



Plan BayArea **2040**

DRAFT PLAN
March 2017



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For a list of terms used in Plan Bay Area 2040 along with accompanying definitions,
please see the [Glossary](http://2040.planbayarea.org/reports) [<http://2040.planbayarea.org/reports>].

Plan BayArea 2040

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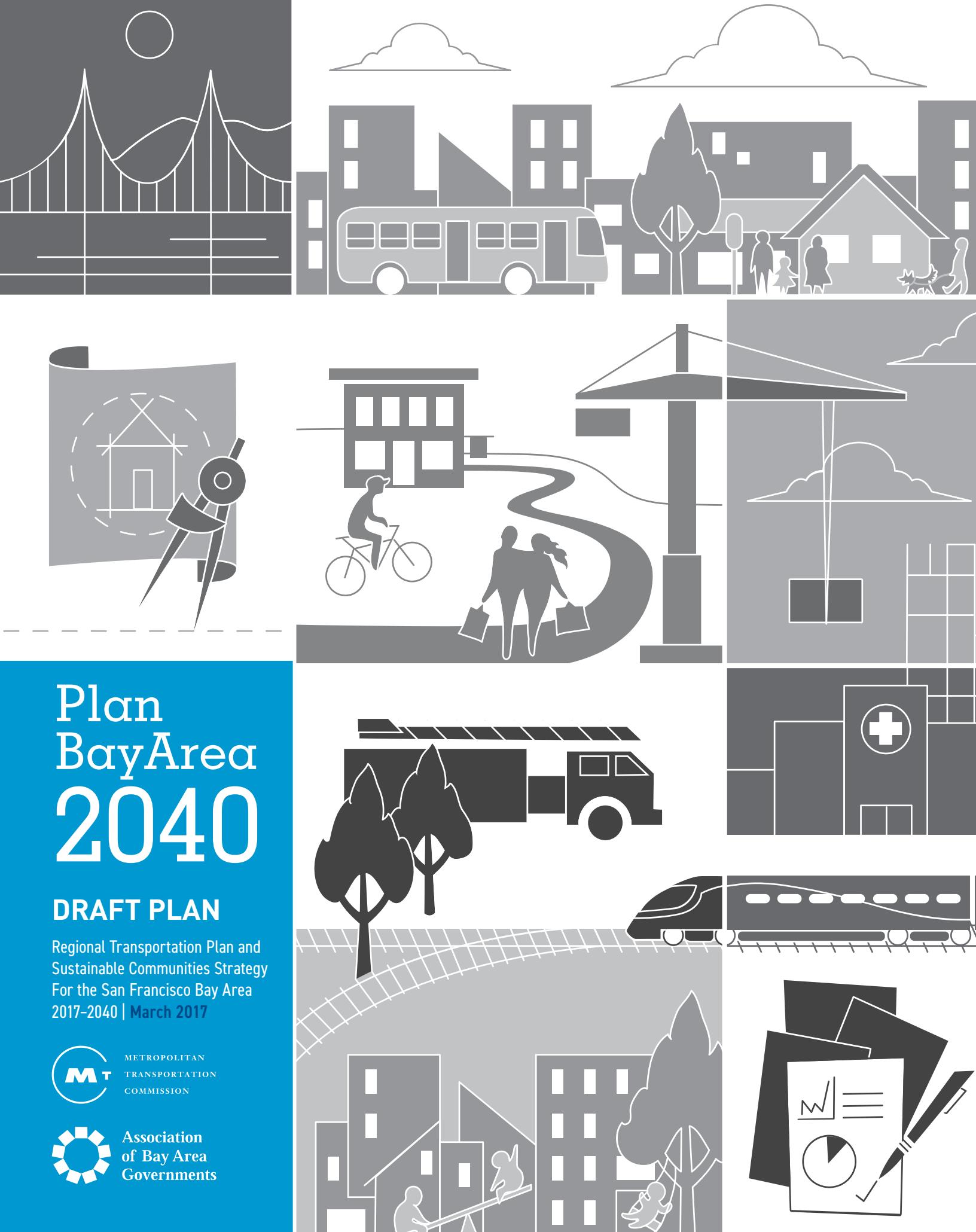
Regional Transportation Plan and
Sustainable Communities Strategy
For the San Francisco Bay Area
2017-2040 | March 2017



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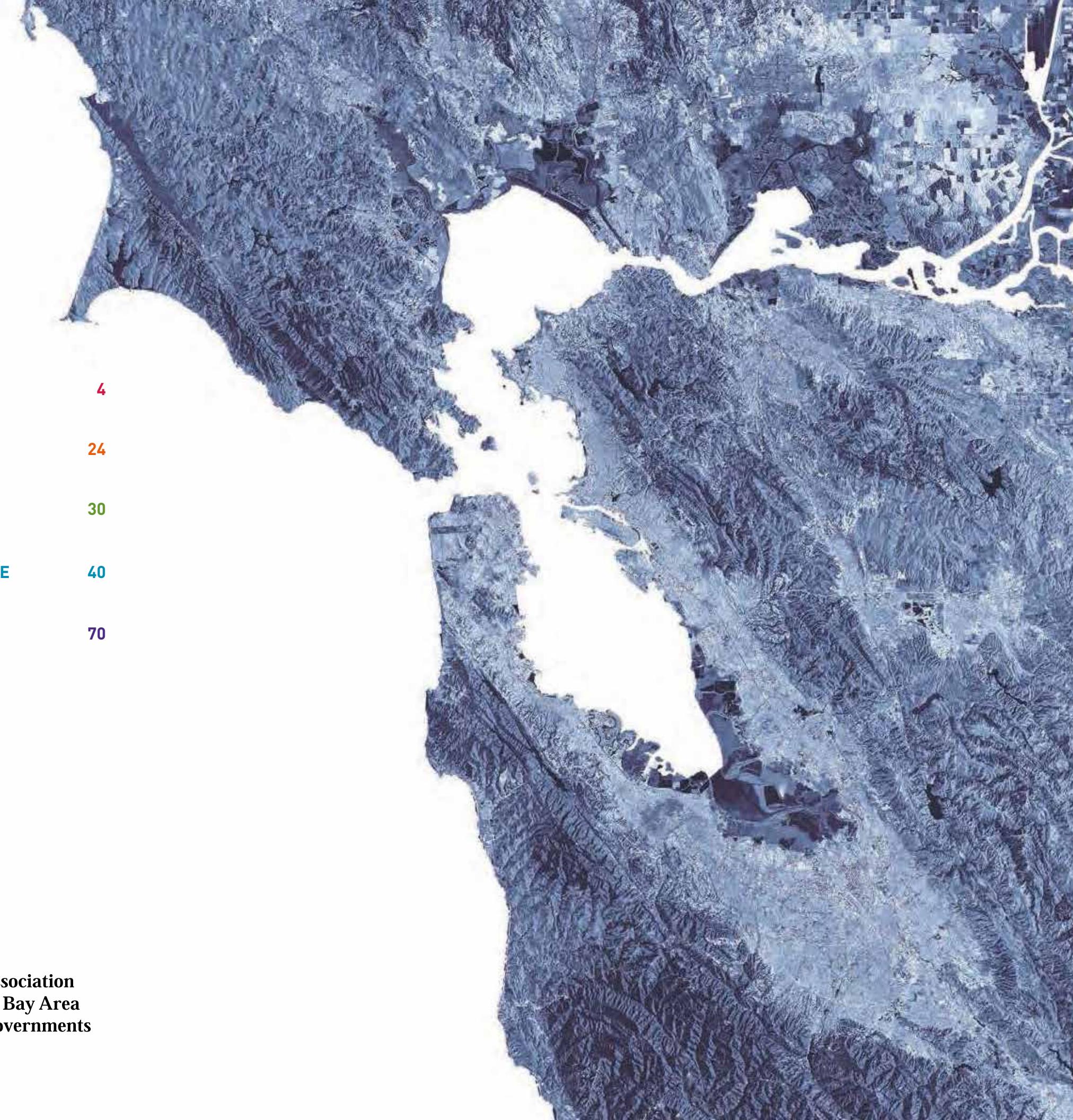
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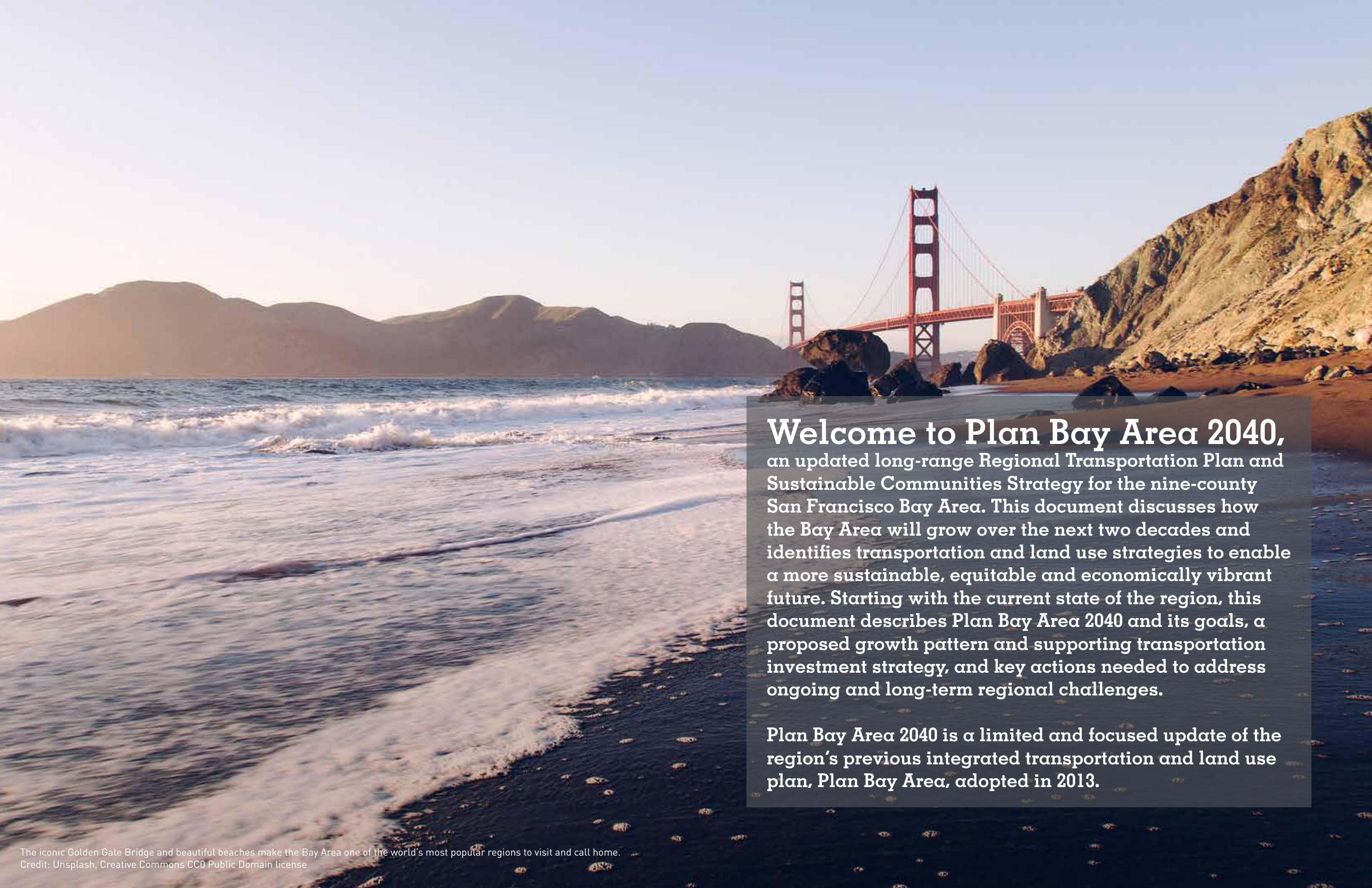


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Welcome to Plan Bay Area 2040, an updated long-range Regional Transportation Plan and Sustainable Communities Strategy for the nine-county San Francisco Bay Area. This document discusses how the Bay Area will grow over the next two decades and identifies 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.



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 7.6 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 technology boom rivaling the “dot-com” era of the late 1990s.

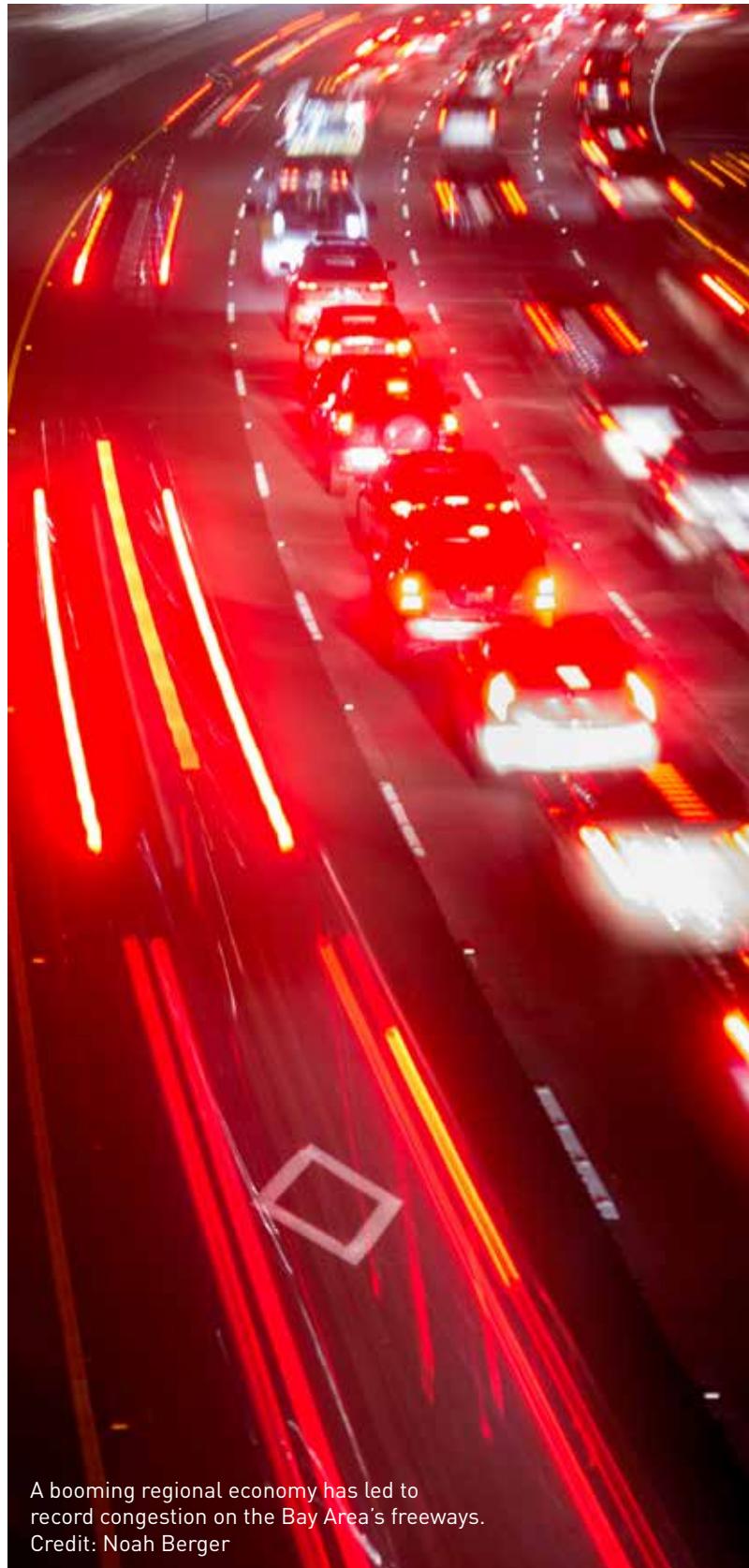


Biking and walking are popular methods of transportation for the residents of San Francisco.
Credit: Noah Berger

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.

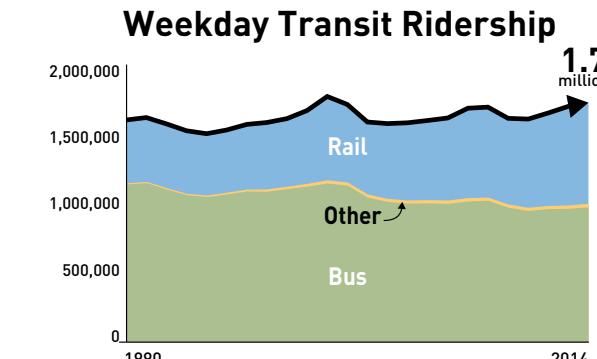
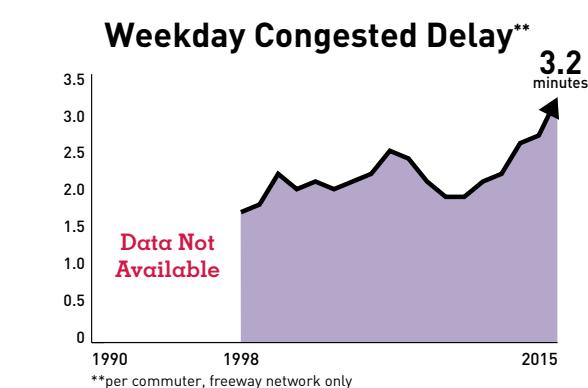
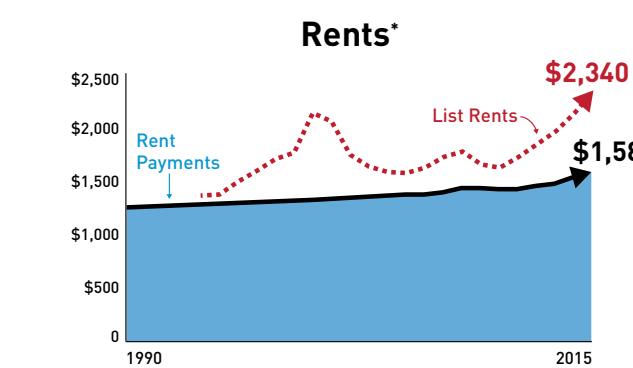
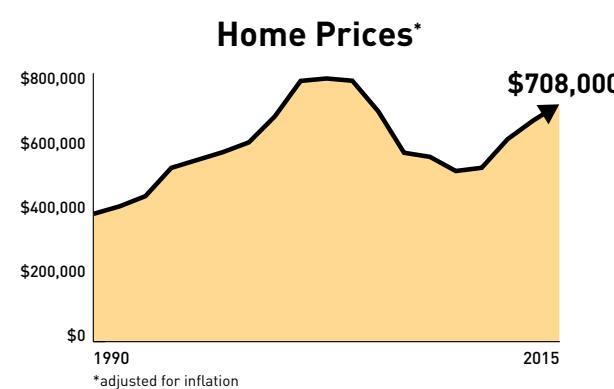
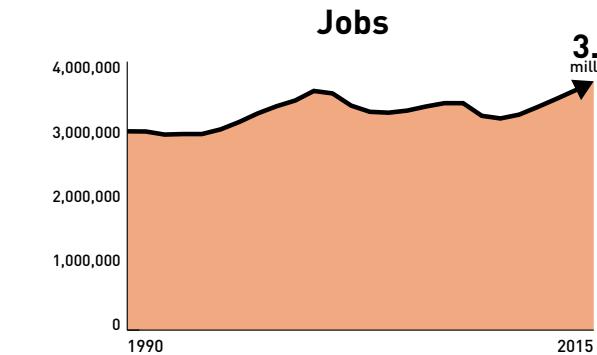
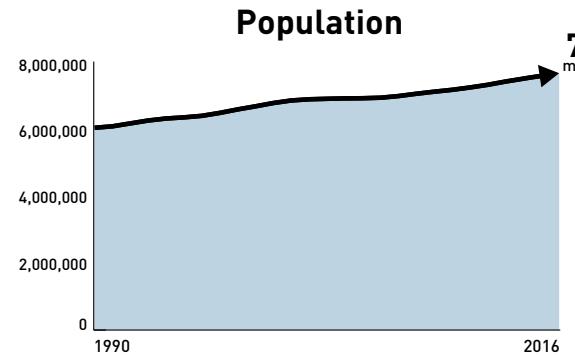
Today a very successful economy has contributed to housing, transportation and environmental challenges that pose a risk to the region's dynamism and diversity. Plan Bay Area 2040 addresses these challenges with a focus on urgent regional needs.

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, 1990–2016; California Employment Development Department, 1990–2015; Zillow, 1997–2015; U.S. Census Bureau/American Community Survey, 1990–2015; realAnswers, 1994–2015; Metropolitan Transportation Commission, 1998–2015; Federal Transit Administration, 1991–2014



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, the foundation of the crisis is simple: there simply isn't 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. At the same time, the state and federal government have pulled back 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

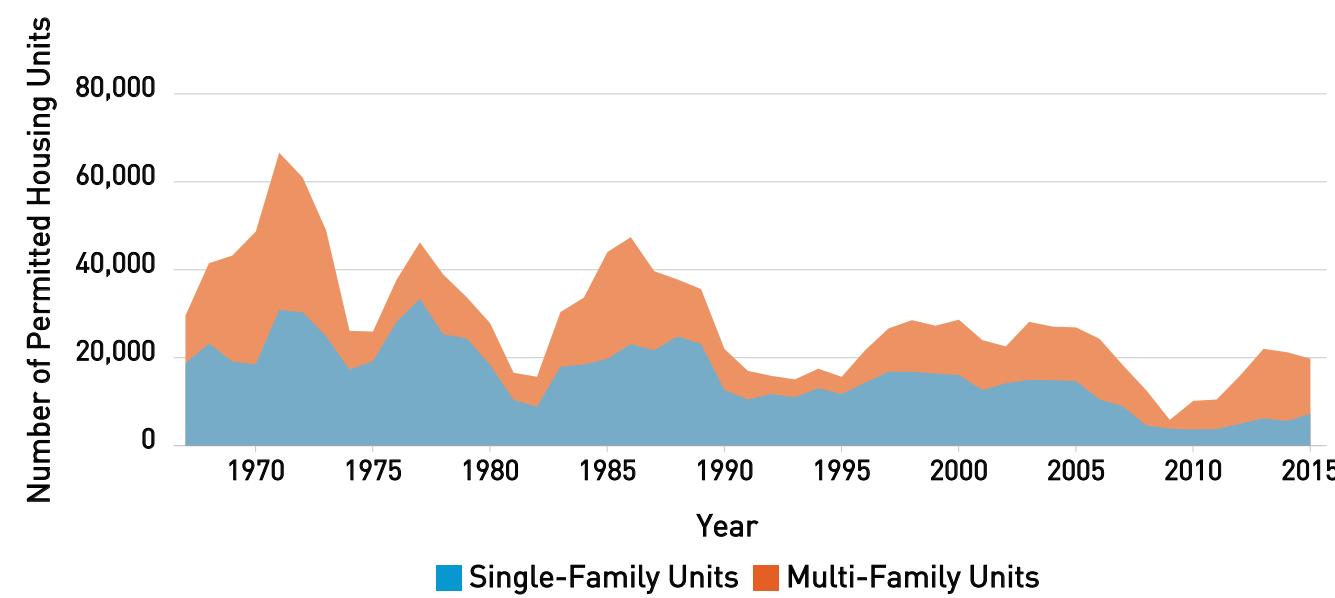


FIGURE 1.2 The historical trend for annual permitted housing units in the Bay Area.

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

construction, 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. Housing permitting 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 growth in housing supply. Overall, the Bay Area 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 ever-more acute housing crunch.

The housing crisis has also been exacerbated by a widening income gap between high- and low-income households. 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 limited 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 lower-and middle-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 contributors — things that local, regional, and state government 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 to 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%

* Shown in inflation-adjusted 2015 dollars

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 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 that lack 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 also 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 decades-long 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 nearly doubled in real dollars since the 1970s. While median wages are near 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

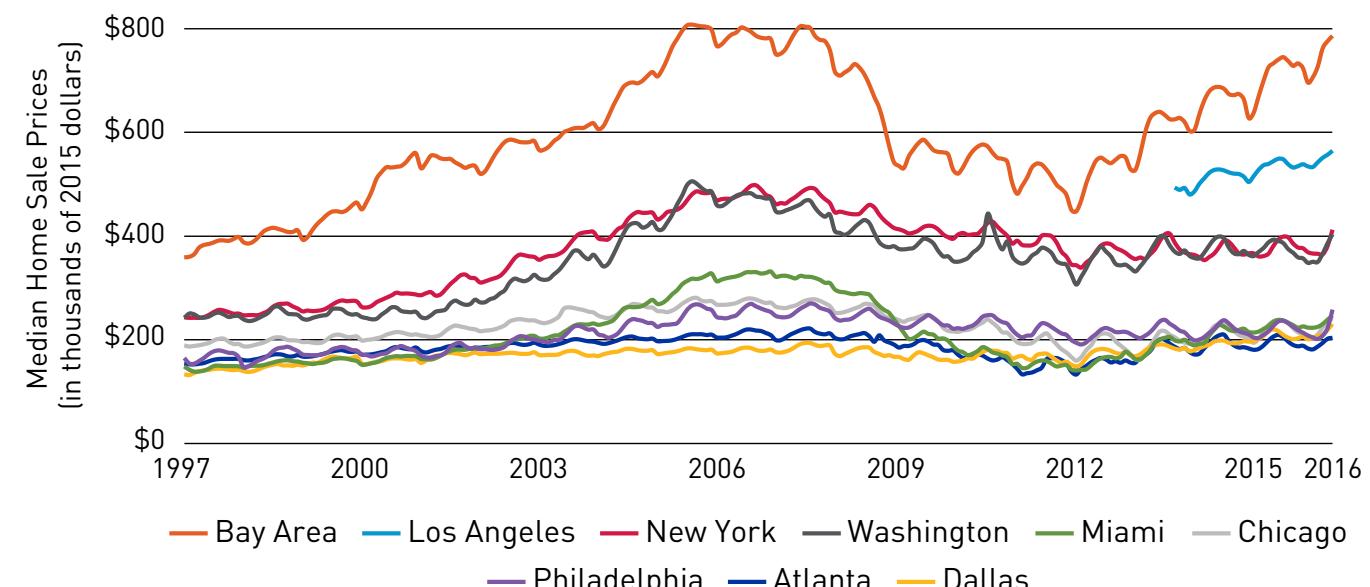


FIGURE 1.3 Median home sale prices by metro area from 1997 to 2016.

Over the last 20 years the Bay Area has seen one of the “spiciest” 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

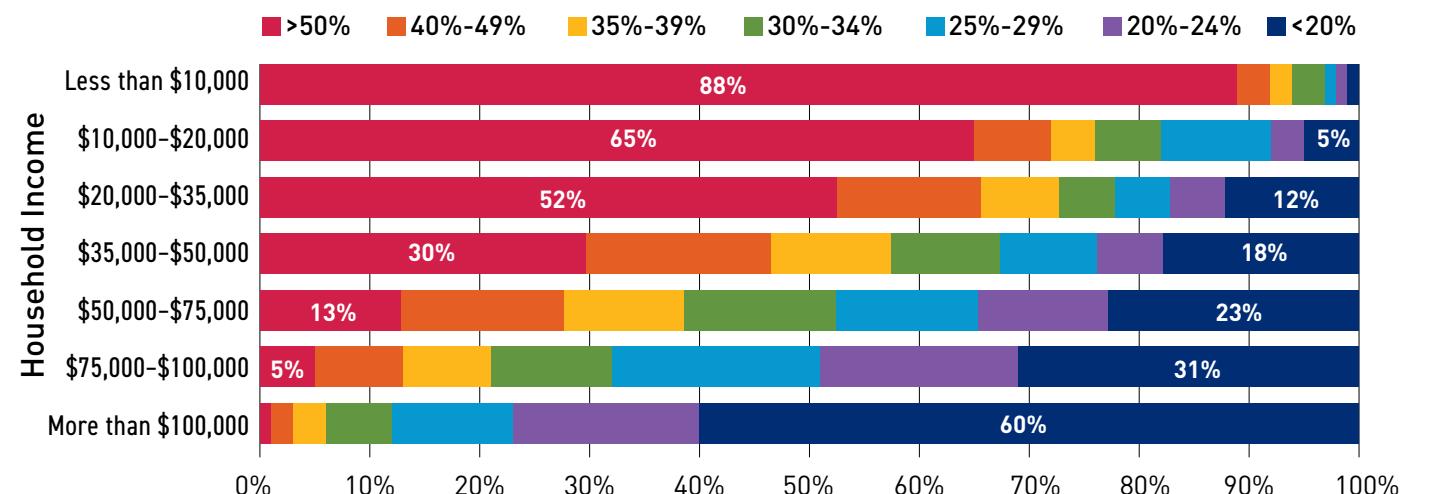


FIGURE 1.4 Share of income spent on housing by Bay Area households in 2015, segmented by income level.

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 at a higher risk for displacement during periods of growth and expansion. Currently there are over a half million 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. Currently, low- and moderate-income renters face displacement risk in the majority of Bay Area cities, and more than half of low-income households live

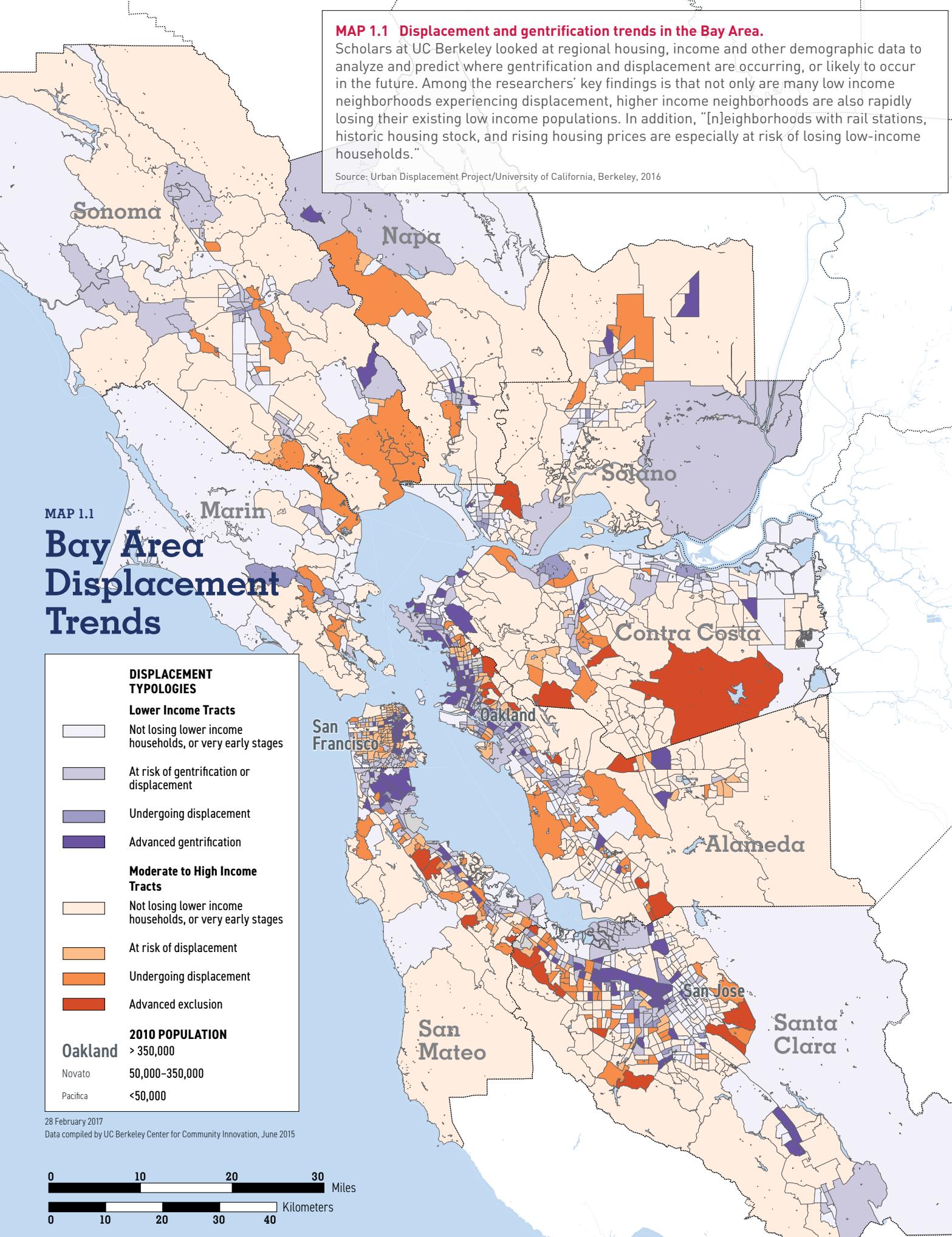
in neighborhoods at risk of or already experiencing displacement and gentrification pressures, according to researchers at the Center for Community Innovation at UC Berkeley. As shown in Map 1.1, displacement is no longer just a San Francisco problem, but a region-wide challenge.

Given insufficient support for affordable housing, many individuals who perform important but lower-paying jobs face either substandard or overcrowded 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 low- and moderate-income households to outlying jurisdictions farther away from jobs, transit and amenities, even as low and middle wage job growth has been concentrated in San Francisco, the West Bay and South Bay. This further contributes to more development pressures on open space and agricultural land, more pollution from passenger vehicles, adverse health impacts, higher transportation costs and greater levels of highway and transit congestion.

MAP 1.1 Displacement and gentrification trends in the Bay Area.
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, higher 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



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 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 lower 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- and middle-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 Attribution 2.0 Generic license

Transportation

The impacts of the booming economy and wider housing crisis, and resulting disconnect between where people live and where people 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 (SF Muni).

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 US-101 in San Francisco and 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.
- SF 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.



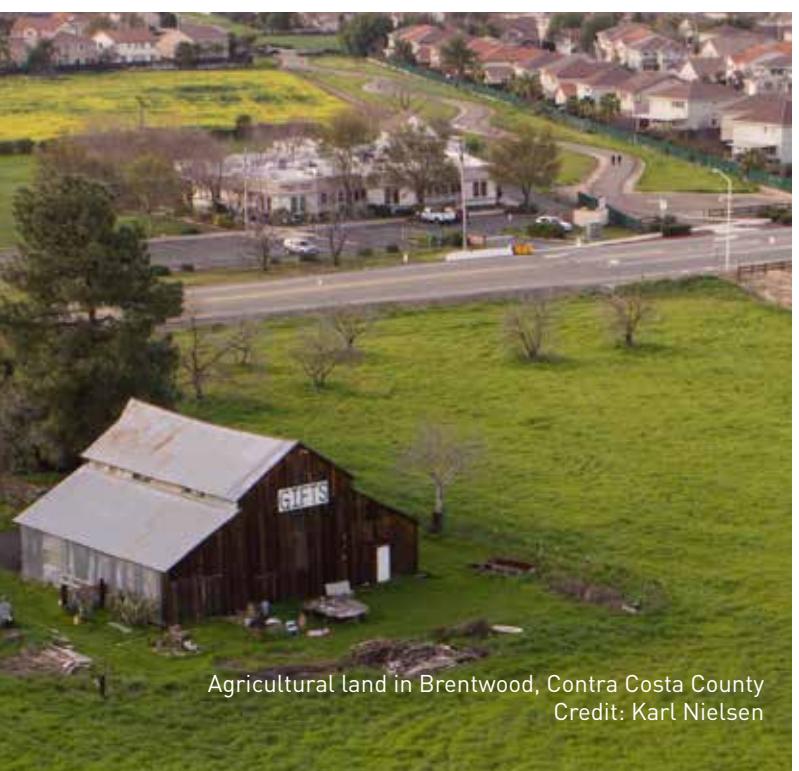
Peak direction, rush-hour trains on BART regularly exceed 100 percent capacity.
Credit: MTC Archives

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 regional economy, and the maxed-out transportation network 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 led to increased income inequality over the last 30 years compared to the period from 1940 to 1980, when the ability to move from low-productive to high-productive regions led to income convergence and decreased inequality.



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 the environment, transportation or economy, the Bay Area has a history of coming together to address shared challenges.

Environmental Achievements

Local and regional action 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 greenfield development also emerged during the latter half of the 20th century to protect farm lands and open space. Local governments adopted urban growth boundaries and helped lead a "focused growth"



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 smart local policies.

"Self-Help" in Transportation

Faced with declining support from the federal and state government, 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.

(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 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

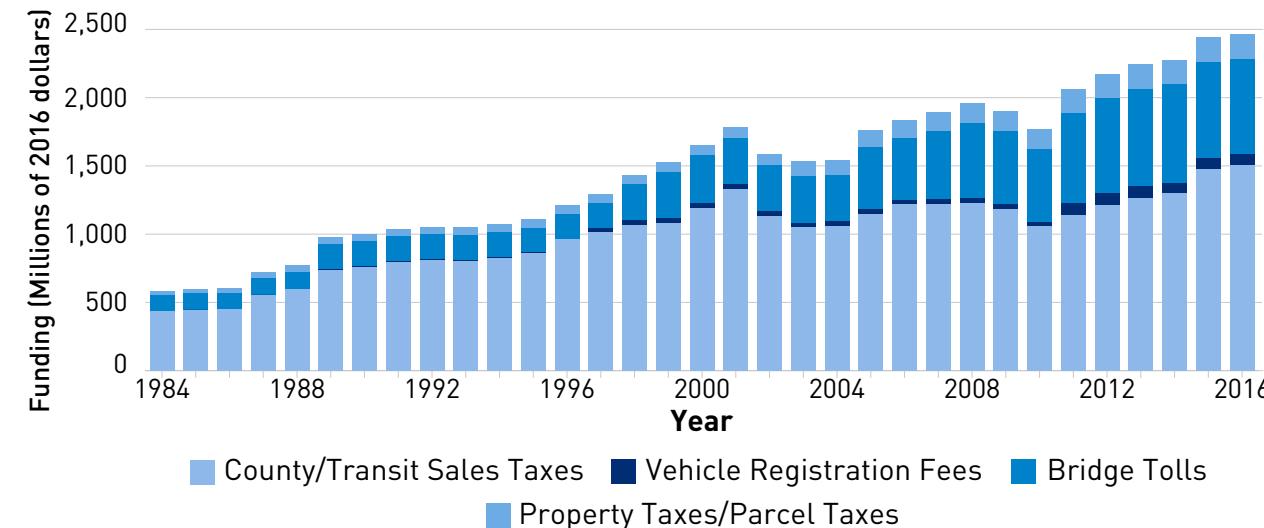


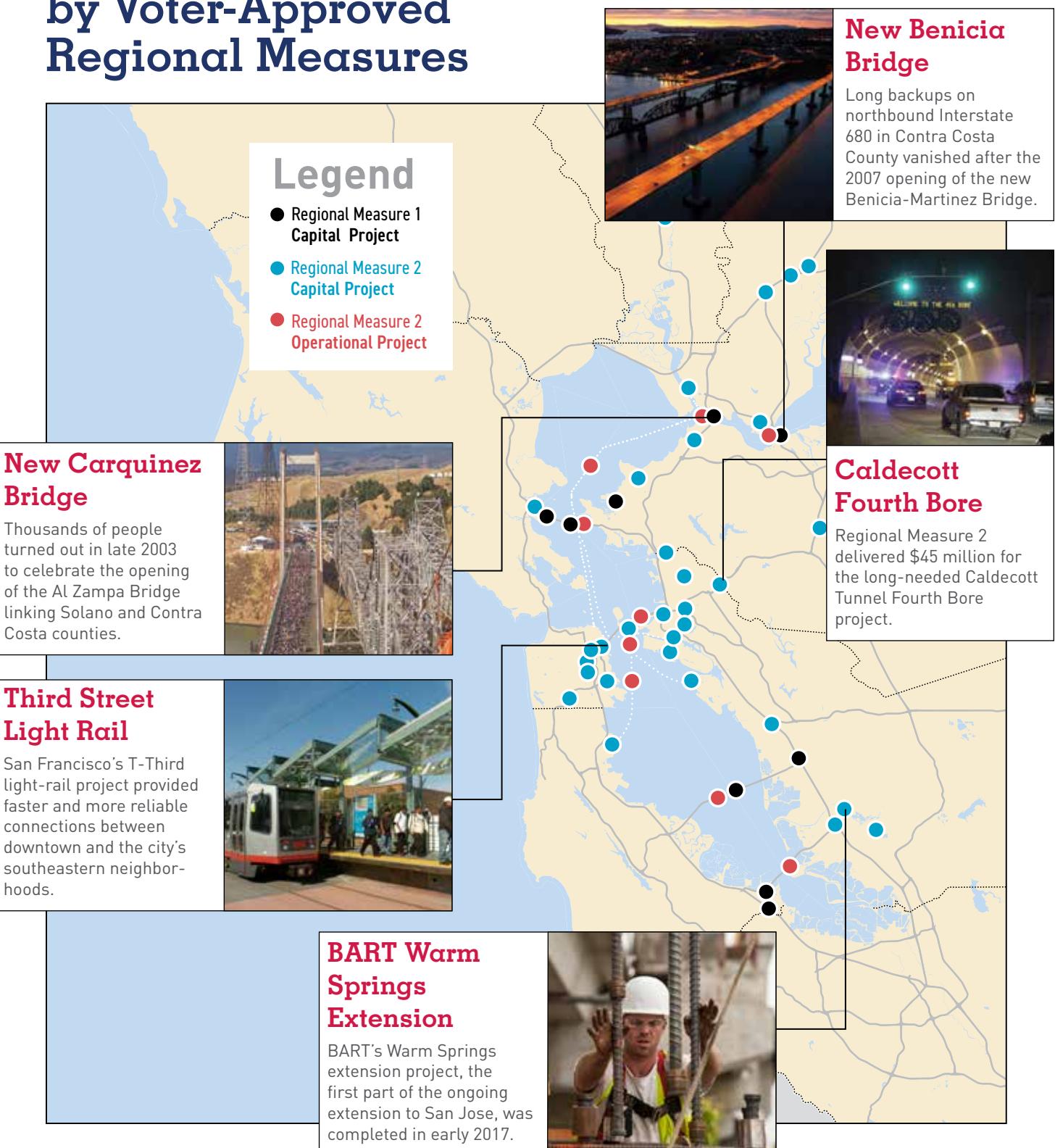
FIGURE 1.5 "Self-Help" funding for transportation in the Bay Area.

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



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.

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 — come together to work 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 region'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 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.



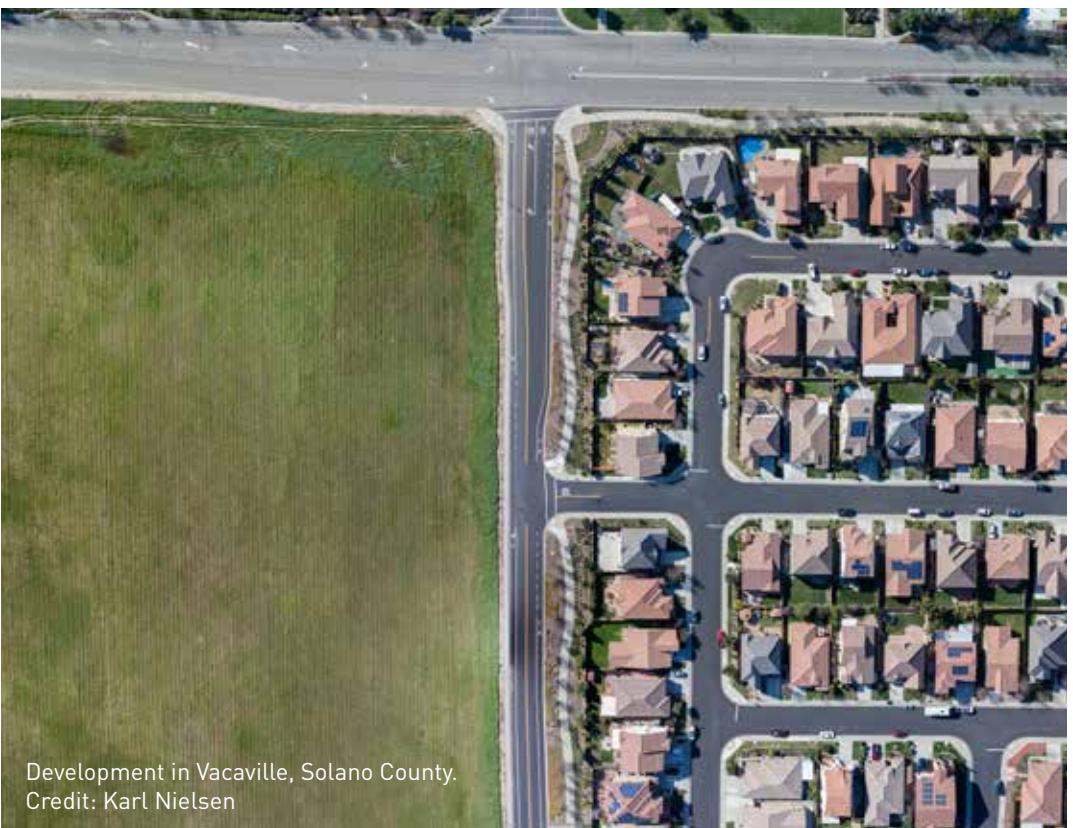
The region's future depends on sustainable solutions to the housing crisis.
Credit: monkeybusinessimages



Napa County
Credit: Karl Nielsen

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).



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 are currently in the process of merging 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 identify what it would take to accommodate expected growth.

Engaging the Public

Developing a multi-billion dollar plan for the region is no simple task. It is a multi-year 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 will look like decades from now. Highlights from Plan Bay Area 2040's public participation process through 2016 included nearly 120 public meetings plus 18 open houses (two in each of the nine Bay Area counties); partnerships with five community organizations working in low-income communities and communities of color; a robust online presence; numerous meetings with local elected officials, planning directors, and transportation

officials; a summit with Native American tribal leaders; a housing forum; and a telephone poll of some 2,040 Bay Area residents.

Additional public engagement opportunities beginning in spring 2017 will inform adoption of Plan Bay Area 2040 in July 2017.



For more information on Plan Bay Area 2040's outreach and engagement process, please see the [Public Outreach and Public Participation Report](#) and the [Native American Tribal Consultation 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.

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
		6	Increase share of affordable housing
		7	Do not increase share of households at risk of displacement
	Equitable Access	8	Increase share of jobs accessible in congested conditions
	Economic Vitality	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 Board can be found at: <http://planbayarea.org/the-plan/plan-details/goals-and-targets.html>
Target language shown above is summarized for brevity.

Environment Equity Economy

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. The aggressive and somewhat 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.



Santa Clara County
Credit: Karl Nielsen

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.”



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 financial conditions coming out of the Great Recession. 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



	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

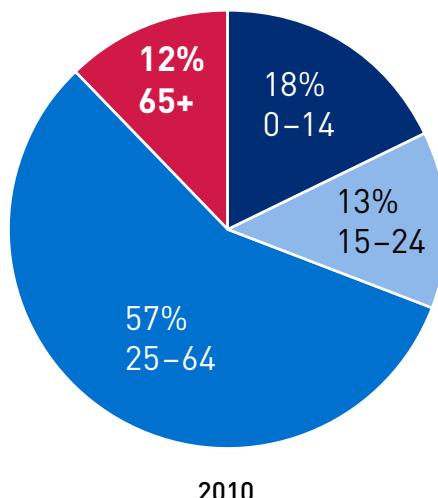
With an additional 2 million people, the Bay Area's residents in 2040 will be older and more diverse, as shown in Figures 3.1 and 3.2. The number of school-aged children (5 to 17 years old) will decline in relative terms, while the number of people 65 and over will account for more than half of all population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

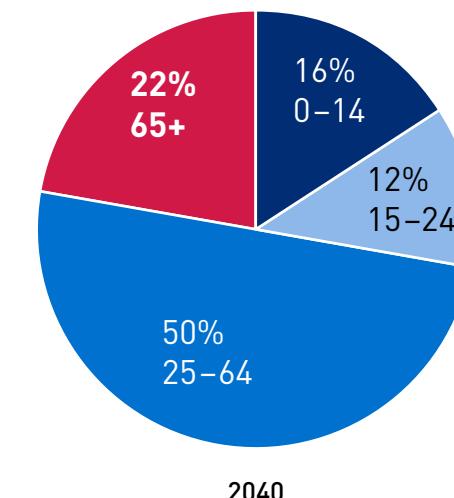
race/ethnicity in the Bay Area. As population groups, Whites, Hispanics and Asians/Other will each account for approximately one-third of the region's population.

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.



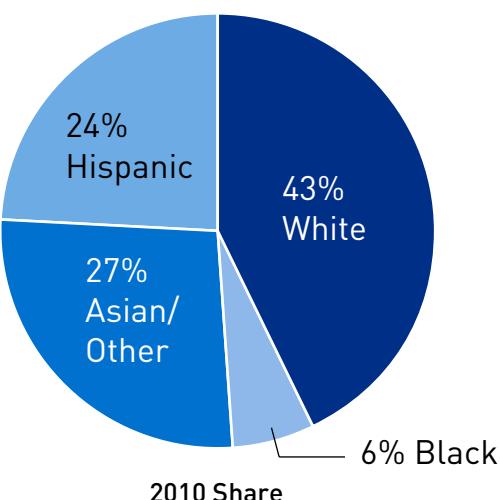
2010



2040

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

Source: Association of Bay Area Governments, 2016



2010 Share

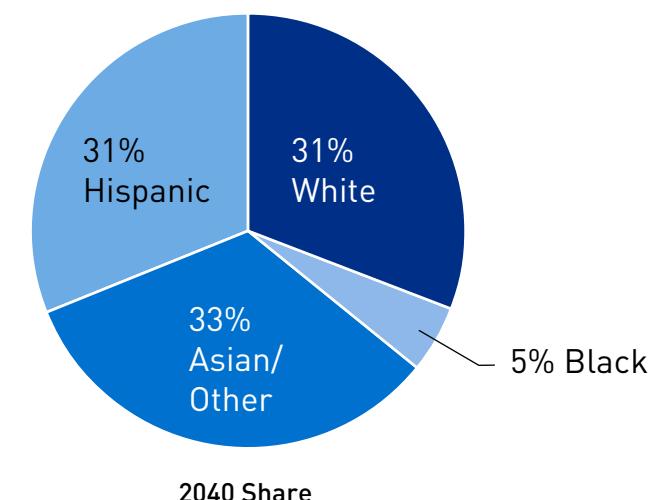


FIGURE 3.2 Bay Area population by race/ethnicity, 2010 and 2040.

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.

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

* Costs are presented as Year of Expenditure (YOE)

** 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

The costs to operate and maintain the highway system also includes 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 Needs Assessment Report.](#)

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.

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 (YOE) 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 on-going project timeline. In determining funding assumptions for Plan Bay Area 2040, the Bay Area must first take stock of these existing and on-going 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.

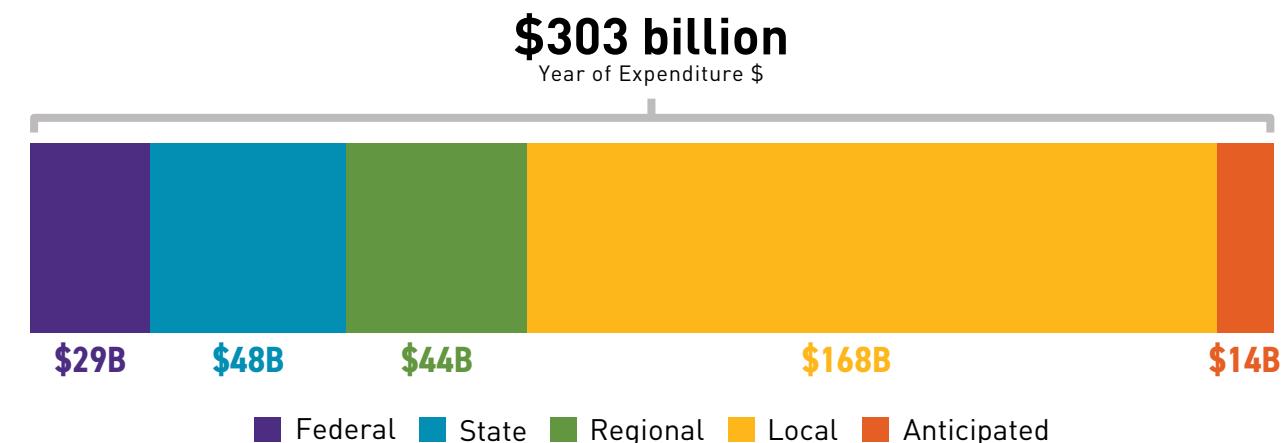


FIGURE 3.3 Forecasted transportation revenues for Plan Bay Area 2040.

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 this 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 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 to 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



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? ABAG and MTC 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 preserves over 100 regionally significant open spaces which have a broad consensus for long-term protection but which face nearer-term development pressures.

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

TABLE 4.1 Key land use assumptions.

Source: Metropolitan Transportation Commission, 2016

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. These strategies are simply illustrations of what it would take to accommodate future growth within existing communities, while striving toward the region's 2040 economic, environmental and equity goals. Working with jurisdictions as appropriate to implement 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](#).



Local Control

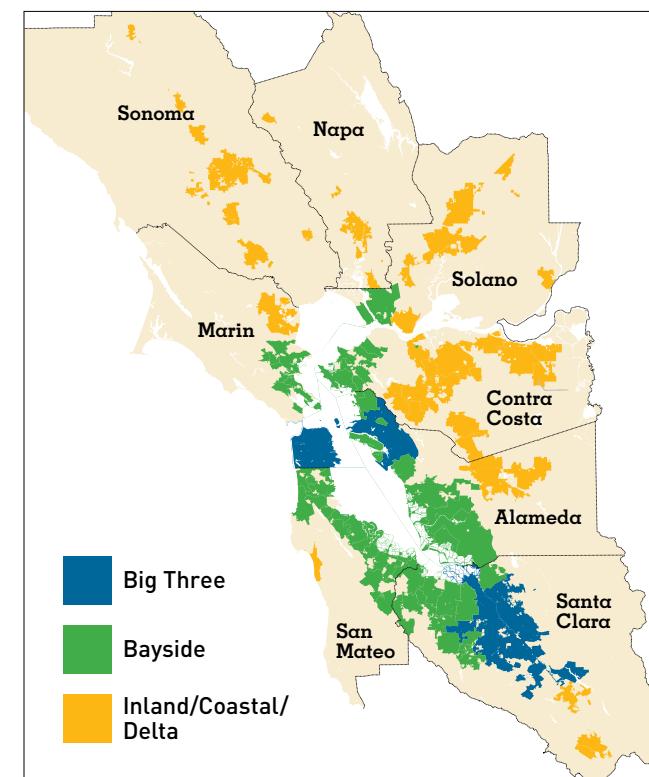
It is important to emphasize that the region's cities and counties retain local land use authority and that local jurisdictions will continue to determine where future development occurs. Plan Bay Area 2040 is supported through implementation efforts such as neighborhood-level planning grants for PDAs 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.

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.

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.

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:



MAP 4.1 Bay Area subregions.

- Big 3 Cities** — the Bay Area's three largest cities: San Jose, San Francisco and Oakland
- Bayside** — generally describes cities directly adjacent to the 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.

Subregion	Year 2010, Forecast Baseline	Year 2040, Proposed Plan	Difference, 2010–2040	Share of Regional Growth	% Growth, 2010 to 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 PDA</i>	553,000	1,182,000	629,000	77%		
<i>Outside PDA</i>	2,055,000	2,244,000	189,000	23%		

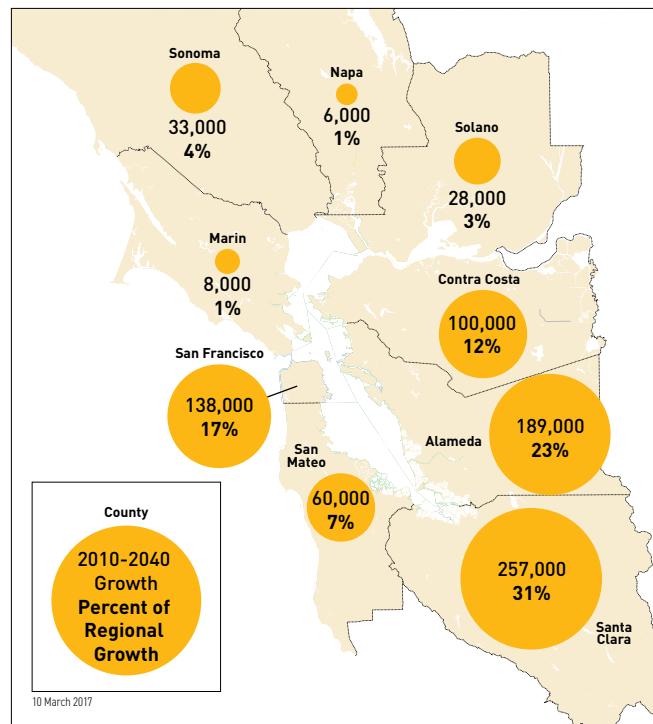
TABLE 4.2 Household growth by Bay Area subregion.

Source: Metropolitan Transportation Commission, 2016

Subregion	Year 2010, Forecast Baseline	Year 2040, Proposed Plan	Difference, 2010–2040	Share of Regional Growth	% Growth, 2010 to 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 PDA</i>	1,433,000	2,140,000	707,000	55%		
<i>Outside PDA</i>	1,989,000	2,559,000	570,000	45%		

TABLE 4.3 Employment growth by Bay Area subregion.

Source: Metropolitan Transportation Commission, 2016

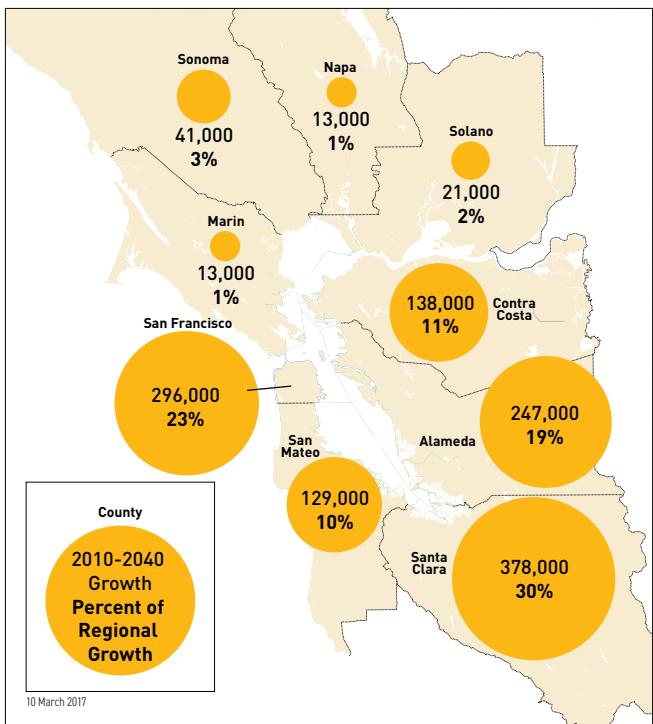


MAP 4.2 Household growth by county.

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.



MAP 4.3 Employment growth by county.

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, well-maintained and modern. Otherwise, a focused growth strategy cannot succeed.

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	9	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 and Cost Contingency			
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 and 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 US-101 in San Mateo and Santa Clara counties, are major investments in this category.
- Debt Service and Cost Contingency:** This includes on-going debt service and financing costs as well as a cost contingency for expansion projects.

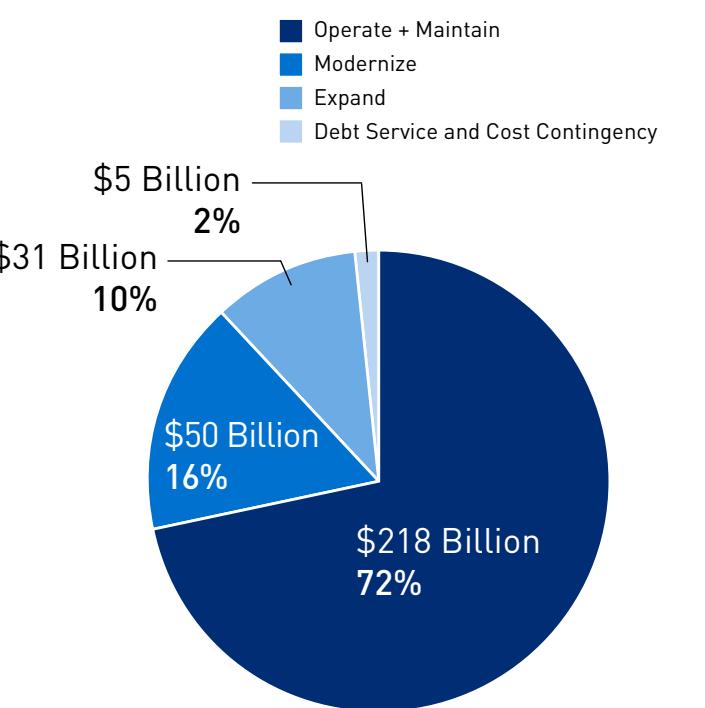


FIGURE 4.1 Plan Bay Area 2040 funding distribution.

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	4.2
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



Passengers board an AC Transit bus.
Credit: MTC Archives

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, this 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 and San Francisco's two congestion pricing projects, as well as 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 increasingly 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 Area 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 and the Regional Express Lane Network will leverage revenues generated from pricing to improve the existing system's efficiency while providing alternatives to driving.

MAP 4.4 Regional transit system improvements.

Source: Metropolitan Transportation Commission, 2016

Key Transit and Road Improvements

The following maps show 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 Plan Bay Area 2040 [Project List](#).

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)

* For clarity, only major expansion projects or operational improvements are depicted. Note that projects expected to be complete before July 2017 (Plan adoption date) are shown as part of the existing network.

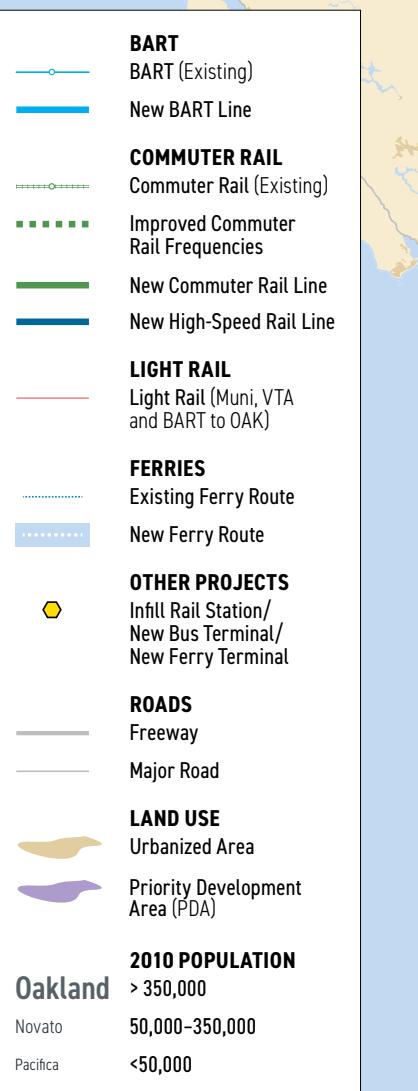
Infill Stations & Major Bus Terminals

- 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

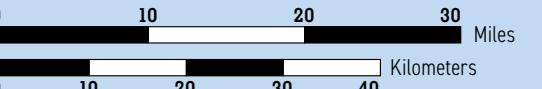
Ferry

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

MAP 4.4 Regional Transit System Improvements



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Local Transit System Improvements*

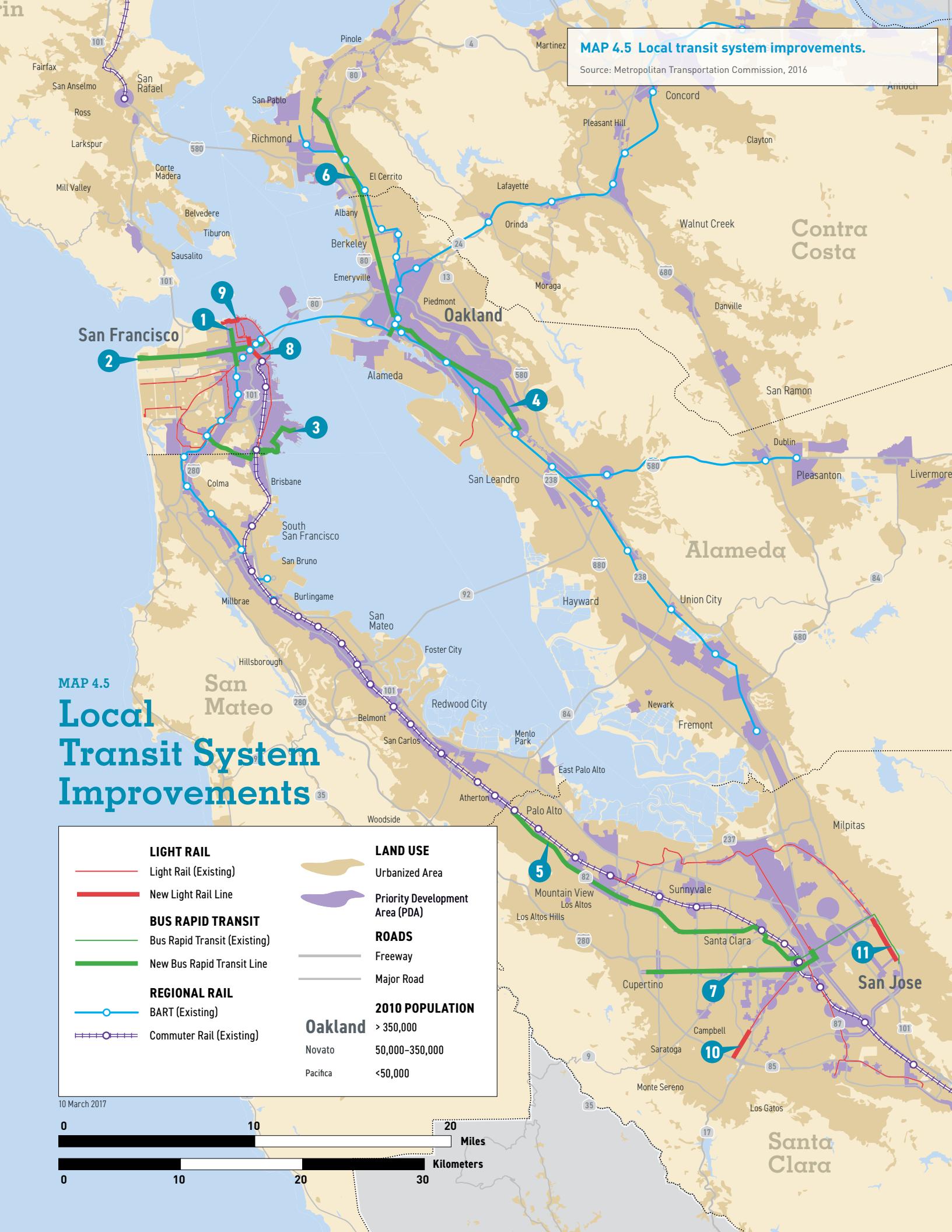
Bus Rapid Transit (BRT) Projects

- 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 (LRT) Projects

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

* For clarity, only major expansion projects or operational improvements are depicted. Note that projects expected to be complete before July 2017 (Plan adoption date) are shown as part of the existing network.



MAP 4.6 Highway and arterial improvements.

Source: Metropolitan Transportation Commission, 2016

Highway and Arterial Improvements*

US-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-4)
- 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)

* For clarity, only major expansion projects or operational improvements are depicted. Note that projects expected to be complete before July 2017 (Plan adoption date) are shown as part of the existing network.



MAP 4.7 Road pricing improvements.

Source: Metropolitan Transportation Commission, 2016

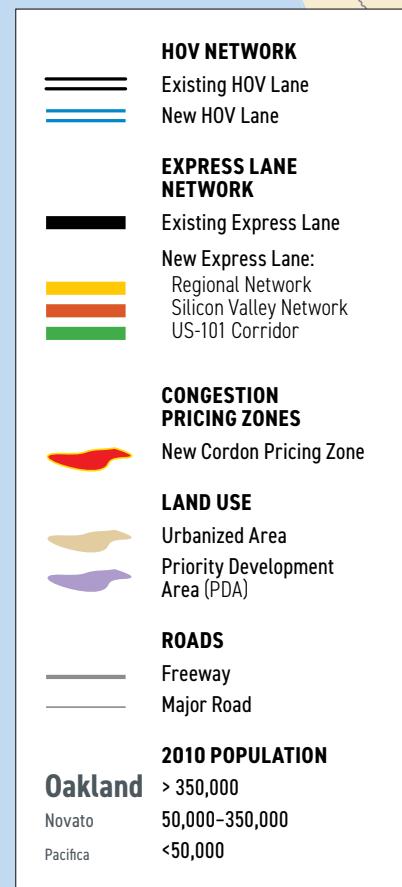
Sonoma

Napa

Marin

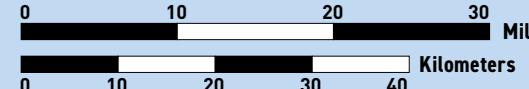
MAP 4.7

Road Pricing Improvements



29 March 2017

Note that projects expected to be complete before July 2017 (Plan adoption date) are shown as existing.



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 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.



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, US-101, I-580, I-680, and State Route 4.

- **Clean Fuels and Impact Reduction:** future program for implementing the recommendations of the [Freight Emission Reduction Action Plan](#) and developing programs for 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 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

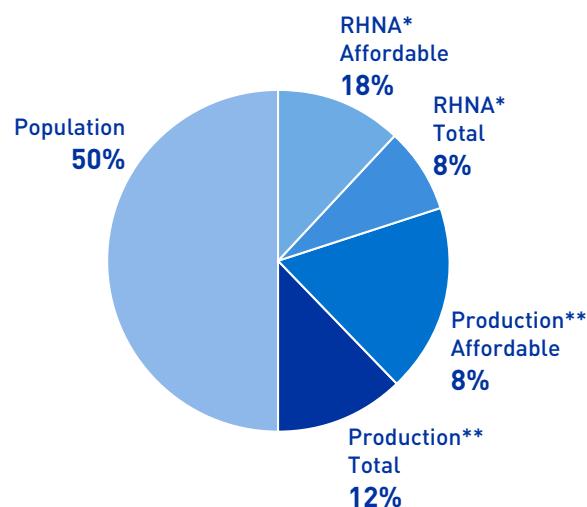


FIGURE 4.2 Distribution formula for OBAG 2 County Program.

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.

* Regional Housing Needs Allocation 2014 – 2022

** Housing Production Report 1999 – 2006, 2007 – 2014 ABAG

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 GHG emissions reduction targets. Over half the plan's required reductions will be achieved

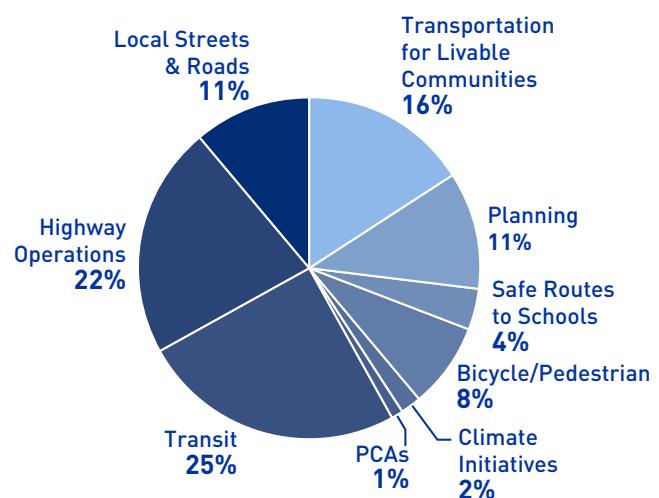


FIGURE 4.3 Project selection results for the OBAG 1 program.

Source: Metropolitan Transportation Commission, 2016

The inaugural One Bay Area Grant Program (OBAG 1) was adopted by MTC in 2012 to guide \$818 million in federal funds over the five-year period from 2012 – 13 through 2016 – 17. The chart 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](#). These include transportation demand management programs, alternative fuel/vehicle strategies and car sharing.

Additionally, Plan Bay Area 2040 includes regional carpool incentives such as ride-matching applications along Express Lane corridors and county-sponsored climate programs that also will promote demand-

management strategies and emission-reduction technology. Plan Bay Area 2040 directs \$526 million to the regional Climate Initiatives Program, \$56 million for incentivizing higher levels of carpools and \$212 million for county-sponsored initiatives.

For more information on how travel demand is modeled in Plan Bay Area 2040, please see the [Summary of Predicted Traveler Responses Report](#).

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.

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,

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 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.

Location	Investment* (\$Billions)
Transbay Corridor	\$ 5.5
Peninsula Corridor	7.3
Within San Francisco	2.7
Within Santa Clara County	8.2
Planning for Future Capacity Projects	0.5
Total	\$24.2

* In year-of-expenditure dollars

TABLE 4.8 Plan Bay Area 2040 capacity projects.

Source: Metropolitan Transportation Commission, 2016



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

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, 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 the San Francisco 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

Plan Performance

As previously described, the land use and transportation pattern described above 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 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 is moving in the right direction 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 percent by 2035.	
Adequate Housing	House 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 percent 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 percent.	
	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 percent.	

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 percent, 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 percentage points, but falls short of target.	
Transportation System Effectiveness	Increase non-auto mode share by 10%	Plan boosts non-auto mode share by 3 percentage points, 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 percent, 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 percentage points.	
	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 percentage points.	
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 percentage point.	
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 percent.	

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 [Draft Equity Analysis Report](#).

	Goal	Draft Plan Performance	
Goods Movement/Congestion Reduction	-20%	-29%	BEST
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%	WORST

TABLE 4.10 Ranking of Draft Plan 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 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 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."



Sonoma County
Credit: Karl Nielsen

FIVE

Action Plan*

The Bay Area's housing and transportation crisis reflects the cumulative impacts of the region's robust job market and 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 multi-pronged 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.

* Note: This section is preliminary and may be refined based upon further development.



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.

Housing Production, Preservation and Protection

Regional agencies currently lack the tools, resources, and authority to directly address the issues of production, affordability and displacement identified earlier in "The Bay Area Today." In response, the Action Plan recommends strengthening and expanding existing regional housing initiatives and pursuing more ambitious policy solutions at the state, regional, and local levels. Regional agencies are committed to partnering with local governments, business leaders, and non-governmental organizations to identify and implement game-changing housing solutions.

Connection to Targets

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

- **Housing:** Share of income spent on housing and transportation costs, displacement risk, and affordable housing
- **Economic development:** Access to jobs, middle wage job creation, and pavement maintenance
- **Resilience:** Climate protection, open space protection, and healthy and safe communities

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
- Supported CEQA modernization and created an online guide to CEQA streamlining provisions

- 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 zoning 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 the upcoming Committee for Affordable and Sustainable Accommodations (CASA)

Two upcoming endeavors will improve the region's ability to address its chronic housing affordability challenges. The 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 will bring together

diverse interests to develop a Regional Housing Implementation Strategy. This work will likely evaluate and recommend a range of legislative, regulatory, financial, and market-related measures needed to provide for the region's housing needs at all income levels.



Housing in Santa Clara County.
Credit: Karl Nielsen

CASA

MTC and ABAG are coordinating the CASA initiative, a multi-sector blue-ribbon committee that will bring together diverse interests to identify game-changing solutions to the region's chronic housing affordability challenges. Core to this strategy will include an effort to replicate the region's success in generating local revenues for transportation by pursuing a regional "self-help" strategy for funding housing investments. A multi-county fee or bond measure, for example, could be among the suite of recommendations put forward by CASA.

This Action Plan makes the following recommendations for Housing:

Housing Actions	Partners and Timeframe
Advance funding and legislative solutions for housing: Implement the recommendations of CASA, in coordination with ABAG's Regional Planning Committee.	MTC/ABAG, CASA committee, local jurisdictions 2 YEARS
Continue recent housing successes: Implement the housing initiatives adopted in the One Bay Area Grant (OBAG) program, including the Naturally Occurring Affordable Housing (NOAH) preservation fund, JumpStart program, and funding for transportation conditioned on RHNA performance (80k by 2020 initiative).	MTC/ABAG, CMAs 4 YEARS
Spur housing production at all income levels and invest directly in affordable housing: Seek to include housing provisions or conditions in upcoming new funding sources (including planning grants), analyze applicability for additional regional funding sources to incentivize housing production and affordability. Continue to monitor and evaluate PDA performance.	MTC/ABAG, the Partnership, regional leaders 2 - 4 YEARS
Use housing performance to prioritize funding for long-range transportation projects: Continue to evolve RTP/SCS Project Performance methods to seek stronger alignment between prioritizing transportation projects and housing performance.	MTC/ABAG, CMAs 4 YEARS
Strengthen policy leadership on housing: Expand and transform regional agency technical assistance for local jurisdictions tailored to both Bay Area-wide challenges and challenges unique to specific parts of the region. Focus areas for technical assistance could include guidance on implementing state legislation for housing production, guidance on housing preservation and community stabilization policies and coordination of neighboring jurisdictions along transit corridors and in sub-regions to identify shared solutions to housing challenges.	MTC/ABAG, local jurisdictions 2 YEARS
Close data gaps for housing: Continue to collect, analyze, and disseminate information about housing opportunity sites, zoning, development trends and policy implementation by local governments to inform local, regional, and state policy development and evaluation; create accessible database of major development and publicly owned sites.	MTC/ABAG 1 - 4 YEARS

TABLE 5.1 Housing action plan.

Source: Metropolitan Transportation Commission, 2016

Economic Development

Creating a more affordable region also requires a Bay Area economy with greater economic opportunity and mobility. The Action Plan recommends expanding regional economic development capacity through establishing an Economic Development District 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 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
Coordinate regional economic solutions and increase funding for economic development: Continue work on developing the region's Economic Development District and implement the action plan of the Comprehensive Economic Development Strategy.	MTC/ABAG, economic organizations, EDA, megaregional partners  1-2 YEARS
Strengthen middle-wage job career paths for goods movement: Implement the recommendations of the Megaregional Goods Movement Cluster Study, which will focus on emerging industries and middle-wage jobs.	MTC/ABAG, freight businesses, megaregional partners  1 - 4 YEARS
Increase transportation access to growing 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; continue to evaluate a means-based fare or other methods for reducing transportation costs for lower-wage workers.	MTC/ABAG, transit agencies, the Partnership, megaregional partners  2 - 4 YEARS
Preserve existing infrastructure: Advocate for new revenues for transportation and continue focusing on "Fix It First" investments in keeping with long-standing MTC policy.	MTC/ABAG, state legislature  1 YEAR
Preserve and enhance existing industrial lands: Establish criteria for Priority Production Areas to encourage local jurisdictions to plan for space needed for manufacturing, distribution and repair while assessing ways of meeting other critical needs such as housing.	MTC/ABAG, local jurisdictions  2 - 4 YEARS

TABLE 5.2 Economic Development Actions.

Source: Metropolitan Transportation Commission, 2016

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.

Regional agencies have initiated several programs advancing resilience against sea level rise, flooding, and extreme events including earthquakes. In 2010, the Bay Conservation and Development District (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, FEMA, 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 region should expand these efforts through outreach and technical assistance, as well as develop financial solutions to resilient housing and green infrastructure, especially for communities with high social vulnerability and exposure to natural hazards.

Recent Funding Successes for Resilience

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

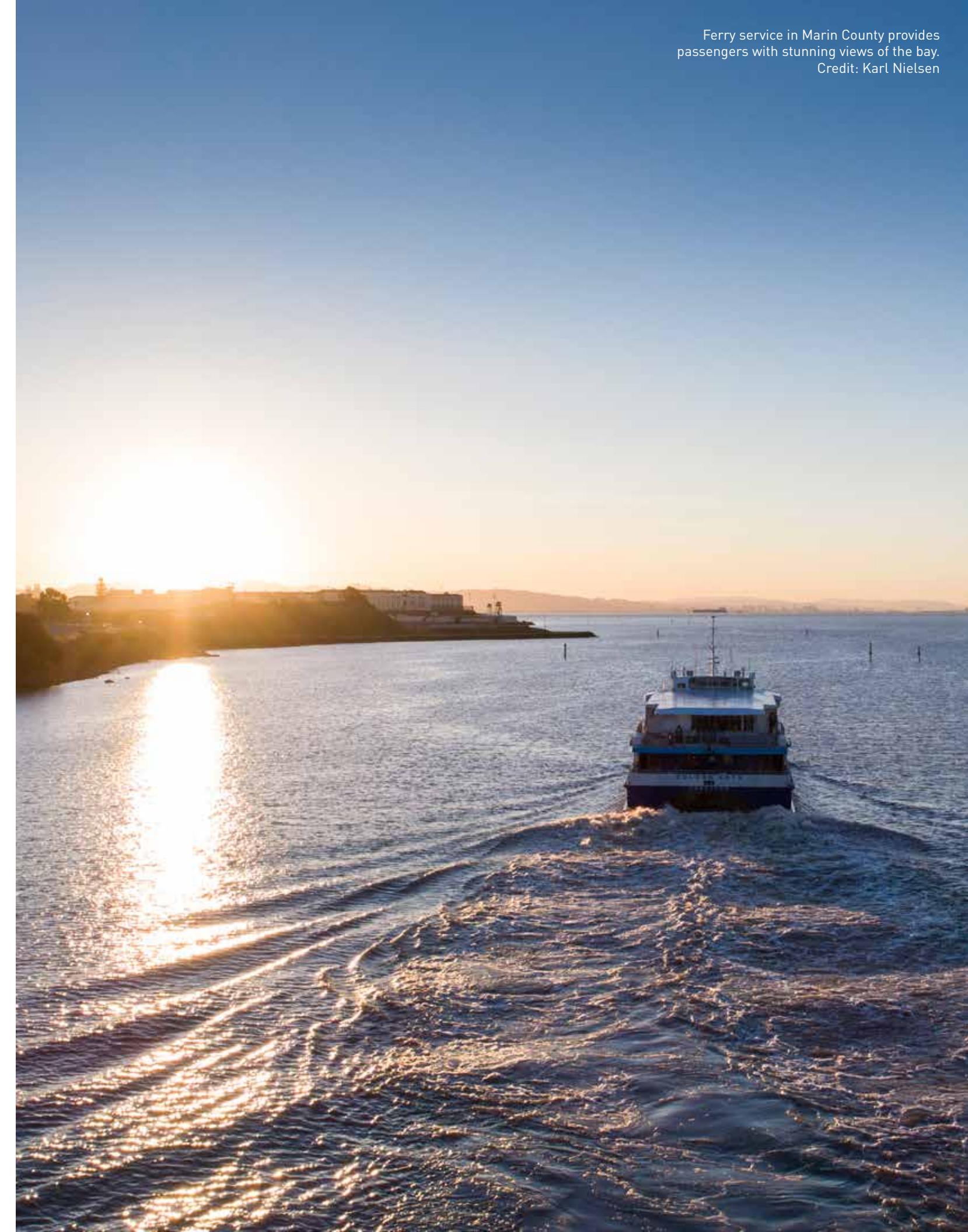
- Caltrans and the Bay Area Toll Authority allocated \$1.2 million to continue to conduct a regional vulnerability assessment for transportation infrastructure, Priority Development Areas (PDA), Priority Conservation Areas (PCA) and disadvantaged and vulnerable communities. In addition to a regional 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.

This Action Plan makes the following recommendations for Resilience:

Resilience Actions	Partners and Timeframe
Develop a regional governance strategy for climate adaptation projects: Develop an institutional strategy for managing, coordinating, and implementing regional and local projects related to sea level rise.	BARC, MTC/ABAG, BCDC, Caltrans, local jurisdictions  2 - 4 YEARS
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.	MTC/ABAG, local jurisdictions  1 - 4 YEARS
Create new funding sources for adaptation and resilience: Pursue new funding opportunities, including innovative financing, for retrofits of buildings, retrofits of existing infrastructure, and infrastructure solutions to protect against flooding, earthquakes, and exposure to environmental health risks.	MTC/ABAG, BARC, BCDC  1 - 4 YEARS
Establish and provide a resilience technical services team: Broadly share best practices and grant opportunities for climate adaptation and natural hazard mitigation. Continue to assess vulnerabilities and identify workable solutions through public and private avenues. Integrate resilience into Priority Development Area (PDA) planning.	BARC, MTC/ABAG, BCDC  1-2 YEARS
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, and improve access to urban and rural public space. Leverage existing initiatives—including Priority Conservation Areas (PCAs), the Resilient by Design Challenge, San Francisco Estuary Partnership, and Bay Restoration Authority—and partner with special districts and cities.	MTC/ABAG, BCDC, jurisdictions, utilities  1 - 4 YEARS
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.	MTC/ABAG, Caltrans, RAMP coalition  1 - 4 YEARS

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

Source: Metropolitan Transportation Commission, 2016





Alameda County
Credit: Karl Nielsen

Draft Supplemental Reports

The [Plan Bay Area 2040 supplemental](#) reports provide more detail on specific subject areas covered in the plan, including transportation, land use, equity and the environment, and performance and public participation.

Equity & Environment

Air Quality Conformity Report (available early May)

Environmental Impact Report (available late April)

Equity Analysis Report

Performance & Public Participation

Glossary

Native American Tribal Outreach Report

Performance Assessment Report

Public Engagement Program Report

Land Use

Land Use Modeling Report

Regional Forecast of Jobs, Transportation and Housing

Scenario Planning Report

Statutorily-Required Plan Maps

Transportation

Financial Assumptions Report

Freight Emissions Reduction Action Plan

Investment Strategy Report

Project List

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

Transit Operating and Capital Needs and Revenue Assessment Report

Travel Modeling Report

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