaluated for cost-effectiveness and support for the plan's performance targets, maintaining transit capital assets was one of the Bay Area's highest performing investments, exhibiting high cost-effectiveness relative to most other transit expansion and highway projects. For this reason, the plan directs almost 30 percent of discretionary funding to paying down the region's transit maintenance backlog. Despite this investment,

a remaining need of almost \$15 billion remains as shown in Table 4.6, most of which is needed to replace non-vehicle assets for BART and Muni.

The next largest regional discretionary investment is for operations and maintenance of the Bay Area's local streets and roads. Between committed sources and future sources such as a potential regional gas tax, Plan Bay Area 2040 directs over \$35 billion for local streets and roads, which prioritizes operations expenses and costs to improve pavement condition. This still leaves a gap of almost \$8 billion to maintain existing pavement as well as non-pavement assets like signals, storm drains and sidewalks. Consequently, the regional pavement condition index, a measure of the quality of pavement on a scale from 0 (failed) to 100 (brand-new), decreases from 66 in 2015 to 62 in 2040.

Funding for maintenance on state highways and bridges is included in Plan Bay Area 2040 mostly as committed funding, since MTC does not influence where this money is spent. Plan Bay Area 2040 assumes a two-dollar toll increase on all state-owned bridges, with \$1 added in 2019 and another \$1 added in 2024. Some of this future discretionary funding would be used for additional maintenance to the Bay Area's bridges. Included in cost projections for operating and maintaining the Bay Area's existing transportation system is a reserve for future cost increases, financing costs and debt service.

	Total Need* (\$ Billions)	Committed Investment* (\$ Billions)	Discretionary Investment* (\$ Billions)	Remaining Need* (\$ Billions)
Transit Operations	\$120	\$104	\$16	\$0
Transit Capital	47	11	21	15
Total	\$167	\$115	\$37	\$15

* In year-of-expenditure dollars.

TABLE 4.6 Plan Bay Area 2040 transit operating and maintenance strategy.

Source: Metropolitan Transportation Commission, 2016

Strategy 2. Modernize

The Bay Area's transportation infrastructure, mostly built in the 20th century, will require significant upgrading to handle the travel volumes and travel needs of the 21st century. Modernization is critical to expand capacity on crowded BART lines, improve speeds on heavily used bus lines, add safe bicycle facilities on busy roads, install new technologies to smooth traffic flow and redesign interchanges to handle greater traffic volumes.

Plan Bay Area 2040 invests 16 percent of total revenue and 26 percent of discretionary revenue in this category, which includes cost-effective projects like freeway operation strategies, San Francisco's two congestion pricing projects and a number of bus rapid transit (BRT) lines. The plan also directs funding for pilot projects related to the evolving technology landscape for transportation, which could increase efficiency and safety across the region's freeways and arterials. These pilot projects include testing vehicle-to-vehicle and vehicle-to-infrastructure technology.

Transit Modernization and Efficiency

In addition to investments in transit capital maintenance, Plan Bay Area 2040 will replace transit infrastructure through modernization projects that replace existing assets with infrastructure that supports either additional or more reliable service. Two examples of this type of project are Caltrain Electrification and BART Transbay Core Capacity projects. These projects replace vehicles and control systems with infrastructure that increases capacity and enables more frequent and reliable operations.

This category also includes strategic investments in transit efficiency throughout the Bay Area. These efficiency projects yield significant benefits due to planned housing growth in PDAs along light rail corridors in Santa Clara County as well as the growth of job centers in Sonoma County. Project examples include bus rapid transit along El Camino Real and

increased service for Santa Rosa CityBus. Additional bus rapid transit projects include Geary BRT and San Pablo BRT, which would serve densifying corridors in San Francisco and along the I-80 corridor in the East Bay, respectively.

Roadway Performance

The Bay Area consistently ranks as one of the most congested metropolitan areas in the nation. With today's mature system of roadways and increased demands on available financial resources, it is no longer possible — if it ever was — for the region to build its way out of congestion. Instead, Plan Bay Area 2040 invests in ways to operate existing highways and arterials more efficiently.

Plan Bay Area 2040 invests \$17 billion over the next 24 years to support projects and programs that will boost system efficiency through technology and bottleneck relief. One such program is Bay Bridge Forward, which would implement a suite of strategies that improve the speed, reliability, and person throughput of roadways and transit service and prepare the Bay Area for technological advancements in transportation.

Critical to these strategies will be the modernization of infrastructure used to monitor travel conditions and facilitate responses to freeway incidents. In addition, efforts like San Francisco's cordon pricing program — with projects such as the Treasure Island and downtown San Francisco cordons — as well as the Regional Express Lane Network will leverage revenues generated from pricing to improve the existing system's efficiency while providing alternatives to driving.

Key Transit and Road Improvements

The following maps show selected priority transit and road projects from the Plan Bay Area 2040 investment strategy. These projects reflect a mix of committed and discretionary investments, with local, state and federal investments. The maps show key regional transit projects, local transit projects, highway and arterial improvements, and pricing projects.

For more information on these and other Plan Bay Area 2040-funded projects and programs, please see the [Project Database](#).

Regional Transit System Improvements

BART Projects

- 1 BART Extension to Silicon Valley (Phase 1)
- 2 BART Extension to Silicon Valley (Phase 2)

Commuter Rail Projects

- 3 Caltrain Electrification
- 4 Caltrain Downtown Extension
(4th & King to Transbay Transit Center)
- 5 eBART (Phase 1)
- 6 SMART Extension to Windsor
- 7 SMART Extension to Larkspur

High-Speed Rail Project

- 8 High-Speed Rail (Los Angeles/Anaheim to San Francisco)

Infill Stations & Major Bus Terminals

- 9 Transbay Transit Center
- 10 Irvington BART Station
- 11 Union City Commuter Rail Station
- 12 Hercules Commuter Rail Station
- 13 Fairfield/Vacaville Commuter Rail Station
- 14 Petaluma SMART Station

Ferry

- 15 New Ferry Routes: Treasure Island, Berkeley and Richmond
- 16 New Ferry Terminals: Alameda Point and Mission Bay

Major Improvements Not Shown on Map

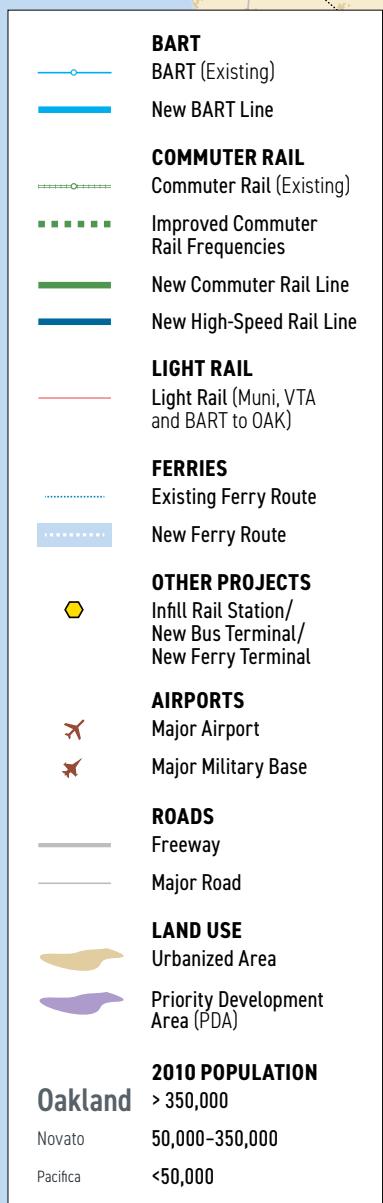
Listed below are the three highest cost improvement projects or programs that are not able to be mapped.

-  BART Transbay Core Capacity Improvements
-  Clipper Card
-  BART Metro

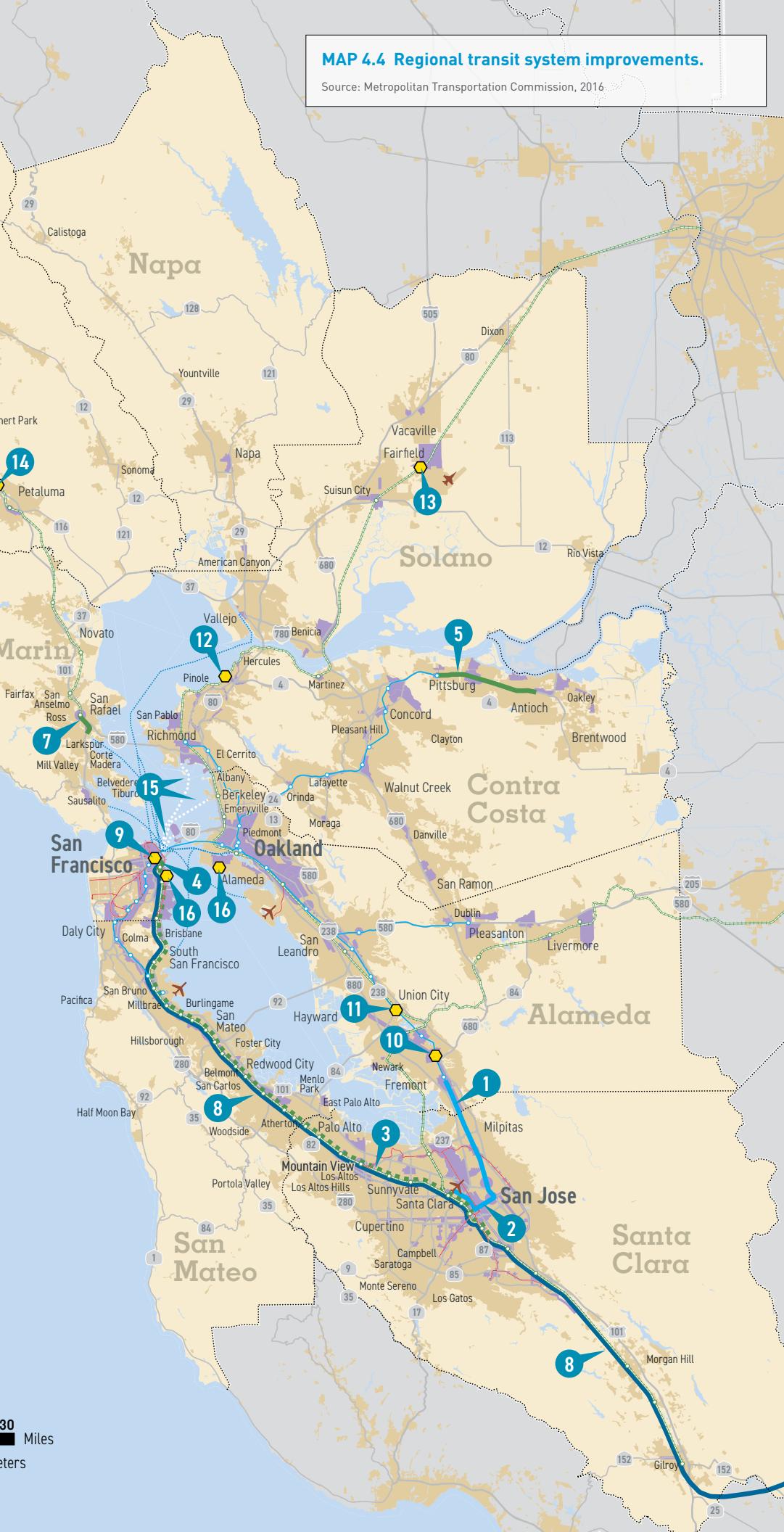
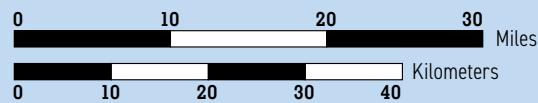
MAP 4.4 Regional transit system improvements.

Source: Metropolitan Transportation Commission, 2016

MAP 4.4 Regional Transit System Improvements



28 July 2017



Local Transit System Improvements

Bus Rapid Transit (BRT) Projects

- 1 Van Ness BRT
- 2 Geary BRT
- 3 Geneva-Harney BRT
- 4 East Bay BRT
- 5 El Camino Real BRT
- 6 San Pablo BRT
- 7 Stevens Creek BRT

Light Rail Transit (LRT) Projects

- 8 Central Subway (Chinatown to Caltrain)
- 9 Embarcadero Streetcar Extension
- 10 Vasona Light Rail Extension
- 11 Capitol Expressway Light Rail Extension

Major Improvements Not Shown on Map

Listed below are the three highest cost improvement projects or programs that are not able to be mapped.



Muni Service Frequency Improvements



VTA Service Frequency Improvements



Muni Forward

MAP 4.5 Local transit system improvements.

Source: Metropolitan Transportation Commission, 2016

San Francisco

Oakland

Contra
Costa

MAP 4.5

Local Transit System Improvements

LIGHT RAIL

Light Rail (Existing)

New Light Rail Line

BUS RAPID TRANSIT

Bus Rapid Transit (Existing)

New Bus Rapid Transit Line

REGIONAL RAIL

BART (Existing)

Commuter Rail (Existing)

AIRPORTS

Major Airport

Major Military Base

LAND USE

Urbanized Area

Priority Development
Area (PDA)

ROADS

Freeway

Major Road

2010 POPULATION

Oakland

> 350,000

Novato

50,000-350,000

Pacifica

<50,000

14 September 2017

0

10

20 Miles

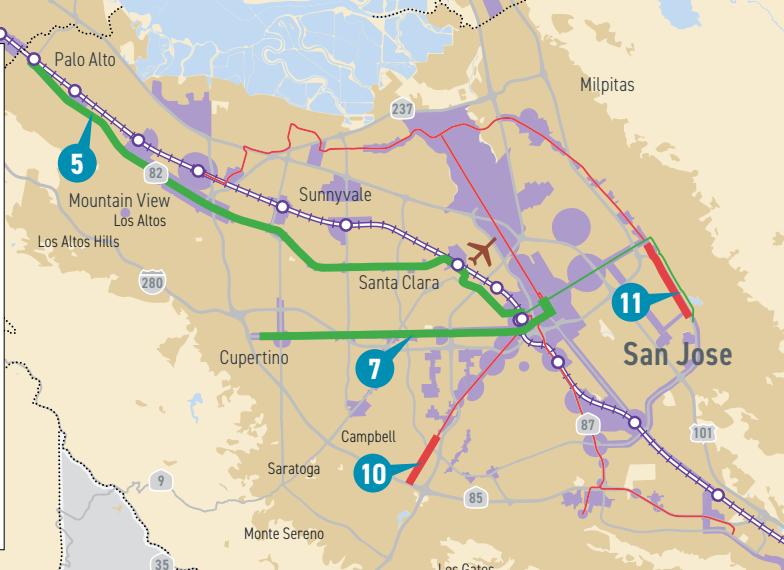
0

10

20

Kilometers

Map only shows the central and southern parts of the region because no existing or proposed light rail or bus rapid transit lines are included in the fiscally constrained plan for the North Bay.



Highway and Arterial Improvements

U.S. 101 Corridor

- 1 Operational Improvements along Presidio Parkway
- 2 New Auxiliary Lanes from the San Francisco County Line to Oyster Point
- 3 New Interchange at Rainier Avenue
- 4 Interchange Improvements at: Produce Avenue, SR-92, Woodside Road, Zanker Road/Skyport Drive/4th Street and SR-25

I-80 Corridor

- 5 Widening from Red Hill Road to Texas Street
- 6 Operational Improvements at Westbound Cordelia Truck Scales
- 7 Interchange Improvements at: Yerba Buena Island, San Pablo Dam Road and I-680/SR-12

I-280 Corridor

- 8 Interchange Improvements at: Lawrence Expressway/ Stevens Creek Boulevard and Winchester Boulevard

I-580 Corridor

- 9 Integrated Corridor Management (I-680 to SR-84)
- 10 Interchange Improvements at I-680

I-680 Corridor

- 11 Widening from I-80 to Gold Hill Road and from SR-84 to Andrade Road
- 12 Interchange Improvements at: SR-4, SR-84 and SR-262

I-880 Corridor

- 13 Interchange Improvements at: Broadway/Jackson Street and 23rd Avenue/29th Avenue

Expressway Corridors

- 14 San Tomas Expressway Widening (Homestead Road to Campbell Avenue)
- 15 New Lawrence Expressway Interchanges at: Reed Avenue/Monroe Street and Homestead Road

Other State Highway Projects

- 16 SR-4 Operational Improvements (SR-242 to Bailey Road)
- 17 SR-12 Widening (Red Top Road to Main Street)
- 18 SR-84 Widening (I-680 to Pigeon Pass)
- 19 SR-262 Widening (I-880 to I-680)

Arterial Projects

- 20 7th Street Grade Separation
- 21 East-West Connector (I-880 to Mission Boulevard)
- 22 Hunters Point/Candlestick Point Street Network
- 23 Fairgrounds Drive Widening (SR-37 to I-80)
- 24 Petaluma Crosstown Connector (McDowell Boulevard to Petaluma Boulevard)

Major Improvements Not Shown on Map

Listed below are the three highest cost improvement projects or programs that are not able to be mapped.

-  Bay Area Forward
-  Hunters Point/Candlestick Point Road Network
-  Climate Program

MAP 4.6 Highway and arterial improvements.

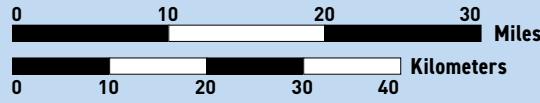
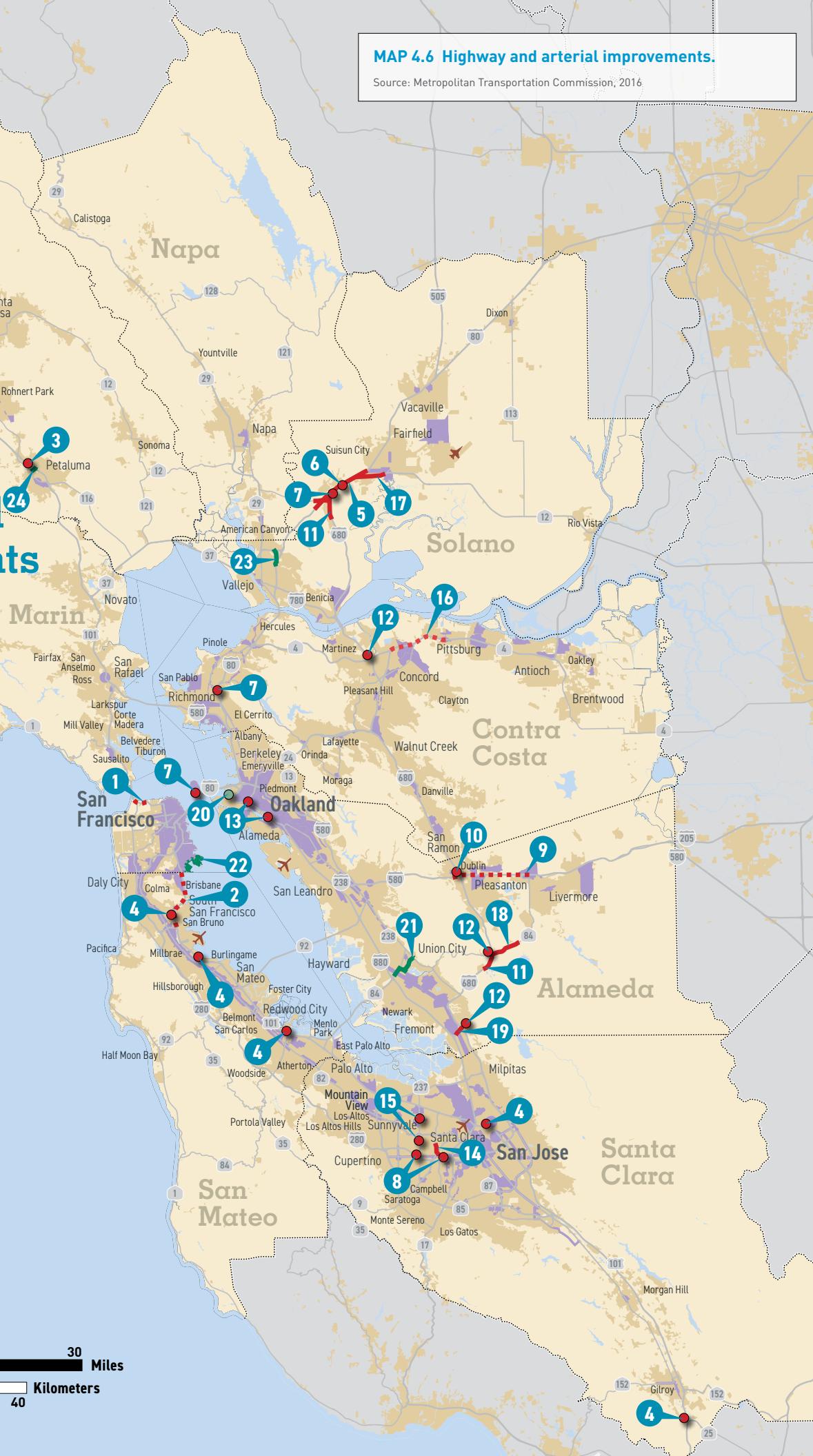
Source: Metropolitan Transportation Commission, 2016

MAP 4.6

Highway And Arterial Improvements



28 July 2017



MAP 4.7 Road pricing improvements.

Source: Metropolitan Transportation Commission, 2016

Sonoma

Healdsburg

128

101

Windsor

Santa Rosa

12

116

Sebastopol

116

Rohnert Park

Cotati

Petaluma

116

Sonoma

12

121

Yountville

29

Napa

128

American Canyon

37

Vallejo

780

Benicia

Hercules

Pinole

80

Martinez

Pleasant Hill

Walnut Creek

Concord

Clayton

Pittsburg

Antioch

Oakley

Brentwood

Marin

Novato

Fairfax

San Anselmo

Ross

Larkspur

Corte Madera

Mill Valley

San Rafael

80

Richmond

El Cerrito

Alameda

Pleasanton

Danville

San Ramon

Dublin

Livermore

Contra Costa

Antioch

Oakley

Brentwood

Marin

Novato

Fairfax

San Anselmo

Ross

Larkspur

Corte Madera

Mill Valley

San Rafael

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Richmond

El Cerrito

Alameda

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Danville

San Ramon

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Corte Madera

Mill Valley

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Mill Valley

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El Cerrito

Alameda

Pleasanton

Danville

San Ramon

Dublin

Express Lanes

The Bay Area is becoming more familiar with express lanes as they become more widespread along Interstates 580 and 680, as well as state Route 237. Express lanes are carpool lanes that also give solo drivers the choice to pay a toll for a more reliable trip.

Carpools and buses can still use the lanes free of charge. Express lanes are a high-tech way to take advantage of available capacity in under-used carpool lanes and to improve traffic management and reliability on well-utilized carpool lanes.

With toll revenue, express lanes can offer enhanced enforcement to catch cheaters, access control to manage

merging and weaving, and more cameras and sensors to quickly identify and respond to incidents.

Plan Bay Area 2040 continues funding for completing the highest priority express lane segments. Most involve conversion of existing carpool lanes, while a smaller share would widen freeways to create new express lanes and to close gaps in the Bay Area's existing carpool lane network.

Express lane toll revenue would first fund the operations and maintenance of the lanes. Plan Bay Area 2040 invests \$450 million of discretionary revenue to complete the financing package for implementing the new express lanes.



Bay Area transportation agencies are developing a 550-mile network of Bay Area Express Lanes that will be completed in 2035.
Credit: Noah Berger

Goods Movement

Plan Bay Area 2040 is the Bay Area's first regional plan with dedicated discretionary revenue allocated toward goods movement to implement the recommendations of the [Regional Goods Movement Plan](#). This investment strategy includes significant funding for increasing efficiency at the Port of Oakland by reducing rail-truck conflicts and improving bottlenecks at interchanges along the truck freight network. Additionally, the investment strategy carves out \$350 million for a clean fuel and impact-reduction program, which was a major element of the Regional Goods Movement Plan.

Key strategies include:

- **MODERNIZING INFRASTRUCTURE:** Projects to improve operations and increase rail access at the Port of

Oakland, including 7th Street Grade Separation, Outer Harbor Intermodal Terminal and Oakland Army Base transportation components; highway projects and interchange improvements along freight corridors such as I-880, I-80, U.S. 101, I-580, I-680 and state Route 4.

- **CLEAN FUELS AND IMPACT REDUCTION:** Future program for implementing the recommendations of the [Freight Emissions Reduction Action Plan](#) and developing programs for environmental and community impact reduction in neighborhoods with high levels of freight activity.
- **SMART DELIVERIES AND OPERATIONS:** Future program for deploying communications infrastructure to increase active traffic management along freight corridors and to/from the Port of Oakland.

Strategy	Investment* (\$ Billions)
Modernizing Infrastructure	\$4.4
Clean Fuels and Impact Reduction	0.4
Smart Deliveries and Operations	0.3

* In year-of-expenditure dollars.

TABLE 4.7 Plan Bay Area 2040 goods movement investments.

Source: Metropolitan Transportation Commission, 2016



A freight yard in Fairfield, Solano County.
Credit: Karl Nielsen

Supporting Focused Growth and Reducing Greenhouse Gas Emissions

In addition to significant transit and roadway performance investments to encourage focused growth, Plan Bay Area 2040 directs funding to neighborhood active transportation and complete streets projects, climate initiatives, lifeline transportation and access initiatives, safety programs, and PDA planning.

These programs directly support major Plan Bay Area 2040 goals by assisting Priority Development Areas, emphasizing connections to high-quality transit and reducing greenhouse gas emissions. As in the original Plan Bay Area, this plan makes a significant

contribution to increasing the convenience and safety of walking and bicycling. Plan Bay Area 2040 continues to provide flexibility for congestion management agencies to fund eligible projects under the [One Bay Area Grant \(OBAG\) program](#), including transportation infrastructure that supports infill development such as bicycle and pedestrian improvements, local street repair, and planning activities, while also providing specific funding opportunities for [Safe Routes to Schools](#) projects and Priority Conservation Areas.

Finally, the transportation investments and land use development pattern in Plan Bay Area 2040 will not be sufficient on their own to reach the Bay Area's statutory 2035 CO₂ emissions reduction targets. Over half the plan's required reductions will be achieved

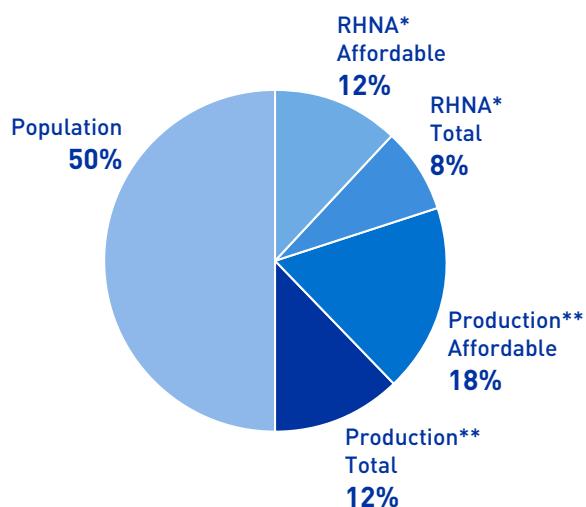


FIGURE 4.2 Distribution formula for OBAG 2 County Program.

Source: Metropolitan Transportation Commission, 2016

The five-year, \$916 million One Bay Area Grant (OBAG 2) program is the second cycle of funding integrating the Bay Area's federal transportation program with California's climate laws and the regional Sustainable Communities Strategy. OBAG 2 will fund projects from 2017–18 through 2021–22 and will support local transportation, housing, land use and environmental goals. OBAG 2 is divided into a County Program and a Regional Program. County Program funds are distributed based on factors such as population, past housing production and future housing commitments.

* Per the 2014–2022 Regional Housing Need Allocation.

** Per the 1999–2006 and 2007–2014 Housing Production Report from ABAG.

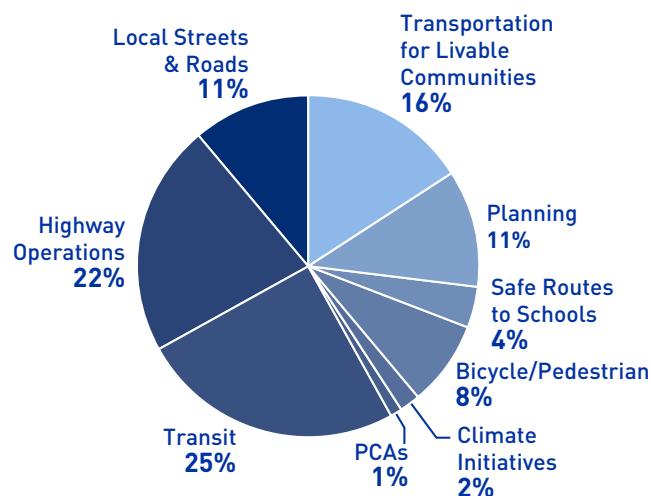


FIGURE 4.3 Project selection results for the OBAG 1 program.

Source: Metropolitan Transportation Commission, 2016

The inaugural One Bay Area Grant (OBAG 1) program was adopted by MTC in 2012 to guide \$818 million in federal funds over the five-year period from 2012–13 through 2016–17. Figure 4.3 provides a breakdown of all the funding programmed during the grant cycle. As can be seen, OBAG funds supported a variety of regional needs such as transit (including Clipper), highways and roadways, Safe Routes to School, and bicycle and pedestrian planning, as well as planning activities, climate initiatives and conservation.

through strategies that are part of MTC's Climate Initiatives Program. The program's primary objectives are to invest in strategies that reduce transportation-related emissions and vehicle miles traveled and encourage the use of cleaner fuels through incentives, education, policies and programs. The Climate Initiatives Program focuses on two primary strategies:

1. **Transportation Demand Management Strategies**, including bicycle and pedestrian networks, transit, targeted transportation alternatives, trip caps, car sharing, vanpool incentives and commuter benefits ordinances.
2. **Alternative Fuel and Vehicle Strategies**, including plug-in electric vehicle infrastructure

Transportation Equity Roadmap

Plan Bay Area 2040 includes a nearly \$70 billion “Equity Roadmap” that makes major investments toward bus operations (\$62 billion); increases in bus service and other improvements (\$5 billion); county access initiatives (\$1 billion); and lifeline, mobility management and means-based fare programs (\$900 million). The investment strategy funds existing bus operations as well as significant increases in bus service through 2040 at a higher annual rate than the original Plan Bay Area. Several of the region’s transit operators, including AC Transit, VTA and others, have increased service since the previous plan was adopted.

Plan Bay Area 2040 directs \$800 million to the Lifeline Transportation Program, which will fund priority projects identified by residents in MTC’s Communities of Concern. The Lifeline Program implements locally crafted Community-Based Transportation Plans,

which MTC also funds, and can include community shuttles, transit services, streetscape improvements and bus stop amenities. Additionally, the investment strategy directs \$90 million for a future mobility management program. Through partnerships with transportation service providers, mobility management enables communities to monitor transportation needs and to link individuals to appropriate, cost-efficient travel options. This strategy is especially key to the region’s ability to address growth in the Bay Area’s population of seniors and persons with disabilities.

County programs will contribute \$300 million to similar initiatives, such as an affordable-fare program in San Francisco, a low-income school bus program in Contra Costa County and expanded late-night transportation operations for workers traveling from San Francisco. Counties will invest another \$700 million in expanding paratransit services that directly benefit persons with disabilities, many of whom are also seniors.

and charging stations; incentives for plug-in vehicles, especially for lower- and moderate-income households; promotion of emission reduction technology; and marketing and education efforts.

Additionally, the plan includes carpooling incentives — including private sector ride-matching applications that target utilization of express lane corridors — free bridge tolls, first/last mile solutions to transit and other strategies. Together, these strategies incorporate emerging trends and technological advances to efficiently reduce CO₂ emissions and provide more equitable and affordable travel options for all Bay Area residents. Plan Bay Area 2040 directs \$526 million to the regional Climate Initiatives Program, \$56 million for incentivizing higher levels

of carpooling and \$212 million for county-sponsored greenhouse gas reduction initiatives.

For more information on how travel demand is modeled in Plan Bay Area 2040, please see the [Travel Modeling Report](#).

Strategy 3. Expand

The remaining 10 percent of funding is directed toward a set of transit extensions and roadway expansions. The BART extension to San Jose and Santa Clara, as well as the Caltrain Downtown San Francisco Extension, for example, will provide new rail links to the hearts of the Bay Area's two largest cities.

These projects are top regional priorities for [Federal New Starts](#) funding over the next five years. This

Core Capacity Transit

Plan Bay Area 2040 invests almost \$24 billion — 10 percent of its funding and 15 percent of discretionary funding — to increasing transit capacity throughout the region's core by connecting jobs and people between San Francisco and Silicon Valley via transit expansion and modernization projects. Several of these projects are key to the implementation of MTC's Core Capacity Transit Study, a collaboration of MTC and five of the region's major transit operators. The study identifies short-, mid- and long-term strategies to relieve the transit capacity and reliability challenges facing travel to and from San Francisco's employment core.

Major projects include:

- Extending BART to Silicon Valley
- Extending Caltrain to downtown San Francisco
- Increasing frequencies and capacity on BART
- Electrifying and modernizing Caltrain
- Extending light rail service in Santa Clara County
- Increasing bus and rail frequencies throughout San Francisco
- Further design work on a new transbay transit tube

category also includes VTA's planned light rail extensions for the Capitol Expressway and Vasona lines, SMART extensions to Larkspur and Windsor, and a \$640 million reserve for future New Starts priorities.

The largest transit expansion project in this category is the Bay Area segment of California High-Speed Rail, with a price tag of over \$8 billion for the Bay Area alone.

Also in this category are select roadway expansions along highways and arterials throughout the region, the largest being new express lanes along U.S. 101 from San Francisco to Morgan Hill in the South Bay. This project is expected to reduce congestion and to

increase commuters' choices along several of the most congested freeway segments in the Bay Area. A sum of all investments that would significantly increase transit capacity in core locations is in Table 4.8.

Plan Performance

As previously described, the plan's land use and transportation pattern is required by law to achieve two things by 2040: a reduction in per-capita CO₂ emissions from passenger vehicles and adequate housing for the Bay Area's expected population growth. Plan Bay Area 2040 successfully achieves

Location	Investment* (\$Billions)
Transbay Corridor	\$ 5.9
Peninsula Corridor	7.3
Within San Francisco	2.7
Within Santa Clara County	8.2
Planning for Future Capacity Projects	0.5
Total	\$24.6

* In year-of-expenditure dollars.

TABLE 4.8 Plan Bay Area 2040 core capacity projects

Source: Metropolitan Transportation Commission, 2016



Transit is a cornerstone of sustainability in the Bay Area.
Credit: Noah Berger

both of these targets. How does Plan Bay Area 2040 do at meeting the rest of the voluntary, aggressive and aspirational performance targets adopted by MTC and ABAG?

As seen in Table 4.9, of the 13 total adopted performance measures, Plan Bay Area 2040 achieves five targets, including the two mandatory targets. Plan Bay Area 2040 makes progress on another four but is unfortunately moving in the wrong direction on four performance targets.

For more information about Plan Bay Area 2040's performance, please see the [Performance Assessment Report](#).

Environment

On the environment front, Plan Bay Area 2040 is particularly successful at protecting the climate and preserving open space and agricultural lands. Plan Bay Area 2040's per-capita CO₂ emissions reductions meet and exceed the Senate Bill 375 target for year 2035 thanks in part to robust funding of the [Climate Initiatives Program](#). Similarly, Plan Bay Area 2040 protects thousands of acres of land from development and fully achieves its ambitious open space and agricultural preservation target.

However, Plan Bay Area 2040's "Fix It First" emphasis means that only 10 percent of the plan's investments are directed toward expanding capacity-constrained freeways and transit lines. This resulted in limited performance improvements for travel mode shift and public health.

Economy

On the economy front, Plan Bay Area 2040 maintains middle-wage jobs, improves goods movement and reduces congestion. Unfortunately, financial constraints lead to challenges in attaining all of Plan Bay Area 2040's transportation targets, including

maintenance and modernization of the region's aging transportation infrastructure and improving access to jobs.

Without additional funding, the Bay Area will be unable to achieve an ideal state of good repair by year 2040, particularly for pavement conditions on streets, roads and highways.

Equity

Finally, regional affordability and equity challenges, including displacement risks, are expected to worsen by 2040 despite the inclusion of a range of aggressive assumptions about affordable housing subsidy strategies. Without new funding sources to construct significant numbers of affordable housing units, Plan Bay Area 2040 is only slightly growing the existing share of affordable housing in PDAs or transit-rich, high-opportunity communities, rather than doubling it per the adopted target.

While Plan Bay Area 2040 performs better than any other transportation and land use scenario previously evaluated for displacement risk — notably reducing the number of at-risk households by 89,000 compared to the "No Project" conditions described below — it still results in elevated risk levels compared to year 2010. Increases in displacement risk are forecast to be significantly greater outside Communities of Concern in Plan Bay Area 2040.

Results of Plan Bay Area 2040 Target Assessment

Plan Meets or Exceeds Target

Climate Protection	Reduce per-capita CO ₂ emissions from cars and light-duty trucks by 15%.	Plan meets and exceeds target, reducing per-capita CO ₂ emissions by 16% by 2035.	
Adequate Housing	Hause 100% of the region's projected growth by income level without displacing current low-income residents and with no increase in in-commuters over the Plan baseline year.	Plan meets target, housing 100% of population growth without increasing the number of in-commuters.	
Open Space and Agricultural Preservation	Direct all non-agricultural development within the urban footprint (existing urban development and UGBs).	Plan meets target, directing all non-agricultural development within the existing urban footprint and existing growth boundaries.	
Economic Vitality	Increase by 38% the number of jobs in predominantly middle-wage industries.	Plan meets and exceeds target, growing the number of jobs in middle-wage industries by 43%.	
	Reduce per-capita delay on the Regional Freight Network by 20%.	Plan meets and exceeds target, reducing per-capita delay on major freight corridors by 29%.	

Plan Makes Progress Toward Target

Healthy and Safe Communities	Reduce adverse health impacts associated with air quality, road safety and physical inactivity by 10%.	Plan reduces health impacts by 1% but falls short of target.	
Equitable Access	Increase the share of affordable housing in PDAs, TPAs or high-opportunity areas by 15%.	Plan increases the share of affordable housing in key areas by 3% but falls short of target.	
Transportation System Effectiveness	Increase non-auto mode share by 10%.	Plan boosts non-auto mode share by 3% but falls short of target.	
	Reduce per-rider transit delay due to aged infrastructure by 100%.	Plan reduces per-rider delay due to aged transit infrastructure by 75% but falls short of target.	

Plan Moves in Opposite Direction From Target

Equitable Access	Decrease the share of lower-income residents' household income consumed by transportation and housing by 10%.	Plan moves in opposite direction from target; share of lower-income household income required for housing and transportation costs is expected to increase by 13%.	
	Do not increase the share of low- and moderate-income renter households in PDAs, TPAs or high-opportunity areas that are at risk of displacement.	Plan moves in opposite direction from target; share of lower-income households at risk of displacement is expected to increase by 5%.	
Economic Vitality	Increase by 20% the share of jobs accessible within 30 minutes by auto or within 45 minutes by transit in congested conditions.	Plan moves in opposite direction from target; share of jobs accessible within 30 minutes by auto or 45 minutes by transit is expected to decline by less than 1%.	
Transportation System Effectiveness	Reduce vehicle operating and maintenance costs due to pavement conditions by 100%.	Plan moves in opposite direction from target; vehicle operating and maintenance costs due to pavement conditions are expected to grow by 6%.	

TABLE 4.9 Results of Plan Bay Area 2040 target assessment.

Source: Metropolitan Transportation Commission, 2016

Equity Analysis for Plan Bay Area 2040

MTC and ABAG conducted a detailed analysis at multiple stages of the plan development process to ensure that policies and projects included in Plan Bay Area 2040 benefit disadvantaged populations, including low-income and minority populations, at the same level, or better, than non-disadvantaged populations.

The equity analysis includes both the federally-required disparate impact and non-discriminatory (Title VI) and environmental justice analysis, as well as an overall performance analysis of Plan Bay Area 2040 based on equity measures adopted by MTC in January 2016 (Resolution 4217).

In addition, MTC's commitment to environmental justice is embodied in two Environmental Justice Principles adopted by the Commission in 2007. The adopted principles affirm MTC's ongoing commitments to:

- Create an open and transparent public participation process that empowers low-income communities

and communities of color to participate in decision-making that affects them; and

- Collect accurate and current data essential to defining and understanding the presence and extent of inequities, if any, in transportation funding based on race and income.

In spring 2015, MTC and ABAG formed the Regional Equity Working Group (REWG) to advise staff on the equity analysis's development, including identifying equity measures, defining communities of concern and developing the methodology for assessment. The REWG brought together stakeholders from around the Bay Area representing low-income and minority communities; seniors and persons with disabilities; staff representing local jurisdictions, transit agencies and county congestion management agencies (CMAs); public health departments; and community-based organizations and advocacy groups. All REWG meetings were open to the public.

For more information, please see the [Equity Analysis Report](#).

	Goal	Plan Bay Area 2040 Performance	
Goods Movement/Congestion Reduction	-20%	-29%	
Middle-Wage Job Creation	+38%	+43%	
Climate Protection	-15%	-16%	
Open Space and Agricultural Preservation	100%	100%	
Adequate Housing	100%	100%	
Transit Maintenance	-100%	-75%	
Non-Auto Mode Shift	+10%	+3%	
Affordable Housing	+15%	+3%	
Healthy and Safe Communities	-10%	-1%	
Access to Jobs	+20%	-0%	
Road Maintenance	-100%	+6%	
Displacement Risk	+0%	+5%	
Housing + Transportation Affordability	-10%	+13%	

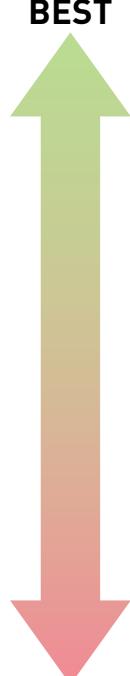


TABLE 4.10 Ranking of Plan Bay Area 2040 performance against targets.

Source: Metropolitan Transportation Commission, 2016

Plan Bay Area 2040's performance on housing and transportation affordability is particularly disconcerting, as shown in Table 4.10. For lower-income households, housing and transportation costs as a share of income go from 54 percent of household income in 2005 to 67 percent of household income in 2040. This performance is far off-trajectory compared to Plan Bay Area 2040's stated goals.

All this said, Plan Bay Area 2040's performance along key measures remains significantly better than a potential future with "No Project"—that is, a future without Plan Bay Area 2040's recommended land use and transportation strategies. In particular, under a "No Project" alternative the Bay Area would see higher levels of per-capita CO₂ emissions, more loss of open space and agricultural lands, greater levels of displacement, more delay in the freight network, even higher housing and transportation costs, and

much higher levels of transportation operating and maintenance costs due to deteriorating transportation asset conditions.

It is important to emphasize once again that these targets were quite aggressive, and it is therefore not surprising that Plan Bay Area 2040 falls short on meeting some of the adopted performance targets. As seen in the preceding section, the Bay Area has significantly more regional resources and tools available to address its transportation needs compared to its housing needs.

To truly address affordability and equity challenges, an engaged public and government at all levels will need to act. In particular, the Bay Area will need more aggressive policies and significantly more funding to deal with the housing crisis, as described in the next section, "Action Plan."





An aerial view over Sonoma County.
Credit: Karl Nielsen

Action Plan

The Bay Area's housing and transportation crisis reflects the cumulative impacts of the region's robust job market and its acute failure to keep pace with housing need, especially near growing job centers. Plan Bay Area 2040 projects these problems will intensify if the region does not take significant corrective steps. As a path forward, MTC and ABAG developed an "Action Plan" to focus on performance targets where the plan is moving in the wrong direction, as well as emerging issues that require proactive regional policy solutions.

MTC and ABAG propose a multipronged strategy to address housing affordability, the region's widening income disparities and economic hardships faced by low- and middle-income workers, and finally the Bay Area's vulnerabilities to natural disasters such as earthquakes and floods. These three issue areas — Housing, Economic Development and Resilience — form the core of the Action Plan.



Transit-oriented development.
Credit: Martin Klimek

Similar to past regional achievements in the environment, transportation and economy, successfully addressing these needs during the implementation of Plan Bay Area 2040 will require a shared commitment among regional policymakers, local governments and civic organizations, as well as robust public engagement and participation. MTC and ABAG will provide semiannual reports on Action Plan progress and implementation to joint meetings of the MTC Planning Committee and ABAG Administrative Committee during the early part of the regional planning process for the next Plan Bay Area.

Housing Production, Preservation and Protection

As described earlier in “The Bay Area Today,” the region faces many housing challenges, from skyrocketing costs to overcrowded housing to long commutes. Regional agencies, however, currently lack the tools, resources or authority to

Action Plan Objectives

The recommendations in this Action Plan address multiple performance target areas.

- **HOUSING:** Lower the share of income spent on housing and transportation costs, lessen displacement risk, and increase the availability of housing affordable to low- and moderate-income households.
- **ECONOMIC DEVELOPMENT:** Improve transportation access to jobs, increase middle-wage job creation, and maintain the region’s infrastructure.
- **RESILIENCE:** Enhance climate protection and adaptation efforts, strengthen open space protections, create healthy and safe communities, and protect communities against natural hazards.

What Actions Have the Regional Agencies Already Implemented for Housing?

To date, regional agencies have largely focused housing actions on funding planning grants, conducting the Regional Housing Needs Allocation (RHNA), conditioning transportation funds on local planning and the production of housing, using existing fund sources for incentives and direct investments in affordable housing, providing best practices and technical assistance, advocating the state legislature for statewide legislative proposals to reduce barriers to housing production, and hosting forums to further information sharing and policy solutions.

More specifically, MTC and ABAG have:

- Produced Regional Housing Needs Allocations (RHNA) and monitored RHNA performance by income-level.
- Invested in the Transit Oriented Affordable Housing (TOAH) revolving loan fund.
- Conditioned approximately \$600 million in One Bay Area Grant (OBAG) funds on the adoption of an approved housing element and conditioned nearly \$20 billion in transit expansion priorities on minimum zoning via TOD policy.
- Awarded 51 PDA Planning grants to date, which have led to increased planning capacity for 70,000 housing units, 110,000 jobs and 26 million sq. ft. of commercial development. PDA Plans remove barriers to infill development by creating a predictable permitting process aligned with community objectives.
- Adopted a new OBAG framework in 2016 to increase incentives and direct investments for affordable housing.
- Convened regional committees for housing, including the Housing Forum, Housing Subcommittee of the Regional Planning Committee, and CASA — The Committee to House the Bay Area.
- Supported CEQA modernization and created an online guide to CEQA streamlining provisions.



Housing in Santa Clara County.

Credit: Karl Nielsen

directly address identified issues of production, affordability and displacement. In response, the Action Plan recommends pursuing more ambitious funding, legislative and policy solutions at the state, regional and local levels as well as strengthening and expanding existing regional housing initiatives. Regional agencies will partner with state and local government, business leaders, and nongovernmental organizations (NGOs) to identify and implement game-changing housing solutions that will facilitate improved housing performance by: producing more housing, particularly housing affordable to very low-, low- and moderate-income households; preserving existing housing that is affordable to very low-, low- and moderate-income households; and lessening displacement risks faced by existing residents. Many

of the solutions will require changes in state law and development of new funding formulas that do not currently exist.

Two new endeavors will improve the region's ability to address its chronic housing affordability challenges. The recent integration of MTC and ABAG staff will lead to more effective long-range planning and increase the region's housing policy capacities. The newly created CASA initiative is bringing together diverse interests to develop a bold new strategy for housing production and preservation. Together these efforts will expand data gathering and technical assistance and recommend a range of legislative, funding and policy measures to help provide for the region's housing needs at all income levels.

CASA—The Committee to House the Bay Area

MTC and ABAG are helping to coordinate CASA — The Committee to House the Bay Area. This initiative is bringing together a multi-sector set of partners to identify and agree upon significant regional solutions that address the region's chronic housing challenges and advance equity and economic health in the nine-county Bay Area. Through stakeholder engagement, research and interviews, CASA will develop a comprehensive regional approach to the housing crisis, focusing on increasing housing supply, improving housing affordability, and strengthening preservation and anti-displacement measures. Objectives include a suite of legislative, financial, policy and regulatory recommendations, with partners agreeing on a path forward and working together on implementation. A final report is scheduled for release by the end of 2018.

This Action Plan makes the following recommendations for Housing:

Housing Actions	Partners and Timeframe
<p>Advance regional “self-help” funding and financing solutions for housing: Develop a plan for generating regional revenues for the production and preservation of housing affordable to low- and moderate-income households (could include measures such as a parcel tax, commercial linkage fee or other dedicated funding). Evaluate the creation of innovative financing tools, such as a regional infill Infrastructure Bank, a land bank or a Regional Housing Trust Fund, to support new housing or infrastructure improvements.</p>	<p>MTC/ABAG, CASA, local jurisdictions Evaluate 1-2 YEARS Execute 2 - 4 YEARS</p>
<p>Advance state legislative and funding solutions: Support state legislative or funding opportunities that advance the objectives of this Action Plan, including securing a permanent source of affordable housing funding, increasing community stabilization and lessening displacement risk, reducing costs and barriers to housing development, incentivizing developers to create workforce and low-income housing, incentivizing the creation of accessory dwelling units, as well as other measures that will contribute to increased supply of both market-rate and affordable housing.</p>	<p>State legislature, MTC/ABAG, CASA, local jurisdictions 2 YEARS</p>
<p>Build on recent housing policy successes: Implement the housing and community stabilization initiatives adopted in the second cycle of the One Bay Area Grant (OBAG) program from 2017-18 to 2021-22, such as the Preservation Pilot (previously known as NOAH), 80k by 2020 initiative, Transit-Oriented Affordable Housing (TOAH) fund, and JumpStart program to encourage equitable and sustainable development. Evaluate the performance of these strategies and applicability of expanding these types of loan and direct investment programs for future funding programs.</p>	<p>MTC/ABAG, CMAs, CASA 2 - 4 YEARS</p>
<p>Evaluate expanded policies connecting transportation funding to housing production and performance: Analyze the feasibility of incentivizing housing production with pertinent existing and new transportation funding sources, with particular emphasis on housing affordable to very low-, low- and moderate-income households as well as anti-displacement and community stabilization. Develop a strategy for the use of public land proximate to major transit assets to facilitate the development of housing affordable to low- and moderate-income households through conditions and provisions on funding sources. Report to the Commission on all discretionary funding sources where such housing provisions and conditions may be added.</p>	<p>MTC/ABAG, CASA, the Partnership, regional leaders, local jurisdictions, transit operators Evaluate 1 YEAR Execute 2 - 4 YEARS</p>
<p>Provide technical assistance and best practices to local jurisdictions related to the transformation of “opportunity areas”: Assist local agencies as they envision upgrades to low-intensity office parks and retail centers to create mixed-use, mixed-income neighborhoods with significant housing.</p>	<p>MTC/ABAG, local jurisdictions, CASA Ongoing 1 - 4 YEARS</p>
<p>Strengthen technical assistance and policy leadership for housing and community stabilization: Expand and transform regional agency technical assistance for local jurisdictions that is tailored to both Bay Area-wide challenges and challenges unique to specific parts of the region, including best practices to support new housing (e.g., heights that support more units and allow projects to “pencil out” without compromising neighborhood character). Focus areas for technical assistance could include guidance on implementing state legislation for transit-oriented development and the production of housing affordable to low- and moderate-income households, guidance on housing preservation and locally appropriate community stabilization and anti-displacement policies, supporting healthy infill development, and coordination of neighboring jurisdictions along transit corridors and in subregions to identify shared solutions to housing challenges. Explore new and expanded community stabilization and anti-displacement policies to support low-income renters, including incentives for landlords to keep existing rents affordable.</p>	<p>MTC/ABAG, local jurisdictions, BAAQMD, CMAs, CASA Ongoing 1 - 4 YEARS</p>
<p>Close data gaps and improve information accessibility: Continue to collect, analyze and disseminate data about housing opportunity sites and vacant lands, zoning, development trends and policy implementation by local governments to inform local, regional, and state policy development and evaluation, including PDA performance. Create accessible database of major development and publicly owned sites. Create an online Policy Directory with examples of ordinances being implemented at the local level to address community stabilization. Continue to evolve RTP/SCS Project Performance methods to seek stronger alignment between prioritizing transportation projects and housing performance.</p>	<p>MTC/ABAG Ongoing 1 - 4 YEARS</p>

TABLE 5.1 Plan Bay Area 2040 “Action Plan” recommendations for housing.

Source: Metropolitan Transportation Commission, Association of Bay Area Governments, 2017

Economic Development

Creating a more affordable region also requires a Bay Area economy with greater economic opportunity and mobility for all the region's residents and jurisdictions. The coming years could bring many threats to low- and middle-wage jobs through technological advancement or continued economic globalization. The Action Plan therefore recommends expanding regional economic development capacity while also focusing on increasing pathways to middle-wage jobs, preserving infrastructure and increasing affordable transportation access to job centers.

Regional agencies — in partnership with business, workforce agencies and local jurisdictions — are working to establish a regional Economic Development District and accompanying Economic Development Strategy. This work will advance regional solutions related to business expansion and retention, workforce training, housing and workspace, and infrastructure improvements. This work will also enable the region to compete for public and private funding that can help leverage local assets in places poised for growth, particularly in communities of concern and other economically distressed areas.

Long-term economic growth also requires infrastructure investment. While the region has made substantial transportation investments, it still has unmet capital maintenance needs exceeding \$30 billion and some of the worst transit crowding and traffic congestion in the nation. Relieving transit crowding and increasing transit access will require broad regional coordination and planning. The region should also continue advocating for increases in funding for critical expansion projects, as well as for the maintenance of existing infrastructure.



Construction in San Francisco.
Credit: Karl Nielsen

This Action Plan makes the following recommendations for Economic Development:

Economic Development Actions	Partners and Timeframe
<p>Coordinate regional economic solutions for growing and retaining businesses, particularly for middle-wage sectors: Identify areas of economic development that could benefit from a regional approach including connecting businesses with growth opportunities within the Bay Area; prioritizing transportation investments that directly grow local businesses; identifying solutions for workforce housing needs; and creating a forum for discussing skill gaps between existing community college programs and the needs of trade sectors.</p>	<p>MTC/ABAG, local jurisdictions, economic organizations, megaregional partners</p> <p>1-2 YEARS</p> 
<p>Access infrastructure and workforce training funding for economic development: Establishing an Economic Development District will enable the region to compete for federal economic and workforce development funding from the United States Economic Development Administration (EDA). Potential funding uses could include, for example, incentivizing job growth in jobs-poor cities and assistance with downtown revitalization. Additional relevant grant opportunities include: seed funding for commercializing clean-energy technology and public works funding to upgrade roadway, sewer and water infrastructure. This funding could be used to support a clean-energy technology sector that would support dual objectives of reducing emissions from transportation and other sources as well as up-skilling the Bay Area manufacturing labor force.</p>	<p>MTC/ABAG, industry partners, economic organizations, EDA, megaregional partners</p> <p>1 - 4 YEARS</p> 
<p>Strengthen middle-wage job career paths: Facilitate entry to middle-wage jobs in industries such as transit, clean/green energy and technologies, natural and resilient infrastructure, construction, and goods movement through enhanced coordination and training. Implement the recommendations of the Megaregional Goods Movement Cluster Study, which will focus on emerging industries and middle-wage jobs.</p>	<p>MTC/ABAG, industry partners, megaregional partners</p> <p>1 - 4 YEARS</p> 
<p>Increase transportation access to growing and potential job centers: Broaden core capacity transit study partnership to cover a larger geography to plan for major transportation capital investments; move forward on planning efforts for a second Transbay Tube and on construction efforts for the California High Speed Rail system; continue to evaluate a means-based fare or other methods for reducing or eliminating transportation costs for lower-wage workers and students; evaluate expanded support for local transit systems that address first-mile, last-mile problems; and evaluate transportation improvements that could facilitate downtown revitalization in areas needing economic development.</p>	<p>MTC/ABAG, transit agencies, the Partnership, megaregional partners, local jurisdictions, transit operators</p> <p>2 - 4 YEARS</p> 
<p>Support regional growth by balancing housing, transit-oriented jobs, and industrial uses: Establish criteria for Priority Production Areas to encourage local jurisdictions to plan for space needed for manufacturing, distribution and repair and assess areas that could be converted to housing or mixed use development; evaluate potential incentives that could be used to support companies that locate offices in transit-rich as opposed to auto-centric areas; and evaluate the use of last-mile transportation solutions to connect communities with warehouses and industrial jobs that cannot be located in downtowns due to land requirements.</p>	<p>MTC/ABAG, local jurisdictions</p> <p>2 - 4 YEARS</p> 
<p>Close data gaps and improve information accessibility: Continue to collect, analyze and disseminate data about housing opportunity sites and vacant lands, zoning, development trends and policy implementation by local governments to inform local, regional, and state policy development and evaluation, including PDA performance. Create accessible database of major development and publicly owned sites. Create an online Policy Directory with examples of ordinances being implemented at the local level to address community stabilization. Continue to evolve RTP/SCS Project Performance methods to seek stronger alignment between prioritizing transportation projects and housing performance.</p>	<p>MTC/ABAG Ongoing</p> <p>1 - 4 YEARS</p> 

TABLE 5.2 Plan Bay Area 2040 “Action Plan” recommendations for economic development.

Source: Metropolitan Transportation Commission, Association of Bay Area Governments, 2017

Resilience

In response to emerging and increasingly pressing threats to the Bay Area's communities, ecosystem and economy, the Action Plan recommends continuing and expanding existing resilience efforts and developing creative funding solutions to implementing resilience projects. Resilience efforts help the region protect assets and people from natural disasters like earthquakes, floods, landslides and fires as well as prepare for climate change hazards like sea level rise, extreme storms and droughts. Resilience underpins the achievement of many other goals in the plan, such as housing, infrastructure and economic development, that may be significantly compromised by the impacts of disasters or climate change.

Regional agencies have initiated several programs advancing resilience against sea level rise, flooding and extreme events including earthquakes. In 2010, the San Francisco Bay Conservation and Development

Commission (BCDC) kicked off the Adapting to Rising Tides program, which evaluated vulnerability and risk along the shoreline of several communities and continues to be a platform for sharing best practices. More recently, the Bay Area Regional Collaborative (BARC), along with BCDC, have been awarded planning and design grants for assessing transportation vulnerability and developing design solutions for climate-related challenges.

Regional agencies have also collaborated with the Environmental Protection Agency, the Federal Emergency Management Agency and the California Earthquake Authority on recommendations for resilient housing, both for earthquakes and flooding. This collaboration established the Resilient Housing Policy Initiative that helps jurisdictions access analysis and policy tools for the seismic retrofit of existing housing. The Bay Area should expand these efforts through outreach and technical assistance, as well as develop financial solutions to resilient

Recent Funding Successes for Resilience

Two recent grant awards will significantly advance the regional dialogue on climate vulnerability and develop workable solutions:

- Caltrans and the Bay Area Toll Authority allocated \$1.2 million to continue to conduct a regional vulnerability assessment for transportation infrastructure, Priority Development Areas (PDA), Priority Conservation Areas (PCA), and disadvantaged and vulnerable communities. In addition to a regional vulnerability assessment, the project goals include developing a regional framework for identifying solutions and strategies to address vulnerability on an ongoing basis.**
- The Rockefeller Foundation awarded a \$4.6 million grant to create the Bay Area: Resilient by Design Challenge. Bay Area leaders will work with international design teams to develop innovative and implementable design solutions for climate-related challenges in 10 sites across the Bay Area region. This project will last through 2018.**

housing and green infrastructure, especially for communities with high social vulnerability and exposure to natural hazards.

Many stakeholders and subject matter experts such as NGOs, universities, local jurisdictions, special districts and asset owners like utilities, parks districts, airports and private property owners are critical to the success of the Resilience Action Plan.

This Action Plan makes the following recommendations for Resilience:

Resilience Actions	Partners and Timeframe
<p>Develop a regional governance strategy for climate adaptation projects: Develop an institutional strategy for managing, coordinating, and implementing regional and local projects related to climate change adaptation.</p>	<p>BARC, MTC/ABAG, BCDC, Caltrans, local jurisdictions 2 - 4 YEARS</p>
<p>Provide stronger policy leadership on resilient housing and infrastructure: Expand guidance on resilient housing policies for earthquake, flooding and fire, working in coordination with state and federal agencies and focusing on communities with high social vulnerability and exposure to natural hazards. Strengthen infrastructure lifelines to ensure that utilities can provide services under a variety of conditions and future scenarios.</p>	<p>MTC/ABAG, local jurisdictions 1 - 4 YEARS</p>
<p>Create new funding sources for adaptation and resilience: Pursue new funding opportunities, including innovative financing, for resilience planning and implementation, including retrofits of buildings, retrofits of existing infrastructure, and infrastructure solutions to protect against flooding, earthquakes and exposure to environmental health risks.</p>	<p>MTC/ABAG, BARC, BCDC 1 - 4 YEARS</p>
<p>Establish and provide a resilience technical services team: Broadly share data, best practices and grant opportunities for climate adaptation and natural hazard mitigation. Continue to assess built environment and social vulnerabilities and identify workable solutions through public and private avenues. Investigate how to incorporate resilience into Priority Development Area (PDA) planning and Complete Streets requirements.</p>	<p>MTC/ABAG, BARC, BCDC 1-2 YEARS</p>
<p>Expand the region's network of natural infrastructure: Coordinate regional programs to preserve and expand natural features that reduce flood risk, strengthen biodiversity, enhance air quality, improve access to urban and rural public space, mitigate urban heat island effects, and enhance health. Leverage existing initiatives – including Priority Conservation Areas (PCAs), the Resilient by Design Challenge, the Bay Trail and other regional trails, San Francisco Estuary Partnership, and Bay Restoration Authority – and partner with special districts and cities.</p>	<p>MTC/ABAG*, BCDC, Coastal Conservancy, jurisdictions, utilities 1 - 4 YEARS</p> <p>* includes Bay Trail and San Francisco Estuary Partnership</p>
<p>Establish the Regional Advance Mitigation Program (RAMP): Advance mitigation for infrastructure projects to strengthen regional biological conservation priorities. Work to secure off-site compensatory mitigation lands for multiple infrastructure projects in-advance of environmental reviews to improve both project delivery and conservation outcomes.</p>	<p>MTC/ABAG, Caltrans, RAMP coalition** 1 - 4 YEARS</p> <p>** includes Coastal Conservancy</p>

TABLE 5.3 Plan Bay Area 2040 “Action Plan” recommendations for resilience.

Source: Metropolitan Transportation Commission, Association of Bay Area Governments, Bay Area Regional Collaborative, 2017.

Ferry service in Marin County provides passengers with stunning views of the bay.
Credit: Karl Nielsen







An aerial view over Alameda County.
Credit: Karl Nielsen

Supplemental Reports

The Plan Bay Area 2040 supplemental reports (2040.planbayarea.org/reports) provide more detail on specific subject areas covered in the plan, including equity and the environment, performance and public participation, land use, and transportation. Brief summaries of each report are provided below.



Equity & Environment

Final Environmental Impact Report

The Final Environmental Impact Report (EIR) for Plan Bay Area 2040 includes the Draft EIR, a copy of each comment on the Draft EIR received by MTC and ABAG during the public comment period, responses to comments on environmental issues raised in those comments, and corrections and clarifications to the Draft EIR.

Final Environmental Impact Report - Appendices

This report provides appendices to the Final EIR, including (A) Mitigation Monitoring and Reporting Program, (B) Revised Summary of Impacts and Mitigation Measures Table and (C) EIR Comment Letters and Attachments.

Draft Environmental Impact Report

The Draft EIR for Plan Bay Area 2040 discloses potential environmental impacts of the plan's projected growth and impacts associated with implementing the plan's projected land use and assumed transportation projects. Where a significant or potentially significant impact may occur, mitigation measures are provided along with the responsible party and timing for implementation.

Draft Environmental Impact Report - Appendices

This report provides numerous technical appendices to the Draft EIR.

Final Equity Analysis Report

The equity analysis for Plan Bay Area 2040 demonstrates MTC's compliance as a metropolitan planning organization (MPO) with federal requirements related to Title VI and environmental justice in the Regional Transportation Plan (RTP) development process. It also helps policymakers, local jurisdictions and the public understand the equity-related implications of implementing the plan on the region's disadvantaged communities.

Final Transportation-Air Quality Conformity Analysis

The purpose of the air quality conformity analysis report is to verify that Plan Bay Area 2040 and the Amended 2017 Transportation Improvement Plan conform with the latest U.S. Environmental Protection Agency transportation conformity regulations and the Bay Area Conformity State Implementation Plan.



Performance & Public Participation

Final Glossary

The glossary provides a list of key terms used in Plan Bay Area 2040 along with accompanying definitions.

Final Native American Tribal Outreach Report

State and federal regulations require MTC to conduct government-to-government consultation with tribal governments of federally-recognized Native American tribes regarding MTC's planning and programming activities, as well as to analyze and avoid or mitigate impacts to Native American cultural resources under the California Environmental Quality Act (CEQA). This report documents MTC's outreach to the region's Native American tribes during the preparation of Plan Bay Area 2040.

Final Performance Assessment Report

This report details regional performance targets developed by MTC and ABAG to evaluate planning scenarios, individual transportation projects and compliance with state law as part of the performance-based planning process for Plan Bay Area 2040. Building on the framework established as part of the original Plan Bay Area, Plan Bay Area 2040 featured an expanded emphasis on equity and sustainability.

Final Public Engagement Program Report

A comprehensive program of public involvement activities is a key part of MTC and ABAG's long-range planning process for Plan Bay Area 2040. This report details outreach with local government officials, a federal Public Participation Plan that describes the public's involvement in the plan's development, and engagement activities including workshops and public hearings on the plan in each of the region's nine counties.



Land Use

Final Land Use Modeling Report

This report presents a technical overview of the land use model utilized in Plan Bay Area 2040 and EIR, including a brief overview of the technical methods used in the analysis, a description of the key assumptions made in the modeling process and a presentation of relevant results for each EIR alternative. The report contains an appendix with household and employment forecasts by jurisdiction and county.

Final Regional Forecast of Jobs, Population and Housing

The regional forecast describes changes in employment, population, households and income distribution over three decades for the region and provides a set of common regional assumptions of how the region might grow. The regional forecast also serves as the control total for the scenario analysis in which the estimated increment of growth is econometrically distributed to jurisdictions and smaller geographic areas within the region according to a set of policy assumptions.

Final Scenario Planning Report

Staff developed and evaluated four alternative land use and transportation scenarios illustrating the effects that different housing, land use and transportation strategies would have on adopted Plan Bay Area 2040 goals and performance targets. This report describes the scenario planning approach, the scenario development and refinement process, the scenarios considered, and provides a comparison of land use and transportation strategies across these scenarios.

Final Statutorily-Required Plan Maps

This report provides a compendium of all maps required by state statute not included in the primary plan document.



Transportation

Final Financial Assumptions Report

This report details the federal, state, regional and local funding sources to implement Plan Bay Area 2040 and the respective funding programs of Plan Bay Area 2040's revenue projections.

Final Freight Emissions Reduction Action Plan

This report documents and evaluates strategies to reduce emissions from goods movement throughout the region. It was developed to meet regional goals and objectives but also to be consistent with and supportive of major policy initiatives at the state level, such as the California Sustainable Freight Action Plan.

Final Investment Strategy Report

The transportation investment strategy is the set of projects and programs — and associated funding — that supports Plan Bay Area 2040's projected land use pattern and helps the region achieve its performance targets. This report describes the methodology for creating the investment strategy, provides more detail on the broad investment categories described in the Plan document and describes funding programs for implementing major transit priorities.

Final Project List

The Project List includes the projects and programs included in Plan Bay Area 2040, individually listed and mapped.

Final Local Streets and Roads, Bridges and State Highway Needs Assessment

This report details the estimated funding needed to operate and maintain the existing local street and road (LSR) system, including bridges on the locally-owned system, the cost of needed capital maintenance of the seven state-owned toll bridges (does not include the Golden Gate Bridge) and the cost of capital maintenance of the state highway system within the nine-county Bay Area over the plan's time horizon.

Final Regional Transportation Plan Checklist

This checklist from the California Department of Transportation verifies that Plan Bay Area 2040 has addressed all relevant federal and state requirements for a long-range Regional Transportation Plan and Sustainable Communities Strategy.

Final Transit Operating and Capital Needs and Revenue Assessment

This report details the estimated funding needed to operate and maintain existing transit services over the 24-year plan period. The estimate of needs includes the cost to maintain transit assets in a state of good repair — meaning assets are replaced at the end of their useful lives — and the cost to maintain transit capital assets at their condition levels as well as maintain existing service levels for public transit.

Final Travel Modeling Report

The travel model report presents selected technical results from the analysis of alternatives performed in support of Plan Bay Area 2040, describing the reaction of travelers to transportation projects and policies and quantifying the impact of cumulative individual decisions on the Bay Area's transportation networks and environment. A brief overview of the technical methods used in the analysis, as well as a brief description of the key assumptions made for each alternative, precede the presentation of results.

Metropolitan Transportation Commission and Association of Bay Area Governments

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