

Draft BayArea Plan

March 2013

Strategy for a
Sustainable
Region



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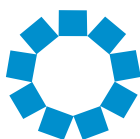
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Strategy for a Sustainable Region

Draft **Plan** BayArea March 2013



**Association of
Bay Area
Governments**



**Metropolitan
Transportation
Commission**

Draft Plan Bay Area

Table of Contents

Introducing Plan Bay Area Strategy for a Sustainable Region	1
Chapter 1 Setting Our Sights	17
Chapter 2 The Bay Area in 2040	29
Chapter 3 Where We Live, Where We Work	41
Chapter 4 Investments	61
Chapter 5 Performance	95
Chapter 6 A Plan to Build On	121
What's Next for Plan Bay Area?	135
Appendix 1 Supplementary Reports and Additional Resources	137
Appendix 2 Maps	139
Errata	157

San Francisco Bay Area: Transportation and Land Uses

Legend

- Urbanized area
- Open space
- Priority Development Area (PDA)
- Priority Conservation Area (PCA)

ROADS

- Freeway
- Major Road

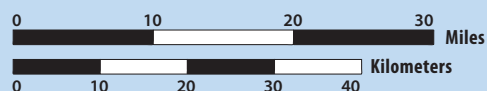
RAIL SYSTEM

- Altamont Corridor Express
- Amtrak
- BART
- Caltrain
- Light Rail (Muni & VTA)
- Cable Car (Muni)

Oakland

- 2010 POPULATION**
- > 350,000
- Novato 50,000–350,000
- Pacifica <50,000

San Francisco Bay Area – Transportation and Land Uses | 3.20.13



Introducing Plan Bay Area: Strategy for a Sustainable Region

Most of us living in the nine counties that touch San Francisco Bay are accustomed to saying we live in “the Bay Area.” This simple phrase speaks volumes — and underscores a shared regional identity. The 7 million of us who call the nine-county San Francisco Bay Area home have a strong interest in protecting the wealth of features that make our region a magnet for people and businesses from around the globe.

The Bay Area is, after all, the world’s 21st-largest economy. The natural beauty of San Francisco Bay and the communities surrounding it,

“The Bay Area has made farsighted regional planning a top priority for decades.”

our Mediterranean climate, extensive system of interconnected parks and open space, advanced mass transit system, top-notch educational institutions, and rich cultural heritage continue to draw people who seek better opportunities. Yet we cannot take for granted that we will be able to sustain and improve our quality of life for current and future generations.

With our region’s population projected to swell to some 9 million people by 2040, Plan Bay Area charts a course for accommodating this growth while fostering an innovative, prosperous and competitive economy; preserving a healthy and safe environment; and allowing all Bay Area residents to share the benefits of vibrant, sustainable communities connected by an efficient and well-maintained transportation network.

A Legacy of Leadership

Plan Bay Area, while comprehensive and forward-reaching, is an evolutionary document. The Bay Area has made farsighted regional planning a top priority for decades. Previous generations recognized the need for a mass transit system, including regional systems such as BART and Caltrain that have helped make our region the envy of other metropolitan areas. Our transbay bridges add cohesion to the regional transportation system by connecting communities across the bay. Likewise, we owe our system of parks and open space to past generations of leaders who realized that a balance between urbanized areas and open space was essential to a healthy environment and vibrant communities.

Plan Bay Area extends this legacy of leadership, doing more of what we've done well while also mapping new strategies to face new challenges. Among the new challenges are the requirements of California's landmark 2008 climate law (SB 375, Steinberg): to decrease greenhouse gas emissions from cars and light trucks, and to accommodate all needed housing growth within our nine counties. By coordinating future land uses with our long-term transportation investments, Plan Bay Area meets these challenges head on — without compromising local control of land-use decisions. Each of the Bay Area's nine counties and 101 cities must decide for themselves what is best for their citizens and their communities.



Caltrans

Building Upon Local Plans and Strategies

For over a decade, local governments and regional agencies have been working together to encourage the growth of jobs and production of housing in areas supported by amenities and infrastructure. In 2008, the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) created a regional initiative to support these local efforts called FOCUS. In recent years, this initiative has helped to link local community development aspirations with regional land use and transportation planning objectives. Local governments have identified Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs), and these form the implementing framework for Plan Bay Area.

PDAs are areas where new development will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit. While PDAs were originally established to address housing needs in infill communities, they have been broadened to advance focused employment growth. Local jurisdictions have defined the character of their PDAs according to existing conditions and future expectations as regional centers, city centers, suburban centers or transit town centers, among other place types. PCAs are regionally significant open spaces for which there exists broad consensus for long-term protection but

California Senate Bill 375: Linking Regional Plans to State Greenhouse Gas Reduction Goals

Plan Bay Area grew out of “The California Sustainable Communities and Climate Protection Act of 2008” (California Senate Bill 375, Steinberg), which requires each of the state’s 18 metropolitan areas – including the Bay Area – to reduce greenhouse gas emissions from cars and light trucks. Signed by former Gov. Arnold Schwarzenegger, the law requires that the Sustainable Communities Strategy (SCS) promote compact, mixed-use commercial and residential development. To meet the goals of SB 375, Plan Bay Area directs more future development in areas that are or will be walkable and bikable and close to public transit, jobs, schools, shopping, parks, recreation and other amenities. Key elements of SB 375 include the following.



- The law requires that the Bay Area and other California regions develop a Sustainable Communities Strategy (SCS) – a new element of the regional transportation plan (RTP) – to strive to reach the greenhouse gas (GHG) reduction target established for each region by the California Air Resources Board. The Bay Area’s target is a 7 percent per capita reduction by 2020 and a 15 percent per capita reduction by 2035. Plan Bay Area is the region’s first RTP subject to SB 375.
- In the Bay Area, the Association of Bay Area Governments (ABAG) is responsible for the land use and housing assumptions for the SCS, which adds three new elements to the RTP: (1) a land use component that identifies how the region could house the region’s entire population over the next 25 years; (2) a discussion of resource and farmland areas; and (3) a demonstration of how the development pattern and the transportation network can work together to reduce GHG emissions.
- Extensive outreach with local government officials is required, as well as a public participation plan that includes a minimum number of workshops in each county as well as three public hearings on the draft SCS prior to adoption of a final plan.
- The law synchronizes the regional housing need allocation (RHNA) process — adopted in the 1980s — with the regional transportation planning process.
- Finally, SB 375 streamlines the California Environmental Quality Act (CEQA) for housing and mixed-use projects that are consistent with the SCS and meet specified criteria, such as proximity to public transportation.

nearer-term development pressure. PDAs and PCAs complement one another because promoting development within PDAs takes development pressure off the region’s open space and agricultural lands.

Building upon the collaborative approach established through FOCUS, local input has driven the set of alternative scenarios that preceded and informed the development of Plan Bay Area.

The non-profit and business communities also played a key role in shaping the plan. Business groups highlighted the need for more affordable workforce housing, removing regulatory barriers to infill development, and addressing infrastructure needs at rapidly growing employment centers. Environmental organizations emphasized the need to improve transit access, retain open space, provide an adequate supply of housing to limit the number of people commuting into the region from nearby counties, and direct discretionary transportation funding to communities building housing in PDAs. Equity organizations focused on increasing access to housing and employment for residents of all income categories throughout the region, and establishing policies to limit the displacement of existing residents as PDAs grow and evolve. All of these diverse voices strengthened this plan.

Setting Our Sights

Developing a long-range land use and transportation plan for California's second-largest metropolitan region, covering about 7,000 square miles across nine Bay Area counties, is no simple task. We set our sights on this challenge by emphasizing an open, inclusive public outreach process and adopting objective performance standards based on federal and state requirements to measure our progress during the planning process.

Reaching Out

We reached out to the people who matter most – the 7 million people who live in the region. Thousands of people participated in stakeholder sessions, public workshops, telephone and internet surveys, and more. Befitting the Bay Area, the public outreach process was boisterous and contentious. Key stakeholders also included the region's 101 cities and nine counties; our fellow



Noah Berger

regional agencies, the Bay Conservation and Development Commission and the Bay Area Air Quality Management District; community-based organizations and advocacy groups, and some three dozen regional transportation partners. (See “Plan Bay Area Prompts Robust Dialogue on Transportation and Housing,” in Chapter 1.)

Establishing Performance Targets

Before proposing a land use distribution approach or recommending a transportation investment strategy, planners must formulate in concrete terms the hoped-for outcomes. For Plan Bay Area, performance targets are an essential means of informing and allowing for a discussion of quantitative metrics. After months of discussion and debate, ABAG and MTC adopted 10 targets in January 2011, reflecting input from the broad range of stakeholders engaged in the process.

Two of the targets are not only ambitious; they are also mandated by state law. The first mandatory target addresses climate protection by requiring the Bay Area to reduce its per-capita CO₂ emissions from cars and light-duty trucks by 15 percent by 2040. The second mandatory target addresses adequate housing by requiring the region to house 100 percent of its projected population growth by income level. Plan Bay Area achieves both these major milestones.

The eight voluntary targets seek to promote healthy and safe communities by reducing premature deaths from air pollution, reducing injuries and fatalities from collisions, increasing the amount of time people walk or cycle for transportation, and protecting open space and agricultural lands. Other targets address equity concerns, economic vitality and transportation system effectiveness. Plan Bay Area meets some, but not all, of the voluntary targets. (See Chapter 1, Table 1 for a summary of all the Plan Bay Area performance targets.)

Taking Equity Into Account

About one-fifth of the Bay Area's total population lives in areas with large numbers of low-income and minority populations. Promoting these people's access to housing, jobs and transportation not only advances Plan Bay Area's objective to advance equity in the region, it also increases our chances of meeting the other performance targets. MTC and ABAG adopted five Equity Analysis measures to evaluate equity concerns: housing and transportation affordability, potential for displacement, healthy communities, access to jobs, and equitable mobility. (See Chapter 1, Table 2: "Plan Bay Area Equity Performance Measures.")



MTC Archives

Planning Scenarios Take Aim at Performance Targets

Taken together, the Plan Bay Area performance targets outline a framework that allows us to better understand how different projects and policies might affect the region's future. With the targets clearly identified, MTC and ABAG formulated possible scenarios — combinations of land use patterns and transportation investments — that could be evaluated together to see if (and by how much), they achieved (or fell short of) the performance targets. An iterative process of scenario-testing begun in 2010 yielded preferred alternatives, both for transportation investments and a land use strategy. Adopted by the boards of MTC and ABAG in May 2012, they form this draft Plan Bay Area.

Looking Toward the Future

ABAG and MTC track and forecast the region's demographics and economic trends to inform and guide Plan Bay Area investments and policy decisions. The forecasts reflect the best picture we have of what the Bay Area may look like in 2040, so that today's decisions may align with tomorrow's expected transportation and housing needs. These forecasts form the basis for developing the regional land use plan for Plan Bay Area's Sustainable Communities Strategy (SCS), and, in turn, the region's transportation investment strategy.

Project-Level Performance Assessment of Transportation Projects

By developing the preferred land use and transportation investment strategies, ABAG and MTC were able to answer many big picture questions about the Bay Area's future. For example, should the region focus on expanding the transportation system or on maintaining what we have already built? And should the Bay Area invest more in transit for future generations or emphasize highway projects to improve the commutes of today's drivers? And how should our transportation investments support future growth in employment and housing?

Plan Bay Area also is based on a commitment to evaluate individual transportation projects to make sure dollars are being allocated to the most cost-effective projects. In order to take a closer look at major transportation projects, MTC performed a project performance assessment, examining billions of dollars of potential transportation projects to identify the highest-performing investments across the region. This enabled funding prioritization for the highest-performing projects. Most



of them focused on leveraging existing assets and improving their efficiency, while supporting future development. Notable projects include BART Metro, which will increase service frequencies on the highest-demand segment of the BART system, and San Francisco's congestion pricing initiatives. (See Chapter 5 for a list of high-performing projects.)

Projections in three main areas informed development of the plan: population, employment and housing. Here are some highlights of each.

- **Population:** By 2040 the San Francisco Bay Area is projected to add 2.1 million people, increasing total regional population from 7.2 million to 9.3 million, an increase of 30 percent or roughly 1 percent per year. This growth means the Bay Area will continue to be California's second-largest population and economic center.
- **Employment:** The number of jobs is expected to grow by 1.1 million between 2010 and 2040, an increase of 33 percent. This is a slower rate of job growth than previous forecasts.
- **Housing:** During this same time period the number of households is expected to increase by 27 percent to 700,000, and the number of housing units is expected to increase by 24 percent to 660,000.

The demographic implications of these topline numbers are far-reaching, and some trends in particular weighed heavily in the development of Plan Bay Area. These are touched on below and examined in greater detail in Chapter 2.

Aging Baby Boomers Expected to Change Travel and Development Patterns

The U.S. Census Bureau defines baby boomers as people who were born between 1946 and 1964 during the post-World War II baby boom. By 2040 the oldest baby boomers will be in their 90s and the youngest will be in their 70s. Today, people who are 65 and over represent 12 percent of the Bay Area's total population, but by 2040 the number of seniors will increase to 22 percent. That's more than 1 in 5 people in our region. It is expected that many of these seniors will relocate to smaller homes in more urban locations to have easier access to essential services and amenities and the Bay Area's extensive transit system.

Mobility will be a special challenge for seniors who lose their ability to drive. MTC's Lifeline Transportation Program supports projects that address mobility and accessibility needs of low-income and disabled people throughout the region. Between 2006 and 2012, roughly \$172 million was invested to support about 220 projects. Closely related are MTC programs that provide funding to sustain and improve mobility for elderly and disabled persons in accordance with and even beyond the requirements of the Americans with Disabilities Act (ADA). These types of projects have included travel training, sidewalk and bus stop improvements, supportive ride programs and other community initiatives. Plan Bay Area reaffirms the importance of Lifeline and Elderly & Disabled programs by adding over \$800 million in discretionary funding for the Lifeline program, and almost \$240 million for the Elderly & Disabled programs over the 28-year period of the plan.

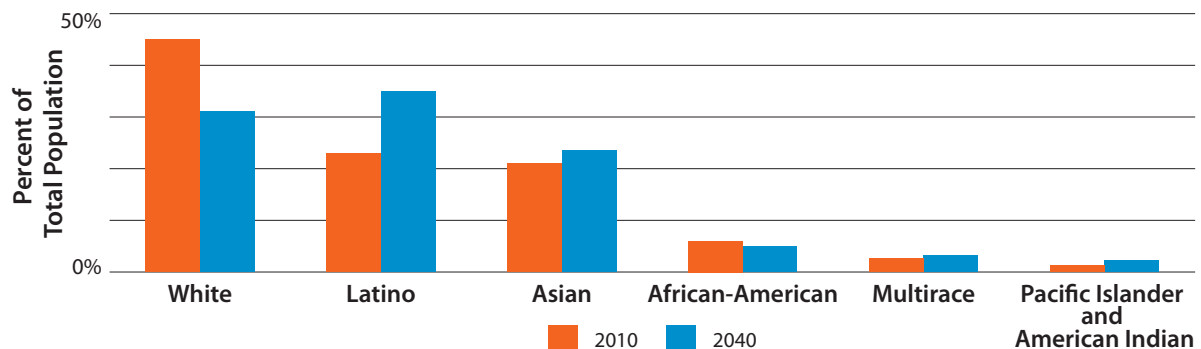


Joyce Benna

Increased Racial and Ethnic Diversity Will Increase Demand for Multifamily Housing

The Bay Area and California are at the forefront of one of the greatest demographic changes in our nation's history: growth in the Latino population. In January 2013 the California Department of Finance projected that the state's Hispanic population will equal the non-Hispanic

Figure 1 Share of Population by Race and Ethnicity, 2010 and 2040



Sources: 2010 Census, California Department of Finance, ABAG

white population by mid-2013. By early 2014 it expects that California's Hispanic population will have become a plurality for the first time in state history.

This state forecast aligns with Plan Bay Area's projection that by 2040 the Bay Area population will become substantially more racially and ethnically diverse. Latinos will emerge as the largest ethnic group, increasing from 23 percent to 35 percent of the total population. The number of Asians also will increase, growing from 21 percent to about 24 percent of the population. Both population groups have demonstrated an historic preference for multifamily housing, and they form multigenerational households at a higher rate than the general population. This is expected to drive higher demand for multifamily housing, in contrast to the historic development pattern of building primarily single-family homes. Likewise, many Latinos and Asians rely more on public transit than non-Hispanic whites. This, too, is expected to increase demand for a robust transit system that makes it easier for people who don't own cars to commute, shop and access essential services.

Demand for Multi-Unit Housing in Urban Areas Close to Transit Expected to Increase

Single-family homes represent the majority of housing production in recent decades, but recent trends suggest that cities once again are becoming centers of population growth. Construction of multifamily housing in urban locations in the Bay Area increased from an average of 35 percent of total housing construction in the 1990s to nearly 50 percent in the 2000s. In 2010 it represented 65 percent of all housing construction.



The Crossings, Mountain View

As discussed above, demand for multifamily housing is projected to increase as seniors downsize and seek homes in more urban locations. The growing numbers of Latino and Asian households will create a similar shift in the housing market. Finally, population growth of those aged 34 and younger is expected to have a similar effect, as this demographic group also demonstrates a greater preference for multifamily housing. All told, the number of people per Bay Area household is expected to increase from 2.69 in 2010 to 2.75 in 2040. Market demand for new homes will tilt toward townhomes, condominiums and apartments in developed areas near transit, shops and services.

Building a Development Pattern That Aligns With Where We Live and Work

Plan Bay Area provides a vision for how to retain and enhance the qualities that make the Bay Area a great place to live, work, and play. It builds on the legacy of leadership left to us by previous generations. In fact, many of the attributes that make the Bay Area special—a strong

economy, protected natural resources, a network of diverse neighborhoods—would not have been possible without our predecessors’ forward-thinking actions.

Looking ahead to the growth expected in the Bay Area over the next several decades, we face many similar problems as past generations, while also confronting new challenges that threaten the region’s economic vitality and quality of life. Our economy is still recovering from the Great Recession of 2007-2009, which has resulted in uneven job growth throughout the region, increased income disparity, and high foreclosure rates. At the same time, housing costs have risen for renters and, to a lesser degree, for home buyers close to the regions’ job centers. Finally, Bay Area communities face these challenges at a time when there are fewer public resources available than in past decades for investments in infrastructure, public transit, affordable housing, schools and parks.

A More Focused Future

The planning scenarios and land use and transportation investment strategies developed during the Plan Bay Area process seek to address the needs and aspirations of each Bay Area jurisdiction, as identified in locally adopted general plans and zoning ordinances. They also aim to meet the Plan Bay Area performance targets and equity performance standards. The framework for developing these scenarios consisted largely of the Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) recommended by local governments. The preferred land use scenario identified in Chapter 3 is a flexible blueprint for accommodating growth over the long term. Pairing this development pattern with the transportation investments described in Chapter 4 is what makes Plan Bay Area the first truly integrated land use transportation plan for the region’s anticipated growth.



Richmond Transit Village

Peter Beiler

2040 Employment Distribution Highlights

Plan Bay Area's distribution of jobs throughout the region is informed by changing trends in the locational preferences of the wide range of industry sectors and business place types in the Bay Area. These trends capture ongoing geographic changes, as well as changes in the labor force composition and workers' preferences. The employment distribution directs job growth toward the region's larger cities and Priority Development Areas with a strong existing employment base and communities with stronger opportunities for knowledge-sector jobs.

Table 1 SF Bay Area Total Job Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Jobs		2010-2040 Job Growth	
		2010	2040	Total Growth	Percentage Growth
1	San Francisco	568,720	759,470	190,740	34%
2	San Jose	375,360	522,050	146,680	39%
3	Oakland	190,250	275,490	85,240	45%
4	Santa Clara	112,460	145,560	33,100	29%
5	Fremont	89,900	119,870	29,970	33%
6	Palo Alto	89,370	119,030	29,650	33%
7	Santa Rosa	75,460	103,930	28,470	38%
8	Berkeley	77,020	99,220	22,210	29%
9	Concord	47,520	69,310	21,790	46%
10	Hayward	69,100	89,900	20,800	30%
11	Sunnyvale	74,610	95,320	20,710	28%
12	San Mateo	52,930	73,460	20,530	39%
13	Redwood City	58,340	77,830	19,490	33%
14	Walnut Creek	41,650	57,300	15,650	38%
15	Mountain View	47,800	63,380	15,570	33%

Source: Jobs-Housing Connection Strategy, ABAG, 2012

Almost 40 percent of the jobs added from 2010 to 2040 will be in the region's three largest cities — San Jose, San Francisco and Oakland — which accounted for about one-third of the region's jobs in 2010. Two-thirds of the overall job growth is anticipated to be in PDAs throughout the region. Due to the strength of the knowledge sector, nine of the 15 cities expected to experience the greatest job growth are in the western and southern part of the region surrounding Silicon Valley. The remaining communities expecting high levels of job growth are in the East Bay and North Bay, owing to their strong roles in the current economy, diverse employment base, and their proximity to a large base of workers. The 15 cities expected to experience the most job growth will account for roughly 700,000 jobs, or just over 60 percent of the new jobs added in the region by 2040. (See Table 1 above.)

2040 Housing Distribution Highlights

The Plan Bay Area housing distribution is guided by the policy direction of the ABAG Executive Board, which voted in July 2011 to support equitable and sustainable development by “maximizing the regional transit network and reducing GHG emissions by providing convenient access to employment for people of all incomes.” This was accomplished by distributing total housing growth numbers to: 1) job-rich cities that have PDAs or additional areas that are PDA-like; 2) areas connected to the existing transit infrastructure; and 3) areas that lack sufficient affordable housing to accommodate low-income commuters. The housing distribution directs growth to locations where the transit system can be utilized more efficiently, where workers can be better connected to jobs, and where residents can access high-quality services.

Table 2 SF Bay Area Total Housing Unit Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Housing Units		2010-2040 Housing Unit Growth	
		2010	2040	Total Growth	Percentage Growth
1	San Jose	314,040	443,210	129,170	41%
2	San Francisco	376,940	469,350	92,410	25%
3	Oakland	169,710	221,200	51,490	30%
4	Sunnyvale	55,790	74,780	18,990	34%
5	Concord	47,130	65,170	18,040	38%
6	Fremont	73,990	91,610	17,620	24%
7	Santa Rosa	67,400	83,420	16,020	24%
8	Santa Clara	45,150	58,920	13,770	30%
9	Milpitas	19,810	32,430	12,620	64%
10	Hayward	48,300	60,580	12,290	25%
11	Fairfield	37,180	48,280	11,100	30%
12	San Mateo	40,010	50,180	10,160	25%
13	Richmond	39,330	49,020	9,690	25%
14	Livermore	30,340	40,020	9,670	32%
15	Mountain View	33,880	43,270	9,390	28%

Source: Jobs-Housing Connection Strategy, ABAG, 2012

Substantial housing production is expected on the Peninsula and in the South Bay, where eight of the top 15 cities expected to experience the most housing growth are located. Two-thirds of the region’s overall housing production is directed to these 15 cities, leaving the more than 90 remaining jurisdictions in the region to absorb only limited growth. This development pattern preserves the character of more than 95 percent of the region by focusing growth on less than 5 percent of the land. (See Table 2 above.)

Transportation Investments



John Benson

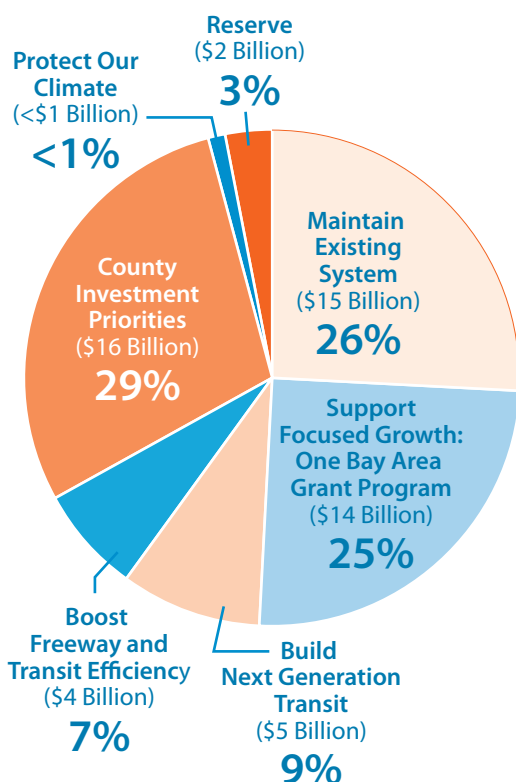
Caltrain Baby Bullet train

Plan Bay Area structures an infrastructure investment plan in a systematic way to support the region's long-term land use strategy, relying on a performance assessment of scenarios and individual projects. The plan makes investments in the region's transportation network that support job growth and new homes in existing communities by focusing the lion's share of investment on maintaining and boosting the efficiency of the existing transit and road system. Plan Bay Area also takes a

bold step with strategic investments that provide support for focused growth in Priority Development Areas, including the new One Bay Area Grant program.

Plan Bay Area transportation revenue forecasts total \$289 billion over the 28-year period. Over two-thirds (68 percent) of these funds are from regional and local sources, primarily dedicated sales tax programs and bridge tolls. Making up the remainder of the pie are state and federal revenues (mainly derived from fuel taxes). Of the total revenues, \$57 billion are "discretionary," or available for assignment to projects and programs through Plan Bay Area.

Figure 2 Plan Bay Area – Discretionary Investment Summary
(in year-of-expenditure \$)



The plan invests those discretionary funds via six key investment strategies, as shown in Figure 2 and presented in greater detail in Chapter 4. (See Table 3 for a look at the "big-ticket" plan investments, overall.) The first two discretionary strategies merit special mention.

Maintain Our Existing System

Though its fund sources are many and varied, Plan Bay Area's overriding priority in investing those funds can be stated quite simply: "Fix It First." First and foremost, this plan should help to maintain the Bay Area's transportation system in a state of good repair. Plan Bay Area's focus on "fix it first" ensures that we maintain existing transportation assets, primarily concentrated in the region's core, which reinforces the plan's focused growth strategy.

“Top 10” Plan Bay Area Investments, by Project

(includes Committed and Discretionary funds)

Table 3 Ten Largest Plan Bay Area Investments

Rank	Project	Investment (YOE* Millions \$)
1	BART to Warm Springs, San Jose, and Santa Clara	\$8,341
2	MTC Regional Express Lane Network	\$6,657
3	Transbay Transit Center/Caltrain Downtown Extension (Phases 1 and 2)	\$4,185
4	Integrated Freeway Performance Initiative (FPI)	\$2,259
5	Presidio Parkway/ Doyle Drive US 101 seismic replacement	\$2,053
6	Caltrain Electrification and Service Frequency Improvements	\$1,718
7	SF MUNI Central Subway: King St to Chinatown	\$1,578
8	Valley Transportation Authority (VTA) Express Lane Network	\$1,458
9	San Jose International Airport Connector	\$753
10	Hunters Point and Candlestick Point: New Local Roads	\$722

* YOE = Year of Expenditure

In total, Plan Bay Area dedicates 87 percent of all available funding (committed and discretionary) to sustaining the existing transportation network. Given the age of many major assets — BART turned 40 last year and S. F. Muni turned 100 — this should come as no surprise.

Support Focused Growth – One Bay Area Grant Program

The OneBayArea Grant (OBAG) Program is a new funding approach that better integrates the region’s transportation funding program with SB 375 and the land use pattern outlined in Chapter 3. The OBAG program rewards jurisdictions that focus housing growth in Priority Development Areas (PDAs) through their planning and zoning policies, and actual production of housing units. The OBAG program allows flexibility to invest in a community’s transportation infrastructure by providing funding for Transportation for Livable Communities, bicycle and pedestrian improvements, local streets and roads preservation, and planning activities, while also providing specific funding opportunities for Safe Routes to Schools projects and Priority Conservation Areas.

Plan Bay Area Achieves Key Performance Targets

As described earlier, Plan Bay Area was developed within a framework of objective performance standards, both mandatory and voluntary or aspirational. As has been the case in past long-term transportation plans, no single strategy is able to achieve all the plan’s performance targets. An analysis of the 10 main targets and five sub-targets (for a total of 15 performance measures) clearly bears this out. Specifically, the draft plan meets or exceeds six targets, including the statutory greenhouse gas emissions and housing targets, narrowly misses three targets, falls well short of two targets and unfortunately moves in the wrong direction on four of the targets. In other words, the draft plan makes great progress on nine of 15 performance

measures, which represents a solid first effort. The region will need to focus future attention on conceptualizing breakthrough strategies to achieve the four targets where we are falling behind. For a more detailed discussion of the plan's performance as measured against each individual target, please see Chapter 5.

A Plan to Build On

Plan Bay Area is a work in progress that will be updated every four years to reflect new initiatives and priorities. It builds upon the work of previous initiatives, complements ongoing work and lays the groundwork for closer examination of certain critical issues that can further prepare the region to meet the future head-on. The plan highlights the relationship between transportation investments and land use planning, and represents the region's newest effort to position itself to make the most of what the future will bring.

No single level of government can be expected to address all the critical components needed to create a stronger and more resilient Bay Area. It will take a coordinated effort among diverse partners to promote regional economic development, adapt to climate change, prepare for natural disasters, get creative about how to provide affordable housing for all Bay Area residents, ensure clean and healthy air for our communities, and prepare for emerging technologies that will change the way people work and get around. Further steps will be needed to fully realize the Plan Bay Area vision and implement some of its forward-looking plans and policies. (See Chapter 6 for a discussion of some needed "next steps.")

But we have made a strong start. Look closely at Plan Bay Area, and you will see a plan that takes great strides toward:

Tackling problems that cross boundaries and require regional solutions

Housing, air quality, traffic, jobs, economic development, open space preservation – the list is a long one.

Embodying local visions

Priority Development Areas were recommended by local governments, and land use and transportation strategies are linked to local input and priorities; different kinds of investments and development are envisioned for different parts of the region.

Helping to ensure a vibrant and healthy region for our children and grandchildren

Cleaner air, fewer greenhouse gas emissions, more housing options, improved infrastructure, better access to jobs, and access to open space and recreation — these are the building blocks of a better future.

Making Bay Area businesses more competitive

A well-constructed, sustainable regional plan can help us attract private sector investment and compete for federal and state funding.

Providing a range of housing and transportation choices

A greater variety of multifamily and single family housing will be available in places with better transit access, and improved walking conditions and local services.

Stretching tax revenues through smart investments

By making the most of existing infrastructure, using a performance-based approach to transportation investments and coordinating the location of future housing and jobs with major transportation investments, we can get more bang for our buck in public expenditures.

Preserving open spaces, natural resources, agriculture and farmland

By developing in existing downtowns, main streets and neighborhoods, we don't need to develop on open spaces or in places that over-utilize our water supply, energy resources and road capacity.

Helping to create healthy communities

More people will be able to live in neighborhoods where they can walk to shops, transit and local parks because of the groundwork laid in this plan.

Plan Bay Area cannot guarantee these outcomes, of course, but we believe it can greatly boost the region's odds of achieving them. For surely we must work together as a region to promote sustainability, and to leave a better Bay Area for our children and grandchildren. By helping to harmonize local decision-making and regional goals, by better integrating transportation investment and land use planning, by more closely aligning our policies with our vision — in short, by creating a strategy for a sustainable region — Plan Bay Area gives us a chance to do that.



Karl Nielsen

MTC and ABAG welcome your comments on this draft Plan Bay Area. An extensive outreach effort is planned during the spring of 2013 to provide ample opportunity for the region's residents to make their views known. Please see "What's Next for Plan Bay Area" at the end of this plan for details, or visit <http://onebayarea.org>

Chapter 1

Setting Our Sights

Crafting a plan to meet the challenges and opportunities of the coming quarter-century is a big job. MTC and ABAG tackled this assignment with enthusiasm, emphasizing both an open, inclusive attitude and a commitment to analytical rigor.

We reached out to thousands of people from around the region, through stakeholder sessions, public workshops, telephone and internet surveys, and countless other means to involve a wide swath of the public in the development of the plan. The region's 101 cities and nine counties also participated in the development of the plan, as did our fellow regional agencies, the Bay Conservation and Development Commission and the Bay Area Air Quality Management District. Community-based organizations and advocacy groups representing the diverse interests of the Bay Area played their part, as did some three dozen regional transportation partners. The plan's outreach effort was both broad-based and deep.

At the same time, wanting to hew to strict objective standards of progress, MTC and ABAG adopted 10 specific targets against which to measure the success of the plan in achieving genuine regional benefits and required statutory goals. This chapter traces the overall development of Plan Bay Area, with special attention to the public process followed, and to the setting, adjusting and assessment of key performance objectives.



Karl Nielsen

Establishing a Performance Framework

What are we aiming for in Plan Bay Area, and how can we measure our success in achieving it? New mandates answer those questions to some degree. California Senate Bill 375, enacted in 2008, requires that we plan for future housing needs and complementary land uses, which in turn must be supported by a transportation investment strategy. And we must do this in a way that reduces emissions of greenhouse gases from cars and light-duty trucks. A fully integrated land use and transportation planning approach is needed to meet these requirements, and Plan Bay Area embraces and embodies such an approach.

Combining these mandated objectives with a careful assessment of the long-range needs of the Bay Area and an understanding of the desires and aspirations of its residents — communicated loudly and diversely through the many avenues provided for public participation (see sidebar on page 24)— we can begin to structure a serious plan for the region. But before proposing a land use distribution approach or recommending a transportation investment strategy, planners must formulate in concrete terms the hoped-for outcomes we seek. For Plan Bay Area, performance targets are an essential element of this regional planning process, allowing for rational discussion of quantitative metrics. Establishing targets allows for various alternative strategies to be assessed and compared using a consistent set of metrics.

Collaborative Process

MTC and ABAG engaged a broad spectrum of regional stakeholders in order to make the targets as meaningful as possible in measuring the plan's success. This collaborative process in the latter half of 2010 involved reviewing nearly 100 possible performance targets, which were critically examined using a set of evaluation criteria. These criteria emphasized targets that could be forecasted by modeling tools and potentially influenced by policies and investments in the future plan. After six months of discussion and debate reflecting input from local stakeholders, equity, environment and business advocates, and concerned members of the public, a list of the preferred targets took shape. These targets went beyond traditional transportation concerns, such as metrics for regional mobility, and instead embraced broader regional concerns, including land use, environmental quality and economic vitality.



Noah Berger

The Plan Bay Area targets, adopted in January 2011, reflect this plan's emphasis on sustainability. Sustainability encapsulates a broad spectrum of concerns, including environmental impacts from greenfield development and vehicle emissions, equity impacts from displacement and low-income household affordability, and economic impacts from regional competitiveness. By integrating these three E's — environment, equity, and economy — throughout the targets, Plan Bay Area truly aims to measure the success of creating sustainable communities. We paid special attention to the equity component of the three E's triad, as detailed later in this chapter.

Of course, adopting these voluntary targets is not the same as achieving them. Many are extremely ambitious. But two of the targets are not only ambitious, but also mandatory and vitally important. Plan Bay Area must reduce greenhouse gas emissions by specified amounts, and it must plan for housing in a quantity sufficient for the region's population. These targets are critical to achieving state and regional goals in combating climate change — and the draft plan meets those major milestones.

The Plan Bay Area targets adopted by MTC and ABAG are displayed in Table 1; information on how the plan performs against the targets can be found in Chapter 5, "Performance."

Table 1 Adopted Plan Bay Area Performance Targets

Goal/Outcome	No.	Adopted Target Unless noted, the targeted increases or reductions are for 2040 compared to a year 2005 baseline.
Required		
Climate Protection	1	Reduce per-capita CO ₂ emissions from cars and light-duty trucks by 15 percent (Statutory requirement is for year 2035, per SB 375)
Adequate Housing	2	House 100 percent of the region's projected growth (from a 2010 baseline year) by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents (Statutory requirement, per SB 375)
Voluntary		
Healthy and Safe Communities	3	Reduce premature deaths from exposure to particulate emissions: <ul style="list-style-type: none"> • Reduce premature deaths from exposure to fine particulates (PM_{2.5}) by 10 percent • Reduce coarse particulate emissions (PM₁₀) by 30 percent • Achieve greater reductions in highly impacted areas
	4	Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian)
	5	Increase the average daily time walking or biking per person for transportation by 70 percent (for an average of 15 minutes per person per day)
Open Space and Agricultural Preservation	6	Direct all non-agricultural development within the urban footprint (existing urban development and urban growth boundaries) (Note: Baseline year is 2010.)
Equitable Access	7	Decrease by 10 percentage points (to 56 percent, from 66 percent) the share of low-income and lower-middle income residents' household income consumed by transportation and housing
Economic Vitality	8	Increase gross regional product (GRP) by 110 percent — an average annual growth rate of approximately 2 percent (in current dollars)
Transportation System Effectiveness	9	<ul style="list-style-type: none"> • Increase non-auto mode share by 10 percentage points (to 26 percent of trips) • Decrease automobile vehicle miles traveled per capita by 10 percent
	10	Maintain the transportation system in a state of good repair: <ul style="list-style-type: none"> • Increase local road pavement condition index (PCI) to 75 or better • Decrease distressed lane-miles of state highways to less than 10 percent of total lane-miles • Reduce share of transit assets past their useful life to 0 percent (Note: Baseline year is 2012.)

Taking Equity Into Account

In addition to assessing Plan Bay Area’s impact on the 10 adopted targets, which collectively cover a wide range of issues and policies, MTC and ABAG also made a special effort to gauge the effects of Plan Bay Area on the region’s low-income and minority populations. Indeed, a commitment to achieving equity in the long-range planning process is a key element of Plan Bay Area’s performance-based approach. MTC and ABAG staff prepared an Equity Analysis to evaluate quantitative measures of equity concerns. Aspects of this analysis serve both to satisfy MTC’s federal requirements with respect to the metropolitan planning process, as well as Plan Bay Area’s objective to advance equity in the region.

The Equity Analysis identifies “communities of concern” in the region with concentrations of socioeconomically disadvantaged or vulnerable populations. MTC developed the definition of communities of concern in concert with key regional equity stakeholders, public agency staff, and community representatives, who also prioritized the equity measures based on what stakeholders believed were the region’s most significant equity-related issues today and in the context of future growth: affordability, equitable growth, healthy communities, access to jobs, and equitable mobility for all system users. Guided by these priorities, MTC staff developed the set of five equity performance measures displayed in Table 2.

Table 2. Plan Bay Area Equity Performance Measures

Equity Issue	Performance Measure
1 Housing and Transportation Affordability	% of income spent on housing and transportation by low-income households
2 Potential for Displacement	% of rent-burdened households in high-growth areas
3 Healthy Communities	Average daily vehicle miles traveled per populated square mile within 1,000 feet of heavily used roadways
4 Access to Jobs	Average travel time in minutes for commute trips
5 Equitable Mobility	Average travel time in minutes for non-work-based trips

Scenarios Take Aim at Targets

Taken together, the Plan Bay Area performance targets outline a framework that allows us to better understand how different projects and policies might affect the region’s future. We can compare conditions over the lifespan of the plan by measuring changes in the performance target metrics between 2005 and 2040. Because many of the targets are aspirational in nature, ABAG and MTC understood and made clear through the scenario-development process (described below) that some targets might not be achievable through Plan Bay Area. Also, and importantly, the targets were crafted to focus on desirable regional outcomes that did not pre-ordain a specific land use pattern, transportation mode or investment strategy to reach that goal.

With the targets clearly identified, MTC and ABAG formulated possible “visioning” scenarios – combinations of land use patterns and transportation investments – that could be evaluated together to see if (and by how much), they achieved (or fell short of) the performance targets. In simplified terms, if the targets delineate the plan’s aspirations, the scenarios represent possible ways to realize them. Obviously, the goal is to identify the most promising scenario, especially with respect to the attainment of the statutory requirements for greenhouse gas emission reductions and for the provision of an adequate amount of housing. See the full *Performance Assessment Report* (listed in Appendix 1) for detailed information on the scenario evaluation process.

Visioning Scenarios

The transportation and land use alternative included in this Plan Bay Area resulted from three rounds of scenario analyses. (For a helpful flow-chart graphic of this process, see pages 22–23) In early 2011, two potential land use patterns were developed by ABAG staff: “Current Regional Plans”, which reflected cities’ current general plans and visions for growth; and an “Initial Vision Scenario,” a hypothetical growth pattern put forward by ABAG staff with input from local governments and county congestion management agencies. As depicted in Table 3, each land use pattern was paired with the transportation network contained in the Transportation 2035 Plan (adopted in 2009) and tested to yield a set of both target and equity performance results. These scenario results provided a starting point for a first round of visioning conversations with local governments and Bay Area residents about where new development should occur, and how new long-term transportation investments might serve this new growth.

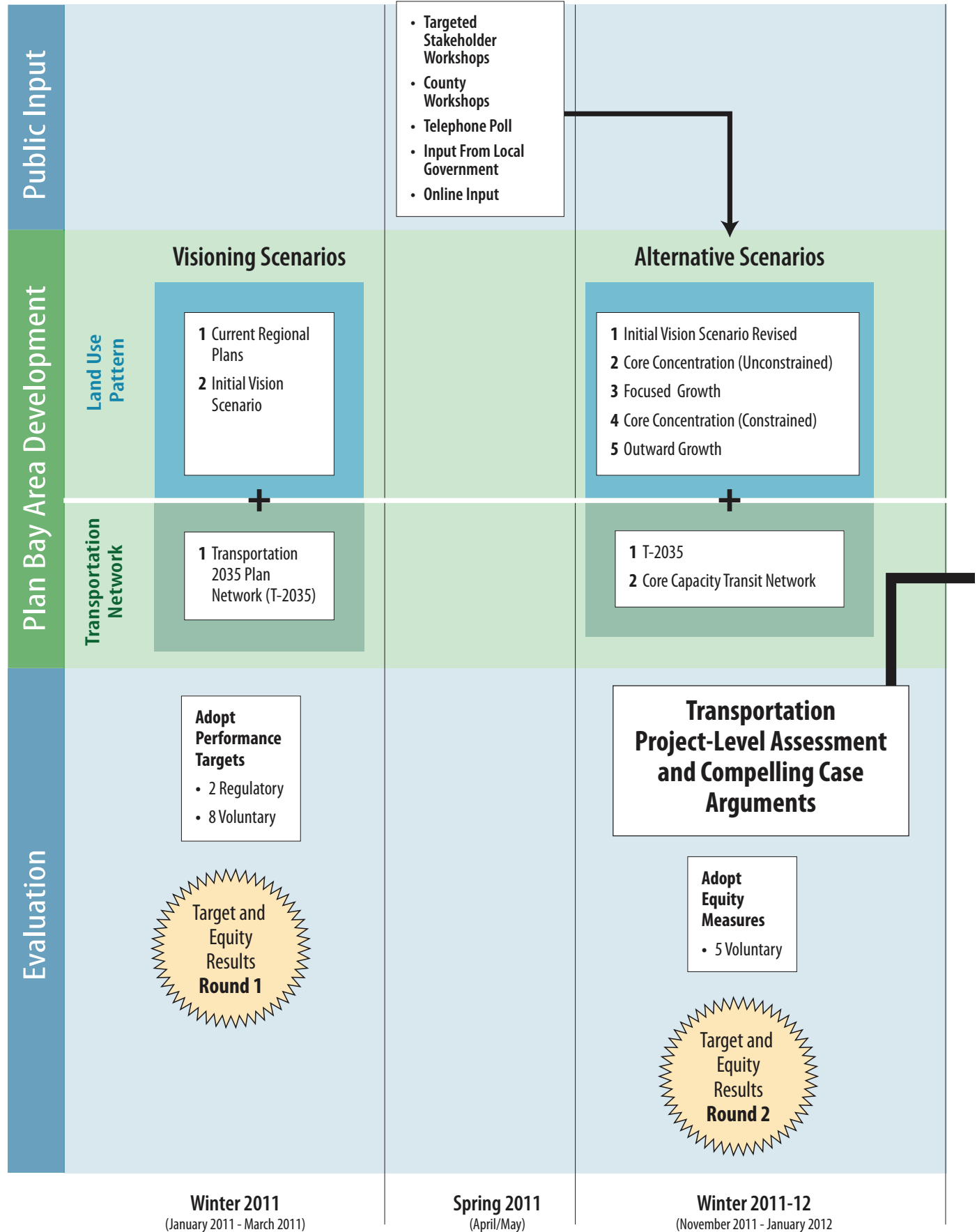
Table 3. Visioning Scenarios

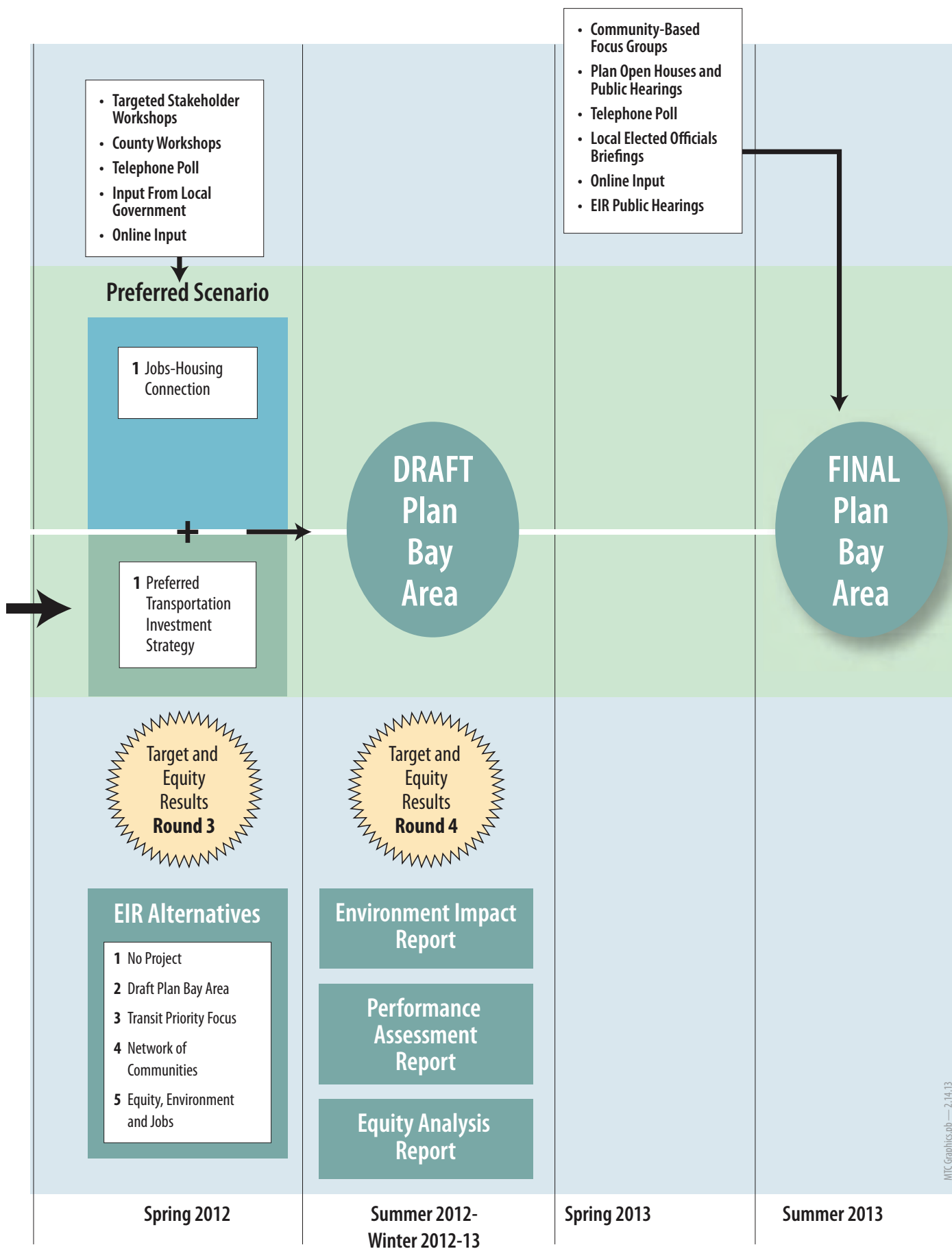
Land Use Patterns	Transportation Network
Current Regional Plans <ul style="list-style-type: none">• Generally reflects cities’ current general plans for lower amounts of growth.• Growth includes 634,000 new housing units and 1.1 million new jobs.	Transportation 2035 Plan Network (T-2035) <ul style="list-style-type: none">• Network is the multimodal investment strategy in the existing Transportation 2035 Plan.• Contains significant funding for operations and maintenance of the existing system; limited expansions of highway and transit networks.
Initial Vision Scenario <ul style="list-style-type: none">• Growth pattern developed with input from local governments and county congestion management agencies.• Land uses based on Priority Development Areas and Growth Opportunity Areas.• Growth includes 902,000 new housing units and 1.2 million new jobs.	

Alternatives to the Visioning Scenarios

Over the winter of 2011-12, MTC and ABAG staff developed a second set of scenarios, relying on input from the public, cities and counties, and transportation agencies. These scenarios included a wider range of alternative land use patterns as the basis for expanding the regional dialogue on the type of development, planning strategies, and investments that would be best for Plan Bay Area. Five land use patterns were identified, and each was matched with one of

Plan Bay Area Development Process





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Plan Bay Area Prompts Robust Dialogue on Transportation and Housing

Developing a multibillion dollar, long-range plan for the nine-county San Francisco Bay region is not a simple task. It is a three-year process involving four regional agencies, nine counties, 101 towns and cities, elected officials, planners, community-based organizations, the public and other stakeholders. The many moving parts include statutory and voluntary requirements, goal-setting, financial projections, calls for projects, project evaluation, forecasting, measuring, methodologies and more. Despite all this complexity, public participation is critical to ensure an open, democratic process, in which all interested residents have the opportunity to offer input and share their vision for what a vibrant, livable Bay Area will look like decades from now.

Early on in the development of Plan Bay Area, MTC and ABAG set benchmarks for involving a broad cross-section of the public. With two rounds of public engagement complete and another about to begin, the agencies can point to a number of indicators that show an active process. Full details are included in a supplementary publication, *Plan Bay Area Public Outreach and Participation Program: Phases 1-3*, listed in Appendix 1.

Following are some of the highlights to date:

- Two statistically valid telephone polls conducted in late 2010/early 2011 and spring 2012 (each with some 1,600 residents). A third poll of some 2,500 residents is being conducted this spring.
- Partnerships with community-based organizations in low-income communities and communities of color (1,600 completed surveys in Spring 2011; 10 focus groups with 150 participants in Winter 2012, and an additional 11 focus groups being conducted in the spring of 2013).
- Nineteen well-attended public workshops that attracted nearly 2,000 residents (two each in all nine Bay Area counties, with an extra meeting in Alameda County). A vocal contingent of participants at the public meetings expressed strong opposition to regional planning in general and to Plan Bay Area in particular.
- Ongoing meetings with local elected officials, local planning directors and officials from congestion management and transit agencies.
- An active web and social media presence, including some 270,000 page views by 50,000 unique visitors to the OneBayArea.org web site since its launch in April 2010, and a January 2012 “virtual public workshop” that was taken by some 1,300 participants.

With release of the draft plan, residents can comment multiple ways in April and May 2013 at one of nine public hearings on the plan, three public hearings on the companion Environmental Impact Report and online via a Plan Bay Area Town Hall at OneBayArea.org. See “What’s Next for Plan Bay Area” at the end of this plan for complete details.

two proposed transportation networks — the Transportation 2035 Network (i.e., the existing long-range plan) or a Core Capacity Transit Network — based on which best supported the pattern of development. These combinations were then separately evaluated against the performance targets, and against the five social equity measures discussed elsewhere in this chapter. See Table 4 for the specific scenario pairings.

Table 4. Alternatives to the Visioning Scenarios

Land Use Patterns	Transportation Networks
Initial Vision Scenario Revised <ul style="list-style-type: none"> Concentrates housing and job growth in Priority Development Areas (PDAs). 	Transportation 2035 (T-2035) Plan Network <ul style="list-style-type: none"> Network is the multimodal investment strategy in the existing Transportation 2035 Plan. Contains significant funding for operations and maintenance of existing system; limited expansions of highway and transit networks.
Core Concentration (Unconstrained) <ul style="list-style-type: none"> Concentrates housing and job growth in locations served by frequent transit service, and/or in core Bay Area locations within a 45-minute transit commute area of downtown San Francisco, downtown Oakland or downtown San Jose. Scenario is “unconstrained” due to the high levels of population and job growth that were assumed. 	Core Capacity Transit Network <ul style="list-style-type: none"> Significantly increases transit service frequencies along core transit network. Keeps T-2035 investment levels for maintenance and bike/pedestrian projects; reduces T-2035 roadway expansion investments. Requires additional capital and operating funds to pay for major expansion of transit services.
Core Concentration (Constrained) <ul style="list-style-type: none"> Similar to unconstrained version above; housing and job growth is distributed to selected PDAs in the inner Bay Area, focusing on major downtowns and areas along the region’s core transit network. Scenario is “constrained” with lower levels of population and job growth relative to Initial Vision Scenario (Revised) and Core Concentration (Unconstrained). 	
Focused Growth <ul style="list-style-type: none"> Growth is distributed more evenly along transit corridors and job centers, with emphasis on development in PDAs and Growth Opportunity Areas (potential locations for focused growth outside already established PDAs). 	
Outward Growth <ul style="list-style-type: none"> Distributes greater amounts of growth to outer Bay Area, with some emphasis on focused growth near suburban transit hubs. Scenario is closer to historical trends than the other land use options considered. 	T-2035 Network See description above.

Preferred Scenario

In the spring of 2012, after conducting a second round of outreach to the public, local transportation agencies, cities and counties, and other stakeholders, ABAG and MTC developed the Jobs-Housing Connection Strategy. This land use pattern places 80 percent of residential growth and 66 percent of job growth in Priority Development Areas throughout the region.

Table 5 Preferred Scenario (Draft Plan Bay Area)

Land Use Pattern	Transportation Network
Jobs-Housing Connection Strategy <ul style="list-style-type: none">• Focuses 80 percent of new housing and 66 percent of new jobs in Priority Development Areas.• Reduces greenhouse gas emissions, limits growth outside of the region's core, and preserves natural resources and open space.	Preferred Transportation Investment Strategy <ul style="list-style-type: none">• Devotes 86 percent of funding to operate and maintain existing transportation network.• Directs remaining funding to next-generation transit projects and other high-performing projects; to programs aimed at supporting focused growth and reducing GHG emissions; and to county-level agencies for locally designated priorities.

Drawing on the same outreach process and the results of a project-level transportation performance assessment (see Chapter 5), the two agencies also developed the Preferred Transportation Investment Strategy. The Jobs-Housing Connection Strategy and the Preferred Transportation Investment Strategy (displayed in Table 5) were adopted by the ABAG Executive Board and the MTC Commission in May 2012, and together they form the draft Plan Bay Area. The main components of the plan are described in detail in chapters 3 and 4. The Plan Bay Area performance results are presented in Chapter 5.



Chapter 2

The Bay Area in 2040



Karl Nielsen

The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) track and forecast the region's demographics and economic trends to inform and guide Plan Bay Area investments and policy decisions. The forecasts highlighted in this chapter reflect the best picture we have of what the Bay Area may look like in 2040, so that today's decisions align with tomorrow's expected transportation and housing needs. These forecasts form the basis for developing the regional land use plan and transportation investment strategy for Plan Bay Area.

This chapter explains the process used to develop the Plan Bay Area growth forecasts, and it describes the most recent planning assumptions used to develop the forecasts, including local general plans and other factors. It also looks at three main demographic categories that informed development of the plan: employment, population and housing.

What the forecasts tell us:

- Between 2010 and 2040, the nine-county San Francisco Bay Area is projected to add 1.1 million jobs, 2.1 million people and 660,000 homes, for a total of 4.5 million jobs, 9.3 million people and 3.4 million homes.
- Substantial shifts in housing preferences are expected as the Bay Area population ages and becomes more diverse.
- As the Bay Area continues to recover from the lingering effects of the Great Recession, certain economic trends and indicators will likely rebound. For example, strong job growth is expected in the professional services, health and education, and leisure and hospitality sectors. Early indicators also suggest that the regional housing market is showing signs of recovery.

Forecasting the Region's Population, Employment and Housing

The Association of Bay Area Governments employed the Center for Continuing Study of the California Economy (CCSCE) to provide national, state and regional employment and population forecasts. The agency also hired Karen Chapple of the University of California, Berkeley, to provide a housing analysis and estimates as inputs to the ABAG housing forecast. The Metropolitan Transportation Commission employed the consulting firm Strategic Economics to provide industry sector locational preferences, which were used as inputs to the ABAG land use forecast and Sustainable Communities Strategy.



A Four-Step Process

The Association of Bay Area Governments developed the demographic forecasts by following four steps (Figure 1):

- 1 Potential job growth:** Job growth by 2040 for the Bay Area was estimated as a share of the U.S. Bureau of Labor Statistics' national growth projections, reflecting the difference in 2010 between national and regional labor force participation in various economic sectors, such as the professional services and retail sectors. This analysis was performed by the Center for Continuing Study of the California Economy.
- 2 Potential population and household growth:** The job growth forecast determines the population and number of households, as well as household income levels. ABAG, in consultation with CCSCE, translated the Bay Area job growth projection into labor force, total population and household forecasts. These forecasts were based on labor force participation rates and the number of persons per household by age and race cohorts.
- 3 Housing production:** ABAG, in consultation with Prof. Karen Chapple at UC Berkeley, estimated regional housing production by 2040 based on past housing production levels, projected household income, and new policies and programs to support housing production in Priority Development Areas (PDAs).
- 4 Feasible job, population and household growth:** ABAG adjusted for housing production limitations by 2040 that influence the number of workforce households that can be accommodated in the region. These housing production limitations, in turn, limit job growth in the region and reduce total population growth.

Figure 1 Four-Step Process for Developing Bay Area Demographic Forecasts



Assumptions

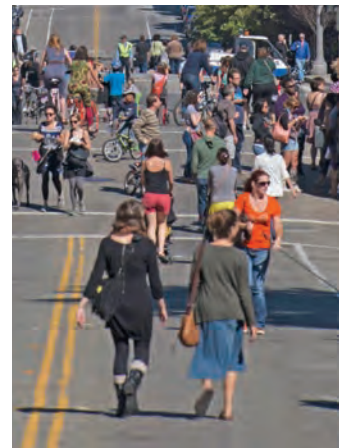
The overall regional growth forecast for Plan Bay Area relies on the following main assumptions:

- The Bay Area and national economies will be healthy, with an average unemployment rate of 5 percent or less and reasonably sufficient housing production for the workforce.
- A stronger link will be made between jobs and housing in locations sought by the workforce.
- Adjustments to the job growth forecast are needed to account for the region's expected level of housing production given historic trends and the constraints of an infill growth development pattern.
- The region will continue to receive historical levels of public funding for housing production.

For additional technical information on the regional forecasting methodology and distribution, see the *Forecast of Jobs, Population and Housing*, listed in Appendix 1.

Snapshot of the Bay Area, 2010–2040

By 2040 the San Francisco Bay Area is projected to add 2.1 million people, increasing total regional population from 7.2 million to 9.3 million, an increase of 30 percent or roughly 1 percent per year. This growth means the Bay Area will continue to be California's second-largest population and economic center. Two major demographic changes shape the forecast of household and job growth: the increase in the senior population and the increase in the Latino and Asian populations. The number of jobs is expected to grow by 1.1 million between 2010 and 2040, an increase of 33 percent. During this same time period the number of households is expected to increase by 27 percent to 700,000, and the number of housing units is expected to increase by 24 percent to 660,000. (See Table 1.) While robust, this projected rate of growth is actually slower than other metropolitan regions in California and also is slower than the Bay Area's pace of growth in the 1970s and 1980s.



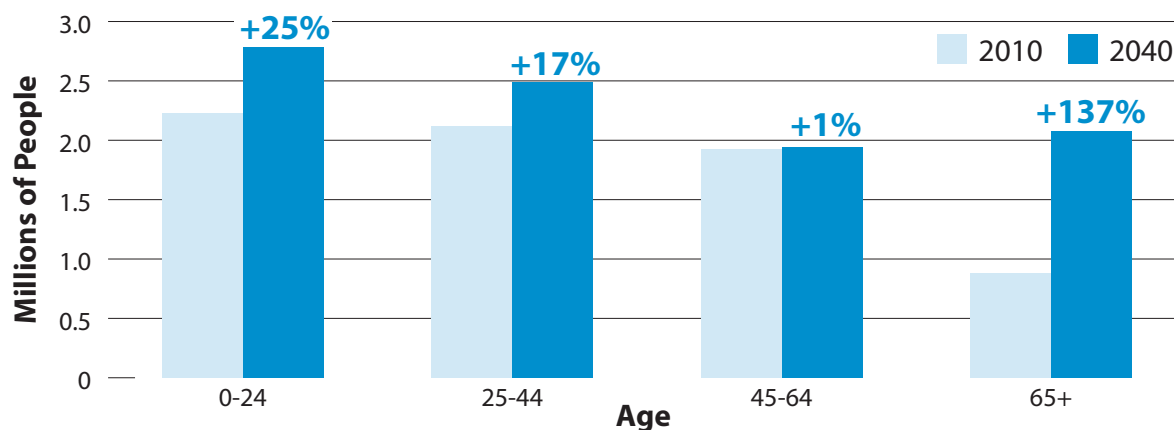
Karl Nielsen

Table 1 Bay Area Population, Employment and Housing Projections, 2010–2040

Category	2010	2040	Growth 2010–2040	Percent Change 2010–2040
Population	7,151,000	9,299,000	2,148,000	+30%
Jobs	3,385,000	4,505,000	1,120,000	+33%
Households	2,608,000	3,308,000	700,000	+27%
Housing Units	2,786,000	3,446,000	660,000	+24%

Source: ABAG, Jobs-Housing Connection Strategy (2012)

Figure 2 Bay Area Population by Age, 2010 and 2040



Sources: 2010 Census, California Department of Finance, ABAG

Population Forecast

The population forecast was derived from ABAG's job growth forecast. (See "Employment Forecast," page 34.) It also analyzed the existing population and its labor force participation rates by age cohort and race. Beyond births and deaths, it was assumed that the rate of immigration to the region will remain the same from 2010 to 2040. Incentives to produce housing close to job centers will result in some increases in the number of households and total population. (For population growth by county, see Table 4, page 39.)

Aging Baby Boomers

Between 2010 and 2040 the Bay Area's population is expected to grow significantly older. Today, people who are 65 and over represent 12 percent of the total population, but by 2040 the share will increase to 22 percent. Put another way, the number of seniors will more than



double from under 900,000 today to nearly 2.1 million by 2040. (See Figure 2.) By contrast, the segment of population aged 45-64 will grow by less than 1 percent, and will shrink from 27 percent of the total population today to 21 percent by 2040. The projected increase in the senior population will cause the overall labor force participation rate to fall, even as more people work beyond the age of 65. By 2040, 50 people out of every 100 in the Bay Area are projected to be in the labor force, compared to 52 people out of 100 in 2010.

Younger-age segments of the population will increase in size substantially, but will represent a slightly smaller share of total population in the future due to the large number of aging baby boomers. The number of people aged 25-44 will increase by 17 percent or nearly 370,000, while the number of people aged 24 and younger will increase by 25 percent or over 550,000.

Increased Racial and Ethnic Diversity

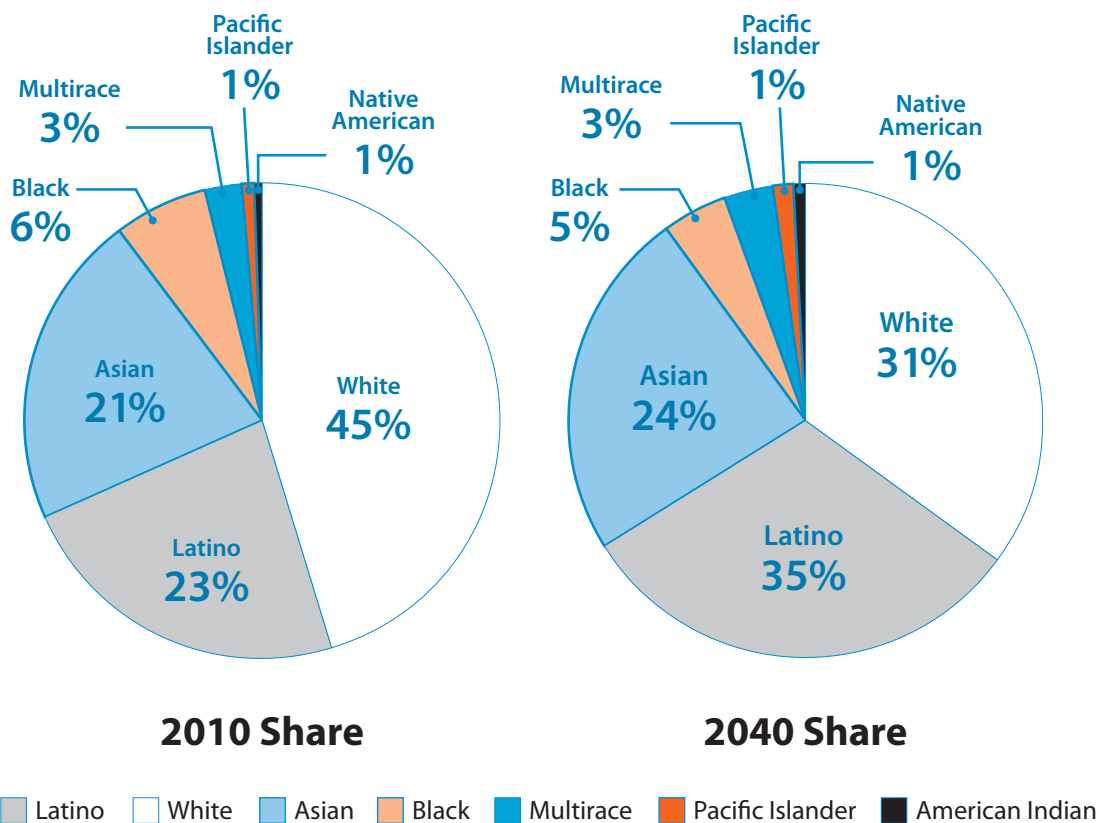
By 2040 the population will become substantially more racially and ethnically diverse (Figure 3). Latinos will emerge as the largest ethnic group, increasing from 23 percent to 35 percent

of the total population. The number of Asians also will increase, growing from 21 percent to about 24 percent of the population. The population growth of these ethnic groups is significant for Plan Bay Area because of their historic preference for multifamily housing. According to the California Department of Finance, the Latino and Asian populations also form multigenerational households at a higher rate than the general population. (See “Housing Forecast,” page 36.)

In contrast, the share of non-Hispanic whites will drop sharply from approximately 45 percent of today’s population, to about 31 percent in 2040. The African-American segment of the population also is expected to decline slightly, dropping from 6 percent to 5 percent, while other demographic groups are expected to maintain a similar share of the population in the future as they do today.

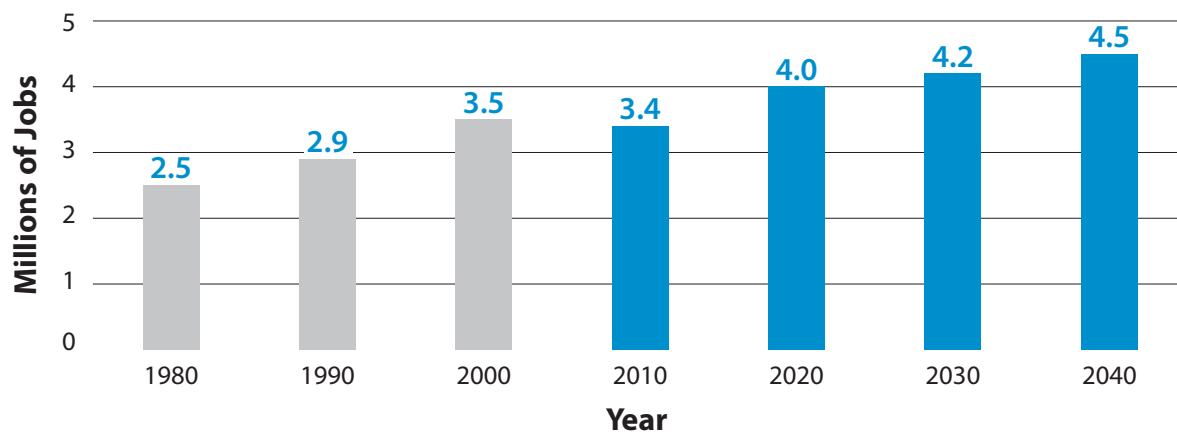


Figure 3 Bay Area Population by Race/Ethnicity, 2010 and 2040



Sources: 2010 Census, California Department of Finance, ABAG

Figure 4 Total Regional Employment, 1980–2040



Sources: US Census (1960-1980), California Department of Finance (1990-2000), ABAG (2010-2040)

Employment Forecast

The Association of Bay Area Governments forecasted regional employment by industry sector utilizing an analysis of the Bay Area’s competitiveness by industry in relation to the state and national growth forecast conducted by CCSCE. The analysis took into account the Bay Area’s concentration of knowledge-based industries, research centers and universities; the presence of a highly educated and international labor force; expanding international networks serving the global economy; and the overall diversity of the regional economy.

These fundamental assets underpinning the Bay Area economy still are strong. While it is true that the region has not recovered all jobs lost since the “dot-com bubble” popped in 2000, the so-called “jobless growth” of the last decade was a national phenomenon not limited to the Bay Area. Furthermore, increasing numbers of news articles report that various parts of the regional economy are on the mend. For example, the Bay Area led California job growth in 2012 with 91,400 new jobs, a nearly 3 percent increase from 2011 and more than twice the nationwide average, according to Bloomberg News (“Google, Facebook lead Bay Area jobs,” Jan. 27, 2013). Based on the above factors and strong fundamentals, Bay Area employment is forecast to grow at a slightly faster rate than that of the nation as a whole.

Substantial numbers of jobs are expected to be created between 2010 and 2040 (Figure 4). More than half of the projected 1.1 million new jobs are expected to be created between 2010 and 2020, which includes the recovery of close to 300,000 jobs lost during the Great Recession that began in 2007. The gain of 1.1 million jobs does not translate directly into new office, commercial or industrial construction. About one-third of these jobs could potentially be accommodated within existing offices and facilities, given current vacancy rates. Many of these jobs are expected to be filled by currently unemployed or underemployed individuals. From 2020 to 2040, the rate of job growth is forecast to slow in comparison to the 2010-2020 period.

The job growth forecast was adjusted based on the difficulties in supplying sufficient housing in the Bay Area to meet the needs of workforce housing within reasonable commute times. The historic imbalances in the Bay Area housing market have resulted in excessively high housing prices in locations close to job centers. Employers have consistently cited these imbalances as the most difficult aspect of recruiting and retaining high-quality employees in the region.

Employment Growth Highest in Professional Services, Health and Education, and Leisure and Hospitality Economic Sectors

Major industry job trends in the Bay Area over the next 30 years are expected to largely mirror national trends. Nearly 73 percent of total employment growth is projected to be in the professional services, health and education, and leisure and hospitality sectors. The national trends of slower growth in retail and finance are also expected in the Bay Area. Construction jobs are expected to almost regain pre-recession levels by 2020 and to increase slightly by 2040. Although this is a substantial gain compared to 2010, it is driven primarily by a slow return to more normal construction levels in the region. Manufacturing jobs are projected to remain more or less stable through 2040. (See Table 2.)

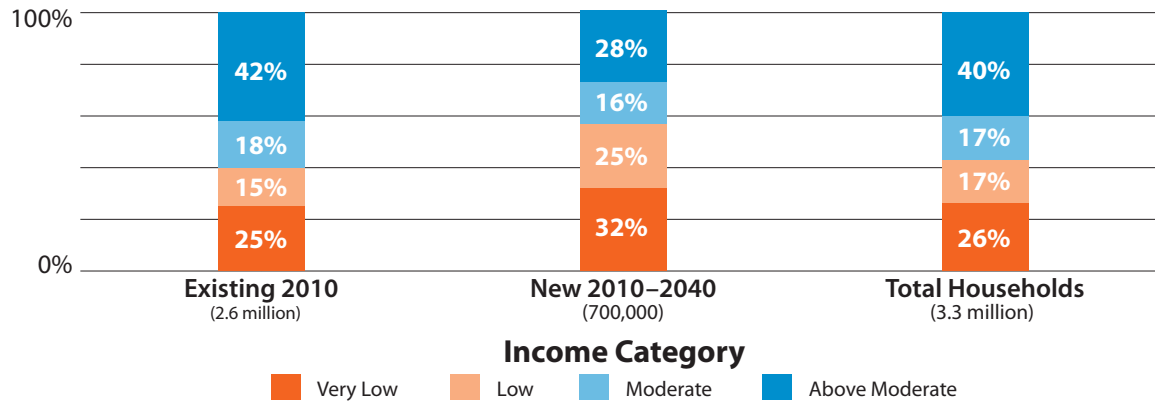
Industry sectors contain a wide spectrum of wages, which correspond to the skill levels and training needed for different occupations. This is especially true for the two sectors with the highest projected growth: professional services and health and education. For example, fewer than half the jobs in professional services require the higher levels of education and specialization than one might consider typical for this sector. The construction, manufacturing and wholesale sectors have significant numbers of jobs in middle-income occupations, while the leisure and hospitality (which includes hotels) and retail sectors have higher shares of low-income jobs. While there are substantial opportunities in fast-growing sectors with large numbers of high income jobs, these sectors also will create middle- and low-income jobs. For example, the professional services sector will create both high-income jobs, such as a vice president of sales, and lower-income jobs, such as a file clerk.

Table 2 Bay Area Employment by Sector, 2010–2040, Ranked by Job Growth

Sector	2010	2040	Growth (Loss) 2010–2040	Percent Change 2010–2040
Professional Services	596,700	973,600	376,900	+63%
Health and Education	447,700	698,600	250,900	+56%
Leisure and Hospitality	472,900	660,600	187,600	+40%
Construction	142,300	225,300	82,900	+58%
Government	499,000	565,400	66,400	+13%
Retail	335,900	384,400	48,500	+14%
Finance	186,100	233,800	47,700	+26%
Information	121,100	157,300	36,300	+30%
Transportation and Utilities	98,700	127,400	28,600	+29%
Manufacturing and Wholesale	460,200	456,100	(4,100)	-1%
Agriculture and Natural Resources	24,600	22,700	(1,900)	-8%
All Jobs	3,385,300	4,505,200	1,119,900	+33%

Sources: California Center for Continuing Study of the California Economy, ABAG

Figure 5 Bay Area Households by Income Category, 2010–2040



Sources: U.S. Census; Karen Chapple and Jacob Wegmann, *Evaluating the Effects of Projected Job Growth on Housing Demand*, 2012

Household Income Forecast

The household income forecast was based on projected jobs by sector, associated occupations and wages, and trends in the geographic distribution of households by income level over the past several decades. Wages were calculated based on the occupations within each industry group. Other income, such as capital gains from stock market investments, was estimated from state and national forecasts as well as from past regional trends. The geographic distribution of households by income was estimated from the U.S. Census.

Today, about 40 percent of the existing 2.6 million households in the Bay Area (or just over 1 million) fall into the very-low and low-income groups, according to U.S. Census figures. Due to the growth in leisure and hospitality, retail and other low-income jobs (see Table 2), the number of people in very-low and low-income groups is projected to increase from 40 percent of households to 43 percent of households by 2040, while those in the moderate and above-moderate categories will decrease from 60 percent to 57 percent of households (see Figure 5).

Housing Forecast

The Association of Bay Area Governments based its housing production forecast on expected household income and demand, past housing production



Peter Beeler

“Unfortunately, housing supply lags demand. Leinberger [2007] notes that even at peak production the nation’s supply of housing increases by just 1 to 2 percent annually. At that rate, a generation or more is needed for the housing market to catch up to current preferences.”

— Urban Land Institute, *The New California Dream: How Demographic and Economic Trends May Shape the Housing Market*, 2011

Bay Area Housing Market Appreciation

In January 2013 the real estate information service Zillow analyzed 30 metropolitan housing markets nationwide. It predicted that the San Francisco and San Jose metro areas will be among the top markets experiencing home value appreciation in 2013. Zillow ranked the San Francisco metro area (including San Francisco, Marin, San Mateo, Alameda and Contra Costa counties) number four in the country for potential home value appreciation and predicted that median home prices will rise by 7 percent in 2013. Zillow ranked the San Jose metro area number seven and predicted that median home prices will also rise by 7 percent. Although these predicted growth rates are slower than housing market appreciation in 2012, they suggest that Bay Area homeowners will continue to benefit — and Bay Area homebuyers will continue to struggle — due to high housing costs.

Table 3 Top 10 U.S. Markets for 2013 Home Value Appreciation

Metro area	Median home value December 2012	Change from December 2011	2013 appreciation forecast
Riverside	\$197,400	9.3%	12.5%
Sacramento	225,200	11.7%	11.9%
Phoenix	157,800	22.5%	8.5%
San Francisco*	526,200	14.0%	7.3%
Los Angeles	414,900	7.9%	7.3%
San Diego	373,400	10.0%	6.7%
San Jose	630,800	15.4%	6.6%
Seattle	270,500	6.5 %	4.6%
Nationwide	157,400	5.9%	3.3%

**Includes San Francisco, Marin, San Mateo, Alameda and Contra Costa counties*

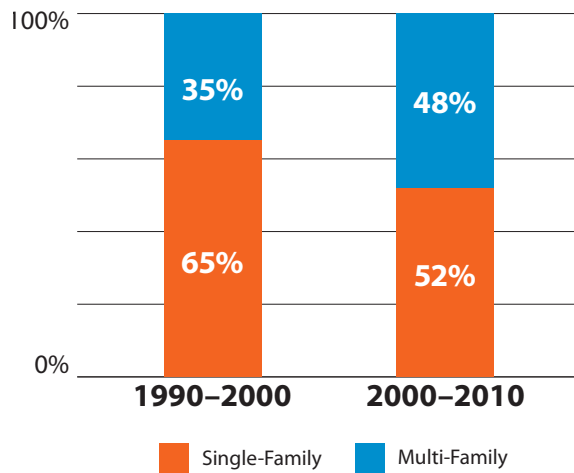
Source: San Francisco Chronicle, "Zillow expects home values in S.F. to grow but also slow," January 22, 2013.

trends, and local plans (including planned zoning changes). It also assumed the following:

- Existing policies and programs to produce housing will be retained and enhanced.
- A replacement mechanism will be found to fund and implement many of the functions that were performed by California redevelopment agencies before Gov. Jerry Brown signed legislation abolishing those agencies in June 2011.
- Some aging baby boomers will move to residential care facilities or other group housing.
- An estimated 40,000 vacant or foreclosed homes will be reabsorbed into the region's housing supply.

Demand for Multi-Unit Housing in Urban Areas Close to Transit Expected to Increase

Figure 6 Bay Area Housing Construction By Type, 1990–2010



Source: U.S. Census

The Bay Area has produced an average of just over 23,000 housing units annually since the 1980s. Single-family homes represent the majority of housing production in recent decades. Most of these homes were built on undeveloped land in suburban locations that provided housing for the post-war baby boom generation and their families. However, according to the Urban Land Institute's *What's Next? Real Estate in the New Economy* (2011), recent trends suggest that cities once again are becoming centers of population growth, including in the Bay Area. On average, construction of multifamily housing in urban locations in the Bay Area increased from 35

percent of total housing construction in the 1990s to nearly 50 percent in the 2000s, and in 2010 it represented 65 percent of all housing construction (Figure 6).

Based upon the emerging demographic changes and employment growth forecasts previously discussed, an annual average of approximately 22,000 units or 660,000 new homes are forecast to be constructed by 2040. Demand for multifamily housing is projected to increase as seniors downsize and seek the greater access to shops and services that urban locations provide. Latino and Asian household growth, along with population growth of those aged 34 and under, also will increase demand for multifamily housing in urban locations. Market demand for new homes will tilt toward townhomes, condominiums and apartments in developed areas. These homes are typically closer to transit, shops and services than the single-family residential development pattern of earlier decades.



Market demand for housing near transit also is expected to increase. According to the University of Southern California Population Dynamics Research Group's *The 2010 Census Benchmark for California's Growing and Changing Population* (2011), people aged 55 and over are more likely to prioritize public transportation, walking, access to shops and services, and multifamily housing than do other age groups. Young singles prefer similar locations with urban amenities, and they prioritize short commutes. These demographic changes represent substantial shifts that are expected to contribute to the Bay Area's recovery from the Great Recession. For example, the regional real estate market already is showing signs of recovery. (See "Bay Area Housing Market Appreciation" sidebar for more detail.)

The current single-family housing stock provides a large supply relative to future demand, and an oversupply is projected by 2040. This oversupply is expected to dampen production of multifamily housing, as some households opt instead for single-family homes that are made more affordable due to the excess supply. Despite lower demand for newly constructed single-family homes, some production will occur as the Bay Area housing market gradually adjusts to these changing demographics.

Looking Ahead at Providing Housing and Mobility for Our Workforce

The demographic forecasts summarized in this chapter were used to develop the land use distribution discussed in Chapter 3. The population, employment and housing forecasts provide information to help determine how the region will house its new residents looking forward to 2040. It should be noted that Plan Bay Area and its related forecasts will be updated every four years.

The forecasts and future land use distribution also will affect Bay Area travel patterns. These patterns include who is traveling, where travelers are going, and when people are using the region's transportation system. All these factors influence how the region will house its workforce and provide transportation choices that will increase access to people's homes and jobs.

Table 4 Population Growth by County, 2010–2040

County	2010	2040	Percent
Alameda	1,510,271	1,988,025	32%
Contra Costa	1,049,025	1,334,970	27%
Marin	252,409	285,323	13%
Napa	136,484	163,609	20%
San Francisco	805,235	1,085,641	35%
San Mateo	718,451	906,072	26%
Santa Clara	1,781,642	2,425,648	36%
Solano	413,344	511,482	24%
Sonoma	483,878	598,382	24%
Total	7,150,739	9,299,153	30%

Chapter 3

Where We Live, Where We Work



The Association of Bay Area Governments and the Metropolitan Transportation Commission developed a variety of land use and transportation scenarios that distributed the total amount of growth forecasted for the region to specific locations. These scenarios sought to address the needs and aspirations of each Bay Area jurisdiction, as identified in locally adopted general plans and zoning ordinances, while meeting Plan Bay Area performance targets adopted by the agencies to guide and gauge the region's future growth. (See Chapter 5.)

The framework for developing these scenarios consisted of Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) recommended by local governments. ABAG and MTC created the scenarios through a transparent, deliberative process, during which public input was sought at every step along the way. After further modeling, analysis and public engagement, the five initial scenarios were narrowed down to a single preferred land use scenario. This scenario and resulting development pattern represent the Sustainable Communities Strategy (SCS) that Plan Bay Area must include in the Regional Transportation Plan, as mandated by Senate Bill 375.

The preferred land use scenario is a flexible blueprint for accommodating growth over the long term. Pairing this development pattern with the transportation investments and policies described in Chapter 4 is what makes Plan Bay Area the first truly integrated land use and transportation plan for the region's anticipated growth.

A More Focused Future

As required by SB 375, the land use distribution in Plan Bay Area identifies the locations that can accommodate future growth, including the scale and type of growth most appropriate for different types of locations. In order to meet the Bay Area's greenhouse gas (GHG) emissions reduction and housing targets, and to make progress toward meeting the other adopted performance targets, the plan encourages future job and population growth in established communities with access to existing or planned transportation investments. The land use pattern seeks to achieve four comprehensive objectives:

- 1 Create a network of complete communities** — Building on the PDA framework of complete communities that increase housing and transportation choices, the plan envisions neighborhoods where transit, jobs, schools, services and recreation are conveniently located near people's homes.
- 2 Increase the accessibility, affordability and diversity of housing** — The distribution of housing in the Bay Area is critical, given its importance to individuals, communities and the region as a whole. The Bay Area needs sufficient housing options to attract the businesses and talented workforce needed for a robust future economy.
- 3 Create jobs to maintain and expand a prosperous and equitable regional economy** — The plan seeks to reinforce the Bay Area's role as one of the most dynamic regional economies in the United States. It focuses on expanding the existing concentration of knowledge-based and technology industries in the region, which is a key to the Bay Area's economic competitiveness.
- 4 Protect the region's unique natural environment** — The Bay Area's greenbelt of agricultural, natural resource and open space lands is a treasured asset that contributes to residents' quality of life and supports regional economic development.

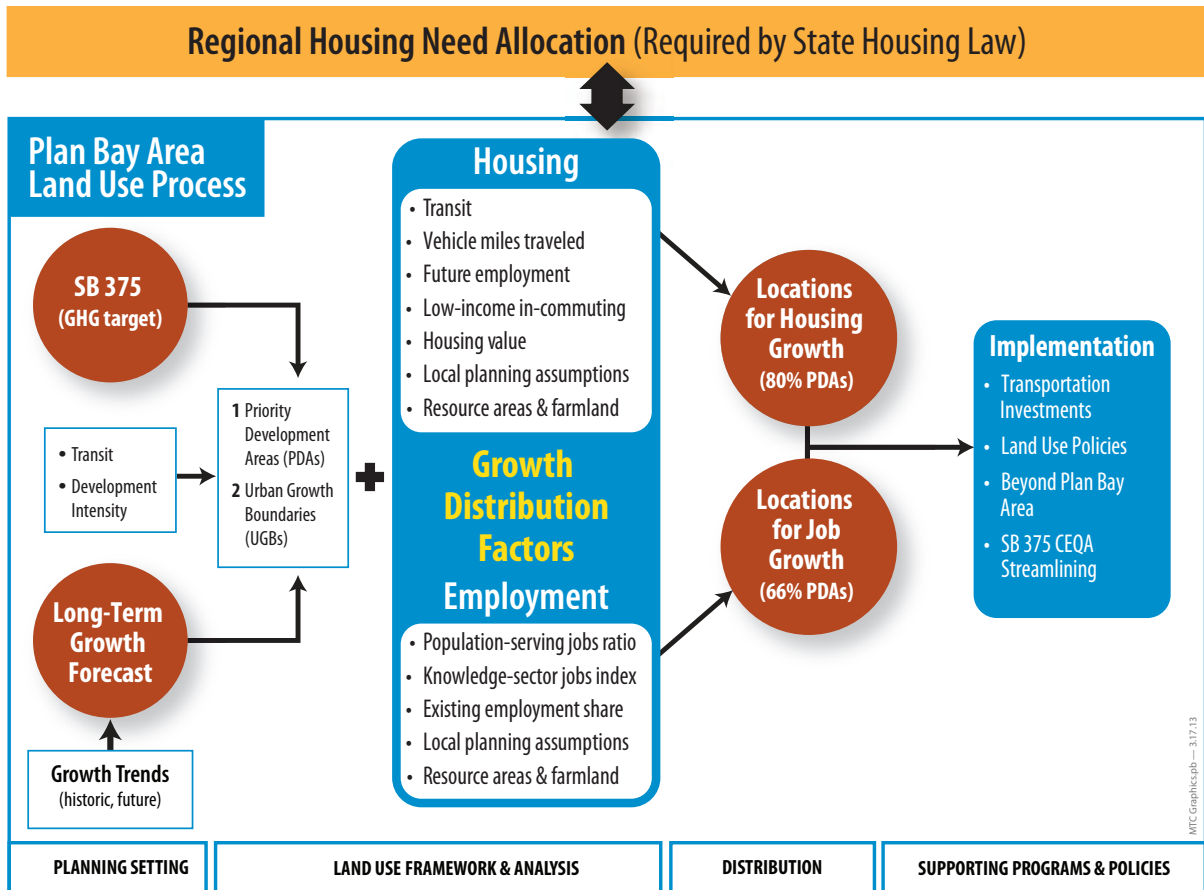
Land Use Distribution Approach

There are two main inputs for the Plan Bay Area land use distribution process (Figure 1). The first input is California Senate Bill SB 375, under which the Bay Area is required to identify a land use pattern that will:

- 1 Help the region achieve its GHG emissions reduction target** of reducing per-capita CO₂ emissions from cars and light-duty trucks by 7 percent by 2020 and by 15 percent by 2035; and
- 2 House 100 percent of the region's projected 25-year population growth** by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents.

The second input is the long-term growth forecast developed using historic and future demographic trends, as described in Chapter 2. In addition to these inputs, the land use distribution emphasizes growth in nearly 200 locally proposed Priority Development Areas (PDAs) along the region's core transit network, and accommodates 100 percent of new growth within exist-

Figure 1 Plan Bay Area Land Use Distribution Process



ing urban growth boundaries and urban limit lines. It also emphasizes protection for the region’s agricultural, scenic and natural resources areas, including Priority Conservation Areas.

The nearly 200 adopted PDAs are existing neighborhoods nominated by local jurisdictions as appropriate places to concentrate future growth that will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit. Emphasizing higher levels of growth in these locations means that many neighborhoods, particularly established single-family home neighborhoods, will see minimal future change. A key part of the PDA strategy is to move away from an unplanned “project-by-project” approach to growth, toward the creation of complete communities that meet the needs of existing and new residents and workers.

Priority Conservation Areas (PCAs) comprise over 100 regionally significant open spaces about which there exists broad consensus for long-term protection, but which face nearer-term development pressures. They are a mechanism for implementing Plan Bay Area — particularly in the North Bay, where they are central to the character and economy of many communities, and they ensure that Plan Bay Area considers farmland and resource areas in keeping with Senate Bill 375. The PCAs and PDAs complement one another: promoting compact development within PDAs takes development pressure off the region’s open space and agricultural lands.

In contrast to past trends that saw the outward expansion of urban growth in the region and spillover growth in surrounding regions, Plan Bay Area directs new growth within locally adopted urban growth boundaries to existing communities along major transit corridors.

For decades communities throughout the Bay Area have protected farmland, open space and natural resources using urban growth boundaries and other policies and investment strategies. Because urban growth boundaries and related growth controls constrain the amount of geography available for development, they not only protect valuable open space, they also help ensure that future development will assume a more compact pattern than in past decades. (See “SF Bay Area Resource Lands” map on facing page.)

SF Bay Area Job Growth

2040 Employment Distribution Approach and Methodology

Responding to Business Location Trends

Plan Bay Area’s distribution of jobs throughout the region is informed by changing trends in the locational preferences of the wide range of industry sectors and business place types in the Bay Area. These trends capture ongoing geographic changes, as well as changes in the labor force composition and workers’ preferences. Overall, the changing needs of businesses suggest a transition toward a more focused employment growth pattern for the Bay Area. This focused growth takes a variety of forms across the various employment centers throughout the region, summarized below.

- **Knowledge-based jobs, culture and entertainment at regional centers**

The growth of the professional services sector is expected to result in more jobs in downtown San Francisco, downtown Oakland, and downtown San Jose—assuming an appropriate provision of infrastructure, transit and access to affordable housing. These downtown areas also have attracted international business and leisure travelers, as well as artists and entertainers, fueling the rise of leisure and cultural activities. Similar to the growth of San Francisco’s financial district in the 1970s, and Silicon Valley in the 1990s, the Bay Area is attracting new businesses and workers seeking to locate near related firms, services and amenities. These businesses and professionals seek flexible building spaces and require less office space per worker compared to traditional office space expansion in downtown areas.

- **Multiple activities and transit at office parks**

Office parks are expected to continue to accommodate a growing number of employees. However, given the limited land available for new office parks, available vacant office space, and the preference for walkable, transit-served neighborhoods by growing numbers of employers, office parks are expected to grow at a slower pace than in past decades. Many existing office parks are changing to use less space per worker, provide direct transit access, and even offer housing, services and other amenities. Growing numbers of businesses, particularly in San Mateo and Santa Clara counties, are providing private shuttle services to help their employees commute to work. Increasing and improving transit access to office parks will lessen, but not fully mitigate, increased traffic congestion related to employment growth.

Resource Lands

- Priority Conservation Areas
- Protected Open Space
- Agricultural Lands
- Critical Habitat
- Urbanized Areas
- Not Categorized

Population

City	Population
Oakland	> 350,000
Novato	50,000 - 350,000
Pacifica	< 50,000

0 10 20 30 Miles

0 10 20 30 Kilometers

Greater detail can be found in the sub-regional maps in Appendix 2.

- **Downtown areas and transit corridors serving residents**

Over the last decade, medium and small cities throughout the region have been expanding the range of services and jobs provided in their downtown areas. As described in Chapter 2 the increase in the senior population, combined with the region's changing ethnic profile, is expected to increase the demand for local services, housing and transportation choices across the region, including in many of these medium and small downtown areas. Many of these locations have been identified as PDAs and have shown increased concentrations of knowledge-based jobs in the arts, recreation, health and education sectors.

- **New vitality of industrial lands**

Manufacturing and wholesale distribution have experienced declining employment in many of the region's key industrial areas. However, in recent years a different and very diverse mix of businesses has relocated to some of these Bay Area locations. In addition to basic services such as shuttle operations and refuse collection, or traditional uses such as concrete plants, industrial lands are now occupied by food processing, high-tech product development, car repair, graphic design and recycling businesses, among others. The building and space needs of these businesses make traditional industrial lands attractive. These new businesses provide jobs, and also provide essential support to other sectors of the economy and vital services to nearby residents. It is in the region's best interest to ensure that new businesses have access to industrial lands, so that the jobs they create remain in the Bay Area.

Employment Distribution Methodology

The distribution of new employment growth considers job growth by sector and is linked to input from local residents and planning departments. Employment growth is organized under three major groups: knowledge-sector jobs, population-serving jobs and all other jobs. The number of knowledge-sector jobs — such as jobs in information technology companies, legal or engineering offices, or biotechnology firms — is expected to grow based on the current concentrations of these jobs, the specialized skills and experience required to perform these jobs, and past growth in the sector. The number of population-serving jobs, such as those in retail stores or restaurants, is expected to grow in a manner reflecting the distribution of future household growth. The number of jobs in all other sectors, including the government, agriculture and manufacturing sectors is expected to grow according to the existing distribution of jobs in each of these sectors. Finally, the employment growth distribution also is linked to access to transit service, which continues to be a major draw for both employers and employees.

Employment by Economic Sector and County

The first step in the employment distribution was to determine the composition of employment in 2040 by different industry sectors for the region as a whole. This was derived from the Center for Continuing Study of the California Economy's *Bay Area Job Growth to 2040: Projections and Analysis* (February 2012). The next step was to distribute 2040 job numbers among the nine counties for each industry sector based upon county shares of regional employment, as reported in Caltrans' California County-Level Economic Forecast: 2011-2040 (August 2011).

Employment by Jurisdiction and Priority Development Area

The distribution of employment by jurisdiction and Priority Development Area was calculated using five growth distribution factors. The first three distribution factors are based upon the type of job. The fourth and fifth distribution factors are local planning assumptions and the locations of resource areas and farmlands, respectively:

- 1 Knowledge-sector jobs index:** For jobs in the professional and business services, information and finance sectors, a “knowledge strength index” was used to weight the distribution of jobs within each county at the jurisdiction level. The index reflects the tendency of these jobs to be located in areas with already high concentrations of similar companies and a shared labor pool. (See “Knowledge-Based Jobs Expected to Lead Bay Area Employment Growth to 2040” on next page.)
- 2 Population-serving jobs ratio:** For jobs that provide services to households, employment location is dependent upon where people live. As a result, growth of these jobs was distributed based upon the geographic distribution of household growth in the region. Residential construction jobs also were included in this category, as they will be located where new housing is built.
- 3 Existing employment share for all other jobs:** For the remaining sectors, employment growth was distributed based upon the existing distribution in 2010, using data from the National Establishment Times-Series (NETS) database, which provides employment information by location of business establishments.
- 4 Local planning assumptions:** This information, including locally adopted general plans and neighborhood plans, was supplied by local planning departments.
- 5 Resource areas and farmland:** This information was derived from farmland and resource lands, the locations of Priority Conservation Areas, and the urban growth boundaries.

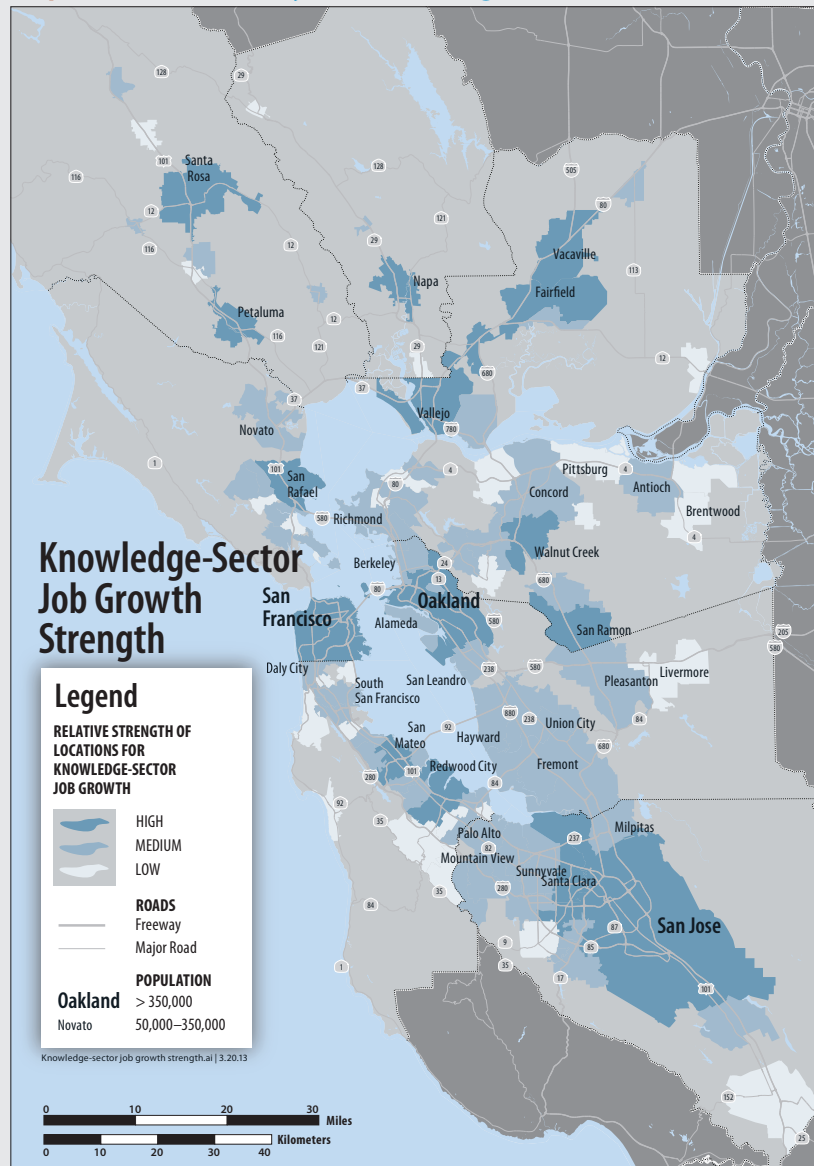
Knowledge-Based Jobs Expected to Lead Bay Area Employment Growth To 2040

Knowledge-based jobs in the Bay Area include jobs in the professional services, information and finance sectors, as well as some occupations with relatively high educational requirements in the health and education sectors. Many companies in these sectors are expected to continue the historical trend of specializing in the design and development of new products and information. Robust growth in the amount of knowledge-based employment is supported

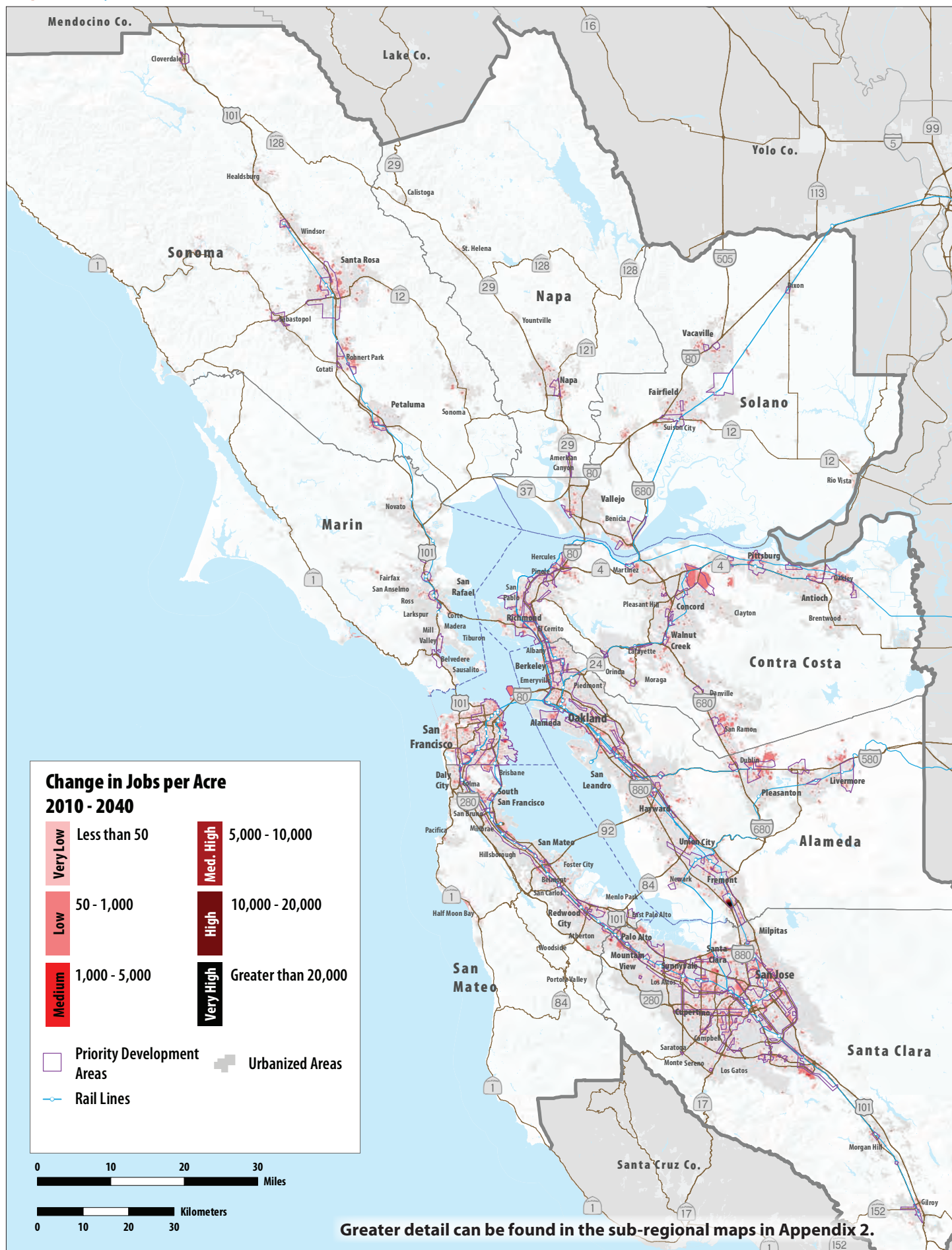
by a highly educated labor pool and provides many high-wage jobs. The map above shows the weighted knowledge strength index used to distribute knowledge sector jobs within each county.

Compared with other regions, the Bay Area's labor force has the highest share of college graduates (44 percent) in the country and is anchored by educational and research institutions that can continue to deliver high-quality talent. These leading sectors have represented and will continue to represent a high share of the total regional job growth. Although the knowledge-based sectors help define the overall pace of growth for the region, their success is advanced by a very diverse regional economy.

Map 2 San Francisco Bay Area Knowledge Sector Jobs



Map 3 SF Bay Area Commercial Intensities, 2010–2040



2040 Employment Distribution Highlights

The combined effect of the growth distribution factors directs job growth toward the region's larger cities and Priority Development Areas with a strong existing employment base and communities with stronger opportunities for knowledge-sector jobs. As a result, almost 40 percent of the jobs added from 2010 to 2040 will be in the region's three largest cities — San Jose, San Francisco and Oakland — which accounted for about one-third of the region's jobs in 2010. Two-thirds of the overall job growth is anticipated to be in PDAs throughout the region. The map on the preceding page shows where the region is expected to add jobs during this time period.

Almost 40 percent of the jobs added from 2010 to 2040 will be in the region's three largest cities — San Jose, San Francisco and Oakland — which accounted for about one-third of the region's jobs in 2010.

Due to the strength of the knowledge sector, nine of the 15 cities expected to experience the greatest job growth are in the western and southern part of the region surrounding Silicon Valley (Table 1). The remaining communities expecting high levels of job growth are in the East Bay and North Bay, owing to their strong roles in the current economy, diverse employment base, and their proximity to a large base of workers.

In sum, the 15 cities expected to experience the most job growth will account for roughly 700,000 jobs, or just over 60 percent of the new jobs added in the region by 2040. Additional information on employment distribution by location can be found in *Forecast of Jobs, Population and Housing*, listed in Appendix 1.

Table 1 SF Bay Area Total Job Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Jobs		2010-2040 Job Growth	
		2010	2040	Total Growth	Percentage Growth
1	San Francisco	568,720	759,470	190,740	34%
2	San Jose	375,360	522,050	146,680	39%
3	Oakland	190,250	275,490	85,240	45%
4	Santa Clara	112,460	145,560	33,100	29%
5	Fremont	89,900	119,870	29,970	33%
6	Palo Alto	89,370	119,030	29,650	33%
7	Santa Rosa	75,460	103,930	28,470	38%
8	Berkeley	77,020	99,220	22,210	29%
9	Concord	47,520	69,310	21,790	46%
10	Hayward	69,100	89,900	20,800	30%
11	Sunnyvale	74,610	95,320	20,710	28%
12	San Mateo	52,930	73,460	20,530	39%
13	Redwood City	58,340	77,830	19,490	33%
14	Walnut Creek	41,650	57,300	15,650	38%
15	Mountain View	47,800	63,380	15,570	33%

Source: Jobs-Housing Connection Strategy, ABAG, 2012

SF Bay Area Housing Growth

2040 Housing Distribution Approach and Methodology

Supporting Equitable and Sustainable Development

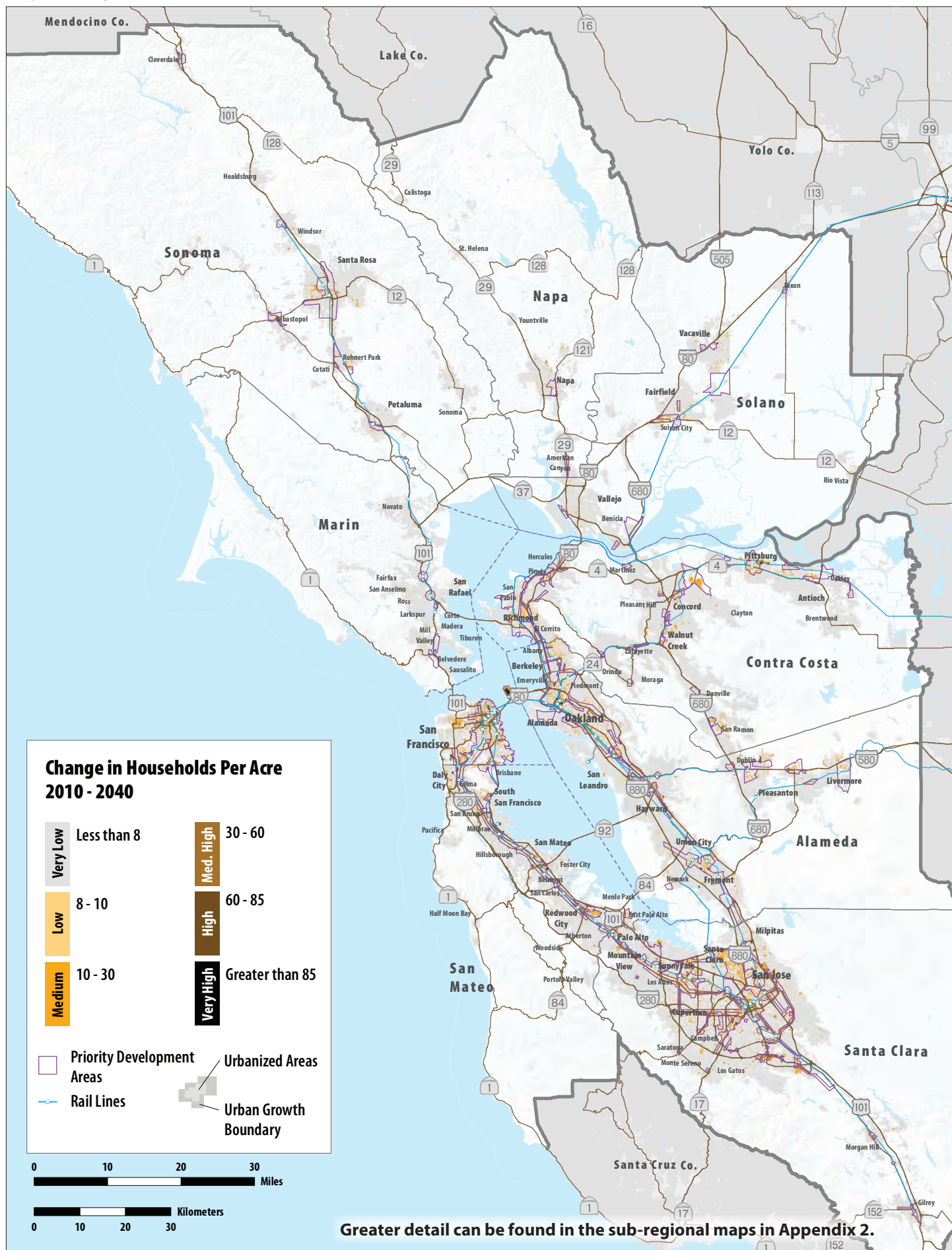
The Plan Bay Area housing distribution is guided by the policy direction of the ABAG Executive Board, which voted in July 2011 to support equitable and sustainable development by “maximizing the regional transit network and reducing GHG emissions by providing convenient access to employment for people of all incomes.” This was accomplished by distributing total housing growth numbers to: 1) job-rich cities that have PDAs or additional areas that are PDA-like; 2) areas connected to the existing transit infrastructure; and 3) areas that lack sufficient affordable housing to accommodate low-income commuters.

Housing Distribution Methodology

As with the 2040 employment distribution, the methodology for distributing new housing throughout the Bay Area involves the use of growth distribution factors (Figure 1):

- 1 **Level of transit service:** The highest level of transit service in an area was used to group each area into one of three regional transit tiers. Places with high levels of transit service were assigned more growth, with the goal of utilizing the existing transit infrastructure more efficiently and leveraging the region’s emphasis on operating and maintaining the current transit system.

Map 4 SF Bay Area Household Intensities, 2010–2040



- 2 Vehicle miles traveled (VMT) per household:** Housing growth was directed to locations expected to result in the lowest greenhouse gas emissions. This adjustment was based on a measure of the use of Bay Area freeways and roads called “vehicle miles traveled” (VMT). One vehicle (regardless of the number of passengers) traveling one mile constitutes one “vehicle mile.” The number of vehicle miles traveled is highly correlated with greenhouse gas emissions. VMT data was derived from MTC’s Regional Travel Demand Model.
- 3 Employment by 2040:** To link housing growth more closely to job centers, the initial housing distribution was adjusted by an employment factor for each area, based on the total 2040 employment for each jurisdiction.
- 4 Low-wage workers in-commuting from outside the Bay Area:** This factor shifts housing growth to places that are importing many low-income workers. “Longitudinal employment and household dynamics” data from the U.S. Census Bureau was used to determine the number of workers commuting to and from a jurisdiction by income category in 2009 and previous years.
- 5 Housing values:** To recognize places with high-quality services (schools, parks, infrastructure, etc.), the initial housing distribution was adjusted by a housing value factor, based on a jurisdiction’s median home value in 2010. The 2010 U.S. Census was a data source for this analysis.
- 6 Local planning assumptions:** This information, including locally adopted general plans and neighborhood plans, was supplied by local planning departments.
- 7 Resource areas and farmland:** This information was derived from farmland and resource lands, the locations of Priority Conservation Areas, and the urban growth boundaries.

2040 Housing Distribution Highlights

As a result of these growth distribution factors, more housing growth was directed to locations where the transit system can be utilized more efficiently, where workers can be better connected to jobs, and where residents can access high-quality services. However, growth in each place is tied directly to housing potential as defined by the local jurisdictions.

By emphasizing communities with transportation options and strong employment growth, the factors direct substantial housing production to the Peninsula and South Bay, where eight of 15 cities expected to experience the most housing growth are located (Table 2). In sum, two-thirds of the region’s overall housing production is directed to these 15 cities, leaving the more than 90 remaining jurisdictions in the region to absorb only limited growth. This development pattern preserves the character of more than 95 percent of the region by focusing growth on less than five percent of the land. The map on the facing page shows where housing growth is expected to take place. Additional information is available in *Forecast of Jobs, Population and Housing*, listed in Appendix 1.

Table 2 SF Bay Area Total Housing Unit Growth 2010-2040, Top 15 Cities

Rank	Jurisdiction	Total Housing Units		2010-2040 Housing Unit Growth	
		2010	2040	Total Growth	Percentage Growth
1	San Jose	314,040	443,210	129,170	41%
2	San Francisco	376,940	469,350	92,410	25%
3	Oakland	169,710	221,200	51,490	30%
4	Sunnyvale	55,790	74,780	18,990	34%
5	Concord	47,130	65,170	18,040	38%
6	Fremont	73,990	91,610	17,620	24%
7	Santa Rosa	67,400	83,420	16,020	24%
8	Santa Clara	45,150	58,920	13,770	30%
9	Milpitas	19,810	32,430	12,620	64%
10	Hayward	48,300	60,580	12,290	25%
11	Fairfield	37,180	48,280	11,100	30%
12	San Mateo	40,010	50,180	10,160	25%
13	Richmond	39,330	49,020	9,690	25%
14	Livermore	30,340	40,020	9,670	32%
15	Mountain View	33,880	43,270	9,390	28%

Source: Jobs-Housing Connection Strategy, ABAG, 2012

Summary of Jobs and Housing Distribution (2010-2040)

Reflecting the distribution growth factors' emphasis on the existing transit network and connecting homes and jobs, San Francisco, San Mateo, Santa Clara and Alameda counties account for the majority of housing growth (77 percent) and job growth (76 percent). (See Table 3.) Within these counties, the Bay Area's three regional centers — San Francisco, San Jose, and Oakland — will accommodate 42 percent of housing growth and 38 percent of total job growth by 2040. Corridors in the inner Bay Area, including El Camino Real/The Grand Boulevard, San Pablo Corridor, and East 14th–International Boulevard, also represent a major share of both housing and job growth, accommodating 19 percent of regional housing and 11 percent of regional job growth.

Contra Costa County accounts for 11 percent of the region's new jobs and 12 percent of its new homes. Concord, Richmond, Pittsburg, and Walnut Creek — all with PDAs centered on BART stations — take on the largest shares of the county's growth, with 23 percent, 12 percent, 9 percent, and 9 percent respectively. PDAs in the county will take on 65 percent of the housing growth and 57 percent of the job growth.

Major suburban employment centers in Alameda and Contra Costa Counties, including Concord, Walnut Creek, and the Tri-Valley communities of Dublin, Pleasanton, Livermore, and San Ramon, account for over 8 percent of the Bay Area's new jobs and nearly 9 percent of its new homes.

With more limited transit access and fewer PDAs, North Bay counties — Marin, Napa, Solano and Sonoma — are expected to take on a much smaller share of regional growth, accounting for 10 percent of new households and 13 percent of new jobs. Much of this growth will be focused in PDAs, such as downtown Santa Rosa, Petaluma, Fairfield, and Vallejo. In Marin, 22 percent of new jobs and 38 percent of new housing are expected to be located in PDAs, while the share is 18 percent and 41 percent in Napa County, 33 percent and 65 percent in Solano County, and 56 percent and 72 percent in Sonoma County. By concentrating growth in the inner Bay Area and communities with frequent transit service, this growth strategy will help North Bay communities maintain their rural and small-town character. While accommodating a very limited amount of new growth, rural centers and corridors will enhance the pedestrian environment and access to local services in the traditional downtowns of many of these communities.

Overall, well over two-thirds of all regional growth by 2040 is allocated within Priority Development Areas. PDAs are expected to accommodate 80 percent (or over 525,570 units) of new housing and 66 percent (or 744,230) of new jobs. As a result, small cities, single-family neighborhoods and rural areas throughout the Bay Area will take on a very small share of the region's overall growth and are expected to retain the same scale and character.

Table 3 SF Bay Area County Housing and Job Growth, 2010-2040

County	Employment				Housing Units				Households			
	2010	2040	2010–2040 Growth		2010	2040	2010–2040 Growth		2010	2040	2010–2040 Growth	
			Total	%			Total	%			Total	%
Alameda	694,450	947,630	253,190	36%	582,550	730,530	147,980	29%	545,140	705,290	160,150	29%
Contra Costa	344,920	467,000	122,080	35%	400,260	480,400	80,130	23%	375,360	463,070	87,700	23%
Marin	110,730	129,130	18,390	17%	111,210	118,720	7,510	9%	103,210	112,020	8,810	9%
Napa	70,650	89,530	18,880	27%	54,760	60,810	6,050	15%	48,880	56,290	7,410	15%
San Francisco	568,720	759,470	190,740	34%	376,940	469,350	92,410	29%	345,810	447,250	101,440	29%
San Mateo	345,200	445,310	100,110	29%	271,030	326,730	55,700	22%	257,840	315,730	57,900	22%
Santa Clara	926,260	1,229,800	303,530	33%	631,920	843,110	211,190	36%	604,200	819,130	214,920	36%
Solano	132,350	179,900	47,560	36%	152,700	175,520	22,820	19%	141,760	168,650	26,890	19%
Sonoma	192,010	257,450	65,430	34%	204,570	236,440	31,870	19%	185,830	220,690	34,870	19%
REGION	3,385,300	4,505,220	1,119,920	33%	2,785,950	3,445,940*	660,000*	27%	2,608,020	3,308,110	700,090	27%

**2010 values include seasonal units; Regional 2040 and growth totals include 4,340 seasonal units that were not distributed throughout the region*

Source: Jobs-Housing Connection Strategy, ABAG, 2012

Plan Bay Area outlines a growth strategy that makes efficient use of available infrastructure while protecting the region's natural resources and open space. However, this is only half the picture. The second half consists of the transportation investments and policies developed along with this land use pattern to support and complement the region's housing and employment growth. (See Chapter 4.) Both an efficient land use pattern and a sound transportation investment package are needed to have a fully integrated long-term land use development and transportation plan. The performance results of this overall strategy are presented in Chapter 5.

Accommodating the 8-Year Regional Housing Need Allocation

California Housing Element law (Article 10.6 of the California Government Code) requires each jurisdiction to plan for housing at all income levels by ensuring that local zoning and planning support the production of a diverse range of new housing. The Regional Housing Need Allocation (RHNA) is the state-mandated process to identify the share of the state's housing need for which each jurisdiction must plan over an 8-year period. The California Department of Housing and Community Development (HCD) determined that the Bay Area's regional housing need between 2014 and 2022 is 187,990 units.

To develop the RHNA for 2014-2022, ABAG and MTC convened a Housing Methodology Committee comprised of local elected officials, staff and diverse stakeholders from throughout the region, who provided guidance through a series of workshops that began in January 2011. The Association of Bay Area Governments' Executive Board adopted the final RHNA methodology and released draft allocations on July 19, 2012.

California Senate Bill 375 (SB 375) creates an additional overlay by requiring consistency with the Sustainable Communities Strategy in Plan Bay Area. (See "California Senate Bill 375: Linking Regional Plans to State Greenhouse Gas Reduction Goals," in the introduction to this plan.) Both the plan and final RHNA methodology address the overlapping objectives of SB 375 and the California Housing Element law. These objectives include increasing the supply, diversity and affordability of housing; promoting infill development and a more efficient land use pattern; protecting environmental resources; and promoting socioeconomic equity.

The three primary elements of the RHNA methodology are:

The sustainability component – This element advances the goals of SB 375 and is based on Plan Bay Area's proportional allocation of new housing into Priority Development Areas (PDAs). Seventy percent of the region's housing need is allocated to jurisdictions planning for growth in PDAs, with the remaining 30 percent allocated based on non-PDA growth.

The fair share component – This element is designed to ensure that jurisdictions with PDAs are not asked to shoulder more than their fair share of the Bay Area's total housing need. More housing was allocated to jurisdictions with strong transit networks, many jobs, or poor permitting performance in the 1999-2006 RHNA cycle for very-low and low income units. The methodology also set a minimum threshold for a jurisdiction's allocation based on its expected future growth.

The income allocation factor – This element aims to ensure that each jurisdiction plans for housing at all income levels. The income allocation factor is determined by the difference between the regional proportion of households in an income category and each jurisdiction's proportion for that same category. This shifts the distribution of housing allocated to each jurisdiction across income categories so that jurisdictions that already supply a large amount of affordable housing receive lower affordable housing allocations. It also pro-

notes the state objective to increase the mix of housing types among cities and counties equitably.

To encourage even greater policy alignment, the One Bay Area Grant (OBAG) program criteria account for past RHNA performance, specifically housing production for low- and very-low income households, as well as a jurisdiction's current RHNA allocation. (See Chapter 4.)

Regional Housing Need Allocation, 2014–2022

County	Very Low 0-50%	Low 51-80%	Moderate 81-120%	Above Moderate 120%+	Total
Alameda	9,885	6,587	7,909	19,584	43,965
Contra Costa	5,249	3,078	3,486	8,755	20,568
Marin	617	366	422	887	2,292
Napa	370	199	243	670	1,482
San Francisco	6,207	4,619	5,437	12,482	28,745
San Mateo	4,595	2,507	2,830	6,486	16,418
Santa Clara	16,235	9,592	10,691	22,616	59,134
Solano	1,711	902	1,053	3,311	6,977
Sonoma	1,811	1,090	1,349	4,159	8,409
Region	46,680	28,940	33,420	78,950	187,990

Note: Percentages are of the region's area median income.

Source: [http://www.abag.ca.gov/planning/housingneeds/pdfs/Draft_RHNA_\(2014-2022\).pdf](http://www.abag.ca.gov/planning/housingneeds/pdfs/Draft_RHNA_(2014-2022).pdf)

For further details on the RHNA methodology and process, see:
www.abag.ca.gov/planning/housingneeds/index.html

Plan Bay Area: Benefits for Project Development

Looking ahead to the adoption of Plan Bay Area, some agencies will have the chance to support project development. To encourage integrated land use and transportation planning, Senate Bill 375 sets up a process whereby certain projects consistent with the adopted Plan Bay Area may qualify for relief from some CEQA requirements. Agencies that find these “CEQA streamlining provisions” helpful have the opportunity, but are not obligated, to align their local planning decisions with the adopted Plan Bay Area when it is finalized later this summer. Projects that use the provisions will still need to obtain discretionary permits or other approvals from the lead and responsible agencies. (See “California Senate Bill 375: Linking Regional Plans to State Greenhouse Gas Reduction Goals,” in the introduction to this plan.

A project may qualify for CEQA relief under SB 375 if it is: 1) consistent with the final approved Plan Bay Area Sustainable Communities Strategy (SCS), including all land use designations, employment distribution densities, building space intensities and applicable policies; or 2) considered a residential/mixed-use residential project or a transit priority project (TPP). SB 375 defines TPP-eligible areas as places within one-half mile of a major transit stop or a high-quality transit corridor. To qualify as a residential/mixed use residential project, at least 75 percent of the total building square footage must be dedicated to residential use. To qualify as a TPP, the project must also:

- Contain at least 50 percent residential use, based on total building square footage, and if the project contains between 26 percent and 50 percent nonresidential uses, then the floor area ratio (defined as the ratio of building square footage to the parcel square footage) must be 0.75 or more;
- Provide a minimum net density of at least 20 dwelling units per acre; and
- Be located within one-half mile of a major transit stop or high-quality transit corridor included in Plan Bay Area.


TPP-eligible areas were not identified until after the passage of SB 375 in 2008, and they should not be confused with the pre-existing Priority Development Areas (PDAs). Most TPP-eligible areas are within PDAs, while others are within close proximity to transit but are not identified as PDAs.


On the facing page is a map of Transit Priority Project-eligible areas, where certain projects subject to the conditions outlined above may qualify for CEQA relief under SB 375.


NOTE: Appendix 2 includes a set of 15 detailed maps of the region showing key resource lands, job and housing growth (2010-2040), and total future housing and job intensities for 2040. For each topic, three close-up maps of different parts of the Bay Area region are included.

Transit Priority Project (TPP) CEQA Streamlining

Legend

 **Eligible areas for residential or mixed-use CEQA streamlining**
TPPs with residential densities >20 units/acre and with FARs greater than 0.75

 **Eligible areas for only residential CEQA streamlining**
TPPs with residential densities >20 units/acre

 **Ineligible areas for CEQA streamlining**
TPPs without sufficient densities

ROADS

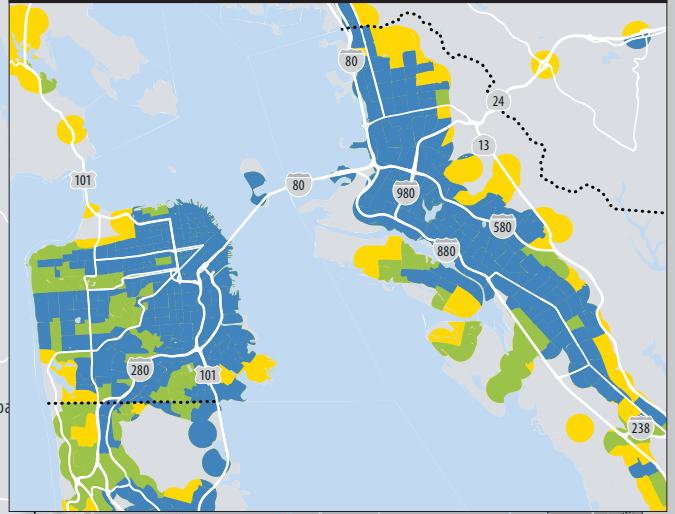
 Freeway
 Major Road

2010 POPULATION

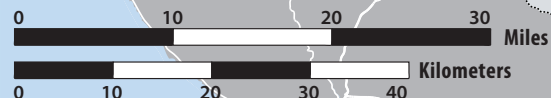
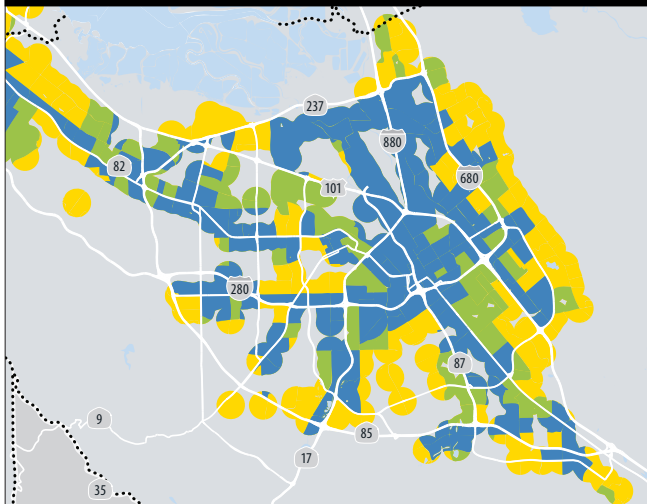
Oakland > 350,000
Novato 50,000–350,000
Pacifica <50,000

TPP CEQA streamlining.ai | 3.20.13

San Francisco/ Oakland Area



San Jose Area



Chapter 4

Investments

In crafting an investment program for Plan Bay Area, MTC and ABAG had to grapple with a number of important, but often competing, questions. How to best support the expected growth in jobs and housing over the next quarter-century? How much do we invest to maintain, expand and improve the efficiency of our regional transportation system, when the needs exceed available revenue? How should we weigh specific project performance characteristics in assembling a package of investments to address the plan’s economic, environmental and equity goals?



MTC Archives

Plan Bay Area structures an investment plan in a systematic way to support the region’s long-term land use strategy, relying on a performance assessment of scenarios and individual projects. The plan makes investments in the region’s transportation network that support job growth and new homes in existing communities by focusing the lion’s share of investment on maintaining and boosting the efficiency of the existing transit and road system. Plan Bay Area also takes a bold step with strategic investments that provide support for focused growth in Priority Development Areas, including major new transit projects and the One Bay Area Grant program.

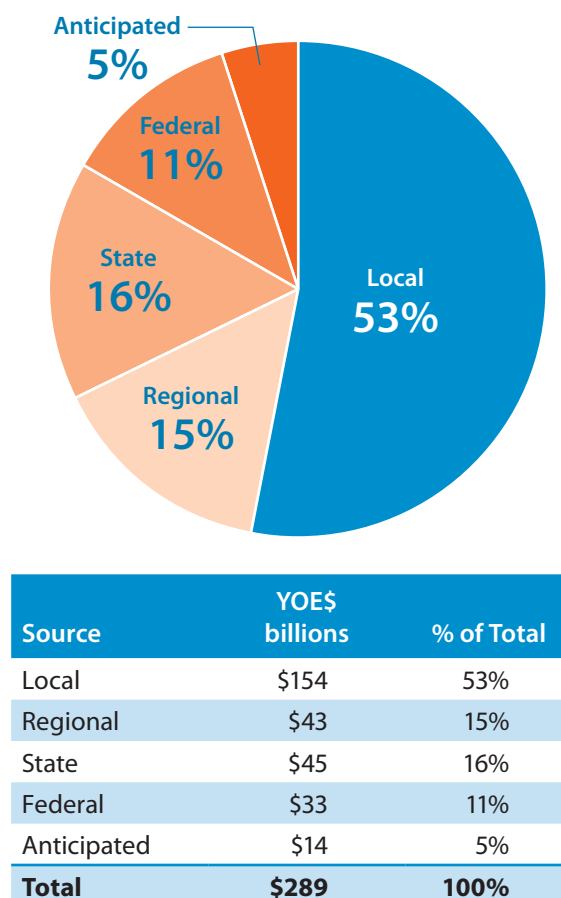
Gauging Our Financial Resources

The draft Plan Bay Area investment strategy is based on an estimate of available funding through 2040. Although the region continues to feel the impact of a slow recovery on revenues for transportation in the short term, total revenues over the 28-year life of the plan are expected to exceed the long-term revenue estimates prepared for the preceding regional transportation plan, Transportation 2035, which was adopted in April 2009 when various transportation revenues were in decline.

For Plan Bay Area, MTC worked with partner agencies and used financial models to forecast how much revenue will be available for transportation purposes over the 28-year duration of the plan. These forecasts are used to plan investments that fit within the “financially constrained” envelope of revenues that are reasonably expected to be available.

Plan Bay Area revenue forecasts total \$289 billion over the 28-year period, reckoned in year of expenditure (YOE) dollars. As shown in Figure 1, over two-thirds (68 percent) of these funds are from regional and local sources, primarily transit fares, dedicated sales tax programs, and bridge tolls.

Figure 1 Plan Bay Area Funding: 28-Year Revenue Forecast



Making up the remainder of the pie are state and federal revenues (mainly derived from fuel taxes), and “Anticipated” revenues, which are unspecified revenues that reasonably can be

expected to become available within the plan horizon. Although federal and state funding for transportation is critical, it is insufficient to cover growing needs. Annual revenues from local sources dwarf the revenues local jurisdictions receive in state transportation infrastructure funding.

The Great Recession also had a severe impact on the budgets of state and local jurisdictions in California. Bay Area communities seeking to support focused growth and increase the amount of affordable housing were particularly hard hit by the elimination of redevelopment agencies and related funding in 2010. In the Bay Area, these agencies generated \$1 billion annually before they were dissolved by the Legislature and the funding programs eliminated.

Financial Assumptions

The complete financial assumptions and amounts for the financially constrained Plan Bay Area are provided in *Plan Bay Area Financial Assumptions*, listed in Appendix 1. The estimated revenues in Plan Bay Area assume an inflation rate of 2.2 percent and are reported in year of expenditure dollars. Key highlights are as follows:

- The federal highway and transit programs are assumed to continue in their current form and grow at a rate of 3 percent annually. Base year revenue is set at the nationally authorized level for fiscal year (FY) 2009-10, and the Bay Area is projected to receive its historically proportionate share of these programs.
- The state funding sources — primarily fuel tax-based — are assumed to maintain their structure and distribution formulas over the 28-year period, starting from FY 2009-10 base levels. Assumptions concerning fuel price and consumption growth assume that state gasoline consumption will decline at an increasing rate until 2020 and then grow slowly at a constant long-term rate. For the 2006 voter-approved Proposition 1B, the revenue forecast includes the Bay Area's remaining share beyond FY 2011-12.
- Regional bridge toll revenues are based on projected travel demand on the region's seven state-owned toll bridges. Further, it was assumed that in FY 2018-19, there would be a \$1 increase in the non-carpool vehicle toll on all state-owned bridges. The Regional Express Lane Network revenues included in the financially constrained plan represent projected gross toll revenue for express lanes including toll revenues from express lanes in Santa Clara County.
- Local revenues, sales taxes such as Transportation Development Act (TDA) and Assembly Bill 1107 (1977) are assumed to grow at rates that take into account demographic and economic factors such as median income, regional employment and population growth.
- County and transit district transportation sales tax revenues in Alameda, Contra Costa, Napa, Marin, San Francisco, San Mateo, Santa Clara and Sonoma counties are based on estimates provided by the respective sales tax authorities in those counties. Measures that are set to expire within the 28-year period are assumed to be renewed, and/or augmented.

- Transit operator-specific revenue projections including transit fares, tolls, property and parcel taxes, and other sources have been provided by the respective operators. Projections of local streets and roads revenue are based on information provided to MTC by local agencies.
- Revenues forecasted to become available for high-speed rail include approximately \$1.5 billion from California’s Proposition 1A (2008), the Safe, Reliable High-Speed Passenger Train Bond Act. It was also assumed that the region would receive 12.5 percent, or \$1.5 billion, of federal revenues that are expected to become available to finance the project.
- The inclusion of “Anticipated” revenues in the financially constrained plan strikes a balance between the past practice of only including specific revenue sources currently in existence or statutorily authorized, and the more flexible federal requirement of revenues that are “reasonably expected to be available” within the plan period.

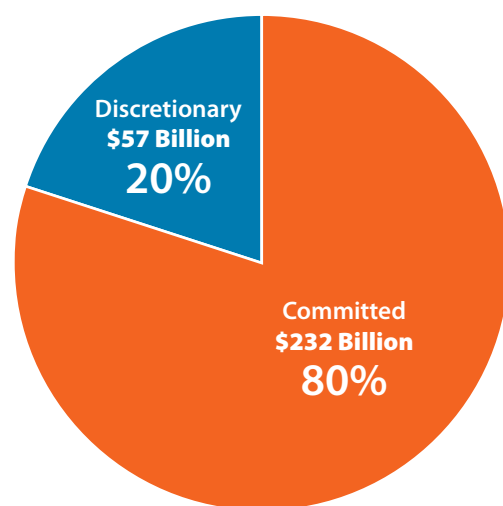
MTC performed a retrospective analysis of projections for previous long-range plans, including a review of unexpected revenues that had come to the region but had not been anticipated or included in those projections. Over a 15-year analysis period, the San Francisco Bay Area received an annualized amount of roughly \$400 million (in 2011 dollars) from these “unanticipated” fund sources. MTC generated an estimate of these anticipated revenues by projecting the \$400 million figure forward at a 3 percent annual growth rate. These revenues are not assumed in the first five years of the plan.

Plan Bay Area Investments – Committed and Discretionary Funds

Revenues for Plan Bay Area are either committed to existing purposes or considered discretionary and available for new projects and programs. Committed funds may be designated by law for a specific purpose or are reserved by action of a governing board (such as MTC, a transit agency, a congestion management agency, etc.). Discretionary revenues are those that are available for assignment to projects or programs through the plan. In spring 2011, MTC determined that if any transportation project/program met one of the following criteria, the project would be considered “Committed” for Plan Bay Area (consistent with Senate Bill 375):

- Project is under construction with a full funding plan, or a regional program that is currently under contract.

Figure 2 Plan Bay Area Revenue
\$289 Billion



- Project is funded with dollars designated by statute for a specific purpose, or dollars are locally generated and locally administered.

Additional funding was deemed committed to transit operating and maintenance in Spring 2012. Based on these conditions, \$57 billion of the \$289 billion in total revenue forecasted for Plan Bay Area is available for discretionary investments.

As summarized in Table 1, the investment strategy totals \$289 billion in committed and discretionary funds. This combined investment strategy focuses 87 percent of the funding over the life of the plan on taking care of our existing transportation system. The remaining 13 percent funds key transit and road expansion projects. Bicycle and pedestrian projects and programs are included with road maintenance and expansion due to the region's policies to ensure roads are built or modified to be accessible for all users, so-called "complete streets."

Table 1 Draft Plan Investments by Function

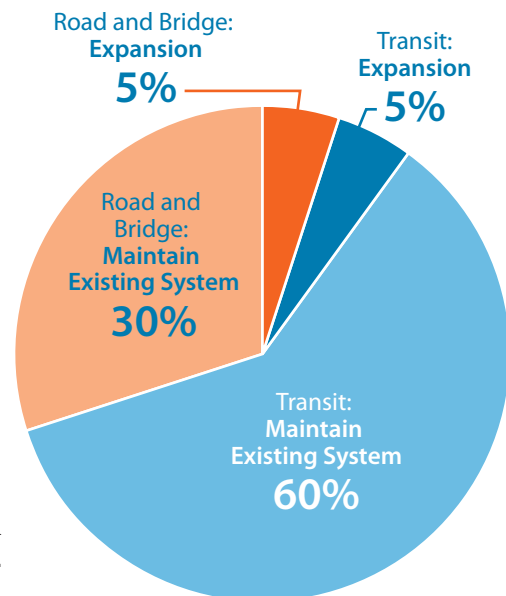
Function	Committed, YOES billions	Discretionary, YOES billions	Total, YOES billions
Transit: Maintain Existing System	\$139	\$20	\$159
Road and Bridge: Maintain Existing System	\$69	\$25	\$94
Transit: Expansion	\$13	\$8	\$21
Road and Bridge: Expansion	\$11	\$4	\$15
Total	\$232	\$57	\$289

Committed Revenues

Eighty percent (\$232 billion) of all the revenues forecast for Plan Bay Area are deemed "Committed." Examples of committed funds include existing sales tax measure revenues, which have been assigned through a voter approved expenditure plan, and Surface Transportation Improvement Program (STIP) funds that have already been designated for specific projects by the California Transportation Commission. Figure 3 provides a breakdown by functional category of how committed funds will be expended over the course of the plan.

Funding for "Committed" projects is included in Plan Bay Area in order to provide a complete picture of the regional investments and so that these critical efforts can continue to advance. Included in this group are several large projects that are under construction, such as the new eastern span of the San Francisco-Oakland Bay Bridge; the Bay Area Rapid Transit (BART) extensions to Warm Springs and Eastern Contra Costa County (eBART);

**Figure 3 Committed Revenue
\$232 Billion**



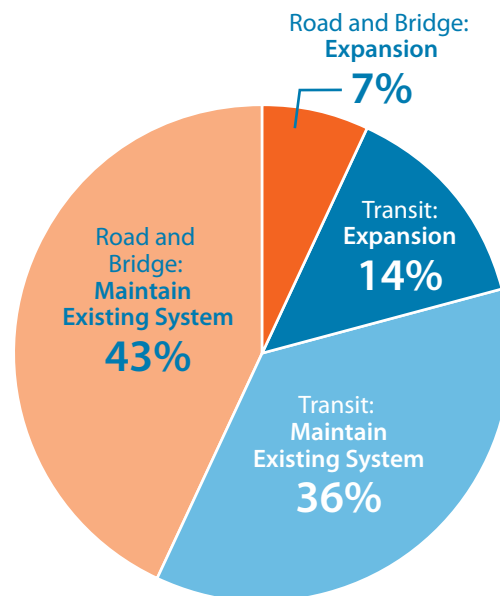
the BART Airport Connector to Oakland International Airport; and BART to the San Francisco Municipal Railway Central Subway; the Sonoma-Marín Area Rail Transit (SMART) Initial Operating Segment from Santa Rosa to San Rafael; and the Caldecott Tunnel Fourth Bore project.

The allocation of committed funds supports growth in our established rural, suburban, and urban communities by directing 90 percent of these funds to the region's existing transit and road systems as shown in Figure 3. These investments, totaling more than \$200 billion of the committed funds, ensure that the buses and trains can serve today's and tomorrow's passengers, and that our roads and sidewalks can carry current and future residents on their way to work or school. More detailed information on the committed investments can be found in the Online Project Database, listed in Appendix 1.

Discretionary Revenues

The 20 percent of Plan Bay Area revenues that are discretionary (\$57 billion) are assigned to projects or programs to support the plan's land use and investment strategies. While the funds may be discretionary in that they have not yet been assigned to a project or program, they may be subject to rules associated with how they can be spent. For example, federal New Starts funds are discretionary because they have not been assigned to a particular project; however, those funds can only be used for new transit projects. Surface Transportation Program funds can be used across different modes of transportation, but they can only be used for capital improvements, and not for operating purposes. Figure 4 provides a breakdown by functional category of how discretionary revenues will be invested through Plan Bay Area.

Figure 4 Discretionary Revenue
\$57 Billion



The discretionary funds provide the opportunity to address six key investment strategies to support both the future land use pattern outlined in the previous chapter and the performance targets adopted for the plan as discussed in Chapter 1. The following section details the region's six primary investment strategies to address the key issues identified during the Plan Bay Area process.

At the end of this chapter, key road and transit projects are highlighted in a series of maps. Additional detail on the proposed Plan Bay Area-funded projects and programs is available in the Online Project Database, listed in Appendix 1.

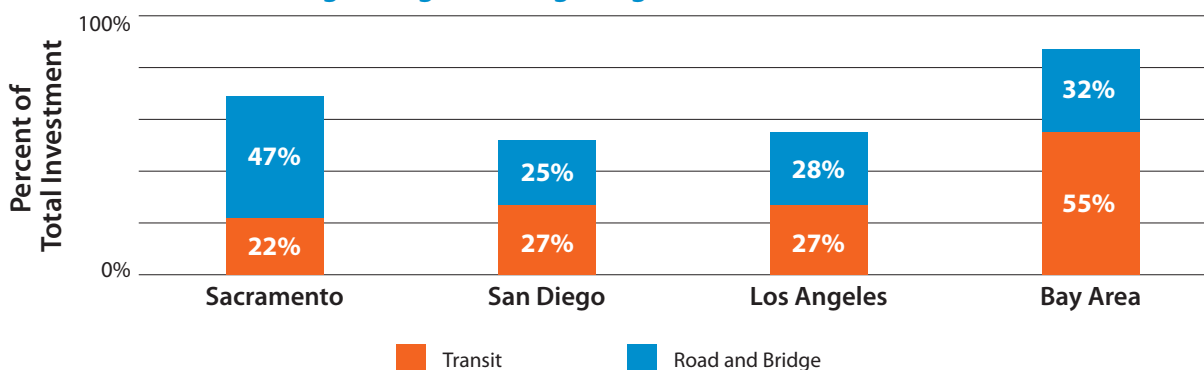
Investment Strategy 1

Maintain the Existing Transportation System

Plan Bay Area continues to support the “fix it first” emphasis from 2009’s Transportation 2035 Plan to ensure that the region directs a majority of funding to maintain existing transportation assets, while also supporting focused growth in areas served by the transportation system over the life of the plan. A well-maintained multimodal transportation system is fundamental to the success of the more compact future land use outlined in Chapter 3. Plan Bay Area fully funds operating needs for existing transit services and timely transit vehicle replacement while funding 76 percent of remaining high-priority transit capital needs. Furthermore, this investment strategy invests scarce resources in state bridge rehabilitation and retrofit.

Plan Bay Area dedicates 87 percent of all available funds to keeping the current transportation network in working order as shown in Figure 5. Roughly three-quarters of the draft plan’s discretionary funds and 90 percent of the committed funds are dedicated to funding transit operations, maintaining transit capital assets, repairing and replacing bridges, and maintaining complete streets. This includes complementary funding in the One Bay Area Grant investment strategy (see page 73) and County Investment Priorities strategy (see page 83).

Figure 5 System Maintenance and Management Share of Total Investment: California’s Largest Regions’ Long-Range Plans



Plan Bay Area makes a greater financial commitment to system maintenance and management than do the plans of California’s other large metropolitan regions. Approximately 87 percent of total Plan Bay Area funding goes toward sustaining the existing system, while other metropolitan regions in the state dedicate substantially smaller shares of funding for this purpose (see Figure 5). There are several reasons for the difference in priorities:

- The Bay Area has some of the oldest transportation systems in the state (and even in the country) — and old infrastructure requires more funding to maintain, renovate and replace than newer systems. San Francisco’s Municipal Railroad recently celebrated its 100th anniversary, and BART operates the oldest railcar fleet in the country.
- Our region’s greater reliance on rail services results in higher costs to maintain these capital-intensive modes. Plan Bay Area includes nearly \$3 billion for replacing BART’s and Caltrain’s aging fleets over the next decade.

- The Bay Area is relatively built-out compared to other newer, faster growing urban areas, and our transportation system is correspondingly more fully developed. That means there is relatively less need to invest in new highways and transit lines, and relatively more existing infrastructure to maintain here than in other areas. Even so, all four of California’s major metropolitan areas devote more than 50 percent of their future transportation budgets to upkeep of their current road and transit networks.

Investment in the Transit System

Operating and Maintaining Transit: A Key Challenge

Buses, trains, ferries, light-rail vehicles, cable cars and streetcars not only provide mobility for people without cars — including those who are low-income, elderly, disabled or too young to drive — they also provide a viable alternative to driving for hundreds of thousands of area residents who do own cars. By reducing the number of vehicles on the roads, public transit helps to fight congestion and curb greenhouse gas emissions. It is also the essential transportation complement to Plan Bay Area’s distribution of housing and employment in key locations throughout the region.

Yet despite the importance of transit to the Bay Area and its economy, maintaining and sustaining the network is an ongoing challenge. The cost of buying the fuel and paying the drivers, mechanics, dispatchers and other workers needed to operate a transit system — and paying for the replacement of buses, train cars, tracks, fare machines and other capital equipment — can outpace available funds. Delayed maintenance of the transit system leads to even costlier rehabilitation down the road. Plan Bay Area thus places a high priority on funding for transit operations and equipment.

Table 2 Plan Bay Area Transit Investment Strategy (\$ in Billions)

	Total Need 2013–2040	Committed Revenue	Discretionary Revenue	Remaining Need
Transit Operations	\$114	\$110	\$4	\$0
Transit Capital	\$47	\$21	\$9	\$17
Total	\$161	\$131	\$13	\$17

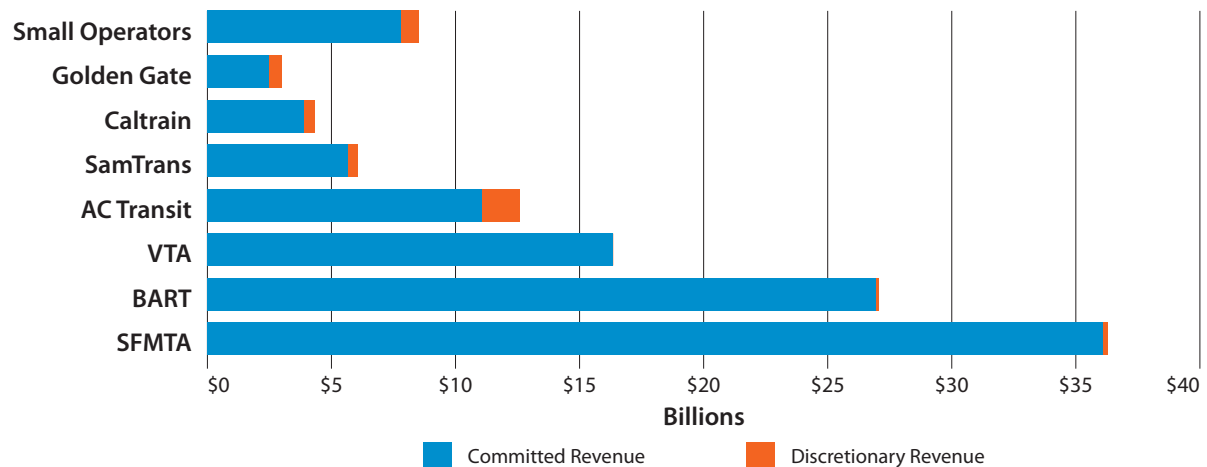
Over the next 28 years, operating and capital replacement costs for Bay Area transit providers are projected to total \$161 billion. This includes \$114 billion in operating costs plus \$47 bil-



lion for capital replacement to achieve an optimal state of repair. Committed revenues over the same period are expected to total only \$131 billion (\$110 billion for operations and \$21 billion for capital). The result is \$30 billion in initial unfunded needs, approximately \$26 billion of which is needed to bring our capital assets up to an optimal state of repair.

To address transit operating and capital needs, Plan Bay Area invests a total of \$13 billion in discretionary rev-

Figure 6 Transit Operating Funding by Operator 2013–2040, YOES



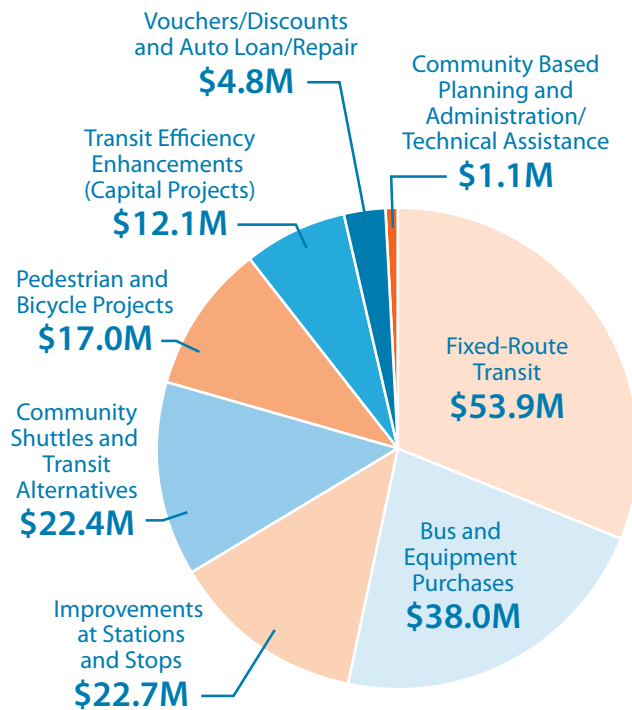
enues. This includes more than \$2 billion in discretionary revenue plus almost \$2 billion in revenues that are expected to come from a future extension of the transportation sales tax in Alameda County to eliminate the \$4 billion forecasted operating shortfall over the plan period. Another \$9 billion in discretionary revenue will be invested in transit capital, leaving unfunded capital needs of \$17 billion to achieve a state of optimal repair that the region must take into account when pursuing new funding resources, as discussed in Chapter 6.

As illustrated in Figure 6, some operators have operating needs that exceed the forecasted level of committed revenue — such as AC Transit, Golden Gate, SamTrans, Caltrain and the small operators. The variability of the operating needs across the region results from the uniqueness of each system’s forecasted cost growth and revenue availability. For example, on the revenue side, some transit operators have access to permanent sales taxes or are supported by general fund contributions, while others are not and are more reliant on fare revenues. As part of the investment strategy, MTC shored up the operating funding plan so that operations for existing services for all transit operators are fully funded through committed and discretionary revenues over the plan period.

Transit Sustainability Project Helps Bend Operating Cost Curve

The region’s operating cost projections are based on continuing existing levels of service as well as the increased operating costs associated with committed transit expansion projects. Plan Bay Area reflects the recommendations of MTC’s Transit Sustainability Project (TSP), a series of actions to complement recent individual transit agency efforts to control costs, improve service and attract new riders. By establishing performance metrics and targets, as well as new investment and incentive programs, and additional focused efforts related to cost, service and institutional arrangements, the recommendations set a course toward a more sustainable transit system. The operating cost projections associated with implementing the Transit Sustainability Project recommendations assume a five percent drop in operating costs by 2018, then indexing those costs to inflation. Over the life of the plan, this results in billions of dollars of savings. More information on the TSP can be found in Investment Strategy 4, “Boost Freeway and Transit Efficiency.”

**Figure 7 Lifeline Transportation Program
Project Types, 2006–2012
\$172 million**



Lifeline Transit Operating Program Improves Mobility and Accessibility

Plan Bay Area reaffirms the importance of addressing mobility and accessibility needs in low-income communities throughout the region and for seniors and persons with disabilities. The plan adds approximately \$800 million in discretionary funding for the program over the 28-year period of the plan. In addition to continuing the types of projects that are currently being funded, an area of possible focus for the future is “mobility management,” a strategic approach to connecting people to transportation resources within a community including services provided by human services agencies and other community sponsors. This strategy is especially key to the region’s ability to address growth in the Bay Area’s senior population and persons with disabilities. Through partnerships

with many transportation service providers, mobility management enables communities to monitor transportation needs and links individuals to travel options that meet their specific needs, are appropriate for their situation and trip, and are cost efficient. The Lifeline program, which implements locally crafted Community Based Transportation Plans funded by MTC, has already invested over \$170 million in a diverse mix of project to support high-need travelers. (See Figure 7.) In addition to mobility management, investments to date range from additional fixed-route transit, to shuttles, and non-motorized safety and access improvements.

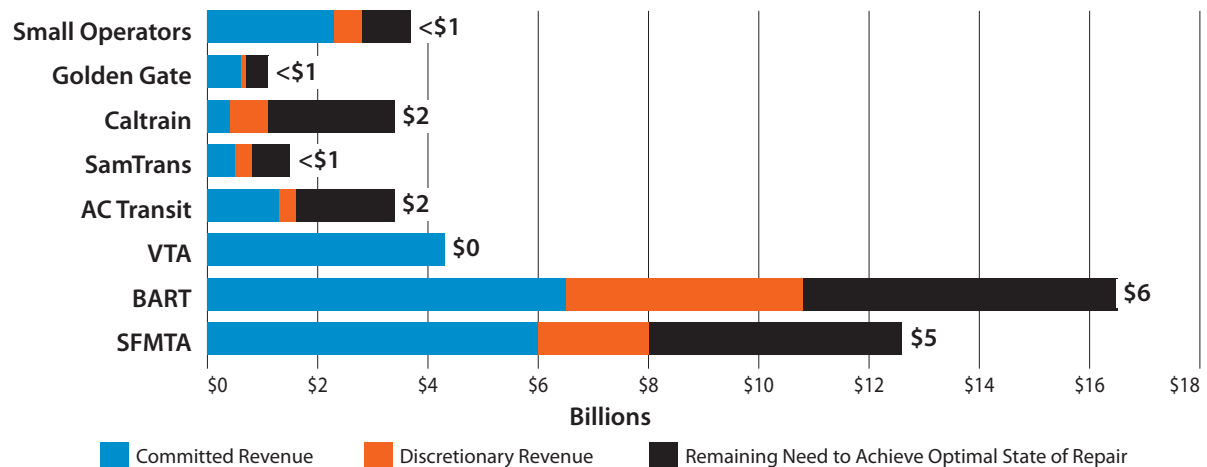
Transit Capital Replacement and Rehabilitation: A Big Hole to Fill

On the capital side, Plan Bay Area assures that all vehicles are replaced at the end of their useful lives and receive all required rehabilitation on schedule, though large capital needs remain for other assets such as maintenance facilities and station upgrades to ensure the long-term health of the region’s transit operations. (See Figure 8.)

Consistent with MTC’s Transit Capital Priorities Policy, high-priority transit capital investments include revenue vehicles (buses, railcars and ferries), which are the Plan Bay Area’s first priority for transit capital funds, as well as “fixed guideway” infrastructure (track, bridges, tunnels and power systems) and communications equipment to ensure the safe, reliable, and timely delivery of transit service throughout the region.

Plan Bay Area’s total capital investment of \$30 billion in committed and discretionary revenues will be sufficient to fund all revenue vehicle replacements and 76 percent of fixed guide-

Figure 8 Transit Capital Funding and Remaining Needs 2013–2040, YOES



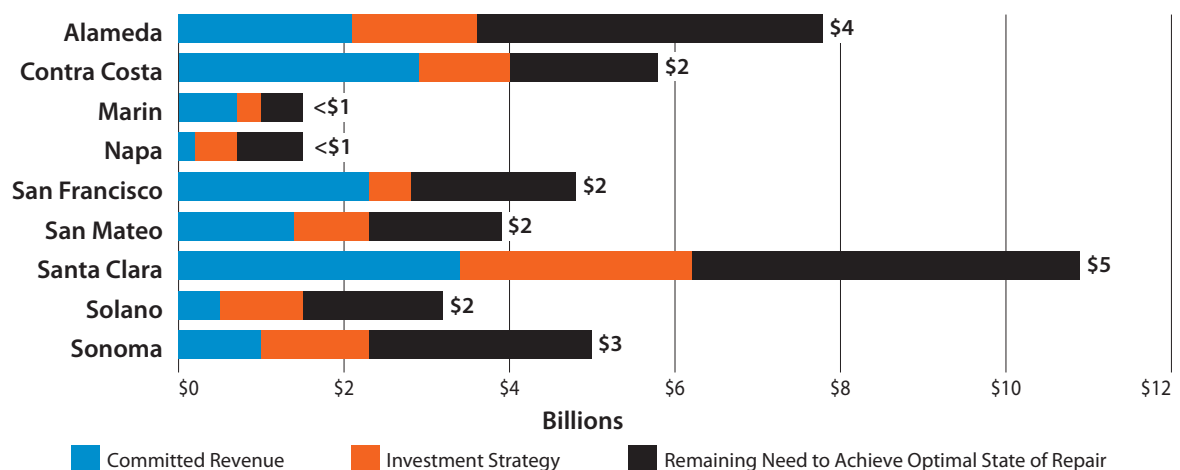
way and other high-priority needs, a substantial improvement over the 60 percent funded in the Transportation 2035 Plan. Chapter 6 outlines priorities for the region to cover the remaining capital needs, totaling \$17 billion, to achieve our performance target.

Investment in Local Streets and Roads

A critical component of the One Bay Area Grant (OBAG) investment strategy discussed later in this chapter is the investment of discretionary funds for the purpose of preserving the existing local street and road network. While congestion management agencies have the flexibility to spend their OBAG county shares on any eligible OBAG programs, Plan Bay Area provides sufficient funding within the program to reaffirm the commitment to maintain the region's pavement conditions at existing levels.

The 42,000 lane-miles of local streets and roads interconnect in a way that knits the region together and form the foundation of the region's transportation system. They are the conduits to the highways, ports and farmlands that are vital to the economic vitality and sustainability of the San Francisco Bay Area. All trips begin and end on a local street and road and all modes of surface travel rely on the local street and road infrastructure. In addition to pavement, the

Figure 9 Local Streets and Roads Investments and Remaining Needs (by County) 2013–2040, YOES



local street and road system includes all of the safety and accessibility infrastructure that makes a functioning network possible — sidewalks, curbs and gutters, storm drains, signs and signals, and so forth.

The typical life cycle of a pavement is about 20 years. Over the first three-quarters of its life, the pavement will deteriorate slowly, resulting in a 40 percent drop in condition. Past that point, pavement will begin to deteriorate rapidly. It costs five to ten times more to rehabilitate or reconstruct a roadway that has been allowed to deteriorate, than it costs to maintain that roadway in good condition. Through the One Bay Area Grant program, Plan Bay Area invests \$10 billion in discretionary funding to maintain the region's existing pavement condition, currently at a regional average of 66 on a pavement condition index (PCI) scale of 0 to 100. Even with an infusion of discretionary funds, sizable funding gaps remain in each county to bring pavement up to a state of good repair, as shown in Figure 9.

The total amount of funding needed for the Bay Area to achieve a PCI of 75 (the plan's adopted performance target, as discussed in chapter 5) over the Plan Bay Area period is \$45 billion. Committed revenues over the same period of time are expected to cover \$15 billion, or about one-third of the need. Add in the \$10 billion in discretionary funds, and the region still falls \$20 billion short of the revenue needed to achieve the plan's performance target, with the biggest shortfalls occurring in the region's largest counties, as shown in Figure 9. Chapter 6 discusses ways to pursue the revenues that will allow the region to meet its targets for roadway preservation.

Investment in State Bridges

The bridges that span San Francisco Bay are critical transportation links for the region. It is vital to the economic health of the region and quality of life of its residents that these essential structures be kept in a state of good repair. Currently, existing toll revenues are used to strengthen, reinforce and maintain bridge structures and roadways on all of the seven state-owned Bay Area bridge; this includes replacing the eastern span of the San Francisco-Oakland Bay Bridge.

Plan Bay Area assumes a single one-dollar toll increase on all state-owned bridges, beginning in the year 2019. These new bridge tolls are considered a source of regional discretionary funds and total \$2.7 billion over the course of the plan.

Due to the important role that our toll bridges play in the ability of the region's transportation network to function smoothly, Plan Bay Area assumes that approximately \$1 billion, or about one third of the \$2.7 billion in estimated new bridge toll funds, will be needed for additional maintenance or unforeseen repairs to the Bay Area's bridges.

Investment in State Highways

California's 50,000 lane-mile state highway system is an essential contributor to California's economic vitality, linking people and goods with intermodal transportation facilities, growing metropolitan centers, and major international airports and ports. The value of this important transportation resource is reckoned at more than \$300 billion. Of the total mileage,

6,500 lane-miles are within the nine-county Bay Area, giving residents a network of interstate, freeway, highway, and arterial routes maintained and managed by Caltrans. These lane-miles carry more than one-third of our region's vehicle miles traveled.

State law requires Caltrans to prepare a 10-year plan for the State Highway Operation and Protection Program (SHOPP). The SHOPP identifies the various needs for all state-owned highways and bridges. Bay Area highway maintenance needs over the 28-year life of this plan are forecasted to total about \$22 billion. Projected revenues over the same period are expected to cover only \$14 billion. Plan Bay Area has not yet identified any new funding sources for the \$8 billion in unfunded needs despite its heavy emphasis on maintaining our current transportation system. The magnitude of the Bay Area's highway rehabilitation needs and lack of available funding suggests that maintenance will have to be delayed or deferred on some highways. New state funding, as discussed later in Chapter 6, will need to be secured in order to ensure the long-term health of today's system.

Investment Strategy 2

Support Focused Growth

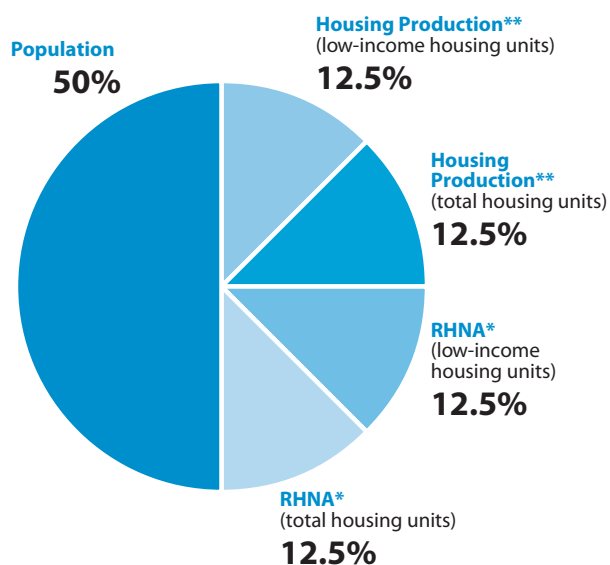
To encourage more development near high-quality transit and reward jurisdictions that produce housing and jobs, Plan Bay Area proposes to target transportation investments in Priority Development Areas (PDAs), support planning efforts for transit-oriented development in PDAs, and support Priority Conservation Areas.

In May 2012, the Commission approved a new funding approach that directs specific federal funds to support more focused growth in the Bay Area. The One Bay Area Grant (OBAG) commits \$320 million over the next four years (\$14.6 billion over the life of the plan), from federal surface transportation legislation currently known as MAP-21 (Moving Ahead for Progress in the 21st Century). OBAG is designed to support jurisdictions that focus housing growth in Priority Development Areas through their planning and zoning policies, and the production of housing units. Specifically the program rewards jurisdictions that accept housing allocations through the Regional Housing Need Allocation (RHNA) process. The distribution of OBAG funds to counties is based on the following factors: population, past housing production and future housing commitments, and efforts to produce low-income housing.

Focus on Priority Development Areas

As outlined in Chapter 3, Priority Development Areas (PDAs) are transit-oriented, infill development opportunity areas within existing communities that are expected to host the majority of future development. The OBAG program allows communities flexibility to invest in transportation infrastructure that supports infill development by providing funding for 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. By promoting transportation investments in PDAs, the OBAG program supports the Sustainable Communities Strategy for the Bay Area.

Figure 10 OneBayArea Grant Distribution Formula: FY 2012–13 through FY 2015–16



OBAG County Fund Distribution

(Millions \$, rounded)

County	Total Funds
Alameda	\$63
Contra Costa	\$45
Marin	\$10
Napa	\$6
San Francisco	\$38
San Mateo	\$26
Santa Clara	\$88
Solano	\$18
Sonoma	\$23
Regional Total	\$320

* RHNA 2014-2022

** Housing Production Report 1999-2006, ABAG

The OneBayArea Grant distribution formula is based on the following factors: population, past housing production and future housing commitments. This includes weighting to acknowledge jurisdiction efforts to produce low-income housing. The county Congestion Management Agencies (CMA) are responsible for local project solicitation, evaluation, and selection.

Per OBAG requirements, Congestion Management Agencies (CMAs) will develop a PDA Investment and Growth Strategy for their respective counties; this will be used to guide future transportation investments that are supportive of PDA-focused development. The growth strategy also will consider strategies and plans to increase the production of affordable housing in PDAs, as well as ways to preserve existing affordable housing opportunities. The CMAs in larger counties (Alameda, Contra Costa, San Mateo, San Francisco, and Santa Clara) must direct at least 70 percent of their OBAG investments to the PDAs. For North Bay counties (Marin, Napa, Solano, and Sonoma) the requirement is 50 percent. A project lying outside the limits of a PDA may count towards the minimum provided that it directly connects to or provides proximate access to a PDA. A zoomable map of PDAs in the Bay Area is available at <http://geocommons.com/maps/141979>. The counties are expected to conduct an open decision process to justify projects that geographically fall outside of a PDA but are considered directly connected to (or provide proximate access to) a PDA.

To complement these locally administered funds, OBAG also directs additional funds to support the region's Priority Conservation Areas and Priority Developments Areas. The first round of OBAG funding directs an additional \$10 million to the Bay Area's Transit Oriented Affordable Housing (TOAH) Fund. These funds will see TOAH grow from a \$50 million pool today to at least a \$90 million pool by 2014 to help finance workforce housing projects in transit-rich locations. OBAG also includes \$40 in million planning funds to assist cities and counties planning to promote employment and housing growth in their city centers and transit-served corridors. Finally, the first round of OBAG commits \$10 million to support the Priority Conservation Areas with funding for planning, farm-to-market projects, and to support strategic partnerships that seek to purchase conservation lands for long-term protection and use by Bay Area residents.

The One Bay Area Grant will provide a solid platform to advance Priority Development Areas as walkable, amenity-rich “complete communities,” and to protect our Priority Conservation Area for future generations. However, as outlined in Chapter 6, realizing the plan’s full potential will require a concerted, collaborative effort on the part of federal and state agencies.

Performance and Accountability Policies

In addition to providing funding to support Priority Development Areas, OBAG requires each jurisdiction to adopt policies to support complete streets and planning and zoning policies that are adequate to provide housing at various income levels, as required by the Regional Housing Need Allocation (RHNA) process. These requirements must be met before a jurisdiction is eligible for OBAG funding:

- **Complete Streets Policy Resolution:** In addition to meeting MTC’s 2005 complete streets requirements, a jurisdiction will now need to adopt a complete streets resolution. A jurisdiction can also meet this requirement by having a general plan that complies with the California Complete Streets Act of 2008. All jurisdictions seeking future rounds of OBAG funding will be required to have the updated general plan language adopted.
- **RHNA-Compliant General Plan:** A jurisdiction is required to have its general plan housing element adopted and certified by the State Department of Housing and Community Development (HCD) to be eligible for OBAG funding.

“MTC’s new One Bay Area Grant program is an innovative way to use transportation funding to promote coordinated and environmentally responsible regional planning for jobs and housing. All Californians will benefit from such efforts to put SB 375’s sustainability principles into practice.”

— Sen. Darrell Steinberg
President Pro Tempore
California Senate

Investment Strategy 3 Build Next-Generation Transit

As discussed in Chapter 5, Plan Bay Area relied on a transportation Project Performance Assessment, which, together with public involvement, helped identify priorities for the next generation of transit investments. These include improvements to the region’s core transit systems, new bus rapid transit lines in San Francisco and Oakland, rail extensions that support and rely on high levels of future housing and employment growth, and an early investment strategy for high-speed rail in the Peninsula corridor. MTC’s Resolution 3434, a 2001 framework that identified regional priorities for transit expansion projects, has served the region well. Roughly half of the projects are in service or under construction. Many of the others are reconfirmed as priorities for continued funding, or are included in the plan for early phases of work as the projects are being developed.

Resolution 3434 established the region's priority projects for federal New Starts and Small Starts funds, creating a unified regional strategy to secure commitments from this highly competitive national funding source as shown in Table 3. In 2012, the Bay Area secured commitments for nearly \$2 billion in federal funding for its two most recent New Start projects – San Francisco's Central Subway and the extension of BART to Berryessa in Santa Clara County. These successes pave the way for a new generation of projects that can leverage current and future development patterns to create financially stable transit service in these corridors.

Plan Bay Area assumes that the region can attract approximately \$2.5 billion in additional federal New Starts and Small Starts funding through 2040. Building on the successful delivery of Resolution 3434, and the results of the Performance Assessment and transit-specific project evaluation, Plan Bay Area's priorities for the next generation of federal New Starts and Small Starts funding include major rail and bus rapid transit (BRT) investments, as summarized in Table 4.

Table 3 Resolution 3434 Project Status

Project	Project Cost (millions of YOE\$)	Status
Caltrain Express: Baby Bullet	128	Open for Service
Regional Express Bus	102	
BART to Warm Springs	890	In Construction
East Contra Costa BART Extension (eBART)	462	
Transbay Transit Center: Phase 1	1,589	
BART/Oakland Airport Connector	484	
Sonoma-Marin Rail Initial Operating Segment	360	
Expanded Ferry Service to South San- Francisco (Berkeley, Alameda/ Oakland/Harbor Bay, Hercules, and Richmond; and other improvements)	180	
MUNI Third Street Light Rail Transit Project - Central Subway	1,578	
BART: Warm Springs to Berryessa	2,330	
Downtown to East Valley; Light Rail & Bus Rapid Transit Phases 1 & 2	559	Environmental Docs Approved
BART: Berryessa to San Jose/Santa Clara	3,962	
Transbay Transit Center/Caltrain Downtown Extension: Phase 2	2,596	
AC Transit Berkeley/Oakland/San Leandro Bus Rapid Transit	205	
Caltrain Electrification	785	Environmental Docs in Process
Van Ness Avenue Bus Rapid Transit	125	
Tri-Valley Transit Access Improvements to/from BART	168	
AC Transit Enhanced Bus: Grand-MacArthur corridor	41	
Caltrain Express: Phase 2	427	
Dumbarton Rail	701	
Capitol Corridor: Phase 2 Enhancements	254	
TOTAL	\$17,926	

Table 4 New Starts and Small Starts – Plan Bay Area “Next Generation” Projects
(amounts in millions of year-of-expenditure dollars)

Project	Cost (Millions of \$)	Previously Committed Funding	New Starts/ Small Starts	Other Funding from Plan Bay Area
BART: Berryessa to San Jose/Santa Clara	\$3,962	\$1,504	\$1,100	\$1,358
Transbay Transit Center /Caltrain Downtown Extension: Phase 2	2,596	639	650	1,307
AC Transit Enhanced Bus/BRT: Grand- MacArthur corridor	37	0	30	7
Van Ness Avenue Bus Rapid Transit Project	126	67	30	29
AC Transit Berkeley/Oakland/San Leandro Bus Rapid Transit	205	115	28	63
New Starts and Small Starts Reserve	660		660	
Total	\$7,586	\$2,325	\$2,498	\$2,764

Along with identifying these significant future transit investments, Plan Bay Area also retains \$660 million in financial capacity for projects that are in the planning stages. The \$660 million New and Small Starts reserve, or a regional investment equivalent, is proposed to support transit projects that are located in or enhance transit service in the East and North Bay counties subject to future alternatives assessments of feasible alternatives, evaluation for cost-effectiveness, and for performance against the Transit Oriented Development Policy.

Reference maps of key local and regional transit projects are included at the end of this chapter.

Investment Strategy 4

Boost Freeway and Transit Efficiency

The Bay Area consistently ranks as one of the most congested metropolitan areas in the nation. In the Texas A&M Transportation Institute’s 2012 Urban Mobility Report (<http://mobility.tamu.edu/ums/report/>), San Francisco Bay Area ranked as the third most congested region in hours of delay caused by congestion. The same report estimated that congestion cost our region’s peak-commute drivers an average of more than \$1,200 per year. A decade or two ago, the response to congestion might have been simply to add additional roadway capacity. With today’s mature system of roadways and increased demands on available financial resources, it is no longer possible to build our way out of congestion. Instead, the region must find ways to operate our existing highway and transit networks more efficiently, and target expansion projects that will provide long-term and sustainable congestion relief.



A Freeway Service Patrol tow truck driver assists a stalled motorist

Plan Bay Area includes a discretionary funding commitment of \$3.9 billion over the next 28 years to support projects and programs that will boost system efficiency. These include the Freeway Performance Initiative (FPI) and the Transit Performance Initiative (TPI) that aim to use low-cost technology upgrades to dramatically improve the speed and reliability of roadways and transit service. 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 efficiency of the existing system while expanding travel choice.

Freeway Performance Initiative

Plan Bay Area supports MTC’s Freeway Performance Initiative (FPI), which is designed to maximize the efficiency and improve the management, reliability and safety of the existing freeway, highway and arterial infrastructure, while targeting freeway improvements to the most congested locations.

Owing to investments made through the Transportation 2035 Plan, FPI expanded the number of metered ramps from 330 locations in 2009 to 500 locations by 2012, directly resulting in reduced travel times and improved reliability on major freeway corridors with almost no impact on local street operations. FPI investments also support the Program for Arterial System Synchronization (PASS), through which an average of 500 traffic signals are re-timed each year to improve coordination across jurisdictions, and provide priority signal timing for transit vehicles.

FPI funding for the Freeway Service Patrol and call boxes has enhanced the region’s ability to quickly identify and respond to planned and unplanned freeway incidents. Currently, FSP includes 78 tow trucks that cover 552 miles of Bay Area freeways and respond to an average of 130,000 incidents per year. The 2,200 call boxes in place along the region’s freeways and bridges receive an average of 22,000 calls per year.

Plan Bay Area calls for an investment of approximately \$2.7 billion in discretionary regional funds over the next 28 years to continue these programs and others under the FPI umbrella.

Table 5 Freeway Performance Initiative

Program Elements	Description & Benefits
Ramp Metering	Activate 300 additional ramp-metering locations in the Bay Area.
“Intelligent Transportation Systems” Infrastructure	Install and maintain traffic cameras, changeable message signs, speed sensors and other related infrastructure to improve travel-time reliability.
Arterial Management	Implement traffic signal coordination, transit-priority timing and incident/emergency plans on regionally significant routes.
Incident and Emergency Management	Maintain the Freeway Service Patrol and Call Box programs, and enhance transportation agencies’ and first responders’ capabilities to clear traffic incidents and respond to major emergencies through integrated corridor management.
Traveler Information/511	Collect, consolidate and distribute accurate regional traffic, transit and parking data for trip-planning and real-time traveler information.

Transit Performance Initiative

The Transit Performance Initiative (TPI) makes a regional investment in supportive infrastructure to achieve performance improvements in major transit corridors where current and future land use supports high-quality transit. The TPI also provides incentives to reward agencies that achieve improvements in ridership and service productivity. Plan Bay Area dedicates \$500 million over the plan period to support this initiative, which is expected to result in reduced emissions and vehicle miles traveled, as well as an increase in the non-auto mode share of all trips.

MTC approved the first round of capital investment projects in the spring of 2012, providing over \$27 million to reduce travel times and enhance the passenger experience on major corridors served by AC Transit, San Francisco Municipal Transportation Agency (SFMTA), and Santa Clara Valley Transportation Authority (VTA). (See Table 6.) These busy routes offer the potential to improve service quality, speed, and reliability ultimately reducing travel times and increasing ridership,

Table 6 Transit Performance Initiative Investments – Spring 2012

Sponsor	Project	Investment (\$ millions)
AC Transit	Line 51 Corridor Speed Protection and Restoration	\$10.1
SF MTA	Mission Customer First	\$7.0
SF MTA	N-Judah Customer First	\$3.7
SF MTA	Bus Stop Consolidation and Roadway Modifications	\$4.1
VTA	Light Rail Transit Signal Priority Improvements	\$1.6
VTA	Stevens Creek – Limited 323 Transit Signal Priority	\$0.7

MTC has also created an incentive program to reward transit agencies that achieve ridership increases and productivity improvements, and will allocate funds on the basis of performance, thereby encouraging all of the region's transit operators to continuously improve their service and attract more riders. In winter 2013, the first round of funding for the TPI Incentive program awarded over \$13 million to eight projects focused on increasing ridership and/or productivity, including youth and low-income pass programs.

Regional Express Lane Network

Express lanes, otherwise known as high-occupancy toll (HOT) lanes, are carpool lanes that give solo drivers the option of paying a fee to use the uncongested carpool lane, while carpools and buses may use the express lane free of charge. Express lanes make better use of carpool lanes that often sit empty while solo drivers are stuck in traffic. Opening up the express lane to solo drivers has been proven effective across the nation in moving cars out of traffic. Fewer cars in general-purpose lanes reduce traffic even for those who do not choose to use the express lane.

Express lane tolls vary based on levels of congestion. They are priced low enough to attract drivers out of slow traffic in the regular lanes, but high enough to ensure a free-flow of cars in the express lane at all times. Drivers pay based on distance traveled in the express lane. Tolls are collected through the FasTrak® electronic toll collection system.

In October 2011, the California Transportation Commission (CTC) approved MTC's plan to add 290 miles of express lanes on I-80 in Solano, Contra Costa and Alameda counties, I-880 in Alameda County, I-680 in Solano and Contra Costa counties, and the approaches to the Bay Bridge, San Mateo-Hayward Bridge and the Dumbarton Bridge. These will be operated by MTC in tandem with express lanes operated by county agencies on I-580 and I-680 in Alameda County and throughout Santa Clara County to form a seamless system of express lanes throughout the region. Of the proposed network, 150 miles would involve converting existing carpool lanes, or high-occupancy vehicle (HOV) lanes, to express lanes, and 120 miles would involve widening freeways to create new HOV/express lanes in both directions to close gaps in and extend the existing HOV system.

The goals of the Regional Express Lane system remain the same as they were in the Transportation 2035 Plan:

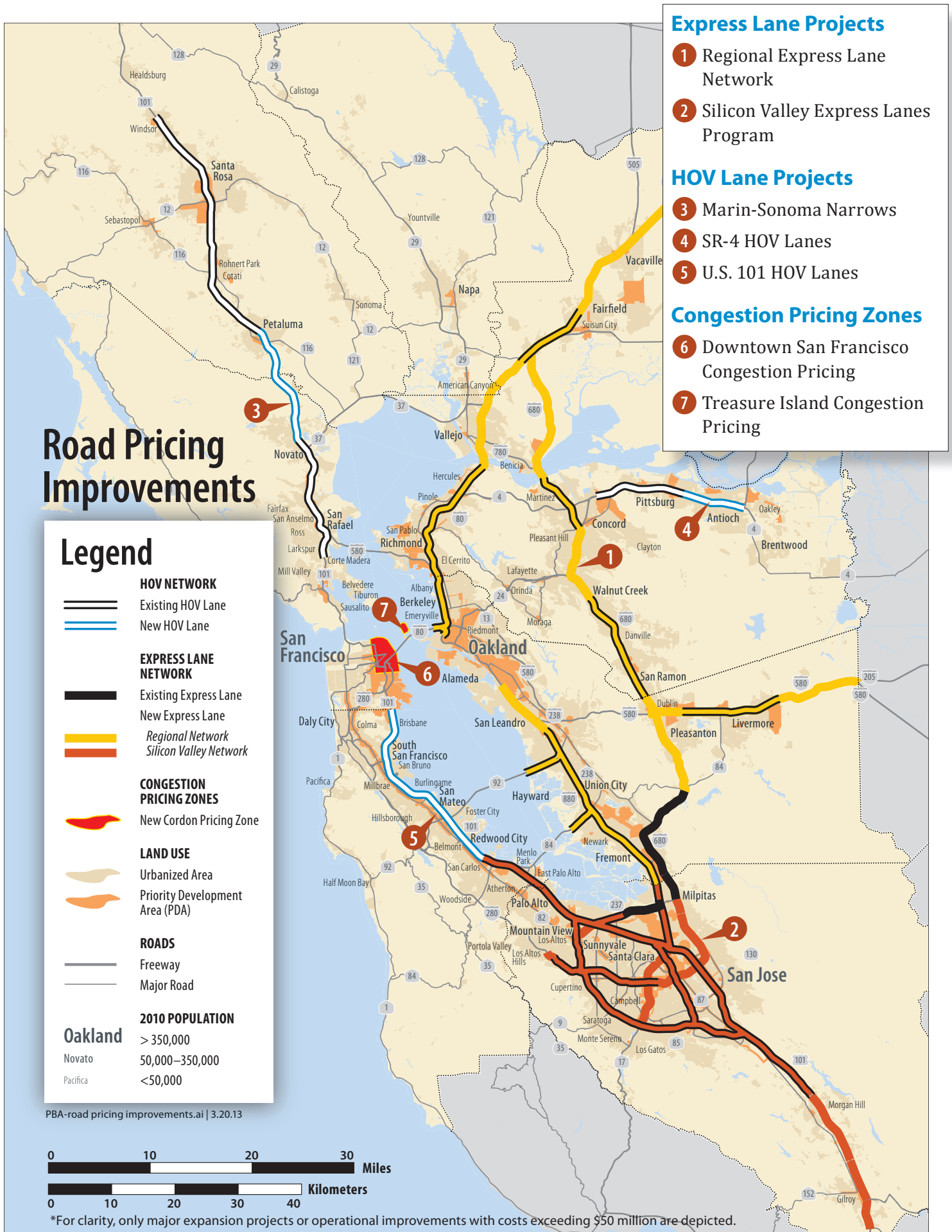
- **Connectivity** – Use express lane toll revenue to close gaps within the HOV lane system and to increase travel-time savings for carpools and buses. Without express lane toll revenue, the region's HOV system will remain fragmented for the foreseeable future.
- **Efficiency** – Optimize throughput on freeway corridors to better meet current and future traffic demands, using excess capacity in the existing HOV system to reduce travel time for all travelers.
- **Reliability** – Provide a reliable, congestion-free transportation option.



Free flow of traffic in Sunol Grade Express Lane



Express Lane criteria and tolling hours



Express lane toll revenue will be used first and foremost to fund the operations and maintenance of the express lanes. Plan Bay Area invests \$600 million in discretionary revenue in order to complete the financing package for construction of the Regional Express Lane Network in Solano, Contra Costa and Alameda counties. Conversions of existing HOV lanes will be built first. Revenues from those early express lanes will be used to bond-finance the gap closures first, and, eventually, the extensions. Express lanes in Santa Clara County will be financed by bonds that are fully supported by committed express lane toll revenue.

A map of other critical roadway improvements proposed in the draft Plan Bay Area investment strategy is included at the end of this chapter.

San Francisco Congestion Pricing

Congestion pricing involves charging drivers a fee to drive in congested areas, and using the revenue generated to fund transportation improvements — such as better transit service, signal coordination, and bicycle and pedestrian projects — that improve travel options and traffic flow. Congestion pricing is being advanced in San Francisco through a demonstration project as a part of the Treasure Island development project, and through ongoing planning for congestion pricing in downtown San Francisco.

Treasure Island

In June 2011, the city of San Francisco approved development plans for Treasure Island (a Priority Development Area), including 8,000 residential units, along with retail and commercial uses. The Treasure Island Transportation Implementation Plan, adopted as part of the development project's approval, calls for an integrated approach to managing traffic and improving mobility management, including a congestion fee to be assessed for residents traveling by private automobile on or off the island during peak hours. The congestion fee, in combination with parking charges and a pre-paid transit voucher for each household, will help fund a comprehensive suite of transportation services including new ferry service to San Francisco and enhanced East Bay bus services.



Proposed congestion pricing locations in downtown San Francisco and Treasure Island

Downtown San Francisco

During rush hours, congestion in the greater downtown area results in average bus transit and automobile speeds below 10 miles per hour. Congestion is already a problem, and the city has ambitious growth plans for the future. Unless bold measures are taken, downtown San Francisco streets will be unable to accommodate expected levels of housing and job growth and

gridlocked conditions will threaten the city's and region's economic development plans. A recent study found congestion pricing in downtown San Francisco to be a feasible and potentially effective way to manage and grow the transportation system while supporting new businesses and residents. The mobility and pricing program could result in:

- 12 percent fewer peak period vehicle trips and a 21 percent reduction in vehicle hours of delay
- 5 percent reduction in greenhouse gases citywide
- \$60-80 million in annual net revenue for mobility improvements
- 20-25 percent transit speed improvement and 12 percent reduction in pedestrian incidents



London congestion pricing

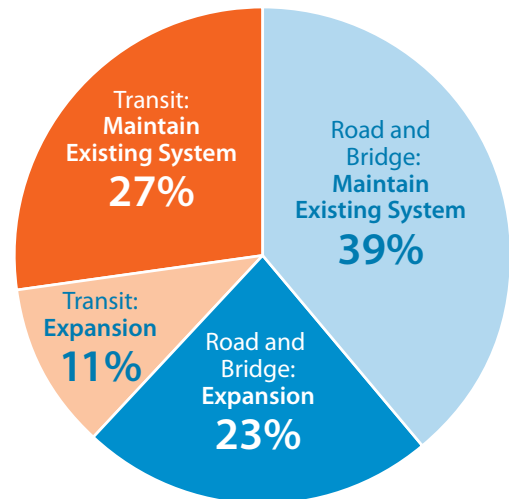
The Guardian UK

Plan Bay Area supports the implementation of these congestion pricing projects in San Francisco with a \$150 million investment over the plan period.

Investment Strategy 5 County Investment Priorities

The county congestion management agencies have identified key local transportation priorities during the development of their county transportation plans. This process resulted in \$29 billion in discretionary funding requests, which is nearly twice the \$16 billion that is expected to be available over the life of the plan. Overall, the county funding priorities were closely aligned with the draft investment strategy, including an investment of 66 percent of these funds dedicated to maintaining and sustaining current transportation systems. Their priorities complement a number of the regional discretionary investment strategies including the One Bay Area Grant, Next Generation Transit and Freeway and Transit Efficiency strategies. The county programs also included complete streets programs that will deliver substantial bicycle and pedestrian improvements. Figure 11 summarizes the county discretionary revenue proposal; more details can be found in the Online Project Database, listed in Appendix 1.

Figure 11 County Funding Priorities
\$16 Billion



Investment Strategy 6

Protect Our Climate

Pursuant to SB 375, the California Air Resources Board in 2011 assigned the Bay Area a per capita greenhouse gas (GHG) emissions reduction target of 7 percent in 2020 and 15 percent 2035. These are aggressive targets that we are determined to meet and possibly exceed. In terms of its development, the Bay Area is a relatively mature region, with a well-established transportation system and a large population already in place. While it can focus the pattern of future growth, Plan Bay Area does not significantly rearrange the development pattern that already exists. So in harmony with our multimodal transportation network and focused land use plan, we have to invest in technology advancements and provide incentives for travel options to help meet these emissions targets. The Plan Bay Area climate initiative invests \$630 million in the eight programs highlighted in Table 7.

Table 7 Summary of Climate Program Initiatives

Policy Initiative (From most to least cost-effective)	Cost (In Year of Expenditure, Millions of \$)	Per Capita CO ₂ Emissions Reductions in 2035
Commuter Benefit Ordinance	\$0	-0.3%
Car Sharing	\$13	-2.8%
Vanpool Incentives	\$6	-0.4%
Clean Vehicles Feebate Program	\$25	-0.7%
Smart Driving Strategy	\$160	-1.6%
Vehicle Buy-Back & Plug-in or Electric Vehicle Purchase Incentive	\$120	-0.5%
Regional Electric Vehicle Charger Network	\$80	-0.3%
Climate Initiatives Innovative Grants	\$226	TBD
Total	\$630	-6.6%

Commuter Benefit Ordinance

Senate Bill 1339 authorizes the Bay Area Air Quality Management District (BAAQMD) and MTC to jointly adopt a regional commuter benefit ordinance as a means to reduce GHG emissions and to improve air quality. Commuter benefits would include pre-tax benefit programs, employer-provided subsidies, free shuttles or vanpools, or an employer-chosen alternative that would provide an equal or greater benefit in terms of reducing GHG emissions. The agencies are required to report to the Legislature in 2016 on the results of the program, including vehicle miles reduced and greenhouse gases reduced.

Car Sharing

Car-sharing services have been available in the Bay Area for since 2001, and in that time the number of vehicles available and the number of subscribers has grown. Bay Area wide, there were an estimated 60,500 members in 2012 and fleets with hundreds of cars to serve those customers. Car sharing allows people to rent cars by the hour, for as short a time as 30 min-

utes up to a full weekend. Car sharing saves families and individuals hundreds of dollars every month in car payments, insurance, gas, registration and repairs. This investment strategy proposes to invest \$13 million to expand car-sharing services to ensure vehicles are available at high-demand locations, and to expand services in suburban communities.



Boarding an accessible CityCarShare van

Noah Berger

Vanpool Incentives

The Bay Area has had an organized vanpool program since 1981. Currently managed by local,



RideShare van in the Oracle parking lot

Noah Berger

county, and regional partners including MTC's 511 program, the region's vanpool service helps people with long commutes that are not well-served by transit. This strategy will enhance the appeal of vanpooling by dedicating \$6 million to reduce the cost of van rentals, thereby encouraging more people to participate in the vanpool program, removing personal cars from crowded freeways while reducing overall emissions.

Clean Vehicles Feebate Program

A "feebate" charges a fee to one user, and that fee is used to provide a discount to another user. The feebate program in Plan Bay Area would charge a one-time, point-of-purchase fee on new vehicles with low miles-per-gallon ratings to help purchase fuel-efficient vehicles that emit much less pollution.

Although the fees and subsidies from the program are revenue-neutral, this strategy still includes \$25 million to pay for the administrative costs of the program over the period of the plan.



Chevrolet Volt

Chevrolet

Smart Driving Strategy

Despite Plan Bay Area's targeted efforts to incentivize the purchase of fuel-efficient vehicles, many of the cars currently on the road fall short of current and future emission or fuel-efficiency standards, yet they work well and are not ready to be retired. Smart driving tactics are easy-to-implement actions (e.g., change in driving style, more-frequent vehicle maintenance, etc.) that any driver can do to save gas and reduce emissions. Plan Bay Area provides a total of \$160 million to develop a public education campaign for the region's drivers and to provide rebates for in-vehicle, real-time fuel efficiency gauges.

Vehicle Buy-Back/Purchase Incentive Program for Plug-ins or Electric Vehicles

While the federal government and the state are offering incentives for the purchase of electric vehicles, most EVs still cost more than a many gas vehicles at the time of purchase. Typically when consumers buy new cars, their older, less-efficient vehicles are re-sold rather than being removed from the fleet. As long as older vehicles are still on the road polluting, it is hard to significantly reduce emissions. Plan Bay Area sets aside a total of \$120 million for a voluntary incentive program to accelerate the removal of low-mpg vehicles from the region's roads. In return for trading in their car, which is retired from service, people can receive a cash incentive towards the purchase a new plug-in hybrid or electric vehicle.

Regional Electric Vehicle Charger Network



Noah Berger

Electric vehicles at a charging station

BAAQMD, in partnership with regional and local partners, and auto manufacturers and service providers, are charting the Bay Area path for electric vehicle use in the Bay Area. The Electric Vehicle (EV) Readiness Plan completed in late 2012, sets forth short-term strategies to increase EV usage. A long-term strategy is currently under development. Plan Bay Area supports these initiatives with three supportive strategies to help clean our air and cut the region's GHGs.

The Bay Area is expected to be a successful clean-vehicle market, but due to the limited range of today's all electric vehicles (EVs) it is projected that many EV purchases will be plug-in hybrid electric vehicles (PHEVs) that can switch over to a gasoline engine once they have used up the energy

in their batteries. Plan Bay Area allocates \$80 million to install more EV chargers at Bay Area workplaces. The proposed investment will allow vehicles to be charged during the day, ready to make the drive back home without using the gasoline engine.

Climate Initiatives Innovative Grants

With the adoption of the Transportation 2035 Plan, MTC created a new Climate Initiatives



Peter Beeler

Middle school students on Walk-and-Roll-to-School Day, October 2012

Innovative Grant program and invested \$33 million in innovative and creative pilot grants to reduce greenhouse gas (GHG) emissions from the transportation sector. The grant categories included: Safe Routes to Schools, which encourages children to bike and walk to school; Parking Pricing; Transportation Demand Management, which includes strategies to reduce travel demand or shift demand in order to relieve congestion; and Showcase projects, for creative ideas that did not fit neatly into the other categories. These grants are still being implement-

ed and evaluated, but many of the pilot projects show promise in their potential to reduce GHG emissions Plan Bay Area sets aside \$226 million to invest in the expansion of the most successful strategies identified in the innovative grants program.

Summary

The investment strategies for the \$57 billion in discretionary revenue support key priorities that will help our region to surpass our per-capita greenhouse gas target, deliver the long-term land use strategy, maintain the infrastructure investments made by past generations, and provide for future economic growth. Table 8 below summarizes the investment strategies and their respective funding levels of discretionary revenue in Plan Bay Area.

Table 8 Plan Bay Area Investment Strategy Summary
in billions of year-of-expenditure dollars

Strategy	YOE\$, billions	% of Total
1 Maintain Our Existing System	\$15	26%
2 Build Next Generation Transit	\$5	9%
3 Boost Freeway and Transit Efficiency	\$4	7%
4 Support Focused Growth – OBAG	\$14	25%
5 County Investment Priorities	\$16	29%
6 Protect Our Climate	< \$1	1%
7 Reserve	\$2	3%
Total	\$57	100%

Key Transit and Road Improvements

The following maps show priority transit and road projects from the draft investment strategy. These projects reflect a mix of committed and discretionary investments, with local, state and federal investments all in support. The maps show key road and highway improvements, local transit projects, and regional transit projects. More details on these and other Plan Bay Area-funded projects and programs are available in the Online Project Database, listed in Appendix 1.

Regional Transit System Improvements*

BART Projects

- 1 BART Extension to San Jose/ Santa Clara

Commuter Rail Projects

- 2 Caltrain Electrification & Frequency Improvements
- 3 Caltrain Downtown Extension (4th & King to Transbay Transit Center)
- 4 eBART to Antioch
- 5 SMART Commuter Rail (Larkspur to Windsor)

Infill Stations & Bus Terminals

- 6 Transbay Transit Center
- 7 Irvington BART Station
- 8 Union City Commuter Rail Station
- 9 Hercules Commuter Rail Station

Ferry

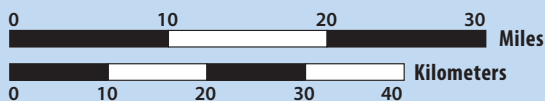
- 10 New Ferry Routes: Treasure Island, Berkeley, Richmond, Hercules, Redwood City

Regional Transit System Improvements

Legend

- BART**
 - BART (Existing)
 - New BART Line
- COMMUTER RAIL**
 - Commuter Rail (Existing)
 - Improved Commuter Rail Frequencies
 - New Commuter Rail Line
- LIGHT RAIL**
 - Light Rail (Muni & VTA)
- FERRIES**
 - Existing Ferry Route
 - New Ferry Route
- OTHER PROJECTS**
 - Infill Rail Station/ New Bus Terminal
- ROADS**
 - Freeway
 - Major Road
- LAND USE**
 - Urbanized Area
 - Priority Development Area (PDA)
- 2010 POPULATION**
 - Oakland > 350,000
 - Novato 50,000–350,000
 - Pacifica < 50,000

PBA-Regional transit improvements.ai | 3.20.13



*For clarity, only major expansion projects or operational improvements with costs exceeding \$50 million are depicted.



Local Transit Improvements*

Bus Rapid Transit (BRT) Projects

- 1 Van Ness BRT
- 2 Geary BRT
- 3 Geneva-Harney BRT
- 4 East Bay BRT
- 5 Grand-MacArthur BRT
- 6 Alameda-Oakland BRT
- 7 El Camino BRT
- 8 Santa Clara-Alum Rock BRT
- 9 Stevens Creek BRT
- 10 King Road Rapid

Light Rail (LRT) Projects

- 11 Central Subway (Chinatown to Caltrain)
- 12 Embarcadero Streetcar (Fort Mason to Caltrain)
- 13 Parkmerced Light Rail Extension
- 14 Bayshore Light Rail Extension
- 15 Oakland Airport Connector
- 16 San Jose Airport People Mover
- 17 Vasona Light Rail Extension
- 18 Capitol Expressway Light Rail Extension

Other Projects

- 19 Transit Effectiveness Project
- 20 Dumbarton Express Bus Frequency Improvements

*For clarity, only major expansion projects or operational improvements with costs exceeding \$50 million are depicted.



Highway System Improvements*

US-101 Corridor

- 1 Widening from Story Road to Yerba Buena Road
- 2 Operational Improvements along Presidio Parkway/Doyle Drive and in the Twin Cities/Greenbrae Corridor
- 3 New Auxiliary Lanes from Oyster Point to San Francisco county line and from Marsh Road to Embarcadero Road
- 4 Interchange Improvements at: Petaluma Boulevard, Greenbrae, Candlestick Point, Produce Ave, Broadway, SR-92, Woodside Road, Willow Road and Oregon Expressway
- 5 New Interchanges at: Zanker Road/Skyport Drive and Mabury Road/Taylor St

I-80 Corridor

- 6 Widening from I-680 to Airbase Parkway
- 7 Integrated Corridor Management (Emeryville to Crockett)
- 8 Interchange Improvements at: I-680/SR-12, San Pablo Dam Road, Ashby Ave, and Yerba Buena Island

I-280 Corridor

- 9 Interchange Improvements at: SR-85 and Senter Road

I-580 Corridor

- 10 Widening from Greenville Road to North Flynn Road
- 11 Interchange Improvements at: Vasco Road and Greenville Road

I-680 Corridor

- 12 Interchange Improvements at: SR-84 and SR-4
- 13 New Interchange at: Norris Canyon Road

I-880 Corridor

- 14 Interchange Improvements at: Jackson St, 23rd Ave, 29th Ave, A St, Industrial Parkway, Whipple Road, and SR-262

SR-4 Corridor

- 15 Widening from Somersville Road to SR-160 and from Lone Tree Way to Balfour Road
- 16 Interchange Improvements at: SR-160/Phillips Lane

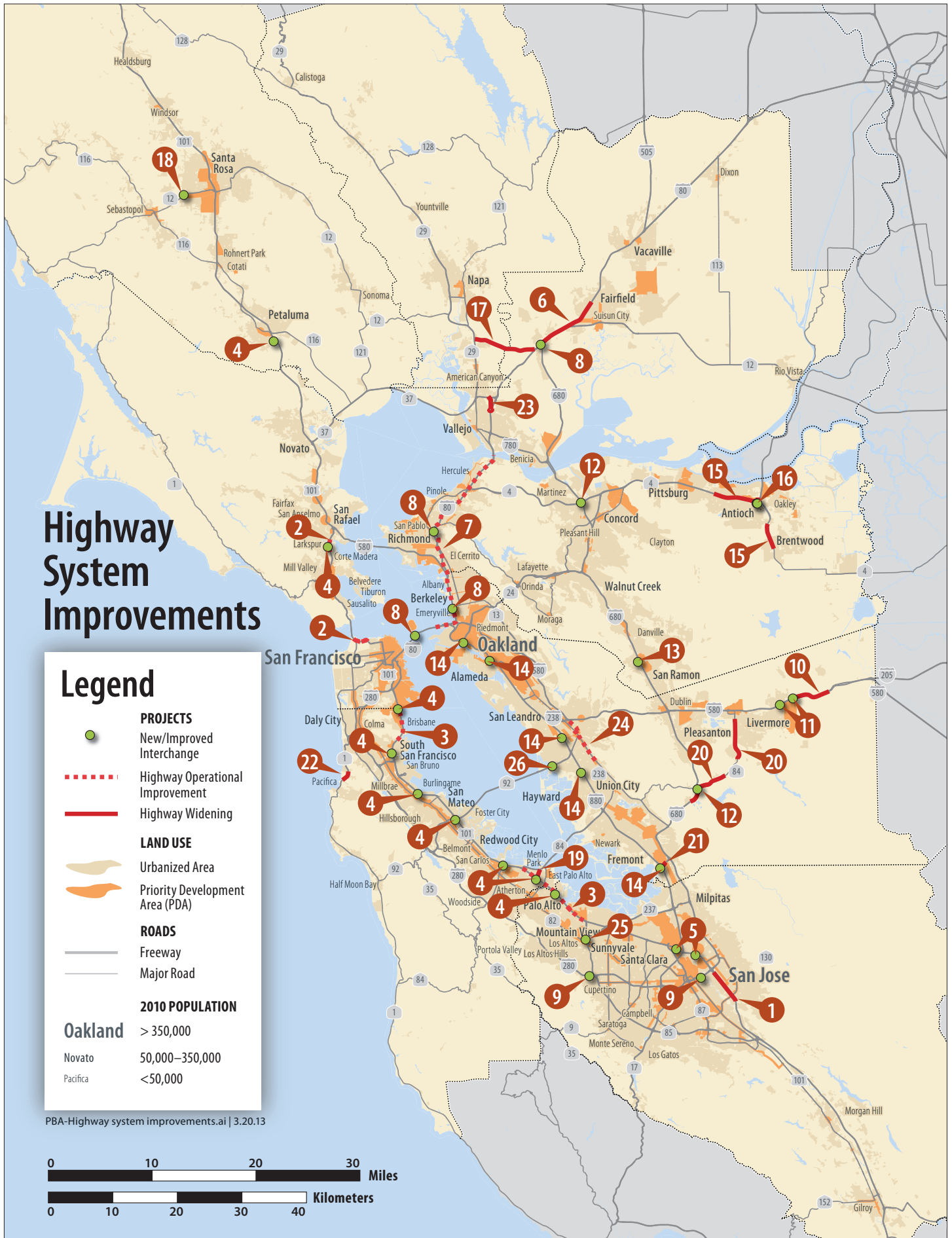
SR-12 Corridor

- 17 Jameson Canyon Widening
- 18 New Interchange at: Fulton Road

Other Projects

- 19 Willow Road Expressway (SR-84 to US-101)
- 20 SR-84 Widening (I-680 to Jack London Boulevard)
- 21 SR-262 Widening (I-680 to I-880)
- 22 SR-1 Widening (Fassler Ave to Westport Drive)
- 23 Redwood Parkway/Fairground Drive Widening
- 24 SR-238 & SR-185 Operational Improvements
- 25 SR-85/SR-237 Interchange Improvements
- 26 SR-92/Clawiter Road/Whitesell St Interchange Improvements

*For clarity, only major expansion projects or operational improvements with costs exceeding \$50 million are depicted.



Chapter 5

Performance

At both the scenario and project levels, Plan Bay Area has been tested against rigorous performance targets. Because of this, MTC and ABAG have been able to craft a plan that emphasizes the most effective strategies to achieve regional objectives. Even so, some targets remain stubbornly out of reach.

Plan Bay Area achieves the greenhouse gas emissions reduction target required by state law through a more efficient land use pattern, key transportation investments, and initiatives such as accelerated electric vehicle deployment. It also achieves the housing target required by state law to provide housing for all of the region's population over the next three decades, relying on local communities' support for policies that direct the lion's share of housing growth into Priority Development Areas.

At the same time, Plan Bay Area struggles to achieve many of the region's ambitious voluntary targets. Thanks to investments in transportation alternatives, the plan moves in the right direction when it comes to increasing active transportation and reducing the number of automobile miles driven per capita, though it falls short of the "aspirational" goals set in these areas. While the draft plan allocates funds and introduces policies to address them, roadway safety, transportation and housing for low-income persons, and the transportation system's state of good repair remain vexing problems that the region must redouble our efforts to confront.



511 changeable message sign, Interstate 80

Peter Beeler

How Does Plan Bay Area Perform?

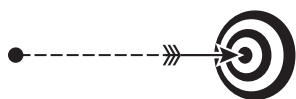
As has been the case in past long-term transportation plans, no single strategy is able to achieve all the plan's performance targets, and the draft Plan Bay Area clearly bears this out. Some targets — including the key greenhouse gas emissions and housing targets — are met or even exceeded. In other cases, the plan makes progress toward achieving a target, but falls short of full attainment. And in other cases, the plan actually loses ground against some metrics.

Here is a target-by-target breakdown of how well the draft Plan Bay Area performs. (See Chapter 1 for background on the performance targets. Additional analysis of target performance can be found in the *Performance Assessment Report*, listed in Appendix 1.) Given the plan's 2040 horizon year, target results reflect year 2040 performance in comparison to year 2005 baseline conditions, unless noted.

Required Performance Targets

Climate Protection

Target #1: Reduce per-capita CO₂ emissions from cars and light-duty trucks by 15 percent.



Plan meets and exceeds target; reduces per-capita emissions of CO₂ by 18 percent (by 2040).

Reducing the transportation sector's emission of greenhouse gases responds to the threat of climate change and helps to address the threat to the region from sea level rise.

Through combinations of denser land use patterns focused in Priority Development Areas, increased investments in the region's public transit infrastructure, and enhanced funding of climate initiatives such as electric vehicle adoption incentives, Plan Bay Area not only meets but exceeds its greenhouse gas (GHG) emissions reduction target. By 2040, the typical Bay Area resident is expected to reduce his or her daily transportation CO₂ emissions by 18 percent compared to 2005 conditions.



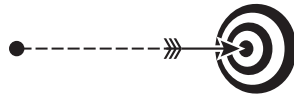
MTC Archives

Senate Bill 375 mandates per-capita GHG target achievements for years 2020 and 2035 as established by the California Air Resources Board. For 2035, the draft plan leads to a 16 percent per-capita reduction (surpassing the 15 percent target), and for 2020, the draft plan leads to a 10 percent per-capita reduction (also surpassing an interim 7 percent target).

While MTC has considered the effects of transportation investments on GHG emissions in prior regional transportation plans, Plan Bay Area is the first regional effort with an aggressive and achievable emission reduction goal. By accelerating efforts to emphasize infill growth and to boost funding for public transit, this draft plan represents a bold step for the region in this era of climate change.

Adequate Housing

Target #2: House 100 percent of the region's projected population growth by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents.



Plan meets target; houses 100 percent of population growth.

It's no secret that the Bay Area is one of the most expensive places to live in the United States. For decades this has caused an ever-increasing number of people who work in the Bay Area to look for more affordable housing in the Central Valley or other surrounding regions. The resulting longer-distance commutes increase emissions while also raising transportation costs for the residents who must venture so far afield in search of more affordable housing. This places a greater burden on lower-income residents and further increases the divide between the region's more-affluent and less-affluent residents. The region's businesses also suffer, since the dispersal of workers tends to constrain the supply of labor they can draw on.

SB 375 requires regions to plan for housing that can accommodate all projected population growth, by income level, so as to reduce the pressures that lead to in-commuting from outside the nine-county region. In November 2010, ABAG adopted a methodology to define this figure. This target is also intended to limit the displacement of low-income residents, defined as the outward movement of current low-income residents from locations in the region's urban core to locations with lower accessibility to transportation options and limited services as a result of new development pressures. This target complements the Regional Housing Need Allocation (RHNA), as discussed in Chapter 3.

Plan Bay Area succeeds in identifying housing opportunities for all of the region's population. Working with cities and counties to underscore the importance of achieving this target, MTC and ABAG are putting forward a plan that provides sufficient housing for the number of new jobs created in the region. The focus on spurring housing in locally supported Priority Development Areas and high-quality transit corridors allows the plan to meet this target, and also helps to achieve the GHG emissions reduction target (see above).

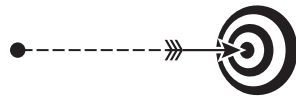
Voluntary Performance Targets

Healthy and Safe Communities

Reduce Particulate Matter

Target #3: Reduce premature deaths from exposure to particulate emissions:

Target #3a: Reduce premature deaths from exposure to fine particulates (PM_{2.5}) by 10 percent.



Plan meets and exceeds target; reduces premature deaths from exposure to fine particulates by 71 percent.

Target #3b: Reduce coarse particulate emissions (PM₁₀) by 30 percent.



Plan reduces coarse particulate emissions by 17 percent, but falls short of target.

Target #3c: Achieve greater reductions in highly impacted areas.



Plan meets target; achieves greater particulate emission reductions in highly impacted neighborhoods.

Particulate matter (PM) consists of very small particles that can pass through the throat and nose and into the lungs and may even enter the bloodstream. Over time this can affect the heart and lungs and lead to serious health effects such as heart attacks or asthma, and can even contribute to premature death. While particulate matter is directly linked to vehicle miles traveled, the approach taken with this target moves from simply measuring vehicle use to measuring healthy outcomes for the region's residents.

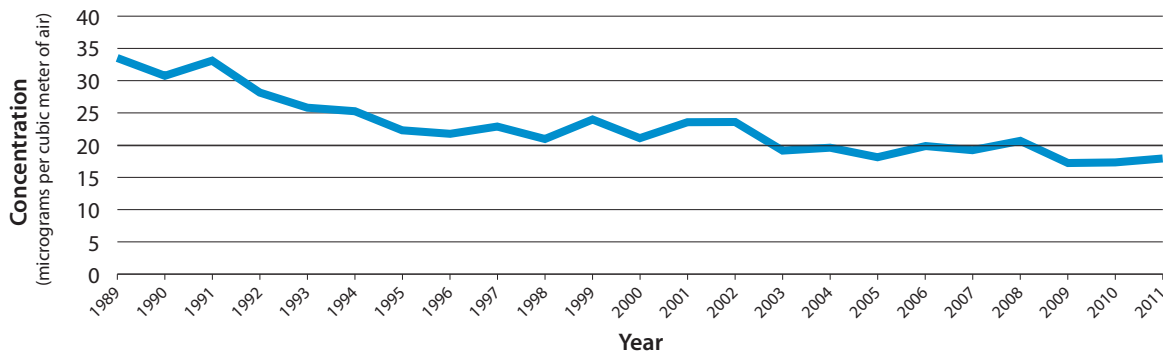
The Bay Area does not meet the federal standard for fine particulate matter (PM_{2.5}), which is extremely hazardous to health. The goal of a 10 percent reduction in premature deaths due to PM_{2.5} reflects the expected benefit from meeting the federal standard, assuming each emission sector (both mobile and non-mobile sources) takes on similar emission reduction shares. The region, like all major metropolitan regions in the state, also does not yet attain the state standard for the coarser PM₁₀, which also causes health impacts. The 30 percent reduction goal for PM₁₀ is consistent with the reduction needed to meet the state standard.

There has been substantial progress in reducing Bay Area PM levels in recent years¹. The state and the Bay Area Air Quality Management District have taken major steps to address pollution impacts of this Bay Area traffic — primarily, to clean up truck engines and fuel, the primary sources of particulate emissions. New regional and state regulations are expected to reduce

¹ Air quality monitoring data shows that the Bay Area met the national 24-hour PM_{2.5} standard during the 2008–2012 period. However, the Bay Area is still formally designated a non-attainment area for the national 24-hour PM_{2.5} standard.

premature deaths by 71 percent by 2040, saving 159 lives per year compared to the 2005 baseline. This projection far exceeds the 10 percent reduction target for Plan Bay Area. Coarse particulates, known as PM₁₀, also represent a major threat to air quality and public health; in 2005, Bay Area vehicles emitted 15 tons (approximately the weight of seven passenger vehicles) of particulate matter every day. While the historical trend has been favorable (see Figure 1), and aforementioned regulations help move us in the right direction with regard to this ambitious target (reducing emissions by 17 percent by 2040), they still fall short of achieving the 30 percent target established for Plan Bay Area.

Figure 1 Bay Area Annual Mean PM₁₀ (Quarterly Averaged, 9-site Mean, 1989–2011)



Source: Bay Area Air Quality Management District

PM₁₀ Concentration

Despite more stringent controls on tailpipe emissions and fuels, meeting the PM₁₀ target will be difficult given the region's long-term mobility needs. To achieve the public health benefits of this target, it will be necessary to reduce auto trip distances and to promote the use of alternative modes of transportation such as transit, biking and walking. While Plan Bay Area offers more individuals new public transit options and supports the trend towards shorter-distance commutes, regional growth will lead to more vehicles (and more vehicle miles) than ever before.

Reduce Injuries and Fatalities From Collisions

Target #4: Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian).

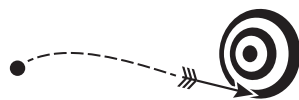


Making the Bay Area safer for motorists, pedestrians and bicyclists is an important and ongoing priority. This target reflects an emphasis in Plan Bay Area to enhance safety for all travel modes across the Bay Area. The target is adapted from the state's Strategic Highway Safety Plan (2006), and also reflects a long-standing regional goal of making streets, highways and transit service safer.

Approximately 39,000 individuals were injured or killed in collisions on Bay Area roads during the year 2005, highlighting the critical need to improve roadway safety. Unfortunately, as a result of the region's growth in total population and in total vehicle miles traveled, we lose ground against this target over the course of the draft plan. Although as a region we continue to invest in safer roads for all modes of transport, over 46,000 individuals are forecasted to be injured or killed in collisions in year 2040, an 18 percent increase in roadway tragedies compared to 2005. While it is some comfort to know that the per-capita rate of collisions is projected to decline by 10 percent during the plan period, the sheer number of people traveling on the network — combined with the certainty of occasional human error — overwhelms the safety improvements for which the draft plan allocates funding.

Encourage Active Transport

Target #5: Increase the average daily time walking or biking per person for transportation by 70 percent (for an average of 15 minutes per person per day).



Plan boosts per-person active transportation by 17 percent, but falls short of target.



John J. Kim

The U.S. Surgeon General recommends at least 30 minutes of physical activity per day to lower the risk of chronic disease and increase life expectancy. While Bay Area residents are more physically active than residents in most other parts of the country, the current measure of Bay Area residents' average daily physical activity still falls well short of the Surgeon General's recommendation. The average time Bay Area residents spent walking and biking for transportation was about 9 minutes per person in 2005. There is no accepted standard for the amount of activity people should get through day-to-day transportation compared to other activities. However, in order to increase the health of our communities, Plan Bay Area set out to bring the average up to 15 minutes per person per day by encouraging people to spend more time walking or biking.

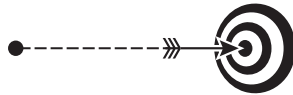
In order to improve public health in the light of rising obesity rates, it is essential to construct and improve facilities to allow for walking and bicycling during one's daily routine. The draft plan invests in complete streets, local streetscape improvements, and new bike and pedestrian paths, with an objective of providing new opportunities for Bay Area residents to walk and bike to daily destinations.

Unfortunately, while these investments do boost the amount of time individuals spent walking and biking, the region continues to fall short of this public health target. The typical Bay Area resident spent about 9 minutes per day walking or biking for transportation purposes in the year 2005, while Plan Bay Area will increase the average amount to 10 minutes per day in year 2040 (a 17 percent increase).

While many people who make the effort to exercise regularly do so by going to the gym or playing on a sports team, transportation related exercise could play a crucial role in boosting regional health. Unless additional efforts are initiated to encourage walking and biking for daily commutes or daily errands, exercise from walking and biking is expected to only increase slightly as a result of Plan Bay Area.

Open Space and Agricultural Land

Target #6: Direct all non-agricultural development within the year 2010 urban footprint (existing urban development and urban growth boundaries).



Plan meets target; directs all non-agricultural development within the existing urban footprint.

SB 375 requires consideration of open space and natural resource protection and supports accommodating new housing and commercial development within existing areas designated for urban growth. This is of particular importance to the Bay Area, where so much of the region's spectacular natural setting has been preserved as open space. And whether it is the scenic wine country or the small farms that supply thriving farmers markets with local produce, agricultural lands also merit special protection.

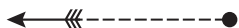


The intent of this target, therefore, is to support infill development in established communities while protecting the Bay Area's agriculture and open space lands.

To ensure that the Bay Area retains the landscapes that its residents value so highly, the Plan Bay Area aims to protect open space and agricultural land by directing 100 percent of the region's growth inside the year 2010 urban footprint, which means that all growth occurs as infill development or within established urban growth boundaries or urban limit lines. As the draft plan assumes that all urban growth boundaries/urban limit lines are held fixed through the year 2040, no sprawl-style development is expected to occur on the region's scenic or agricultural lands. This will help preserve the natural beauty of the Bay Area for future generations to enjoy.

Equitable Access

Target #7: Decrease by 10 percentage points (to 56 percent, from 66 percent) the share of low-income and lower-middle income residents' household income consumed by transportation and housing.



Plan moves in wrong direction; the share of household income needed to cover transportation and housing costs is projected to rise by 3 percentage points to 69 percent for low-income and lower-middle income residents during the Plan Bay Area period.

Not only have housing costs increased over the years, but gasoline costs have crept (and sometimes leapt) up as well. Higher gas prices disproportionately burden low-income residents who drive, and in the Bay Area most low-income residents own and drive cars. In 2005, low-income and working class families in the Bay Area spent 66 percent of household income on housing and transportation, which is about 10 percentage points higher than similar families in other major U.S. metropolitan areas, and a significant cost burden.

This target addresses this situation by setting a goal of reducing the share of household income that poorer residents must devote to housing and transportation. It aims to bring the Bay Area in line with the national average, and help ensure that low-income residents are able to continue to live and work in the region.

However, expected rises in gasoline prices, combined with forecasts of a regional housing market recovery, are expected to disproportionately affect those at the lower end of the income spectrum — a challenge that will face not only the Bay Area, but the nation as a whole. For this group, transportation and housing costs are likely to rise faster than household incomes during the Plan Bay Area period. On the plus side, Plan Bay Area policies should help to stabilize the length and duration of commute trips for lower-income residents — which provides benefits in terms of overall quality of life.

Economic Vitality

Target #8: Increase gross regional product (GRP) by 110 percent – an average annual growth rate of approximately 2 percent (in current dollars).



Plan meets and exceeds the economic growth target; 119 percent increase in GRP is forecasted over the life of the plan.

Past long-range transportation plans have not included an analysis of economic impacts, even though they have directed the spending of billions of dollars of transportation funds. Of course, past transportation investments — such as transit expansion projects and freeway improvements — have certainly provided significant benefits to the Bay Area economy, but those benefits were not quantitatively estimated during plan development. Plan Bay Area takes the first step to directly address this issue through a quantitative performance target.



Gross regional product (GRP) reflects overall economic output of the region's residents and businesses. While the Bay Area economy is affected by global and national trends, regional land use patterns and transportation system efficiency also affect freight mobility and general productivity.

Between 2005 and 2040, taking Plan Bay Area into account, the region's gross regional product is forecasted to increase by 119 percent, slightly exceeding the region's historical growth rate of approximately 2 percent per year. Forecasted job growth and population growth play a primary role in the expected rise in GRP; as more households and employers decide to locate in the Bay Area, regional economic activity tends to grow by a proportionate amount.

In addition, plan investments in congestion relief projects improve workers' mobility across the region, benefitting the economy as a whole. The planned land use pattern, which emphasizes growth in high-density job centers, boosts regional economic productivity and supports overall economic growth. By boosting the efficiency of the region's land use pattern and transportation network, Plan Bay Area works to enhance the region's economic competitiveness on both national and international levels. For more information, see the *Economic Impact Analysis for Future Regional Plans*, listed in Appendix 1.

Transportation System Effectiveness

Increase Non-Auto Mode Share and Reduce VMT per Capita

Target #9a: Increase non-auto mode share by 10 percentage points (to 26 percent of trips).



Target #9b: Decrease automobile vehicle miles traveled (VMT) per capita by 10 percent.



In order to reduce emissions and improve public health, Plan Bay Area sets goals to increase non-auto mode share and reduce VMT per capita. These targets are a reflection of how effective the transportation system is in providing easier, faster access to individuals' travel destinations. Plan Bay Area strives to achieve these targets by making alternatives to the private automobile more convenient, more frequent, and more appealing. Supportive land use patterns also play a role; if destinations are closer to home, non-auto modes become more competitive and all trip lengths become shorter.



SamTrans

While Plan Bay Area increases the proportion of Bay Area travelers who walk, bike or utilize public transit, and decreases the daily miles traveled by the average Bay Area resident, it falls slightly short on both measures. Sixteen percent of Bay Area trips did not require an automobile in the year 2005; the region's target envisioned growing that share by 10 percentage points (to 26 percent) by the year 2040. Plan Bay Area's achievement of a 20 percent non-auto mode share means that one in five Bay Area trips would be expected to be car-free by year 2040,

thanks to investments in transit, bike and pedestrian infrastructure that makes these modes more attractive.

This shift, when combined with reduced average distances between home, work and retail locations, also leads to a reduction in per-capita VMT. The average Bay Area resident traveled about 22 miles by car on a typical weekday in 2005; by 2040, the average resident is expected to travel only 20 miles per day, a reduction of 9 percent. This near-achievement of the per-capita VMT target reflects the carefully targeted locations of envisioned housing and commercial development in Priority Development Areas with excellent transit service.



Peter Becker

Maintain the Transportation System in a State of Good Repair:

Local Road and Highway Maintenance

MTC has a long-standing commitment to a "fix-it-first" policy in the realm of transportation. This means that, as a region, we should strive to maintain our streets, highways and transit system before investing in system expansions. However, the Bay Area's extensive network of roads and highways is extremely expensive to maintain. Some of our cities and counties



Karl Nielsen

receive poor pavement ratings year after year, and the average PCI score for local pavement is currently 66, which is only "fair" in qualitative terms. The state highway system in the region faces similar challenges. Furthermore, our extensive transit system is rapidly aging and reaching the point where many of our assets are due for replacement at once. Failure to maintain the existing system at all levels would result in increased future maintenance costs, unreliable service and increased costs to travelers.

Target #10a: Increase local road pavement condition index (PCI) to 75 or better.



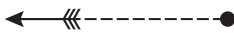
Plan improves pavement condition of local roads to a PCI of 68, but falls short of target.

While the region has made progress on local road conditions over the past decade (increasing its pavement condition index from 63 in 2005 to 66 today), Bay Area road conditions remain in the “Fair” category. Thus, the targeted improvement to a “Good” PCI of 75 was clearly an ambitious objective.

Even though approximately one-third of Plan Bay Area funding is directed toward maintaining and operating our existing road network, average PCI is only expected to increase to 68 by year 2040. This represents an 8 percent improvement in local road conditions over year 2005. Given the costs of maintaining the region’s aging infrastructure, this is still a notable achievement, especially considered relative to the degradation of state highway and transit assets over the plan’s lifespan (see below).

This target’s performance is aided by voter-approved local sales tax measures, which have boosted the funding available for preserving and maintaining local streets and roads. Yet even this funding is not adequate to enable most local roads to reach a “Good” PCI of 75. Without increased funding from a regional gas tax or a shift to vehicle miles traveled tax, it will continue to be a challenge to achieve this ambitious target.

Target #10b: Decrease distressed lane-miles of state highways to less than 10 percent of total lane-miles.



Plan moves in opposite direction from target; the percentage of distressed state highway lane-miles in the region will rise to 44 percent of the regional highway system by year 2040

Given the state’s ongoing budget constraints, the state highway system continues to suffer from deferred maintenance and worsening roadway conditions. As the highway system is owned and maintained by Caltrans, the system’s safety and upkeep lies with them. If current budget constraints continue over the coming decades, the share of distressed lane-miles is expected to increase from 27 percent of the overall Bay Area highway network to 44 percent of the network.

Plan Bay Area does not allocate any discretionary funding toward the maintenance of the state highway system, given that the state is responsible for its preservation. Additional statewide funding for roadway maintenance would be the most direct approach to address this target’s degradation over the lifespan of the draft plan.

Transit Maintenance

Target #10c: Reduce the share of transit assets past their useful life to 0 percent.



Plan moves in opposite direction from target; the share of transit assets past their useful life is projected to increase to 24 percent of all assets during the Plan Bay Area period.














Peter Beeler





Bay Area transit riders depend on well-maintained vehicles, stations and trackways in order to ensure system reliability and performance. While all transit agencies would prefer to retire transit vehicles at the end of their prescribed life, the high cost of such vehicles delays their replacement, leading to more vehicle breakdowns and systemwide delays. In 2012, approximately 13 percent of all Bay Area transit assets were past their useful life; by 2040, 24 percent of transit assets are expected to be past their useful life, even though the plan allocates over half the region's funding to operate and maintain the existing transit system.

Given that almost one in four transit assets is expected to exceed its useful life in year 2040, passenger comfort is expected to degrade, along with customer satisfaction in the system's reliability, safety and speed. Of course, transit assets do not need to be in an ideal state of repair for transit service to be provided successfully. However, as the state of repair declines, the negative effects on equipment availability and reliability will eventually reach the point of impairing service levels, and would likely impede transit agencies' efforts to boost ridership. That said, it should also be noted that transit asset management is a relatively new and evolving field, and there have been no established guidelines for a minimum required state of repair, or for how to evaluate whether the state of repair is sufficient to sustain transit services. New transit asset management requirements contained in the recently enacted federal law known as MAP-21 will help focus attention on this long-term issue, but in the long run, greater financial support from the federal or state levels will be needed to bring the Bay Area transit network into an ideal state of good repair.

Summary of Performance

Table 1 Results of Plan Bay Area Target Assessment

Plan Meets or Exceeds Target			
Climate Protection	Target #1: Reduce per-capita CO ₂ emissions from cars and light-duty trucks by 15 percent.	Plan meets and exceeds target; reduces per-capita emissions of CO ₂ by 18 percent (by 2040).	
Adequate Housing	Target #2: House 100 percent of the region's projected growth by income level (very-low, low, moderate, above-moderate) without displacing current low-income residents.	Plan meets target; houses 100 percent of population growth	
Healthy and Safe Communities Reduce Particulate Matter	Target #3a: Reduce premature deaths from exposure to fine particulates (PM _{2.5}) by 10 percent.	Plan meets and exceeds target; reduces premature deaths from exposure to fine particulates by 71 percent.	
	Target #3c: Achieve greater reductions in highly impacted areas.	Plan meets target; achieves greater particulate emission reductions in highly impacted neighborhoods.	
Open Space and Agricultural Land	Target #6: Direct all non-agricultural development within the year 2010 urban footprint (existing urban development and urban growth boundaries)	Plan meets target; directs all non-agricultural development within the existing urban footprint.	
Economic Vitality	Target #8: Increase gross regional product (GRP) by 110 percent — an average annual growth rate of approximately 2 percent (in current dollars).	Plan meets and exceeds the economic growth target; 119 percent increase in GRP is forecasted over the life of the plan.	
Plan Makes Progress Toward Target			
Healthy and Safe Communities Reduce Particulate Matter	Target #3b: Reduce coarse particulate emissions (PM ₁₀) by 30 percent.	Plan reduces coarse particulate emissions by 17 percent, but falls short of target.	
Active Transport	Target #5: Increase the average daily time walking or biking per person for transportation by 70 percent (for an average of 15 minutes per person per day).	Plan boosts per-person active transportation by 17 percent, but falls short of target.	
Transportation System Effectiveness Increase Non-Auto Mode Share	Target #9a: Increase non-auto mode share by 10 percentage points (to 26 percent of trips).	Plan boosts non-auto mode share to 20 percent of trips, but falls short of target.	
Reduce VMT per Capita	Target #9b: Decrease automobile vehicle miles traveled (VMT) per capita by 10 percent.	Plan reduces VMT per capita by 9 percent, but falls short of target.	
Local Road Maintenance	Target #10a: Increase local road pavement condition index (PCI) to 75 or better	Plan improves pavement condition of local roads to a PCI of 68, but falls short of target.	

Plan Moves in Opposite Direction From Target			
Reduce Injuries and Fatalities from Collisions	Target #4: Reduce by 50 percent the number of injuries and fatalities from all collisions (including bike and pedestrian).	Plan moves in opposite direction from target; injury and fatality collisions are projected to increase during plan period by 18 percent.	
Equitable Access	Target #7: Decrease by 10 percentage points (to 56 percent from 66 percent) the share of low-income and lower-middle income residents' household income consumed by transportation and housing.	Plan moves in wrong direction; the share of household income needed to cover transportation and housing costs is projected to rise to 69 percent for low-income and lower-middle income residents during the Plan Bay Area period.	
Transportation System Effectiveness Highway Maintenance	Target #10b: Decrease distressed lane-miles of state highways to less than 10 percent of total lane-miles.	Plan moves in opposite direction from target; the percentage of distressed state highway lane-miles in the region will rise to 44 percent of the regional highway system by year 2040	
Transit Maintenance	Target #10c: Reduce the share of transit assets past their useful life to 0 percent.	Plan moves in opposite direction from target; the share of transit assets past their useful life is projected to increase to 24 percent of all assets during the Plan Bay Area period.	

Key Targets Achieved in Solid Overall Effort, But Breakthrough Strategies Needed for Some Targets

As has been the case in past long-term transportation plans, no single strategy is able to achieve all the plan's performance targets. A review of the performance results for the 10 main targets and five sub-targets (for a total of 15 performance measures) clearly bears this out. Specifically, the draft plan meets or exceeds six targets, including the statutory greenhouse gas emissions and housing targets, narrowly misses three targets, falls well short of two targets and moves in the wrong direction on four of the targets. In other words, the draft plan makes great progress on nine of 15 performance measures, which represents a solid first effort. MTC and ABAG will need to focus future attention on conceptualizing breakthrough strategies to achieve the four targets where we are falling behind.

Key Equity Analysis Findings

With respect to the separately conducted analysis of the plan's social equity impacts (See Chapter 1 for background on the Equity Analysis), most of the measures studied do not show improvements for either "communities of concern" or the rest of region relative to conditions in 2010. However, Plan Bay Area does perform better than the year 2040 baseline forecast across most measures. This is notable in the case of the Housing and Transportation Affordability measure.

One of the most notable findings in the Equity Analysis is in the Potential for Displacement measure, where the focused concentration of growth in Plan Bay Area overlaps with a larger share of today's rent-burdened households than in the baseline forecast. This measure reflects Plan Bay Area's support for investment and development in communities of concern, while also

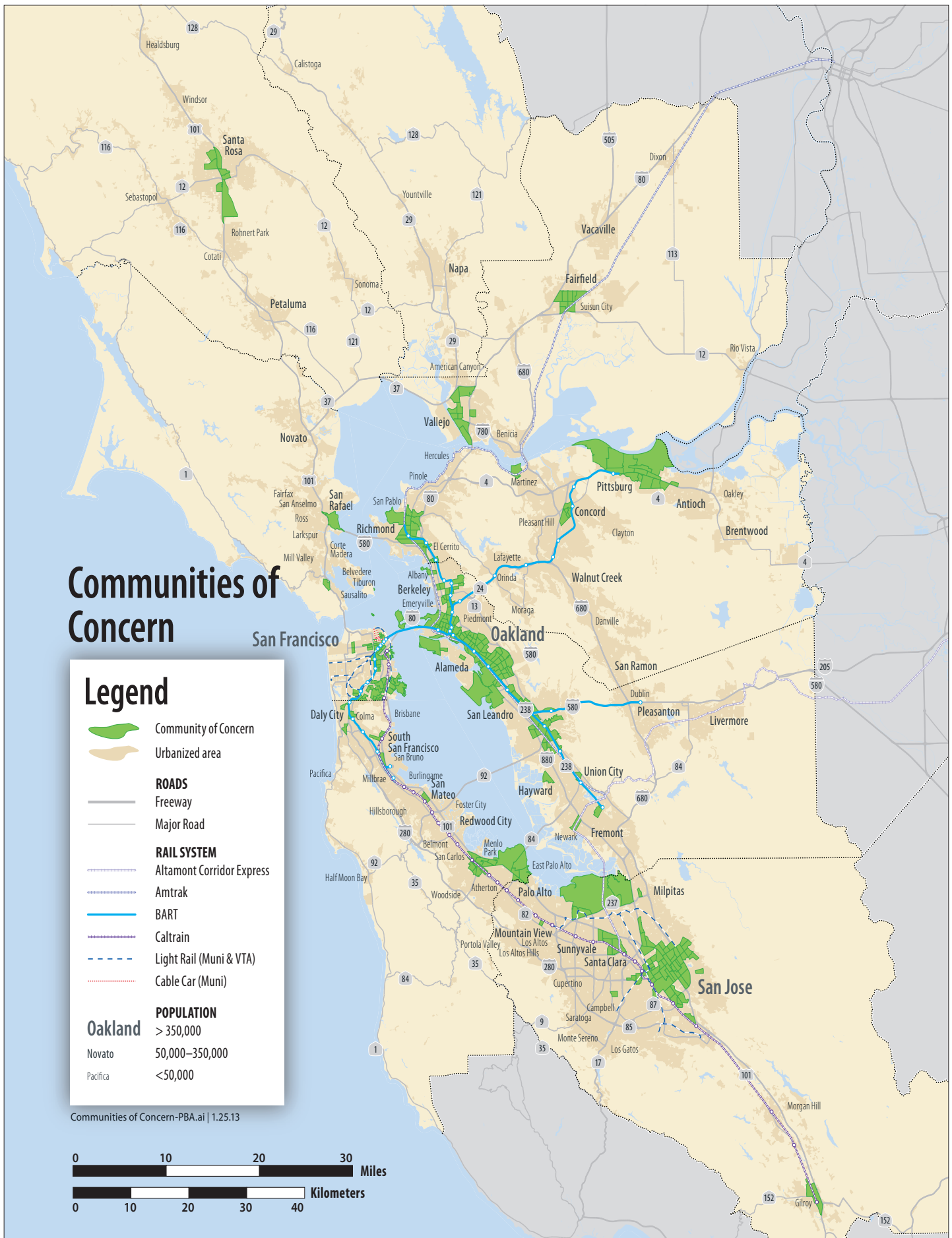
flagging the potential risk of market-based displacement due to rising rents as these neighborhoods improve. The plan responds with increased emphasis on funding to support the provision of affordable housing, requires the adoption of local housing elements to receive key funds, and sets forth a requirement for PDA Investment and Growth Strategies that will examine key housing policy issues.

Table 2 Results of Plan Bay Area Equity Analysis, 2010–2040

Equity Performance Measure	Target Population	2010	2040 (Baseline Forecast)	2040 (Draft Plan Bay Area)
1 Housing and Transportation Affordability % of income spent on housing and transportation by low-income households	Low-Income Households	72%	80%	74%
	All Other Households	41%	44%	43%
2 Potential for Displacement % of rent-burdened households in high-growth areas	Communities of Concern	n/a	21%	36%
	Remainder of Region	n/a	5%	8%
3 Healthy Communities Average daily vehicle miles traveled per populated square mile within 1,000 feet of heavily used roadways	Communities of Concern	9,737	11,447	11,693
	Remainder of Region	9,861	11,717	11,895
4 Access to Jobs Average travel time in minutes for commute trips	Communities of Concern	25	26	26
	Remainder of Region	27	29	27
5 Equitable Mobility Average travel time in minutes for non-work-based trips	Communities of Concern	12	13	13
	Remainder of Region	13	13	13

Several other findings of significance emerged from the Equity Analysis.

- Alongside displacement pressures, housing and transportation affordability are forecast to continue to be key challenges for low-income households in the future.
- While air quality will improve in the region overall with improved technologies, increased vehicle traffic and congestion in communities of concern raise safety concerns for those areas where walking and biking are more common modes of travel.
- Travel times to jobs and other destinations will increase slightly for communities of concern compared to today, due to higher levels of congestion in the urban core and some trips shifting from driving to transit, walking, and biking.



The key findings of the Equity Analysis are displayed in Table 2. More information and detailed results, including all other alternatives studied, are included in the *Plan Bay Area Equity Analysis Report* listed in Appendix 1.

Communities of Concern

The definition of “communities of concern” for Plan Bay Area is intended to represent a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable in terms of both current conditions and potential impacts of future growth. (See the map on facing page, which shows the locations of these communities of concern.) For purposes of the Equity Analysis, communities of concern are defined as those neighborhoods with notably high concentrations of four or more of the following: minority persons; low-income individuals; persons who are Limited English Proficient; seniors age 75 and over; persons with disabilities; households without cars; single-parent households; and renters paying more than 50 percent of household income on rent. 4. Under this definition, about one-fifth of today’s total regional population lives in areas defined as communities of concern. The Equity Analysis attempts to determine how the plan’s proposed investments distribute benefits and burdens to these communities relative to the remainder of the region.

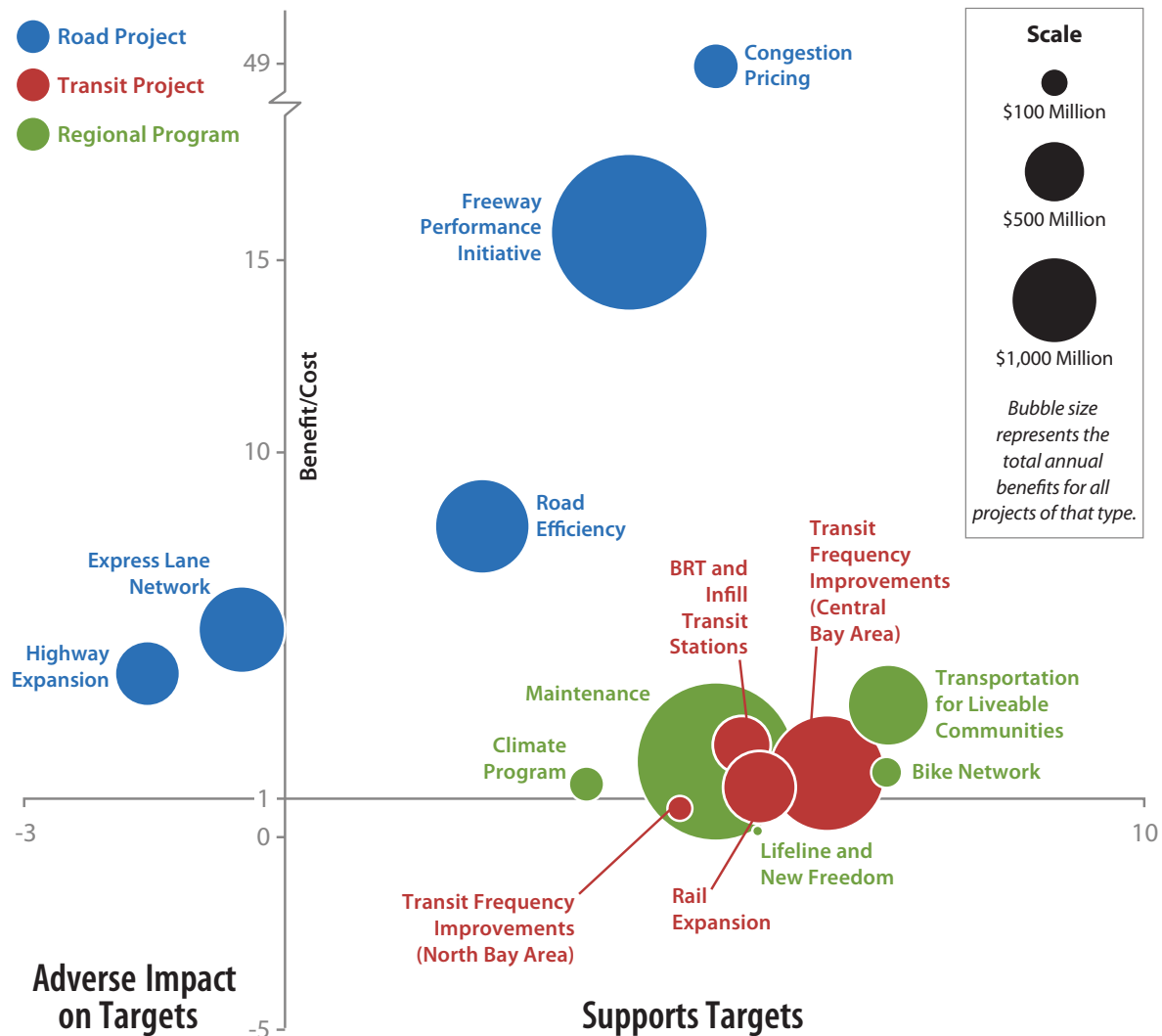
Project-Level Performance Assessment of Transportation Projects

Much effort in long-range planning is spent on big-picture questions: should the region focus on expanding the transportation system, or on maintaining what we have already built? Should the region invest more in transit for future generations, or emphasize highway projects to improve the lives of today’s drivers? While planners can address these questions at the scenario level, Plan Bay Area is also based on MTC’s commitment to evaluate individual projects to make sure dollars are being allocated to the most cost-effective projects that support a more sustainable future or the region.

In order to take a closer look at major transportation projects, MTC performed a project performance assessment, examining billions of dollars of potential transportation projects to identify the highest-performing investments across the region. Each major project was evaluated based on two criteria: benefit-cost ratio (which captures the project’s cost-effectiveness); and a “target” score (which measures the contribution the project makes toward achieving Plan Bay Area’s 10 adopted performance targets). Figure 2 displays the results of this analysis by transportation project type. Since all projects were analyzed across the region consistently using the regional travel demand model, high-performing projects were able to be prioritized for regional funding opportunities. For more information about the specific scoring criteria, please refer to the *Performance Assessment Report*, listed in Appendix 1.

As shown in Table 3, most of the high-performing projects in the region are focused on leveraging existing assets and improving their efficiency. Notable projects include BART Metro, which will increase service frequencies on the highest-demand segment of the BART system, and San Francisco's congestion pricing initiatives, under which vehicles entering downtown (or Treasure Island) will be charged a toll, with the proceeds being used to pay for more frequent transit services.

Figure 2 Project-Level Performance Assessment: Results by Transportation Project Type



To further ensure that Plan Bay Area advances the most cost-effective and beneficial projects, MTC required a second level of project review. Any project with a benefit-cost ratio less than 1 or an “adverse” score on the targets assessment had to submit a compelling case to policy-makers for inclusion in the plan. Over 30 projects were identified as low-performers as a result of this process, and the vast majority of these are not included in this draft plan. The handful of low-performing projects that remain in the draft plan tend to demonstrate their positive impact on social equity and low-income neighborhoods — an issue not fully captured in the benefit-cost ratio or targets score.

Not only did the project performance assessment help identify regional funding priorities and remove ineffective projects, but it has informed the tradeoffs among competing priorities.

When combined with input from transportation partners and stakeholders on the vast majority of projects that were neither high- nor low-performing, the project-level assessment has significantly influenced this draft plan.

Table 3 Highest-Performing Transportation Projects, Ranked by Benefit/Cost (B/C) Ratio and Target Score

	Project Name	County	B/C Ratio	Overall Targets Score	Project Capital Costs (Million \$)	Project Description
1	BART Metro Program (including Bay Fair Connection & Civic Center Turnback)	Multi-County	>60	8.5	650	Increases the efficiency of BART in the urban core by constructing new turnbacks and providing new express train service.
2	Treasure Island Congestion Pricing	San Francisco	59	4.0	59	Charges a \$5 toll for residents to enter/exit Treasure Island during peak hours; net revenues designated for transit service.
3	Congestion Pricing Pilot	San Francisco	45	6.0	102	Charges a \$3 toll to enter/exit the northeast quadrant of San Francisco during peak hours; net revenues designated for transit service.
4	AC Transit Grand-MacArthur Bus Rapid Transit (BRT)	Alameda	18	5.5	36	Constructs a bus rapid transit line along the Grand Avenue and MacArthur Avenue corridors in Oakland, providing faster service for AC Transit Line NR.
5	Freeway Performance Initiative	Regional	16	4.0	2,991	Maximizes the efficiency of the roadway network through arterial signal coordination and freeway ramp metering.
6	Intelligent Transportation System (ITS) Improvements in San Mateo County	San Mateo	16	4.0	66	Maximizes the efficiency of the roadway network through arterial signal coordination and freeway ramp metering.
7	ITS Improvements in Santa Clara County	Santa Clara	16	4.0	320	Maximizes the efficiency of the roadway network through arterial signal coordination and freeway ramp metering.
8	Irvington BART Station	Alameda	12	5.5	123	Constructs a new infill BART station in the Irvington district of Fremont.
9	SFMTA Transit Effectiveness Project	San Francisco	11	7.5	157	Improves reliability and reduces travel times on key Muni bus corridors through signal prioritization and bus lanes.
10	Caltrain Service Frequency Improvements (6-Train Service during Peak Hours) + Electrification (SF to Tamien)	Multi-County	5	7.5	848	Electrifies the Caltrain line and purchases additional train vehicles to provide faster, more frequent service during peak hours.
11	BART to San Jose/ Santa Clara (Phase 2: Berryessa to Santa Clara)	Santa Clara	5	7.0	4,094	Extends BART from the Phase 1 terminus in Berryessa (North San Jose) through a new BART subway to Alum Rock, Downtown San Jose, Diridon Station, and Santa Clara.
12	Van Ness Avenue BRT	San Francisco	6	6.5	140	Constructs a bus rapid transit line with dedicated lanes along the Van Ness corridor in San Francisco (from Lombard to Mission).
13	Better Market Street	San Francisco	6	6.0	200	Increases transit speeds along San Francisco's Market Street between the Embarcadero & Octavia by restricting auto traffic on the corridor.

Plan Bay Area Draft Environmental Impact Report

Under the California Environmental Air Quality Act (CEQA), ABAG and MTC must conduct an Environmental Impact Report (EIR) to inform decision makers, responsible and trustee agencies, and the general public of the range of potential environmental impacts that could result from the implementation of Plan Bay Area. The EIR analyzes a range of alternatives to Plan Bay Area adopted by ABAG and MTC in July 2012 that achieve the main objectives of the plan while testing different options to do so.

In addition to the draft Plan Bay Area (the “Project” or “Preferred Alternative” in EIR terminology), the other alternatives that were analyzed in the EIR include:

- A **No Project** alternative which includes the continuation of existing policies with some expansion of urban growth boundaries and only transportation projects that were fully funded and had environmental clearance prior to beginning the Plan Bay Area process. This alternative is required by CEQA.
- A **Transit Priority Focus** alternative which seeks to maximize the benefits of environmental streamlining permitted under SB 375 in high-quality transit areas. As such, these high quality transit areas were upzoned, irrespective of local support for growth. To complement this, a development fee would be instituted in high VMT (vehicle miles traveled) areas and the proceeds would be used to underwrite growth in lower VMT areas. This alternative includes higher Bay Bridge tolls, increased funding for transit, and decreased funding for the Regional Express Lane Network.
- An **Enhanced Network of Communities** alternative was developed in coordination with a coalition of Bay Area business representatives. It envisions a land use development pattern less intense than the draft Plan Bay Area but also less dispersed than the No Project alternative. It too includes subsidies to achieve the desired growth pattern, as well as an increased Bay Bridge toll. Its transportation investments are almost identical to those in the draft Plan Bay Area. This alternative also assumes higher population, housing and employment totals.
- An **Environment, Equity, and Jobs** alternative was developed with various equity and environmental stakeholders. It emphasizes increasing opportunities for low-income housing development in jobs-rich communities through zoning changes and even larger subsidies than the other alternatives. All roadway expansion projects included in the draft Plan Bay Area were eliminated. Additional funding, such as an increased Bay Bridge toll and a VMT tax for miles driven (exempting low-income households), was assumed. The new revenue would fund additional transit service.

The complete EIR providing detailed information on the alternatives as well as the environmental impacts of the draft Plan Bay Area can be found in the *Draft Environmental Impact Report*, listed in Appendix 1.

Target Assessment of the EIR Alternatives

In addition to the legally required assessment of the EIR alternatives, MTC and ABAG also analyzed the EIR transportation and land use alternatives for their performance against the adopted Plan Bay Area targets and equity metrics in order to inform the final phase of the decision-making process for Plan Bay Area. The targets analysis of these scenarios provides a final assessment of the draft Plan Bay Area. The target results can be found in Table 4. As can be seen, the EIR alternatives perform relatively similarly across almost all the targets, even though the results may be reached by different paths – with a few notable exceptions. For example, due to its more dispersed land use pattern, the No Project alternative lags the other alternatives when it comes to reducing GHGs (Target 1) or protecting open space (Target 6). The Network of Communities scenario, due to higher jobs and housing totals, does not achieve the particulate target (Target 3c), while it does improve state highway conditions (Target 10b) by shifting funds to maintain these roads.

The Equity, Environment and Jobs (EEJ) scenario does best on a number of targets related to reducing auto use (Targets 3b, 4, 5 and 9a) by implementing a VMT tax and eliminating road projects, while shifting funds to transit operations and local road repair (Target 10a). Overall, the Preferred land use pattern and transportation investment strategy embodied in the draft Plan Bay Area holds up well in this assessment, with the greatest decrease in GHGs per capita (Target 1) and similar or equal results for many of the remaining targets.



Noah Berger

The small differences across the alternatives for many of the targets should be interpreted carefully. The target estimates are derived from analytical tools that attempt to represent very complex patterns of travel and land development behavior. Further, these representations of behavior rely on a host of assumptions about the prevailing economic, political and technological conditions expected in 2040. When these factors are combined, the resulting un-

certainty prevents identifying clear-cut differences across the range of alternatives presented here. However, these tools do provide a consistent framework in which expected (and rational) responses to policies can be assessed and the careful interpretation of results can lead to the insights noted above.

Table 4 Target Analysis: Plan Bay Area EIR Alternatives for Year 2040

Target	Goal	No Project	Preferred	Transit Priority Focus	Network of Communities	Equity, Environment & Jobs
1 Reduce per-capita CO ₂ emissions from cars and light-duty trucks	-15%	-8%	-18%	-16%	-16%	-17%
2 House the region's projected growth	100%	100%	100%	100%	118%	100%
3a Reduce premature deaths from exposure to fine particulates (PM _{2.5})	-10%	-71%	-71%	-72%	-69%	-72%
3b Reduce coarse particulate emissions (PM ₁₀)	-30%	-16%	-17%	-17%	-14%	-18%
3c Achieve greater particulate emission reductions in highly impacted areas	Yes	Yes	Yes	Yes	No	Yes
4 Reduce the number of injuries and fatalities from all collisions	-50%	+18%	+18%	+17%	+23%	+16%
5 Increase the average daily time walking or biking per person for transportation	+70%	+12%	+17%	+18%	+13%	+20%
6 Direct all non-agricultural development within the year 2010 urban footprint	100%	53%	100%	100%	100%	100%
7 Decrease the share of low-income and lower-middle income residents' household income consumed by transportation and housing	-10%	+8%	+3%	+5%	+3%	+2%
8 Increase gross regional product (GRP)	+110%	+118%	+119%	+118%	+123%	+118%
9a Increase non-auto mode share	26%	19%	20%	20%	19%	21%
9b Decrease automobile vehicle miles traveled (VMT) per capita	-10%	-5%	-9%	-8%	-9%	-9%
10a Increase local road pavement condition index (PCI)	75	50	68	68	68	71
10b Decrease share of distressed lane-miles of state highways	10%	44%	44%	44%	30%	41%
10c Reduce share of transit assets exceeding useful life	0%	36%	24%	24%	24%	24%

	achieves or exceeds performance target
	falls short of performance target
	moving in the wrong direction

Equity Analysis of the EIR Alternatives

Alongside the final target assessment is the equity analysis of this final set of scenarios. As has been the case throughout the equity analysis process, most of the results for the scenarios are quite similar, especially for vehicle miles traveled (VMT) density and travel time. All of the scenarios struggle to address chronic high housing and transportation costs, though the Equity, Environment and Jobs (EEJ) scenario shows slight improvement in housing costs thanks to increased affordable housing production, while the draft Plan Bay Area offers lower transporta-

Table 5 Results of Plan Bay Area Equity Analysis for EIR Alternatives, 2010-2040

1 Housing and Transportation Affordability % of household income spent on housing and transportation costs			2010 Base Year	1 No Project	2 Project	3 Transit Priority	4 Network of Communities	5 Equity, Environment and Jobs
	Households <\$38,000/year	H+T %	72%	80%	74%	77%	74%	73%
	Households >\$38,000/year	H+T %	41%	44%	43%	43%	42%	43%
2 Potential for Displacement Share of today's overburdened-renter households located in high-growth areas			2010 Base Year	1 No Project	2 Project	3 Transit Priority	4 Network of Communities	5 Equity, Environment and Jobs
	Communities of Concern		n/a	21%	36%	25%	31%	21%
	Remainder of Region		n/a	5%	8%	7%	9%	6%
	Regional Average		n/a	12%	18%	13%	17%	12%
3 VMT Density Average vehicle-miles of travel per per square kilometer of residential and commercial land within 1000 feet of major roadways.			2010 Base Year	1 No Project	2 Project	3 Transit Priority	4 Network of Communities	5 Equity, Environment and Jobs
	Communities of Concern		9,737	11,447	11,693	11,536	12,123	11,259
	Remainder of Region		9,861	11,717	11,895	11,804	12,261	11,626
	Regional Average		9,836	11,664	11,855	11,751	12,234	11,554
4 Commute Time Average time in minutes for commute trips			2010 Base Year	1 No Project	2 Project	3 Transit Priority	4 Network of Communities	5 Equity, Environment and Jobs
	Communities of Concern		25	26	26	25	26	25
	Remainder of Region		27	29	27	26	27	27
	Regional Average		26	28	27	26	27	27
5 Non-commute Travel Time Average time in minutes for trips not involving the workplace, including shopping, visiting, recreation, etc.			2010 Base Year	1 No Project	2 Project	3 Transit Priority	4 Network of Communities	5 Equity, Environment and Jobs
	Communities of Concern		12	13	13	13	13	13
	Remainder of Region		13	13	13	13	13	13
	Regional Average		13	13	13	13	13	13

tion costs by locating more housing and jobs near the region's most robust transit service (see Table 5). In addition, increased vehicle traffic in communities of concern across the scenarios raises safety concerns for those areas where walking and biking are more common modes of travel.

The target showing the biggest variance from the Project Alternative is the Potential for Displacement measure; this is due to the concentrated growth patterns in the draft plan as the region strives to meet its GHG reduction target. More of today's rent-burdened households in the Communities of Concern could be at risk for displacement than under the baseline forecast scenario, while both the No Project trend and EEJ scenario distribute growth more widely. This result, consistent with past rounds of analysis, led MTC and ABAG to bolster the plan's investment in the Transit Oriented Affordable Housing fund, add requirements for housing element adoption and affordable housing production considerations to the One Bay Area Grant program, and build into the region's Prosperity Plan (outlined in Chapter 6) a study of displacement risk and tools to offset it. In addition, this displacement risk could be mitigated in cities such as San Francisco with rent control and other tenant protections in place.

More information and detailed results are included in the *Plan Bay Area Equity Analysis Report*, in Appendix 1.





Chapter 6

A Plan to Build On

Plan Bay Area is a work in progress that will be updated every four years to reflect new initiatives and priorities. It builds upon the work of previous initiatives, complements ongoing work and lays the groundwork for closer examination of certain critical issues that can further prepare



the region to meet the future head-on. The plan highlights the relationship between transportation investments and land use decisions, and represents the region's best effort to position itself to make the most of what the future will bring.

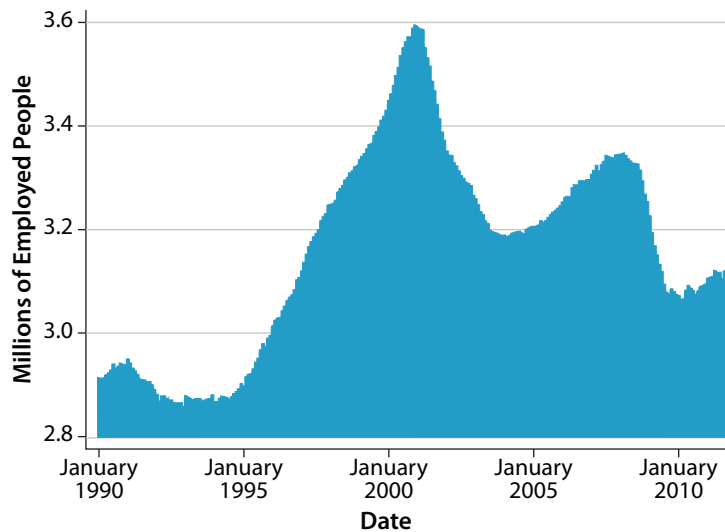
No single level of government can be expected to address all the critical components needed to create a stronger and more resilient Bay Area. It will take a coordinated effort among diverse partners to promote regional economic development, adapt to climate change, prepare for natural disasters, get creative about how to provide affordable housing for all Bay Area residents, ensure clean and healthy air for our communities, and prepare for emerging technologies that will change the way people work and get around. Here we take a look at the complementary initiatives under way in those areas.

In some cases, new legislation, updated regulations or additional resources will be needed to fully realize the Plan Bay Area vision and implement the plan's policies and programs. This chapter identifies the most important of these challenges, and proposes steps to address them.

A Vibrant Economy

The Bay Area economy has seen massive swings in employment over the last 20 years. While job growth is once again on the rise, MTC and ABAG — through the Joint Policy Committee in partnership with the Bay Area Air Quality Management District (BAAQMD) and the San Francisco Bay Conservation and Development Commission (BCDC) — will work with regional business interests and stakeholders to make sure the region fosters the conditions for a healthy economy for all.

Figure 1 Bay Area Employment, 1990–2011



Source: California Economic Development Department; calculations by Bay Area Council Economic Institute

Improve Permitting Process

A major impediment to infill development in the Bay Area is the often lengthy project entitlement process. This further increases Bay Area housing prices, which rank among the highest in the nation, and impedes the region's ability to provide adequate amounts of affordable housing. The amount of time required for planning and environmental review can cause projects to miss the economic cycle when demand exists for new housing or commercial space. ABAG and MTC will work with local jurisdictions to implement proven strategies for advancing infill development in Priority Development Areas (PDAs). Among these strategies are specific plans, neighborhood-appropriate parking requirements, expedited permit processing, and programmatic Environmental Impact Reports (EIRs) that eliminate the need for individual project EIRs. ABAG and MTC will continue to support these efforts through PDA planning grants and technical assistance.

Implement the Bay Area Prosperity Plan

MTC and ABAG are currently undertaking a three-year initiative funded by a \$5 million grant from the U.S. Department of Housing and Urban Development (HUD), in conjunction with the U.S. Environmental Protection Agency and the U.S. Department of Transportation. The initiative is intended to identify strategies to improve the region's economic prosperity by encouraging stronger, more sustainable communities, integrating housing and jobs planning, fostering local innovation in support of new jobs, and building a healthy regional economy for all. Over \$2 million in grants will be awarded to pilot projects to expand economic opportunities for low- and moderate-income workers and improve housing affordability near transit. The three-pronged planning effort includes the Economic Opportunity Strategy, a Housing the Workforce Initiative and an Equity Collaborative that together will implement this program. For more information, visit:

<http://onebayarea.org/regional-initiatives/Bay-Area-Prosperity-Plan.html>

Link Housing, Transportation and Economic Development

Understanding the role of housing and transportation investment in supporting the region's economy was a key theme that ABAG and MTC heard from the public, in polls and from business advocates throughout the development of Plan Bay Area. At the urging of Bay Area business and housing industry leaders, ABAG and MTC — along with BCDC and the BAAQMD — commissioned an economic impact white paper to consider how land use patterns and transportation investments affect the region's economy. The analysis looked at best practices around the country to integrate long-range planning with regional economic development, the tradeoffs between maintaining the existing system versus investing in new infrastructure to address growth, the impact of various pricing mechanisms to manage demand for transportation facilities, as well as housing policies and goods movement. Findings from this review will set the stage for more detailed economic analysis when Plan Bay Area is updated in 2017. More information is available in the *Economic Impact Analysis for Future Regional Plans*, listed in Appendix 1.

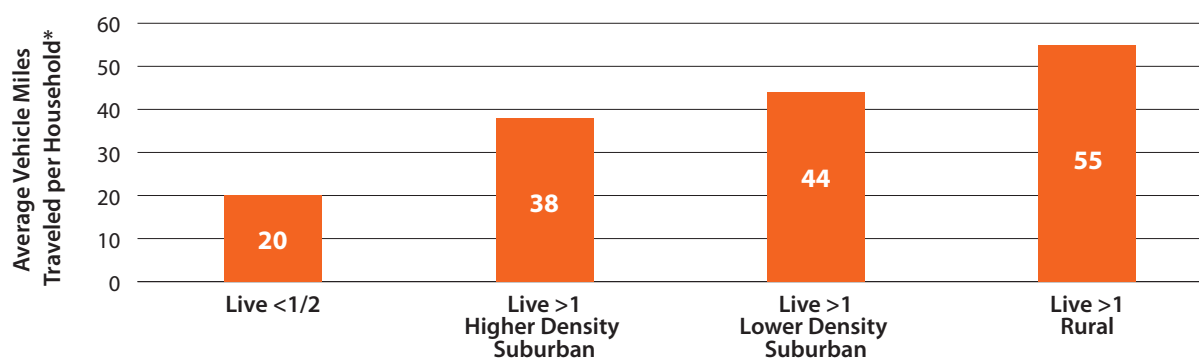
Cleaning Our Air

Healthy Infill Development

One of the main goals of both Plan Bay Area and the Bay Area Air Quality Management District's *2010 Clean Air Plan* is to reduce greenhouse gas emissions from cars and trucks by focusing future land development in existing urban areas that are easily accessible to transit, jobs, shopping and other services. Compact infill development can reduce vehicle use and vehicle miles traveled by 20 to 60 percent when compared to traditional suburban developments. (See Figure 2.) In addition, compact development preserves open space, forests and other carbon sinks that remove greenhouse gases from the atmosphere. It also encourages more walkable communities, which can help to reduce obesity and diabetes. Further, infill buildings are typically more energy-efficient, which reduces the amount of greenhouse gas emissions from power plants.

However, people who live or work near major freeways, ports, distribution centers, gas stations or other local sources of toxic air contaminants (TAC) and particulate matter (PM) may be disproportionately exposed to higher concentrations of these pollutants and therefore face

Figure 2 Average Daily Vehicle Miles Traveled, by Proximity to Rail or Ferry Stops



*Distance in Miles from Rail or Ferry Stops

a greater risk to their health. It would seem, then, that reducing the public's exposure to TACs and PM and protecting public health conflicts with the regional goal to increase compact infill development.

That is not necessarily the case, as there are effective ways the region can plan for compact infill development within existing urban and transit corridors that both protect public health, and reduce greenhouse gases. The compact land use patterns envisioned in Plan Bay Area can be readily accomplished through the implementation of various health-protective measures in most infill locations. The regional agencies are collaborating on a comprehensive set of best practices, or guidance, for local governments on how to best address local pollutants in their planning and development decisions.

Best practices for compact infill development can ensure that health-protective strategies are available to mitigate or lessen the potential health risks in areas that have high TAC and PM emission sources. The most effective strategy, or best practice, is to always provide as much distance as possible between sensitive land uses and major sources of TAC and PM emissions. However, if a development is close to an emissions source, especially diesel PM, installing air filtration in heating and ventilation systems can be effective in reducing health risks when sensitive receptors are indoors. In addition, building and site design considerations and planting of trees can also be effective ways to reduce the public's exposure to TACs and PM.

Curbing Greenhouse Gases

In December 2009, MTC programmed \$80 million to implement the Climate Initiatives Program, a multi-faceted program aimed at reducing transportation-related emissions and vehicle miles traveled (VMT), while also informing the region as to the most effective strategies to reduce emissions. Since then, the program has funded innovative pilot projects to test the effectiveness of reducing emissions through incentives for alternative fuels and vehicles, creation of electric vehicle and bike sharing programs, and removal of barriers to walking and biking for youth and their families, and other projects.

Building on results to date, new and refined demonstration projects will be introduced in years to come as outlined in the proposed Investments in chapter 4, including:

- Launch of a regional bike-sharing pilot, led by the Bay Area Air Quality Management District, focused along the Caltrain corridor from San Francisco to San Jose. The initial launch, anticipated in late 2013, includes 1,000 bikes with plans for future expansion.
- An educational campaign to increase demand among Bay Area residents for plug-in electric and plug-in hybrid electric vehicles. The campaign is aimed at building awareness and demand for electric vehicles through targeted marketing.
- Enhancements to the Spare the Air Youth program based on results from past demonstration projects. Projects that best reduce emissions and are most suited for regional application will be introduced in 2013–2015.

Evolving Transport

From driverless cars to informal ridesharing networks to private shuttles that whisk workers from their homes to high tech companies in Silicon Valley and beyond, a number of start-up methods are redefining how we get from Point A to Point B. Here are some of the innovative programs transportation planners will be watching with keen interest in years to come.

Autonomous Vehicles

Once the subject of science fiction, driverless cars have now logged over 300,000 miles of autonomous operation, much of it on Bay Area roads. Mountain View-based Google, eager to set an international standard, has been the force behind these early efforts. In late 2012, California, Florida and Nevada cleared some early legal hurdles by directing their state departments of motor vehicles to adopt rules regarding safe operations, insurance and privacy. Elements of driverless technology are also being researched with regard to transit vehicles, with a focus on enhancing safety of bus rapid transit (BRT) systems.



Google

Corporate Shuttles

As high-tech firms continue their quest to attract world-class talent, the lack of fast and convenient public transportation between home and the office is viewed as an increasing liability. The solution: major companies such as Google, Facebook and Genentech now offer private shuttles to and from dozens of Bay Area communities to their suburban campuses. A recent study carried out by a graphic design firm estimated that the shuttles carry nearly 14,000 people per day to the Silicon Valley, or about 33 percent of Caltrain's weekday ridership.



Noah Berger

Not only do the shuttles remove private vehicles from congested freeways — reducing pollution and greenhouse gases — they also assist commuters by offering on-board Wi-Fi access.

Ride-sharing Networks

Pink mustaches have become the hottest new trend in San Francisco. Or rather, pink mustaches affixed to the fronts of cars, a trademark of the informal ride-sharing service known as Lyft. Lyft and Sidecar, alongside other services such as Uber that utilize excess capacity from livery car companies, have effectively increased the city's ride-sharing capacity through crowd sourcing. All three companies use smart phone technology to connect vehicles to riders, and in the case of Lyft and Sidecar, anyone with a private vehicle and a clean driving record can sign up to be a driver.



Lyft

- Launch of a “smart driving” pilot program that will assess whether in-vehicle devices and education about driving behavior will assist drivers in maximizing fuel economy and lowering emissions.

Planning for Resilience

Climate Adaptation and Sea Level Rise

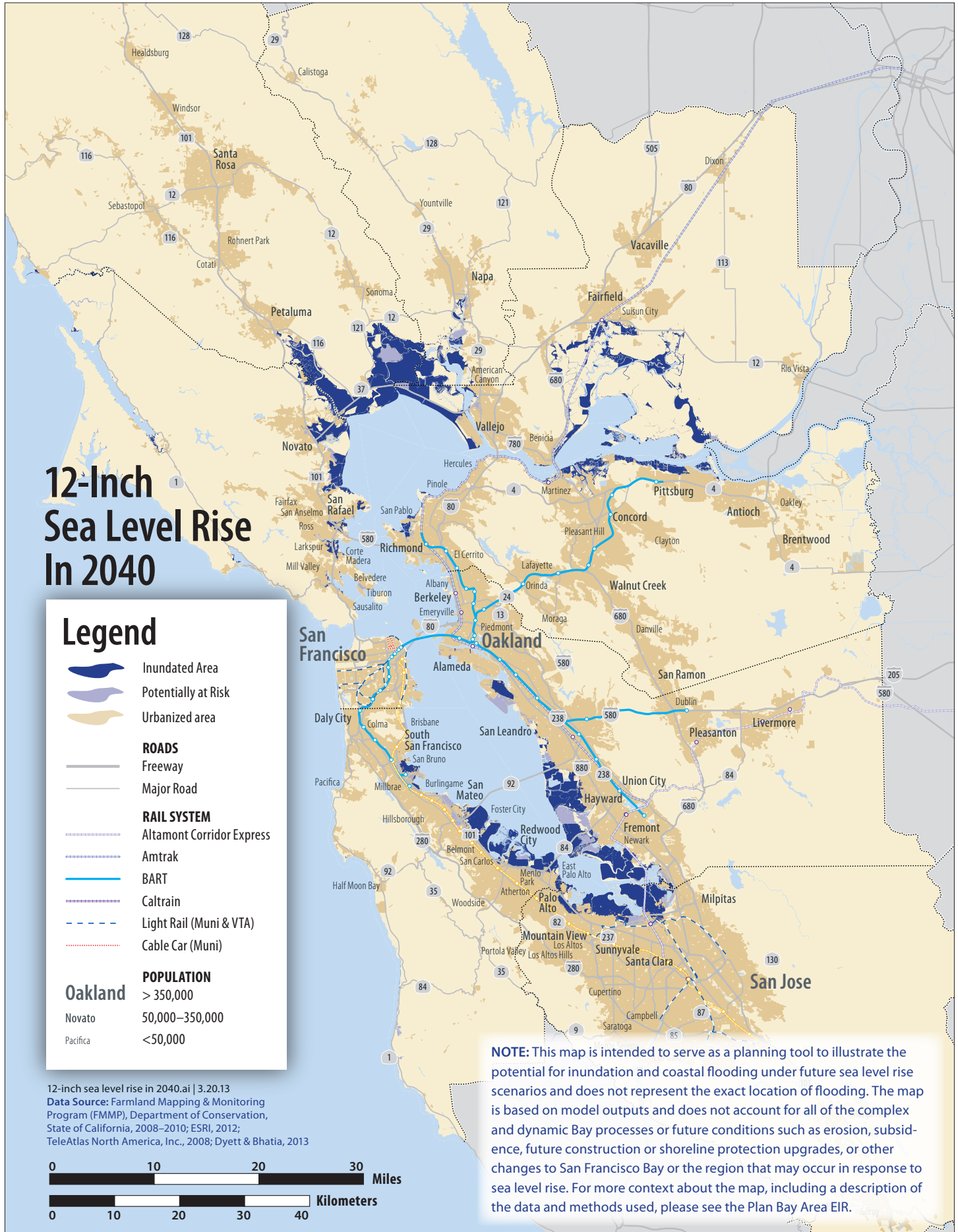
Given the significant number of residential, commercial and industrial structures situated on the San Francisco Bay’s shorelines and low-lying areas — not to mention many miles of freeways, airports, port facilities and other transportation infrastructure adjacent to the Bay — our region is especially vulnerable to future sea level rise (see Map 1). In a 2009 report, the Bay Conservation and Development Commission identified 671 miles of existing and 337 miles of future road, rail, air and other infrastructure at risk of being affected by sea level rise. MTC is now partnering with BCDC, the California Department of Transportation (Caltrans), the National Oceanic Atmospheric Administration Coastal Services Center, ABAG and Bay Area communities to increase preparedness and resilience to sea level rise and storm events while protecting critical ecosystem and community services. The project, known as Adapting to Rising Tides, is a collaborative planning effort that addresses two questions:

- How will climate change impacts of sea level rise and storm events affect the future of communities, infrastructure, ecosystems and the economy in the Bay Area?
- What strategies can we pursue, both locally and regionally, to reduce and manage these risks?

The project includes a comprehensive inventory of potentially vulnerable transportation assets along a section of the Alameda County shoreline. The effort also measures the relative importance of these assets to the health of the transportation network as a whole. Next steps in the project include development and analysis of adaptation strategies. While the specific policy recommendations that emerge from this effort have not yet been identified, we anticipate that sea level rise preparedness — as well as climate change adaptation generally — will be a prominent feature of the planning strategies of MTC, ABAG, BCDC and the BAAQMD over the next several decades.

While some parts of the region designated as priority development areas could be affected by climate change, adaptation measures will protect homes, businesses and infrastructure from harm’s way.

Map 1 12-Inch Sea Level Rise Above Current Highest Annual Tide



Earthquake Mitigation and Recovery

Plan Bay Area seeks to provide more housing options to accommodate our growing region. Yet we are also aware that some of the region's existing housing stock is vulnerable to damage in an earthquake. The United States Geological Survey has estimated there is a 63 percent chance that the region will experience an earthquake of magnitude 6.7 or greater in the next 30 years.



ABAG models predict that a major earthquake on the San Andreas or Hayward faults will leave 150,000 homes — 5 percent of the region's housing stock — uninhabitable. This scenario could displace 350,000 people for an extended period of time and disrupt our economy for many years. Much of the infrastructure along the Bay shorelines and low lying areas that is vulnerable to sea level rise is also vulnerable to liquefaction damage in an earthquake.

The region has already made great strides in improving our resilience to natural disasters. The Bay Area is a national model for earthquake planning and research, and many of our public agencies have made major investments to strengthen their infrastructure against seismic risks. BART has retrofitted its elevated tracks and stations; Caltrans has retrofitted or replaced all the toll bridges and freeway overpasses; water districts have retrofitted their major transmission lines crossing faults; local governments across the region have retrofitted or replaced vulnerable city halls, fire stations and critical facilities; regional hazard mitigation planning is ongoing; and investment in emergency response planning has been significant in recent years.

But more can be done, especially to help ensure an effective recovery of housing, businesses, infrastructure, and the supply chains and delivery systems for essential goods and services. This is the focus of ABAG's Regional Disaster Resilience Initiative. Begun in late 2011, it has brought together businesses, local governments, community leaders, major institutions, and infrastructure agencies to determine roles, responsibilities and decision-making structures in the aftermath of a major disaster. In partnership with emergency response agencies, regional partners and local governments, the initiative will build on findings from four workshops to develop an Action Plan that summarizes and prioritizes actions for jurisdictions and organizations, and develops a cohesive regional policy platform. The Action Plan will prime the region to launch into the next steps needed for a resilient Bay Area.

A Platform for Advocacy

Plan Bay Area advances projects and lays out a development framework to bolster our region's economy, protect its environment, and improve housing and transportation choices for our residents. A reliable, efficient transportation network and a housing market with a range of price options for our workforce are absolutely vital to growing our economy. We need to take steps now in order to preserve what we value about our region and to build a Bay Area that we are proud to pass along to future generations.

For example, to keep our roads, bridges and transit network in a state of good repair as well as make strategic improvements, we need cooperation from Congress and the state Legislature to increase funding to maintain the infrastructure currently in place. The state also should prioritize job creation and speed much-needed housing and transportation projects by updating the 43-year-old California Environmental Quality Act, or CEQA, to provide for more timely review of projects.

Plan Bay Area is but a beginning. ABAG and MTC look forward to working with policy-makers at all levels of government to create a statutory and regulatory framework that preserves what we cherish about our region, while taking some prudent steps to make it more livable in the coming years.

Land Use

In order to make progress towards Plan Bay Area land use performance targets, MTC and ABAG have identified four legislative advocacy objectives that seek changes in both federal and state law.

Support PDA Development With Locally Controlled Funding

Until last year, Bay Area jurisdictions could count on redevelopment programs for over \$1 billion per year in tax-increment financing to support affordable housing projects, critical infrastructure improvements, and economic development projects in designated areas of many cities and counties. This funding stream was lost in 2012 as a result of the elimination of redevelopment agencies throughout the state. ABAG and MTC will work to strategically replace this revenue source with new, locally controlled funding tools. A top priority should be a newly authorized tax-increment financing authority that specifically supports housing construction and infrastructure improvements near existing and planned public transit service as called for in this plan.



Tom Meyers

Modernize the California Environmental Quality Act (CEQA)

MTC and ABAG strongly support the original goals of the California Environmental Quality Act (CEQA). Over the four decades since it was enacted, CEQA has undoubtedly helped to improve environmental quality in California. At the same time, it is commonly used as a tool by project opponents who are more interested in halting a project than minimizing its harm to the environment. Sensible CEQA reform is needed to create a more economically vibrant state and region.

MTC and ABAG will support efforts to update CEQA to encourage and expand infill development opportunities that can help reduce urban sprawl consistent with Plan Bay Area and California Senate Bill 375. The CEQA process can be expedited by providing consistent standards and greater certainty to project sponsors, and reducing duplication in environmental impact report requirements — and this can be done without compromising environmental protection.

Stabilize Federal Funding Levels

As the region grows, so will its need for workforce housing, especially to meet Plan Bay Area's goal of housing employment growth within the region. Deep funding cuts for two of the most important affordable housing programs at the U.S. Department of Housing and Urban Development — the HOME Investment Partnership Program and the Community Development Block Grant (CDBG) program — have significantly affected the allocation of funds to Bay Area jurisdictions. CDBG budget allocations to the region fell 27 percent (from \$86 million to \$63 million) from 2010 to

CEQA's Impact on Infill

While it can take years to prepare a detailed environmental impact report (EIR) — which evaluates a project's various potential significant impacts — lengthy document preparation and its associated costs are not the main challenges that the California Environmental Quality Act (CEQA) presents for cities and project sponsors seeking to build new housing or commercial buildings. The primary challenge is the uncertainty created by potential litigation on the project and subsequent delays.

Research sponsored by the Silicon Valley Leadership Group looked at which types of projects are most often the target of lawsuits filed under CEQA. The review found that CEQA litigation is aimed more often at infill than greenfield projects, and even when a project undergoes an extensive EIR analysis, the project is rejected 50 percent of the time when a court challenge is brought under CEQA, resulting in major revisions, increased costs and project delay.

What Kinds of Projects Are Most Often Tied Up in CEQA Litigation?



59 percent of challenged projects identified as either infill or greenfield were infill projects.



36 percent of projects challenged were public projects rather than private development.



38 percent of challenged projects were infrastructure projects (19 percent) or mixed-use developments (19 percent).

Source: Holland and Knight LLP, Analysis of Recent Challenges to Environmental Impact Reports, December 2012

2012, and Bay Area allocations from the HOME program dropped by 51 percent (\$38 million to \$18 million) from 2009 to 2012. In order to increase the supply of a variety of workforce housing options, key federal programs need to deliver increased financial certainty for local jurisdictions and developers.

In addition to funding, incentives in the tax code for multifamily development should be established for the long run so cities and developers can plan with certainty. While real estate market research shows strong unmet demand for multifamily living, particularly in close proximity to public transit and walkable neighborhoods, the market is not yet meeting the demand. One of the side effects of the Tax Reform Act of 1986 was a dramatic reduction in the incentives embedded in the federal tax code for private investment in multifamily housing.

“Defiscalize” Land Use Decision-Making

The structure of property taxes in California is a major obstacle to creating a balanced regional growth pattern. The current approach to taxation creates incentives to attract development that maximizes sales tax revenues rather than a more balanced approach of both retail and residential land uses. This trend — the so-called “fiscalization of land use” — has discouraged housing development and small business growth in many communities. ABAG and MTC would support a long-term adjustment to commercial or residential tax structures to balance the financial incentives for new development.

Transportation

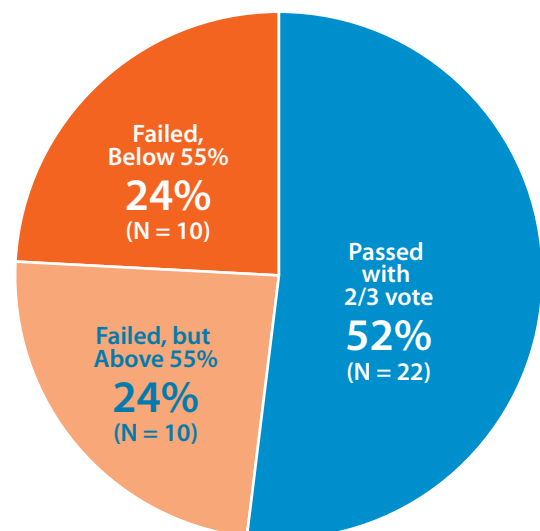
To support the transportation investment strategy contained in Plan Bay Area, MTC and ABAG will seek the following three state and federal legislative changes.

Support Local Self-Help

Local taxes now generate about two-thirds of the state’s total transportation funding. Yet passage of new local taxes is exceedingly difficult due to the two-thirds supermajority requirement. This undermines local initiatives, leaving California residents more dependent upon Sacramento and Washington, D.C., for assistance. MTC and ABAG will strongly support efforts to lower the vote threshold for local and regional transportation tax measures from two-thirds to 55 percent. Lowering the voter approval threshold is a major step toward preserving and expanding our existing roadway and public transportation infrastructure and helping them run more efficiently.

The impact of lowering the vote threshold requirement for school bonds in California has been striking — more than half of those passed in 2012

**Figure 3 Missed Opportunities:
Local Transportation Measures
in California Since 2002**



Source: Move LA

would have failed under the two-thirds requirement. Had the 55 percent threshold been applicable to transportation since 2002, an additional 10 local transportation measures would have passed statewide (see Figure 3).

While eight of the Bay Area's counties have managed to pass transportation sales taxes under current law, success has repeatedly eluded Solano County, home to one of the region's worst bottlenecks at the Interstate 80/680 interchange. Most recently, the 2012 election dealt a serious blow to Alameda County's effort to extend and increase their transportation sales tax measure; with 66.53 percent of voters supporting the measure, it fell short of passage by a mere 0.14 percent. A 55 percent voting standard also could aid the passage of a regional gasoline tax that MTC is already authorized to place on the ballot.

Local Transportation Revenues: Bay Area Experience

It has been over two decades since Santa Clara County voters passed Measure A, a local half-cent sales tax dedicated to transportation. This vote, which took place in 1984, ushered in a new era. Today, eight counties in the region have a sales tax dedicated to transportation purposes, including every Bay Area county except Solano County, which has tried twice but failed each time under the two-thirds vote requirement.

In 2012, State Transportation Improvement Program funds for the Bay Area were \$100 million, while revenue from the region's sales tax measures was five times larger and totaled \$530 million.

Seek Reliable Federal Transportation Funding Levels and Flexibility

Over the last 50 years transportation funding has been characterized by a federal/state/local partnership. Whether restoring the Interstate Highway System to a state of good repair or removing bottlenecks in key freight corridors — the federal government continues to have a vital role to play with respect to transportation. The current federal surface transportation bill, Moving Ahead for Progress in the 21st Century (MAP 21), provides funding through fiscal year 2014 only by relying on support from the nation's beleaguered general fund. MTC and ABAG will urge Congress to identify a long-term, user-based funding source for transportation in the successor to MAP 21. That bill should build on the streamlined structure and performance-based framework established by MAP 21, and provide flexibility for the region to respond to its diverse transportation needs.

The next authorization should place a stronger emphasis on metropolitan areas, the economic engines of our nation. Metro areas with a population over 1 million include 65 percent of the nation's population, yet contribute 75 percent of the nation's wealth, as measured by gross domestic product. They also endure 97 percent of the nation's traffic congestion and carry 97 percent of public transit passenger miles. Yet, rather than investing a larger share of federal transportation funds in the areas where the vast majority of the population lives and works, MAP 21 actually shifts some funds away from such areas.

Grow State Transportation Funding

MTC/ABAG will urge the Bay Area’s state legislative delegation to create a new, permanent revenue source for transportation to better maintain and increase the efficiency of the existing network, and to invest in high-performing network improvements that further the goals and performance metrics of Plan Bay Area. One such source is the state’s new cap and trade permitting system, where the revenue raised is directly linked to greenhouse gas emission reductions.



MTC Files

Previous generations of Californians stepped up to build a network of highways that were the envy of the world and that made possible the Bay Area’s phenomenal economic growth and prosperity. But our transportation infrastructure has matured and deteriorated in recent decades due to the simple fact that the user-based mechanisms designed to build it and keep it in good repair — state and federal gas taxes — have not kept pace with inflation and have eroded in value by some 40 percent in the past two decades.

Any new state funds should be constitutionally dedicated to transportation so as to avoid the diversion of funds that plagued transportation over the last decade. Consistent with Plan Bay Area’s “fix it first” policy, MTC and ABAG will advocate that the majority of revenues from any new statewide transportation fund source be focused on preservation of the existing state highway, local street and road, and public transit network.

What's Next for Plan Bay Area?

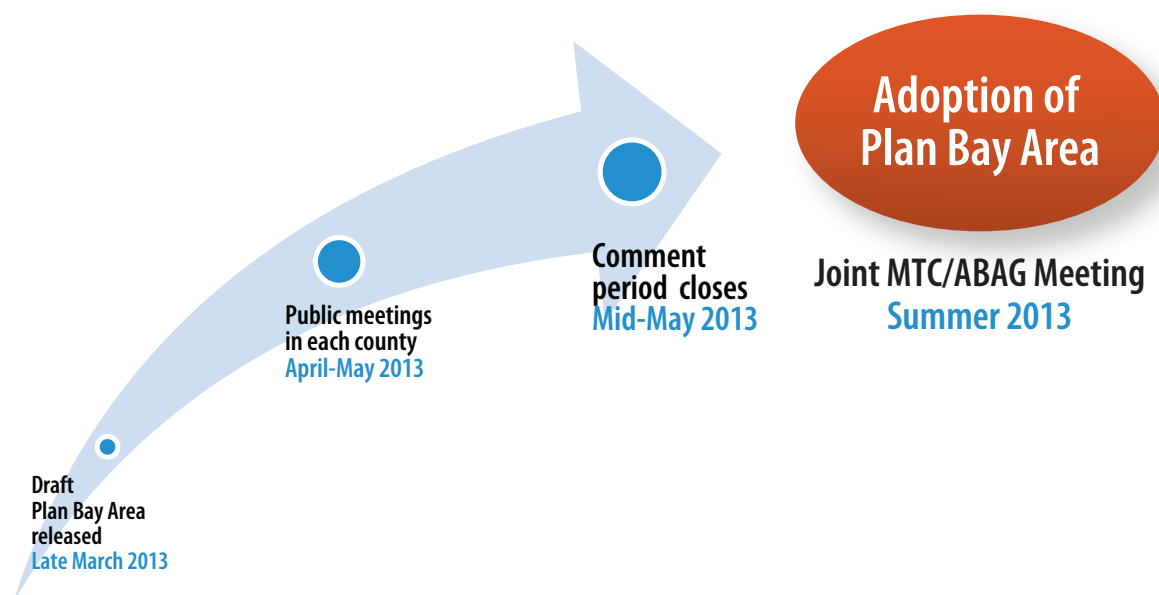


Noah Berger

ABAG and MTC, in partnership with public agencies and with public input from thousands, crafted the draft Plan Bay Area to lay a course for future job and housing growth supported by almost \$300 billion in transportation investments. After two and a half years, there remain several critical steps ahead before the final adoption of the plan as outlined below.

The Road to Adoption

The release of this draft plan begins the final phase of this planning effort. Starting in April 2013 there will be a series of outreach meetings in every county, a telephone survey, and opportunities to provide online and written feedback for those who are unable to attend county workshops or other public meetings. The details on the public workshops are in the table below. All public workshops are expected to run from 6 p.m. to 7:30 p.m. with an official period of Public Hearings from 7 p.m. to 9 p.m.



Schedule of Plan Bay Area Outreach Meetings

Date	Location
Monday, April 8, 2013	Napa County: Elks Lodge, Napa
Monday, April 8, 2013	Sonoma County: Friedman Center, Santa Rosa
Thursday, April 11, 2013	San Francisco: Hotel Whitcomb, Civic Center
Monday, April 22, 2013	Solano County: Fairgrounds, Vallejo
Monday, April 22, 2013	Contra Costa County: Marriott, Walnut Creek
Monday, April 29, 2013	Marin County: Marin Center, San Rafael
Monday, April 29, 2013	San Mateo County: Holiday Inn Crowne Plaza, Foster City
Wednesday, May 1, 2013	Alameda County: Mirage Ballroom, Fremont
Wednesday, May 1, 2013	Santa Clara County: Downtown Hilton, San Jose

For more information see <http://onebayarea.org/regional-initiatives/plan-bay-area/meetings-events/Public-Workshops-Public-Hearings.html>, or call 510.817.5700. Public input will be collected on this draft into mid-May before its presentation to the ABAG and MTC boards.



Noah Berger

Appendix 1

Supplementary Reports and Additional Resources

The Plan Bay Area materials listed below can be found at: <http://onebayarea.org/regional-initiatives/plan-bay-area/draft-plan-bay-area/supplementary-reports.html>

Report
Environmental Impact Report
Transportation Air Quality Conformity Analysis for Plan Bay Area and the 2013 Transportation Improvement Program
Performance Assessment Report
Equity Analysis Report: Including Title VI, Environmental Justice, and Equity Analysis for Plan Bay Area
Government-to-Government Consultation with Native American Tribes
Public Outreach and Participation Program
Summary of Predicted Traveler Responses
Summary of Predicted Land Use Responses
Financial Assumptions
Local Street and Road Needs and Revenue Assessment
Transit Operating and Capital Needs and Revenue Assessment
Forecast of Jobs, Population and Housing
Regional Housing Need Allocation Process Methodology for 2014–2022
Online Project Database
Priority Development Area Development Feasibility and Readiness Assessment
Economic Impact Analysis for Future Regional Plans
Glossary

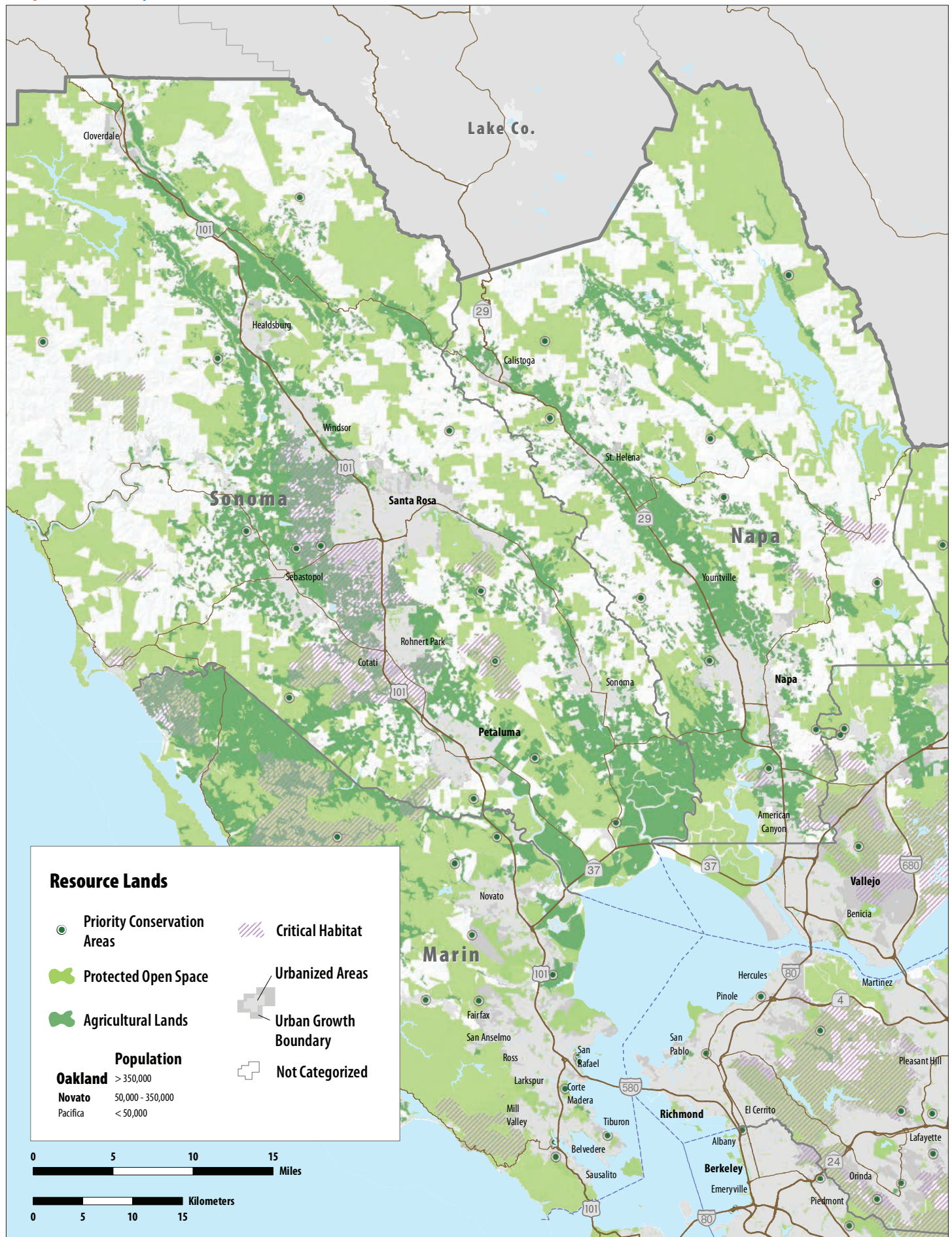
Appendix 2

Maps

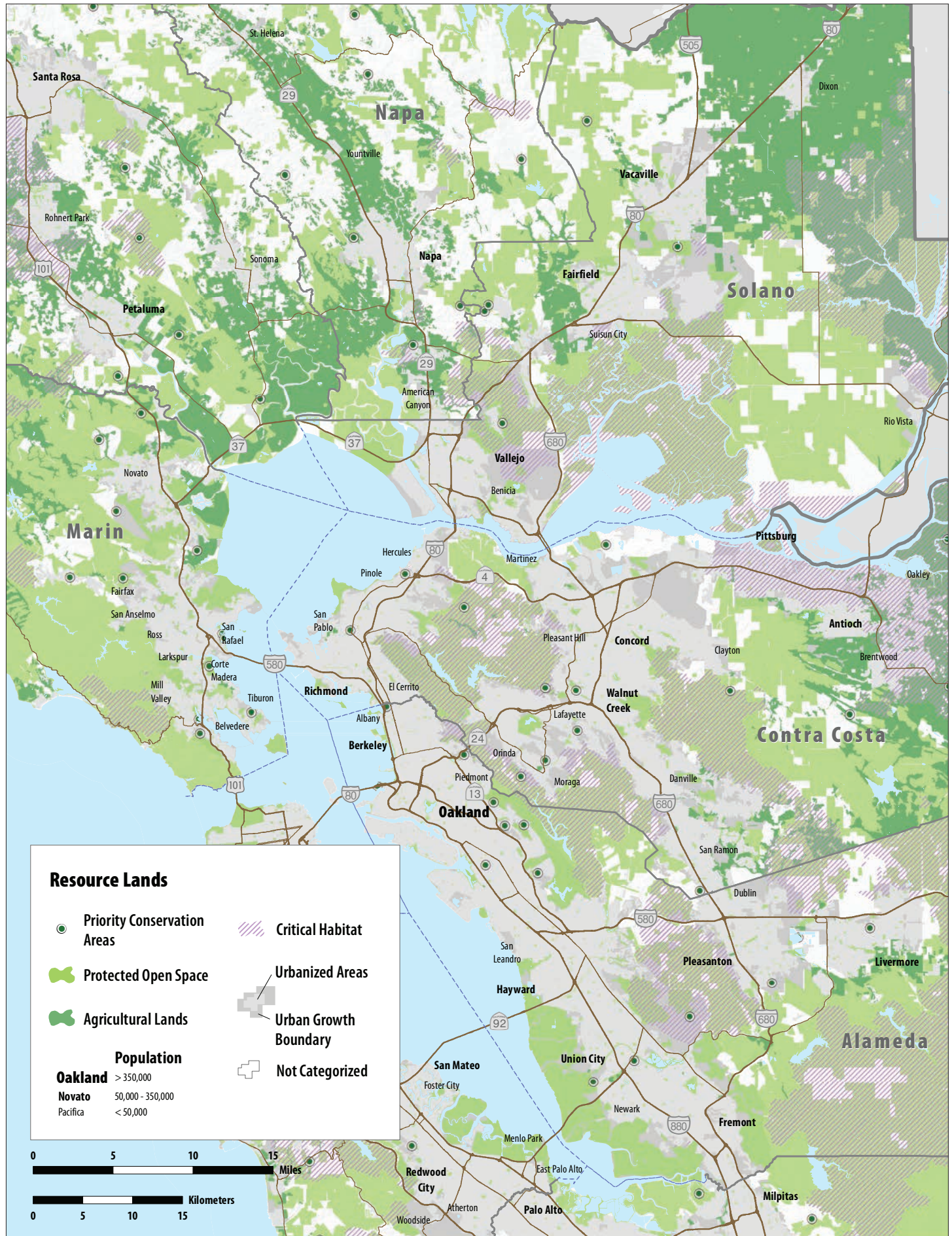
Appendix 2 includes a set of 15 detailed maps of the region showing key resource lands, job and housing growth (2010-2040), and total future housing and job intensities for 2040. For each topic, three close-up maps of different parts of the Bay Area region are included.

No.	Map Subject
Resource Lands	
1	North Bay/West: Resource Lands
2	Northeast and Central Bay: Resource Lands
3	South and West Bay: Resource Lands
Job Growth: 2010–2040	
4	North Bay/West: Change in Jobs per Acre — 2010–2040
5	Northeast and Central Bay: Change in Jobs per Acre — 2010–2040
6	South and West Bay: Change in Jobs per Acre — 2010–2040
Household Growth: 2010–2040	
7	North Bay/West: Change in Households per Acre — 2010–2040
8	Northeast and Central Bay: Change in Households per Acre — 2010–2040
9	South and West Bay: Change in Households per Acre — 2010–2040
Employment Intensity in 2040	
10	North Bay/West: Jobs per Acre in 2040
11	Northeast and Central Bay: Jobs per Acre in 2040
12	South and West Bay: Jobs per Acre in 2040
Housing Density in 2040	
13	North Bay/West: Households per Acre in 2040
14	Northeast and Central Bay: Households per Acre in 2040
15	South and West Bay: Households per Acre in 2040

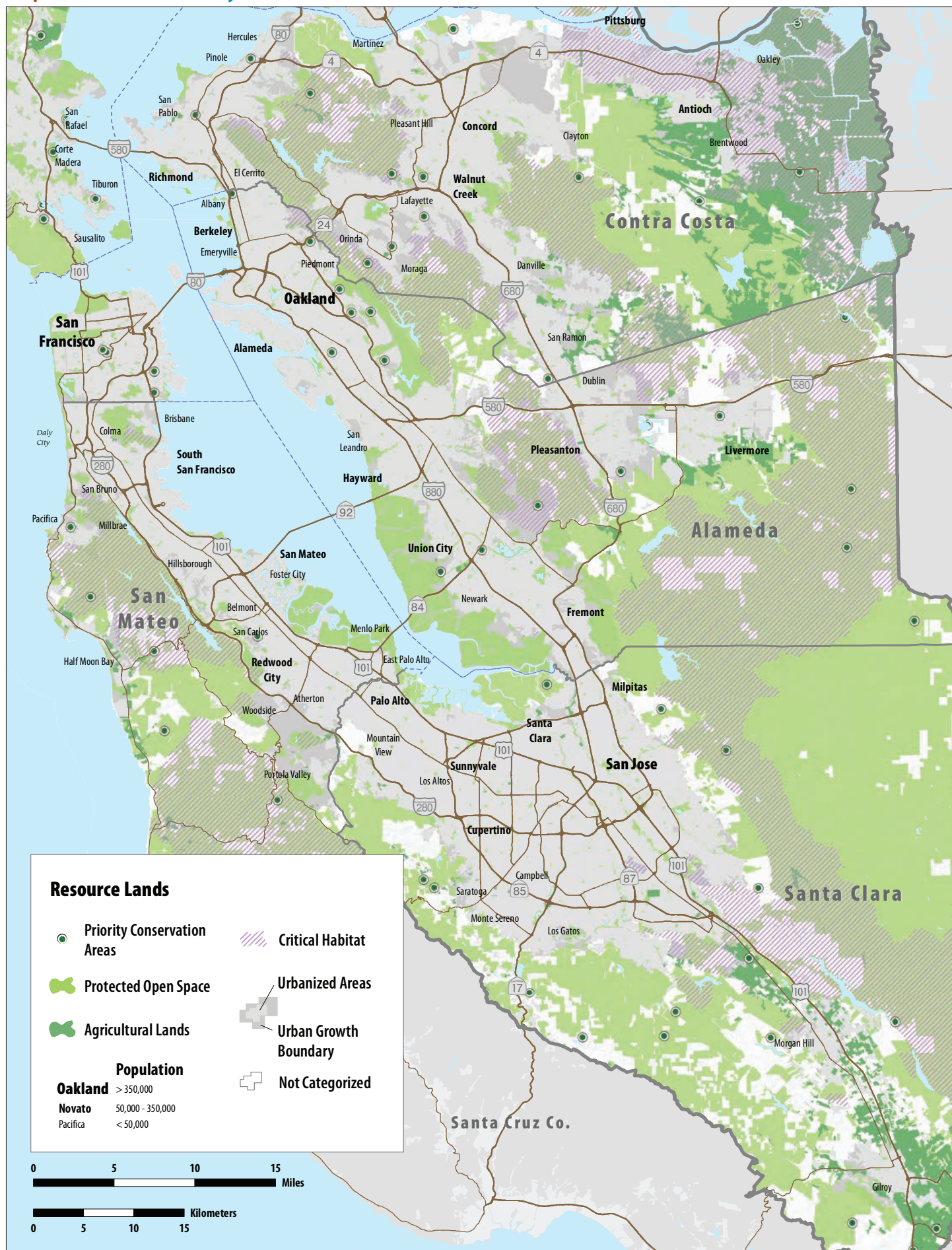
Map 1 North Bay/West: Resource Lands



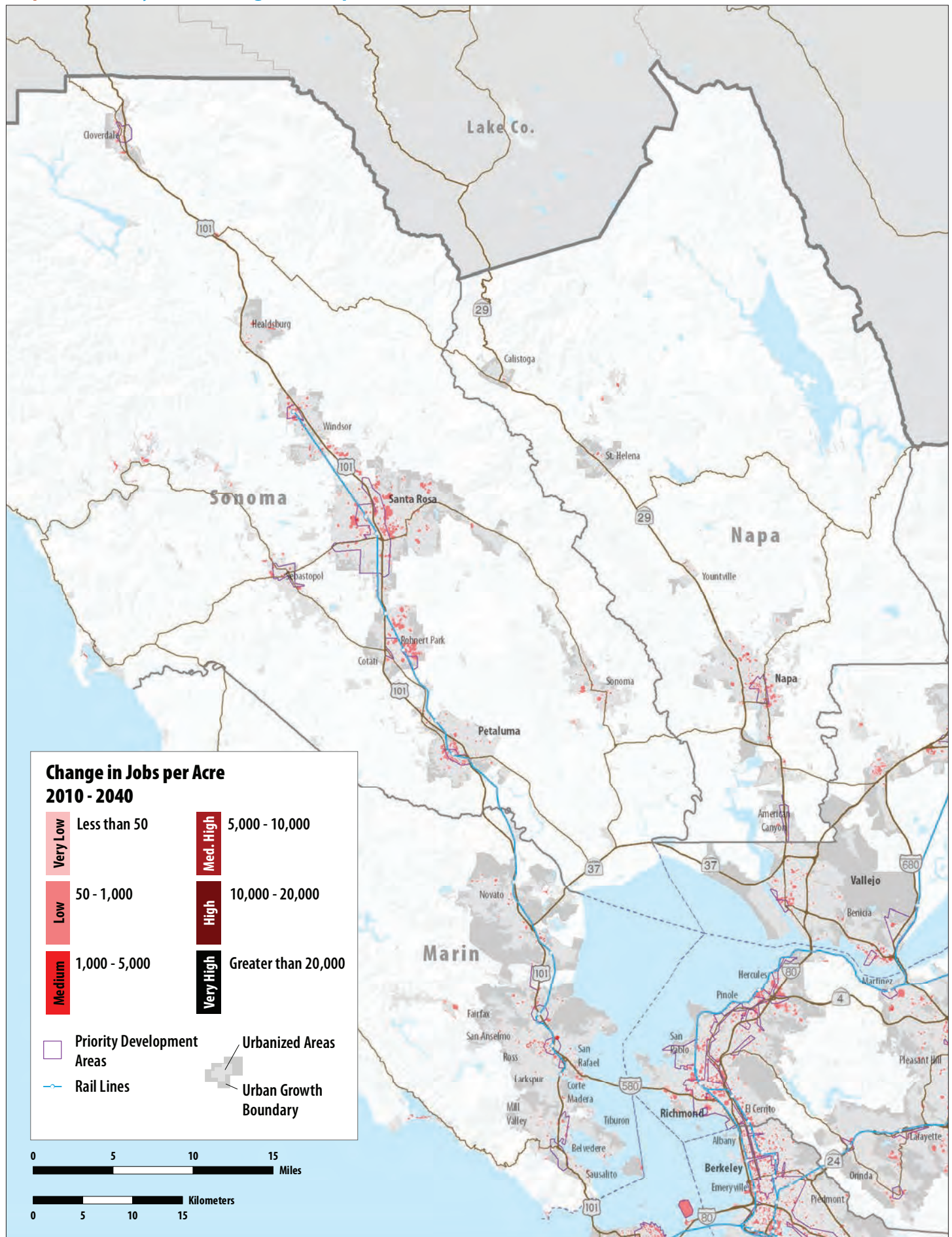
Map 2 Northeast and Central Bay: Resource Lands



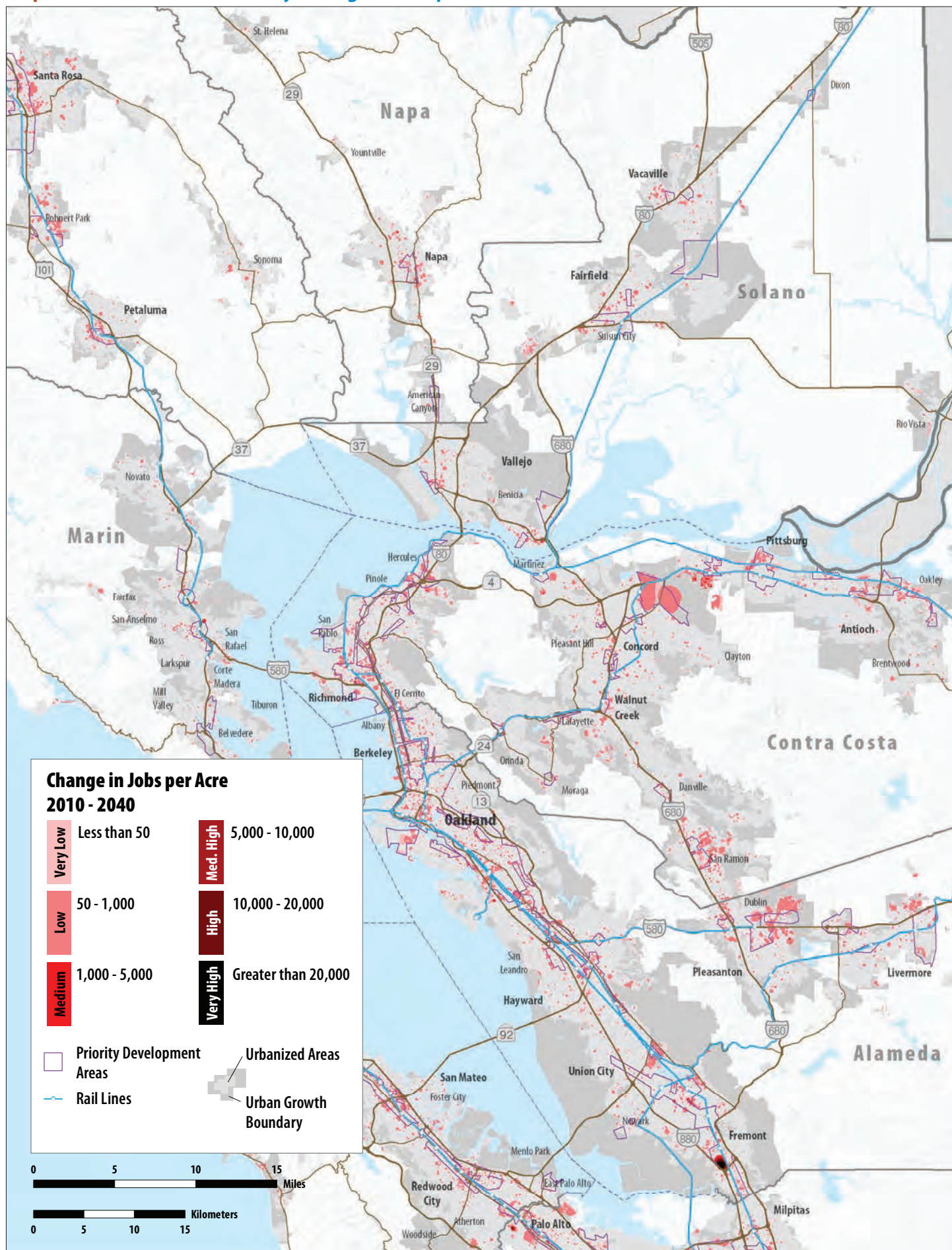
Map 3 South and West Bay: Resource Lands



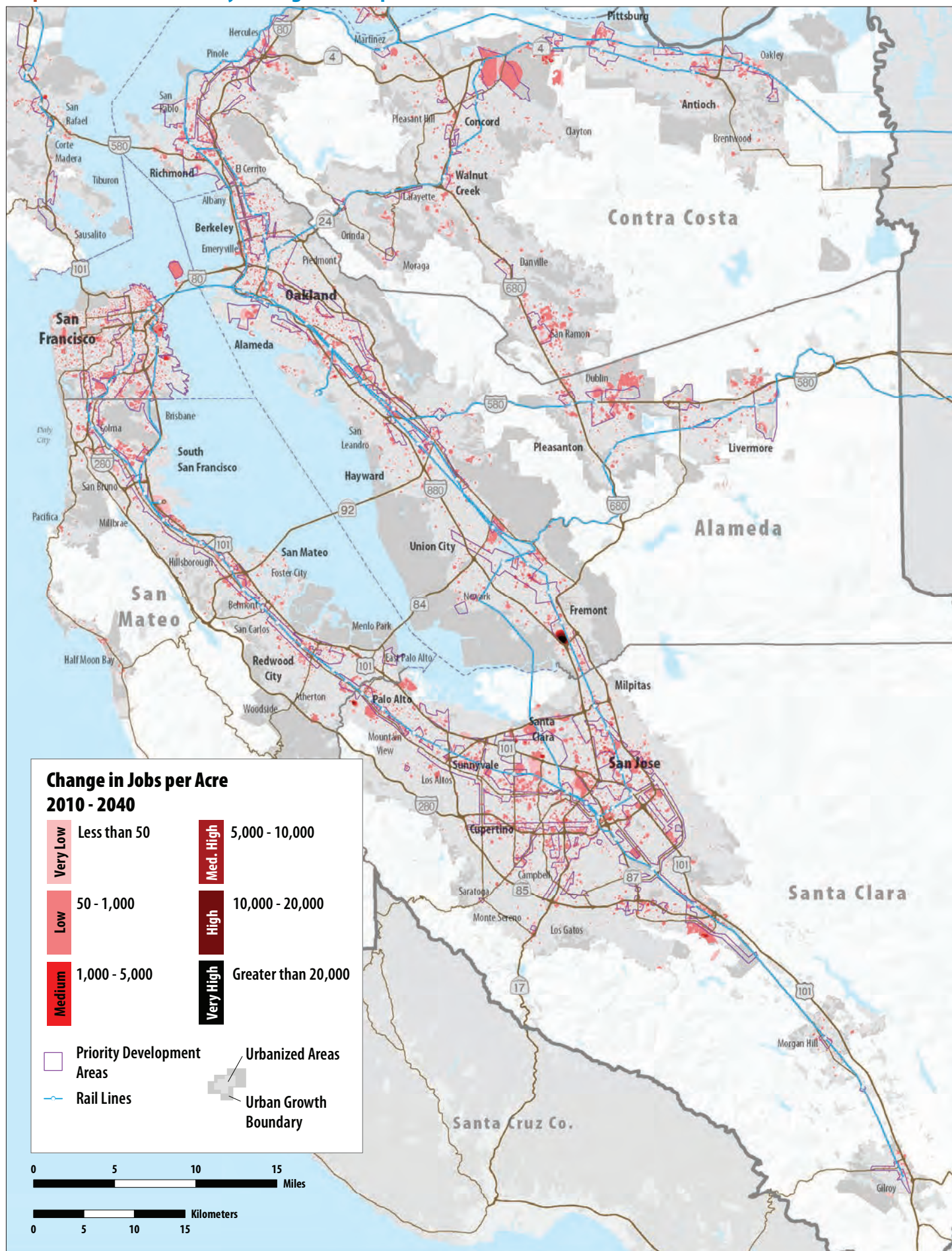
Map 4 North Bay/West: Change in Jobs per Acre — 2010–2040



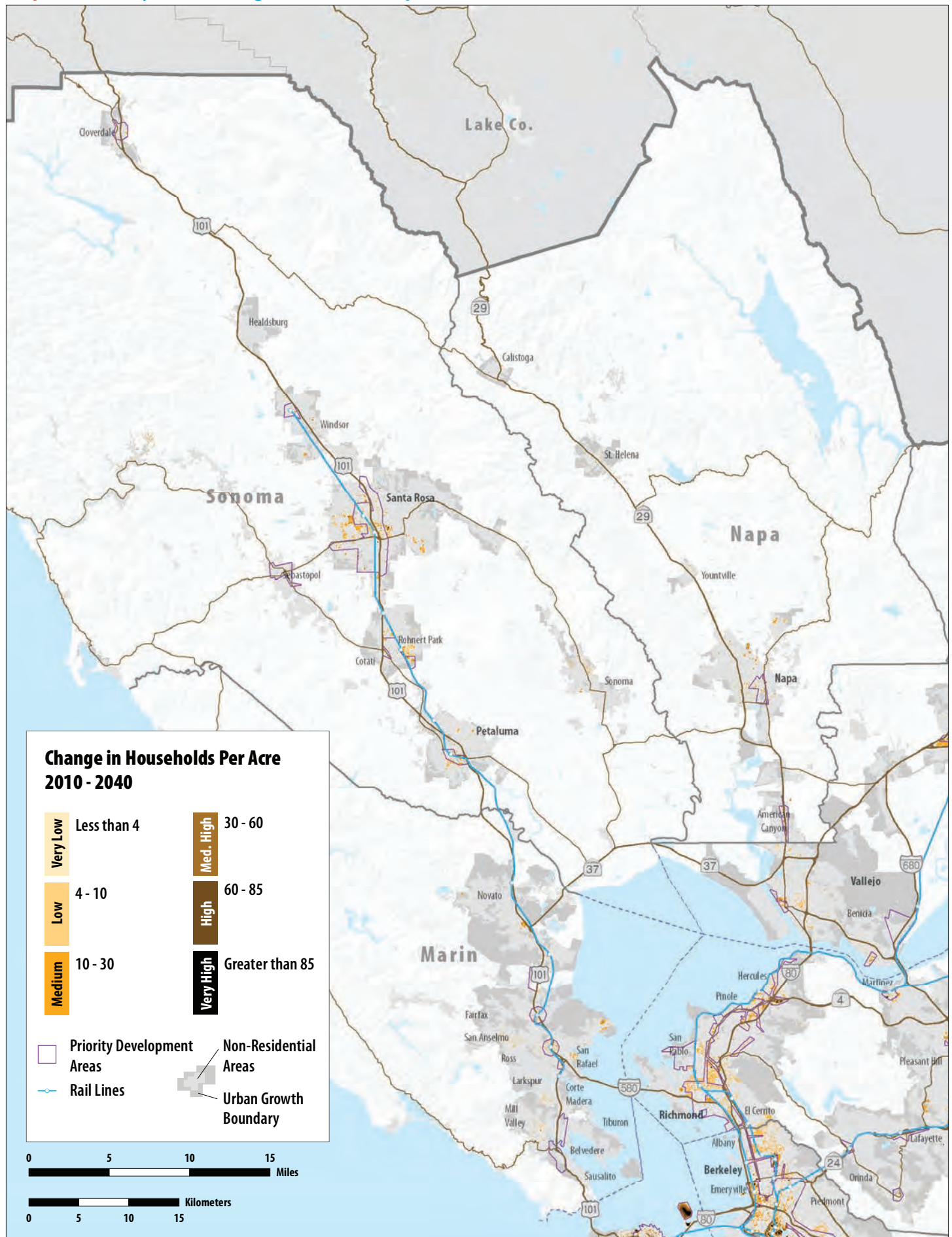
Map 5 Northeast and Central Bay: Change in Jobs per Acre — 2010–2040



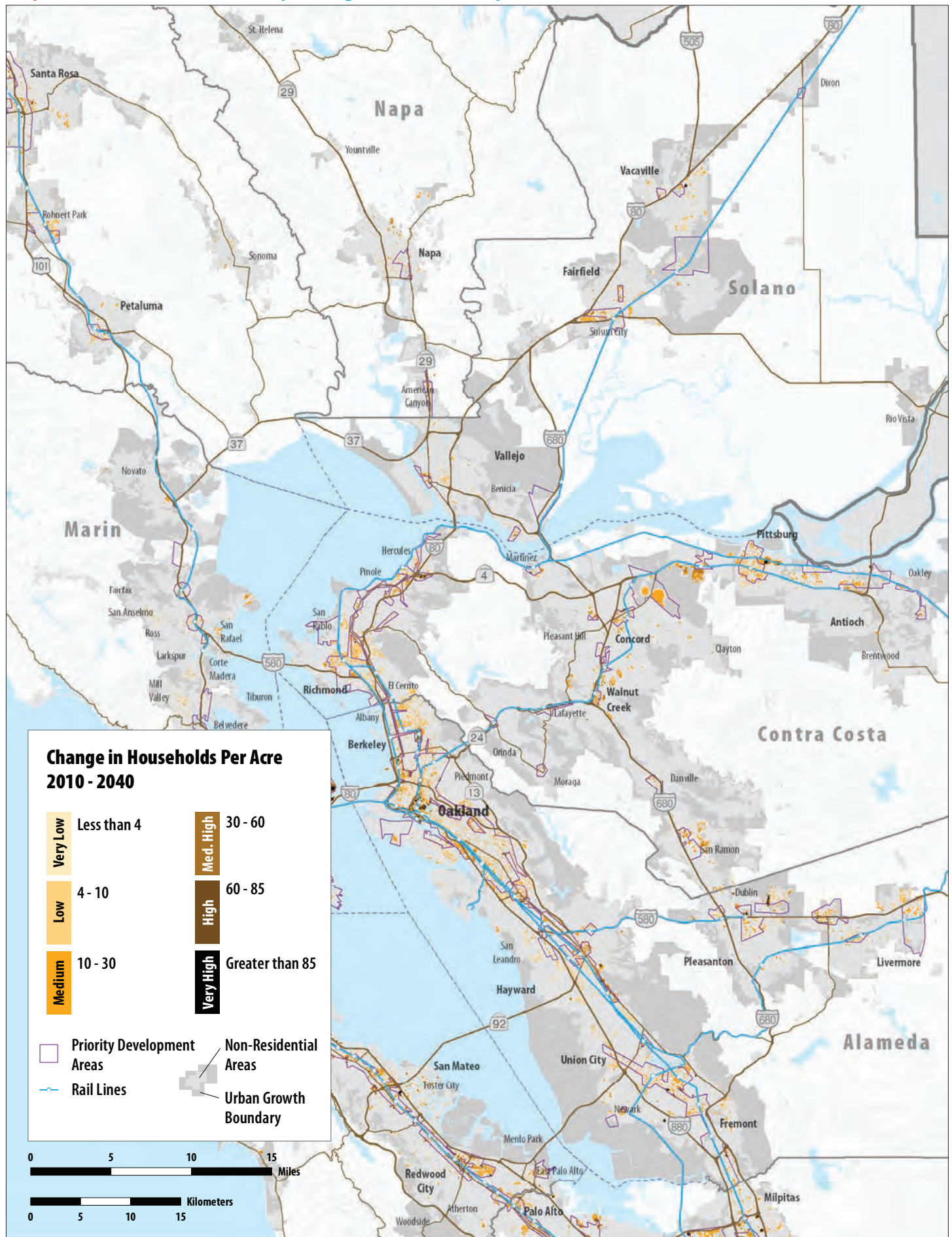
Map 6 South and West Bay: Change in Jobs per Acre — 2010–2040



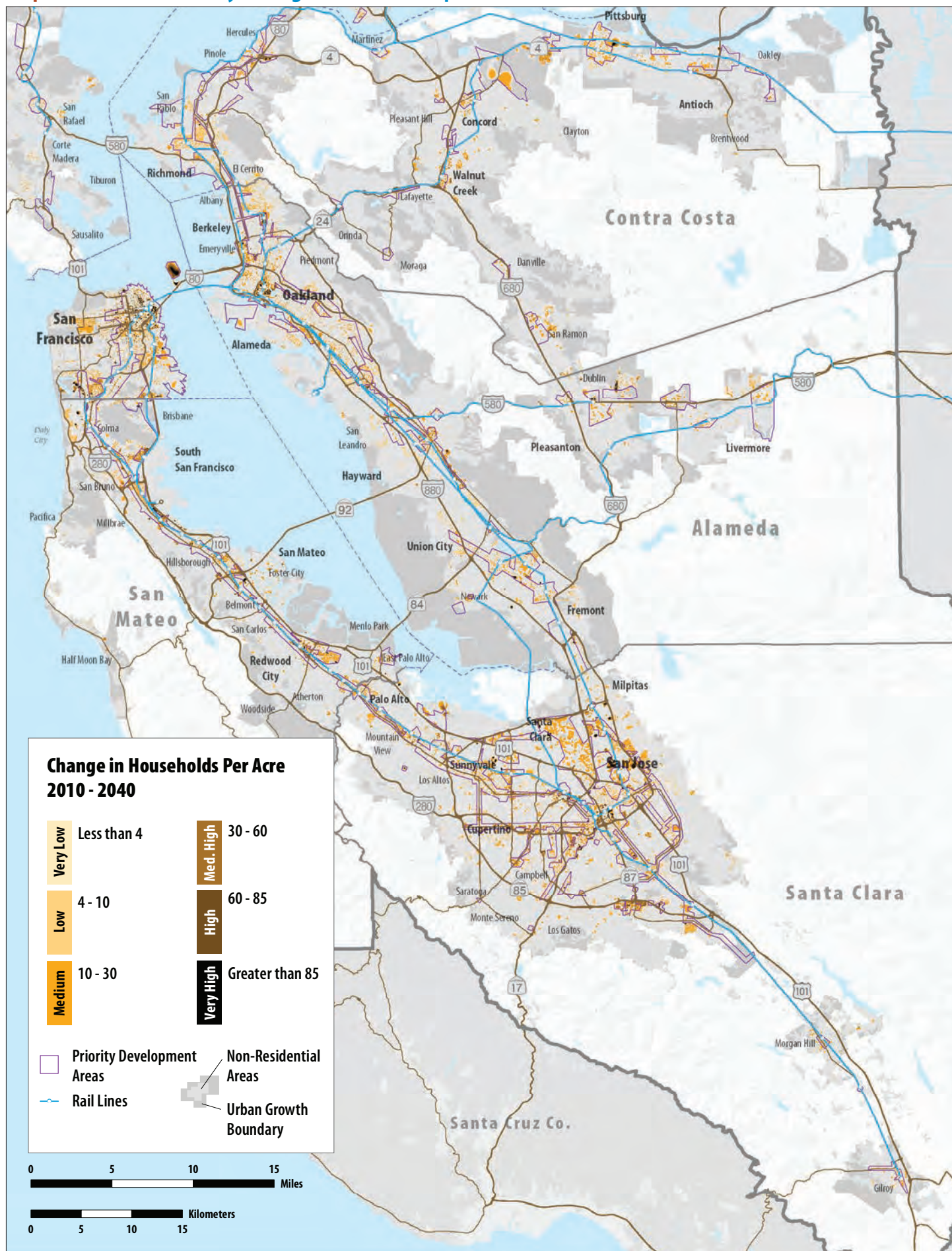
Map 7 North Bay/West: Change in Households per Acre — 2010–2040



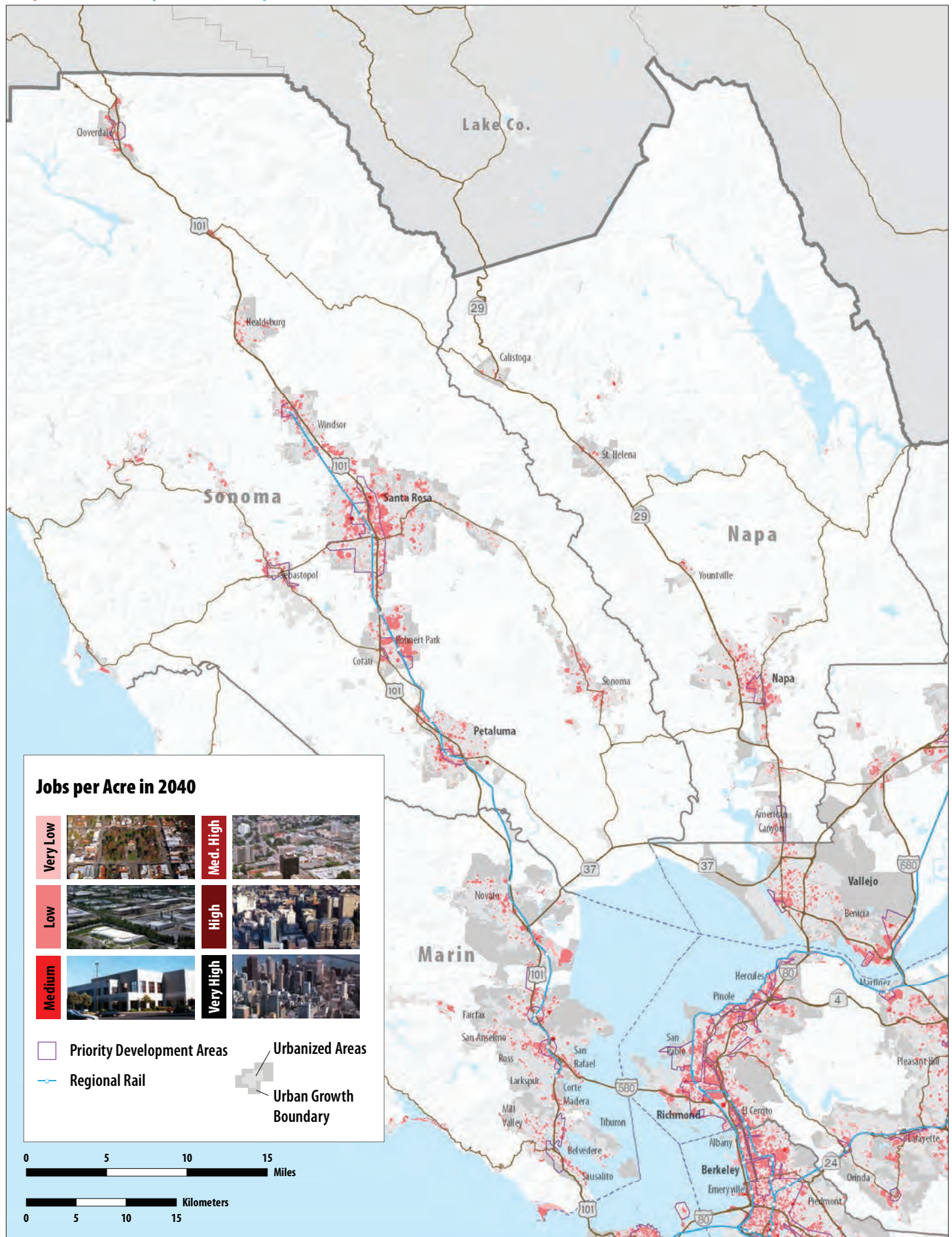
Map 8 Northeast and Central Bay: Change in Households per Acre — 2010–2040



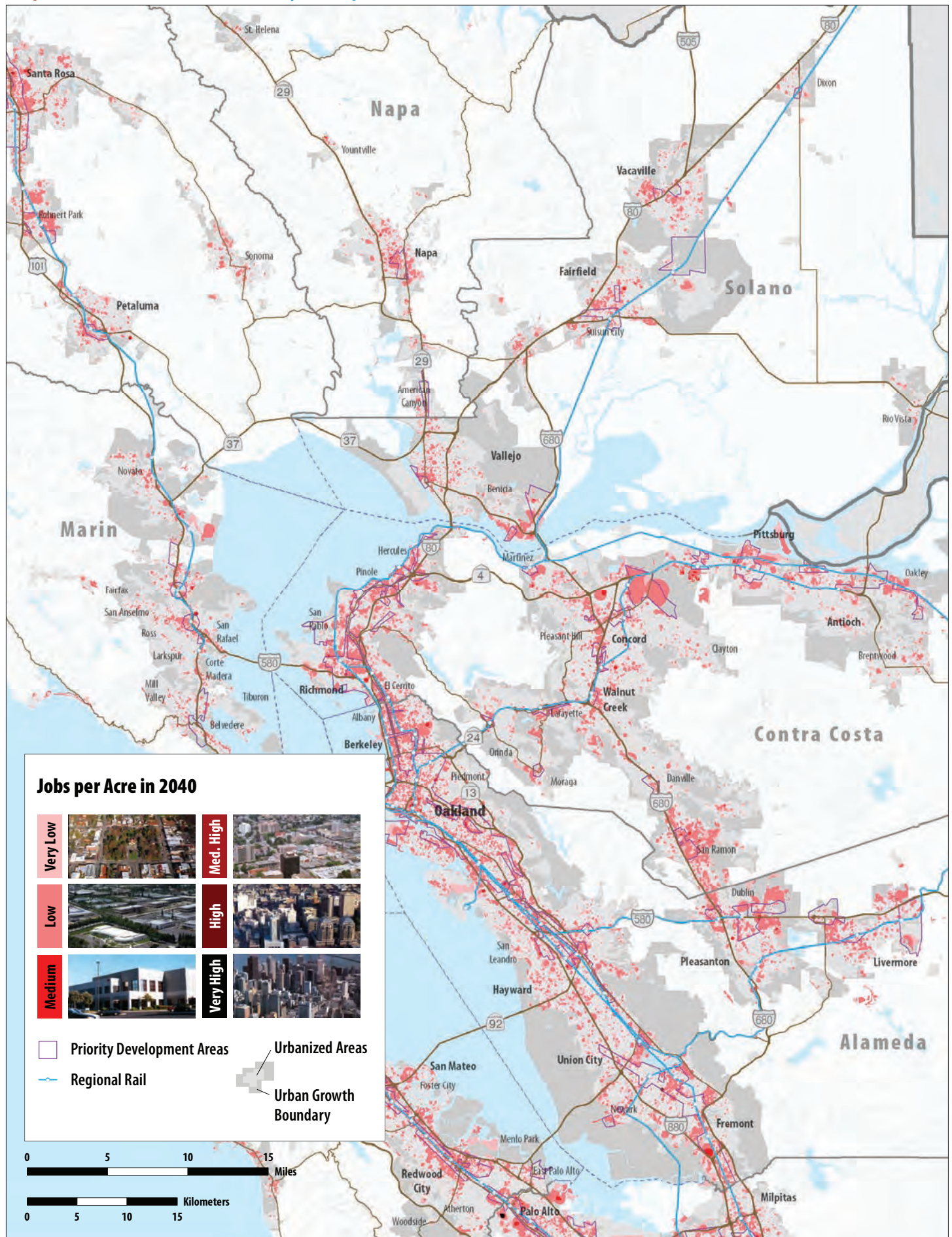
Map 9 South and West Bay: Change in Households per Acre — 2010–2040



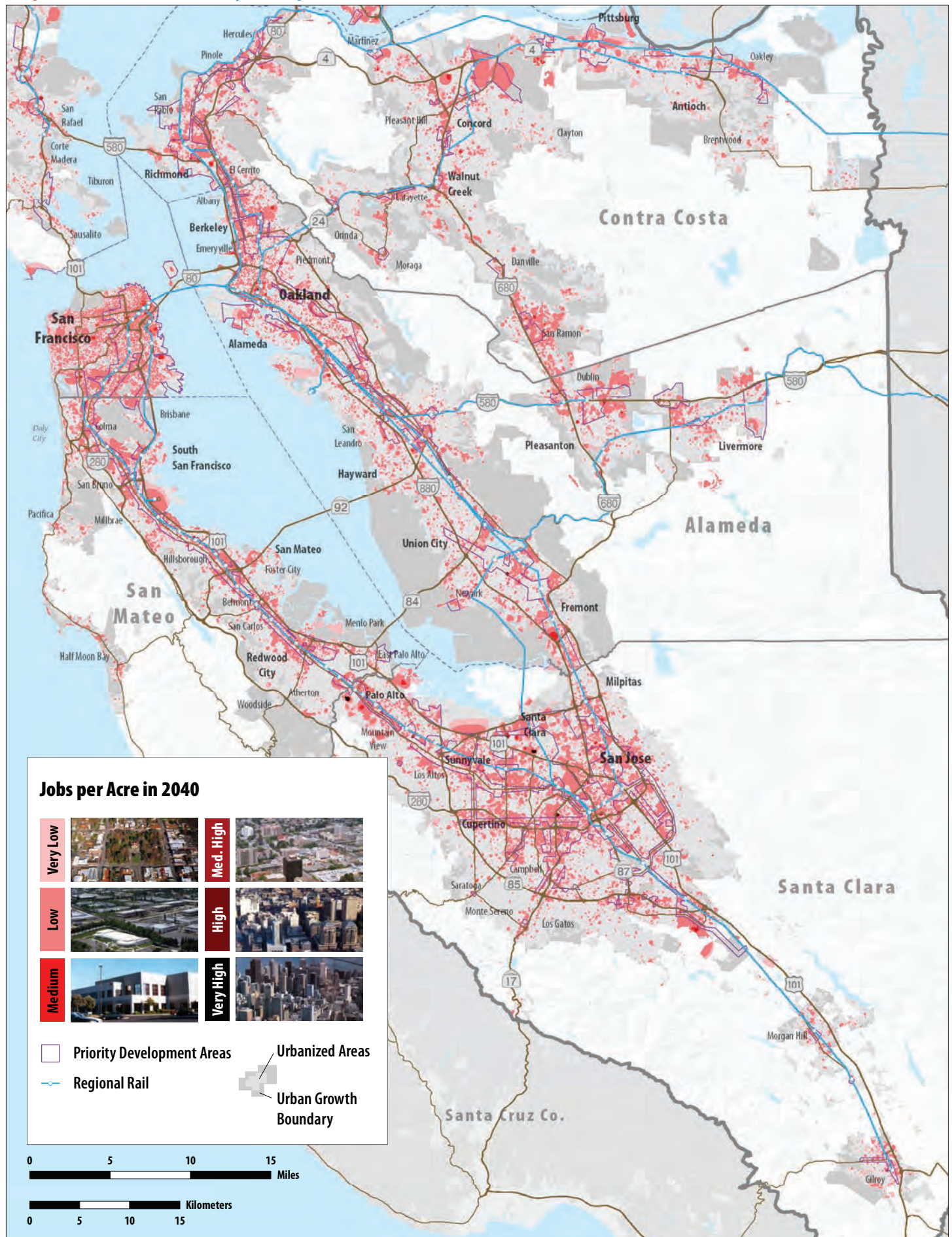
Map 10 North Bay/West: Jobs per Acre in 2040



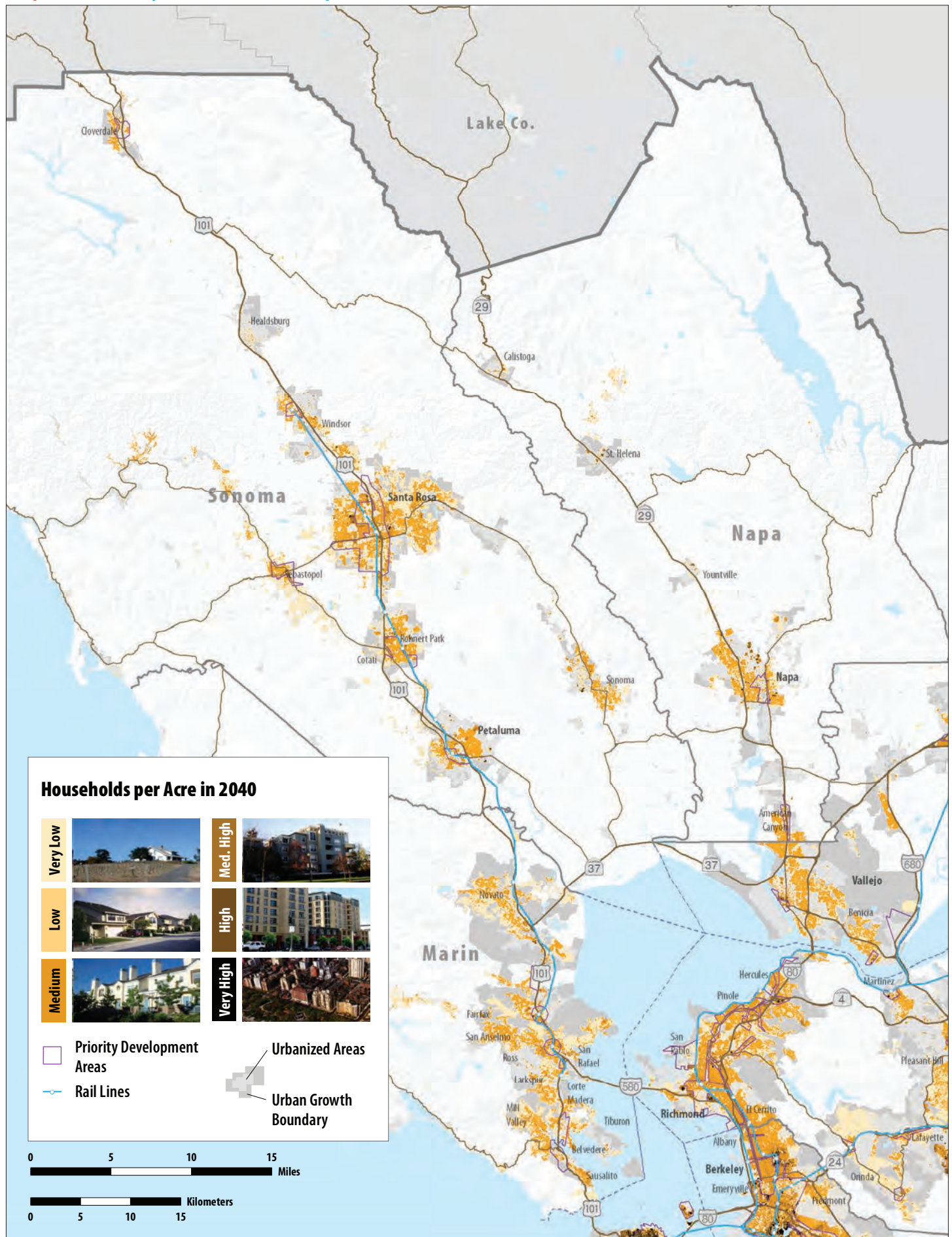
Map 11 Northeast and Central Bay: Jobs per Acre in 2040



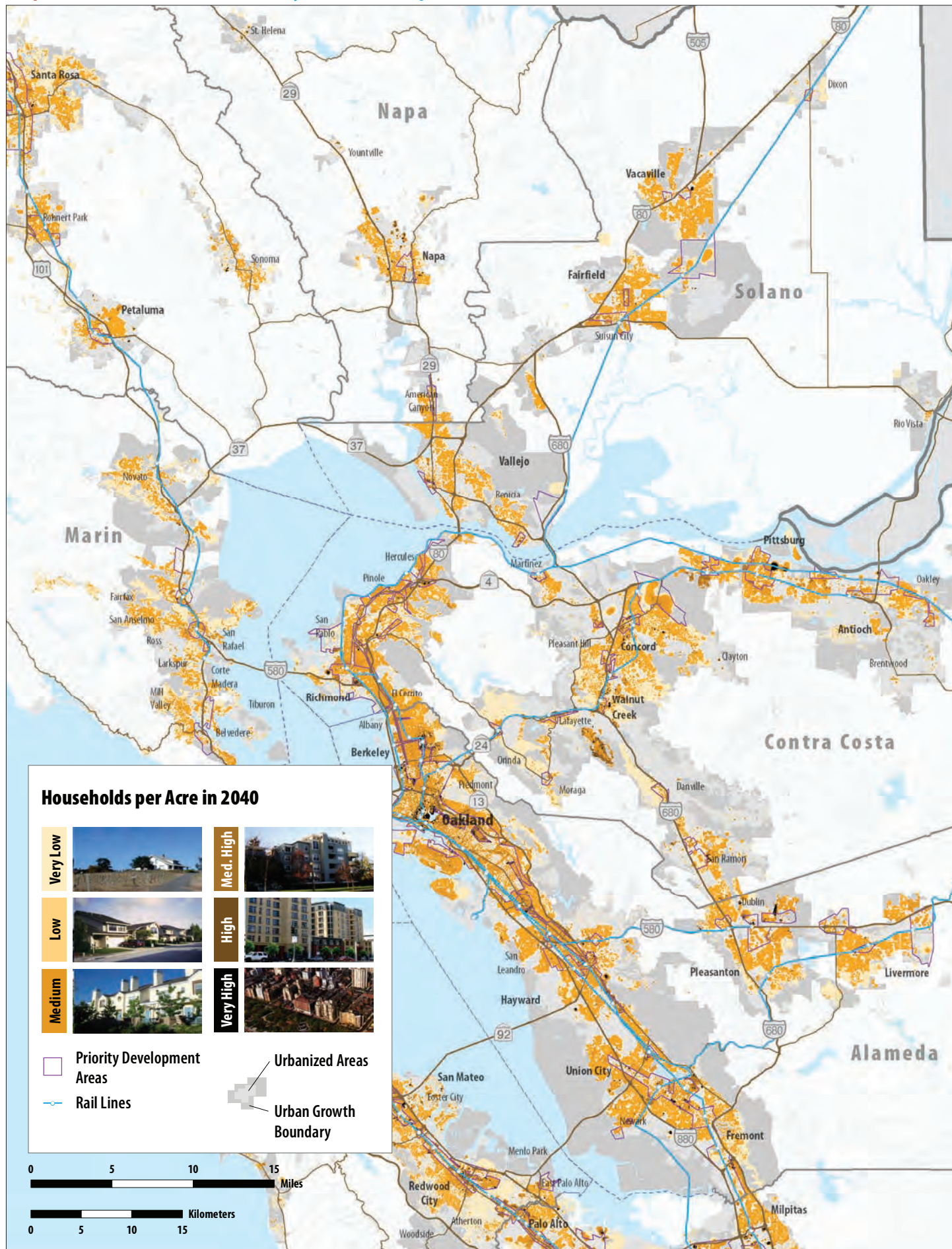
Map 12 South and West Bay: Jobs per Acre in 2040



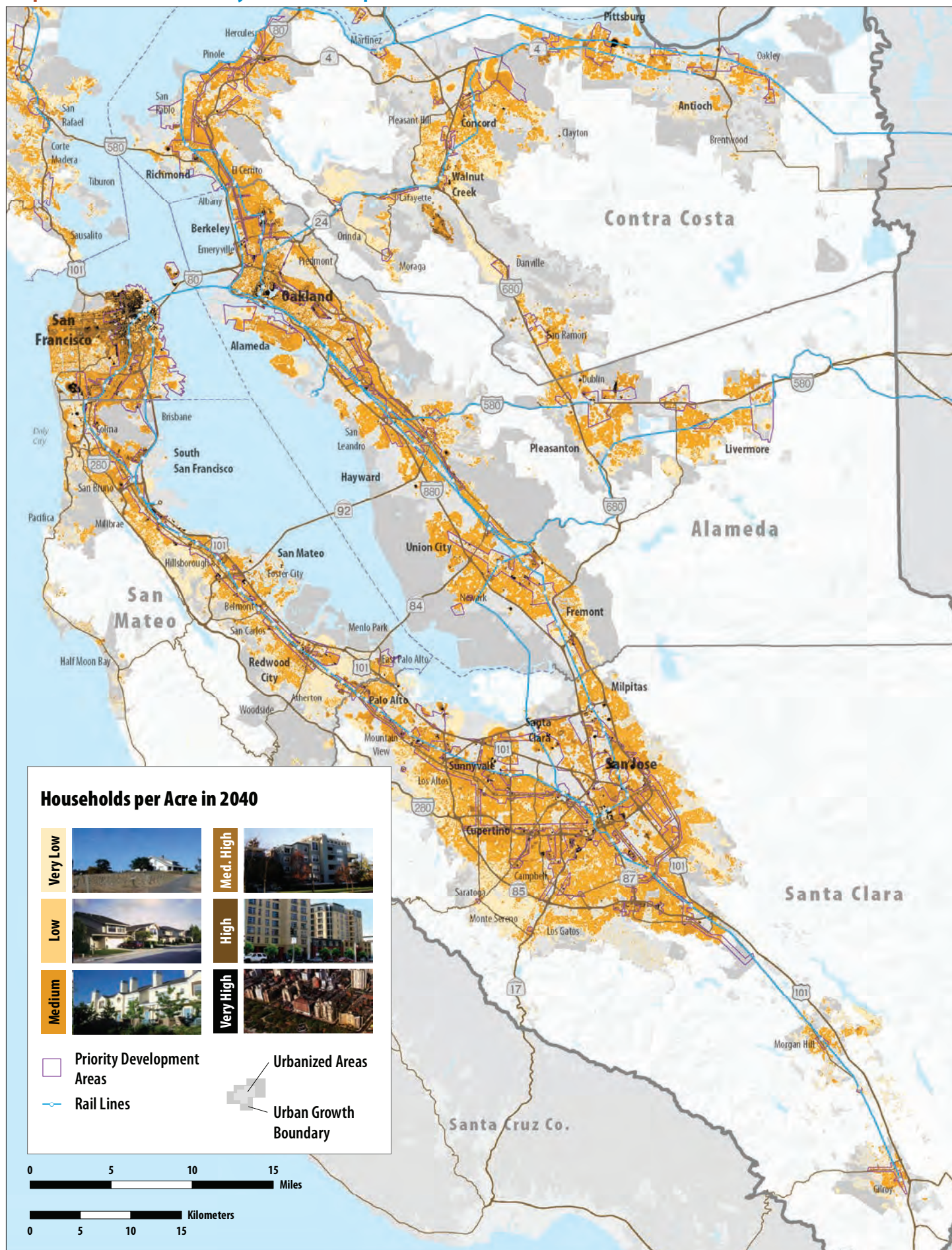
Map 13 North Bay/West: Households per Acre in 2040



Map 14 Northeast and Central Bay: Households per Acre in 2040



Map 15 South and West Bay: Households per Acre in 2040



Notes

Errata

April 15, 2013

•Page 55

Certain percentages are revised to reflect an ABAG Board decision made during the Plan Bay Area process to remove Rural Investment Areas and Growth Opportunity Areas from the Priority Development Area share of total growth calculation.

Lines 4-7

In Marin, 22 percent of new jobs and 38 percent of new homes are expected to be located in PDAs, while the share is 18 percent and 41 percent in Napa County, 33 percent and ~~65~~ 63 percent in Solano County, and ~~56~~ 45 percent and ~~72~~ 62 percent in Sonoma County.

Lines 13–15

Overall, well over two-thirds of all regional growth by 2040 is allocated within Priority Development Areas. PDAs are expected to accommodate ~~80~~ 79 percent (or over ~~525,570~~ 521,000 units) of new housing and ~~66~~ 63 percent (or ~~744,230~~ 703,000) of new jobs.

•Page 55

Table 3, column 9 is revised as shown below:

Table 3 SF Bay Area County Housing and Job Growth, 2010–2040

County	Employment				Housing Units				Households			
	2010	2040	2010–2040 Growth		2010	2040	2010–2040 Growth		2010	2040	2010–2040 Growth	
			Total	%			Total	%			Total	%
Alameda	694,450	947,630	253,190	36%	582,550	730,530	147,980	29%	545,140	705,290	160,150	29%
Contra Costa	344,920	467,000	122,080	35%	400,260	480,400	80,130	23%	375,360	463,070	87,700	23%
Marin	110,730	129,130	18,390	17%	111,210	118,720	7,510	9%	103,210	112,020	8,810	9%
Napa	70,650	89,530	18,880	27%	54,760	60,810	6,050	15%	48,880	56,290	7,410	15%
San Francisco	568,720	759,470	190,740	34%	376,940	469,350	92,410	29%	345,810	447,250	101,440	29%
San Mateo	345,200	445,310	100,110	29%	271,030	326,730	55,700	22%	257,840	315,730	57,900	22%
Santa Clara	926,260	1,229,800	303,530	33%	631,920	843,110	211,190	36%	604,200	819,130	214,920	36%
Solano	132,350	179,900	47,560	36%	152,700	175,520	22,820	19%	141,760	168,650	26,890	19%
Sonoma	192,010	257,450	65,430	34%	204,570	236,440	31,870	19%	183,180	214,110	30,930	18%
REGION	3,385,300	4,505,220	1,119,920	33%	2,785,950	3,445,940*	660,000*	27%	2,608,810	3,345,940*	737,130*	28%

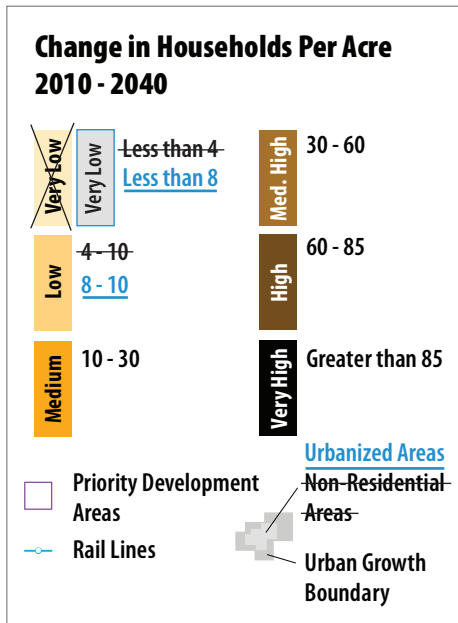
Housing Units				
2010	2040	2010–2040 Growth		
		Total	%	Revised %
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204,570	236,440	31,870	19%	<u>16%</u>
2,785,950	3,445,940*	660,000*	27%	<u>24%</u>

(continued next page)

Errata (Continued)

•Pages 146–148

For the maps titled “Change in Households per Acre: 2010-2040” on pages 146, 147 and 148, the legend should read as in the example below:



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Errata

April 15, 2013

•Page 55

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Errata (Continued)

•Pages 146–148

For the maps titled “Change in Households per Acre: 2010-2040” on pages 146, 147 and 148, the legend should read as in the example below:

