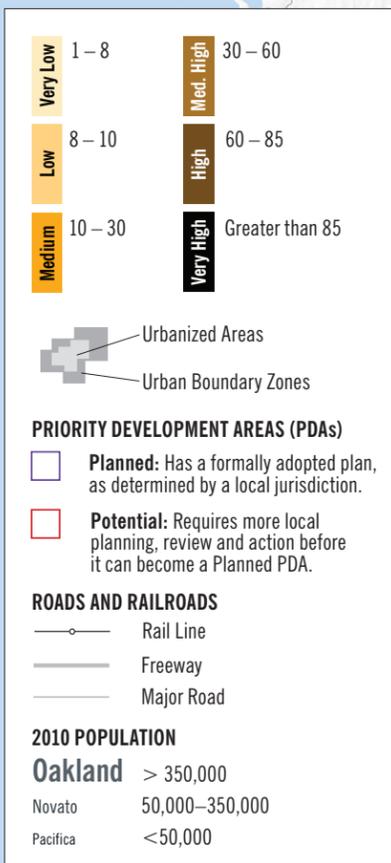


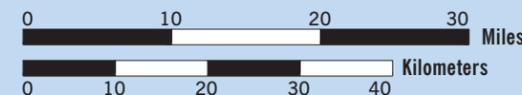
MAP 6 Change in Households per Acre: 2010–2040



Urbanized Areas: Includes land designated as Urban and Built-up as defined by the Farmland Mapping and Monitoring Program in 2010. These lands include areas occupied by structures with a building density of at least 1 unit to 1.5 acres or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures and other developed purposes.

Urban Boundary Zones: Includes areas within Urban Growth Boundaries/ Urban Limit Lines, Urban Service Areas and Spheres of Influence.

Map is for general information. For more information on local zoning or designations for a particular site or parcel, please contact your city or county. Greater detail can be found in the sub-regional maps in Appendix 2.



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 page 51 shows where the region is expected to add jobs during this time period.

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 (see Table 13, page 50). 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 forecasted

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.

in the region by 2040. Through local general plans, communities may aspire to and plan for additional jobs beyond the forecast contained in Plan Bay Area.

Additional information on employment distribution by location can be found in Forecast of Jobs, Population and Housing listed in Appendix 1.

San Francisco 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 in-commuters.



Noah Berger

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 (see Figure 10, page 43).

- **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.
- **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.
- **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.



Arlene Finger

- **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.
- **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.
- **Local Planning Assumptions:** This information, including locally adopted general plans and neighborhood plans, was supplied by local planning departments.
- **Resource Areas and Farmland:** This information was derived from farmland and resource lands, the locations of Priority Conservation Areas, and the urban growth boundaries.

Places with high levels of transit service and jobs were assigned more growth.

2040 Housing Distribution Highlights

While housing growth is closely linked to local plans, as a result of these growth distribution factors more housing is 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.

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 14). In total, two-thirds of the region’s overall housing production is directed to these 15 cities. This development pattern preserves the character of more than 95 percent of the region by focusing



Santa Clara Valley Transportation Authority

growth on less than five percent of the land. The map on page 52 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 14: Bay Area Housing Unit Growth 2010–2040, Top 15 Cities

| Rank | Jurisdiction | Housing Units | | 2010–2040 Housing Unit Growth | |
|------|---------------|---------------|---------|-------------------------------|-------------------|
| | | 2010 | 2040 | Growth | Percentage Growth |
| 1 | San Jose | 314,040 | 443,320 | 129,280 | 41% |
| 2 | San Francisco | 376,940 | 469,430 | 92,480 | 25% |
| 3 | Oakland | 169,710 | 221,160 | 51,450 | 30% |
| 4 | Sunnyvale | 55,790 | 74,820 | 19,030 | 34% |
| 5 | Concord | 47,130 | 65,200 | 18,070 | 38% |
| 6 | Fremont | 73,990 | 91,620 | 17,630 | 24% |
| 7 | Santa Rosa | 67,400 | 83,430 | 16,030 | 24% |
| 8 | Santa Clara | 45,150 | 58,930 | 13,780 | 31% |
| 9 | Milpitas | 19,810 | 32,430 | 12,620 | 64% |
| 10 | Hayward | 48,300 | 60,610 | 12,320 | 26% |
| 11 | Fairfield | 37,180 | 48,300 | 11,120 | 30% |
| 12 | San Mateo | 40,010 | 50,200 | 10,180 | 25% |
| 13 | Livermore | 30,340 | 40,040 | 9,700 | 32% |
| 14 | Richmond | 39,330 | 49,020 | 9,690 | 25% |
| 15 | Mountain View | 33,880 | 43,280 | 9,400 | 28% |



ABAG Archives

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 15.) 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 housing growth,

with 22 percent, 12 percent, 9 percent, and 9 percent respectively. PDAs in the county will take on 64 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 63 percent in Solano County, and 45 percent and 62 percent in Sonoma County. By concentrating growth in the inner Bay Area and communities with frequent transit service, this growth strategy will

TABLE 15: 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 | 947,650 | 253,200 | 36% | 582,550 | 730,540 | 147,990 | 25% | 545,140 | 705,330 | 160,190 | 29% |
| Contra Costa | 344,920 | 467,390 | 122,470 | 36% | 400,260 | 481,590 | 81,330 | 20% | 375,360 | 464,150 | 88,790 | 24% |
| Marin | 110,730 | 129,140 | 18,400 | 17% | 111,210 | 118,740 | 7,530 | 7% | 103,210 | 112,050 | 8,840 | 9% |
| Napa | 70,650 | 89,540 | 18,890 | 27% | 54,760 | 60,830 | 6,070 | 11% | 48,880 | 56,310 | 7,430 | 15% |
| San Francisco | 568,720 | 759,500 | 190,780 | 34% | 376,940 | 469,430 | 92,480 | 25% | 345,810 | 447,350 | 101,530 | 29% |
| San Mateo | 345,200 | 445,080 | 99,880 | 29% | 271,030 | 326,070 | 55,040 | 20% | 257,840 | 315,090 | 57,250 | 22% |
| Santa Clara | 926,260 | 1,229,530 | 303,270 | 33% | 631,920 | 842,350 | 210,430 | 33% | 604,200 | 818,390 | 214,190 | 35% |
| Solano | 132,350 | 179,930 | 47,580 | 36% | 152,700 | 175,570 | 22,870 | 15% | 141,760 | 168,700 | 26,950 | 19% |
| Sonoma | 192,010 | 257,460 | 65,450 | 34% | 204,570 | 236,480 | 31,910 | 16% | 185,830 | 220,740 | 34,910 | 19% |
| Region* | 3,385,300 | 4,505,220 | 1,119,920 | 33% | 2,785,950 | 3,445,950† | 660,000 | 24% | 2,608,020 | 3,308,110 | 700,090 | 27% |

*Sum of county totals may not match regional totals due to rounding.

†Regional 2040 Housing Units include 4,350 seasonal units that were not distributed by county.

Source: ABAG, 2013

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



Noah Berger

Areas. PDAs are expected to accommodate 78 percent (or over 509,000 units) of new housing and 62 percent (or nearly 690,000) of new jobs. As a result, small cities, single-family neighborhoods and rural areas throughout the Bay Area are expected to retain their scale and character.

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.

| County | Very Low 0–50% | Low 51–80% | Moderate 81–120% | Above Moderate 120%+ | Total Housing Units |
|---------------|-------------------|---------------|---------------------|----------------------------|---------------------------|
| Alameda | 9,912 | 6,604 | 7,924 | 19,596 | 44,036 |
| Contra Costa | 5,264 | 3,086 | 3,496 | 8,784 | 20,630 |
| Marin | 618 | 367 | 423 | 890 | 2,298 |
| Napa | 370 | 199 | 243 | 670 | 1,482 |
| San Francisco | 6,234 | 4,639 | 5,460 | 12,536 | 28,869 |
| San Mateo | 4,595 | 2,507 | 2,830 | 6,486 | 16,418 |
| Santa Clara | 16,158 | 9,542 | 10,636 | 22,500 | 58,836 |
| Solano | 1,711 | 902 | 1,053 | 3,311 | 6,977 |
| Sonoma | 1,818 | 1,094 | 1,355 | 4,177 | 8,444 |
| 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/Final RHNA \(2014–2022\).pdf](http://www.abag.ca.gov/planning/housingneeds/pdfs/Final_RHNA_(2014–2022).pdf)



Noah Berger

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

To encourage even greater policy alignment, the OneBayArea 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.)

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



Noah Berger

Plan Bay Area: Benefits for Project Development

Adoption of Plan Bay Area will not require any changes to local land use policies or environmental review processes. In concert with Senate Bill 375, the plan provides some jurisdictions with the opportunity to reduce the scope of environmental analysis required under CEQA for certain projects that are

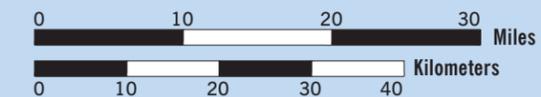
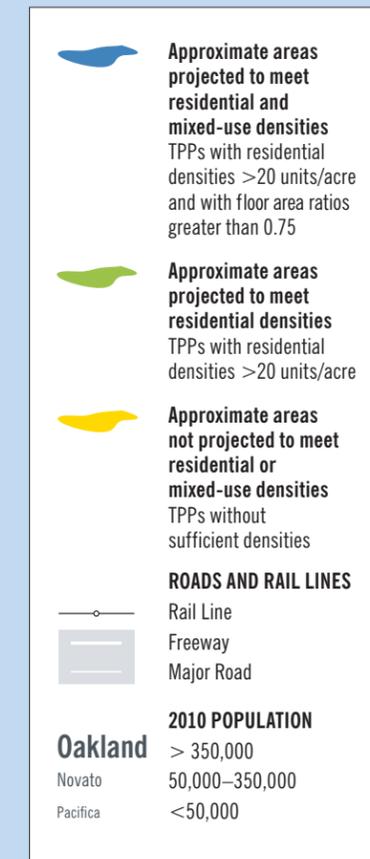
consistent with the plan. Agencies that find these “CEQA streamlining provisions” helpful have the opportunity, but are not obligated, to align their local planning decisions with the adopted Plan Bay Area. Projects that use the provisions will still need to obtain discretionary permits or other approvals 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.)

Plan Bay Area outlines a growth strategy that makes efficient use of available infrastructure while protecting the region’s natural resources and open space.

A project may qualify for CEQA relief under SB 375 if it is: 1) consistent with the 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).

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.

MAP 7 Transit Priority Project (TPP) CEQA Streamlining



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



Greg Nelson

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.

NOTE: Appendix 2 includes a set of 18 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.

4

Investments



San Francisco-Oakland Bay Bridge, East Span

Barrie Rokeach ©2013

Chapter 4

Investments

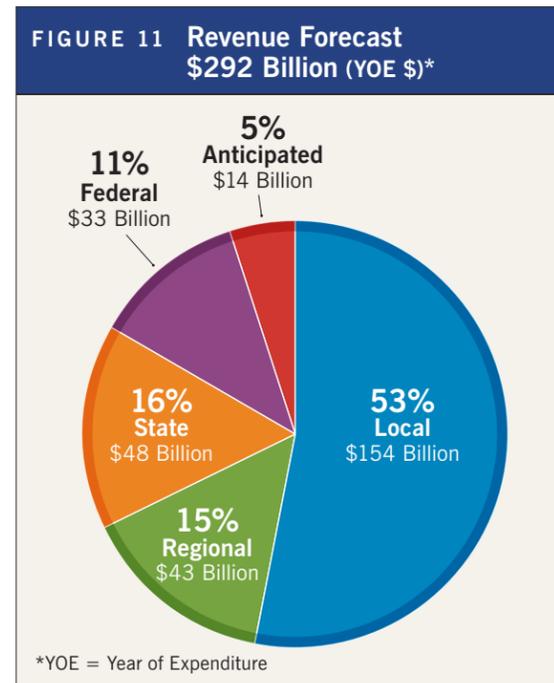
In crafting an investment program for Plan Bay Area, MTC and ABAG had to grapple with a number of important, but often competing, questions.

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?

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 OneBayArea Grant program.

Gauging Our Financial Resources

The 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 \$292 billion over the 28-year period, reckoned in year of

expenditure (YOE) dollars. As shown in Figure 11, over two-thirds (68 percent) of these funds are from regional and local sources, primarily transit fares, dedicated sales tax programs, and bridge tolls.

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



Karl Nielsen

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.

- Plan Bay Area assumes \$3.1 billion dollars in Cap and Trade revenue. These funds represent the Bay Area’s share of funds that are expected to be administered by the state’s metropolitan planning organizations.
- 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.

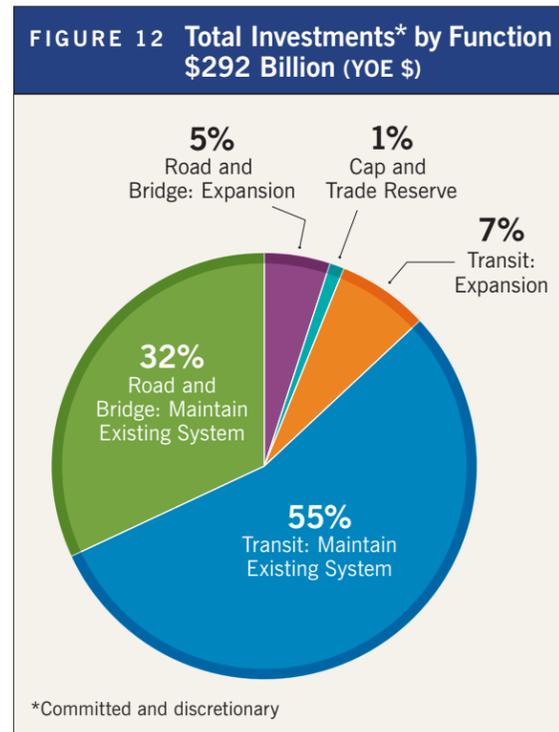
MTC performed a retrospective analysis of projections for previous long-range plans, including a review of unexpected revenues that had come to the region but had not been anticipated or included in those projections. Over a 15-year analysis period, the San Francisco Bay Area received an annualized amount 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.
- 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, \$60 billion of the \$292 billion



in total revenue forecasted for Plan Bay Area is available for discretionary investments.

As summarized in Table 17, the investment strategy totals \$292 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. (See Figure 12.) The remaining 13 percent funds key transit and road expansion projects. Bicycle and

TABLE 17: Plan Bay Area Investments by Function (in billions of YOE \$)

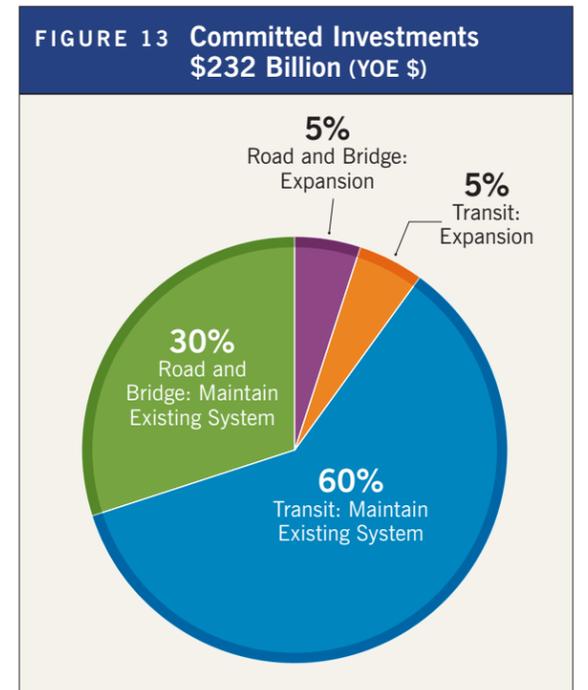
| Function | Committed | Discretionary | Total |
|---|--------------|---------------|--------------|
| Transit: Maintain Existing System | \$139 | \$20 | \$159 |
| Road and Bridge: Maintain Existing System | \$69 | \$25 | \$94 |
| Transit: Expansion | \$13 | \$8 | \$21 |
| Road and Bridge: Expansion | \$11 | \$4 | \$15 |
| Cap and Trade Reserve | \$0 | \$3 | \$3 |
| Total | \$232 | \$60 | \$292 |

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.”

Committed Revenues

Seventy-nine 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 State Transportation Improvement Program (STIP) funds that have already been designated for specific projects by the California Transportation Commission. Figure 13 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); the BART Airport Connector to Oakland International Airport; 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.

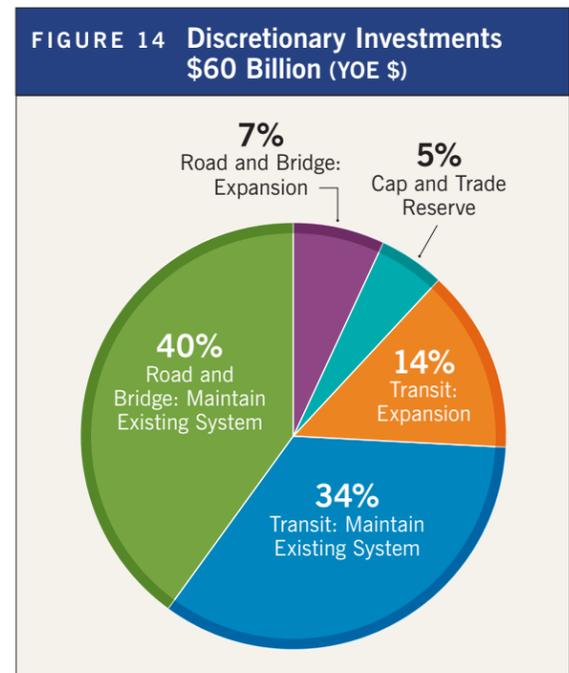


Noah Berger

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 13. 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 21 percent of Plan Bay Area revenues that are discretionary (\$60 billion) are assigned to projects or programs to support the plan's land use and transportation investment strategy. 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 14 provides a breakdown by functional category of how discretionary revenues will be invested through Plan Bay Area.

Cap and Trade Revenues

This investment strategy is complemented by a \$3.1 billion dollar reserve from future Cap and Trade funding included in the plan. The expected eligible uses include but are not limited to transit operating and capital rehabilitation/replacement, local street and road rehabilitation, goods movement, and transit-oriented affordable housing — consistent with the focused land use strategy outlined in Plan Bay Area. The share of funds reserved for these purposes, the specific project sponsors and investment requirements will be subject to further deliberation with partner agencies and public input following adoption of Plan Bay Area.

Cap and Trade revenues will be allocated to specific programs through a transparent and inclusive regional public process. That process will specifically ensure that at least 25 percent of these revenues will be spent to benefit disadvantaged communities in the Bay Area, and to achieve the goals of Plan Bay Area.

Investment Strategies

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.



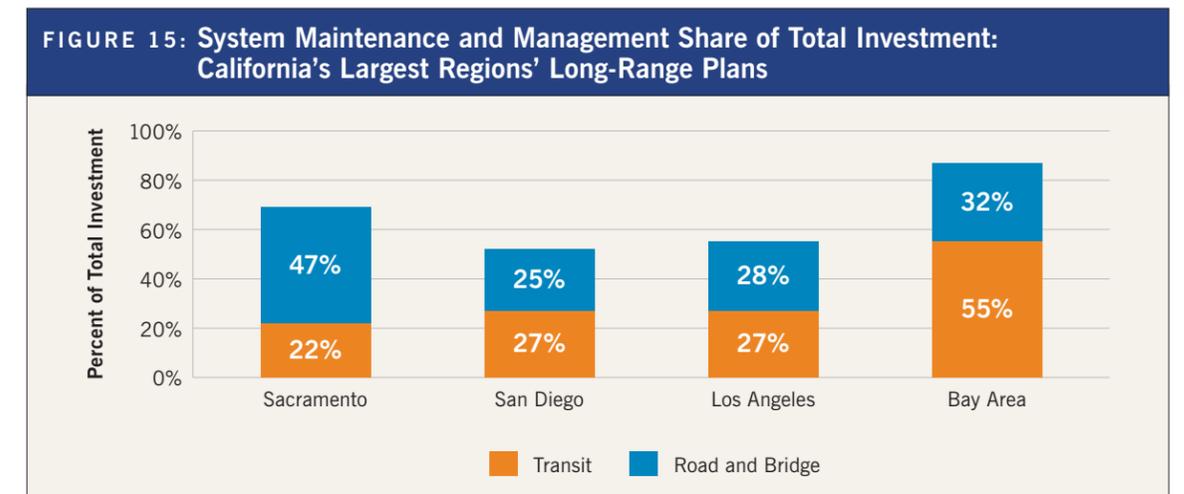
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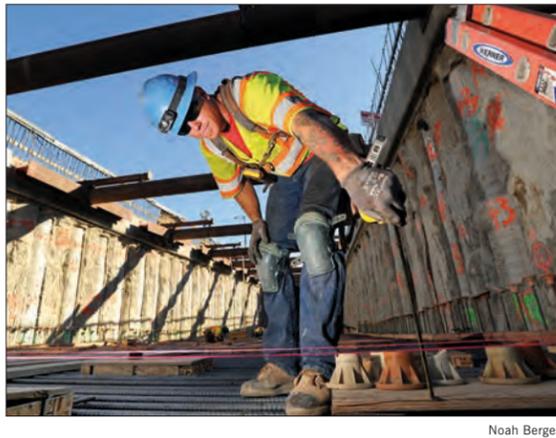
Investment Strategy 1 Maintain the Existing Transportation System

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 12. 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





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capital assets, repairing and replacing bridges, and maintaining complete streets. This includes complementary funding in the OneBayArea Grant investment strategy (see page 77) and County Investment Priorities strategy (see page 86).

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 15). 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.

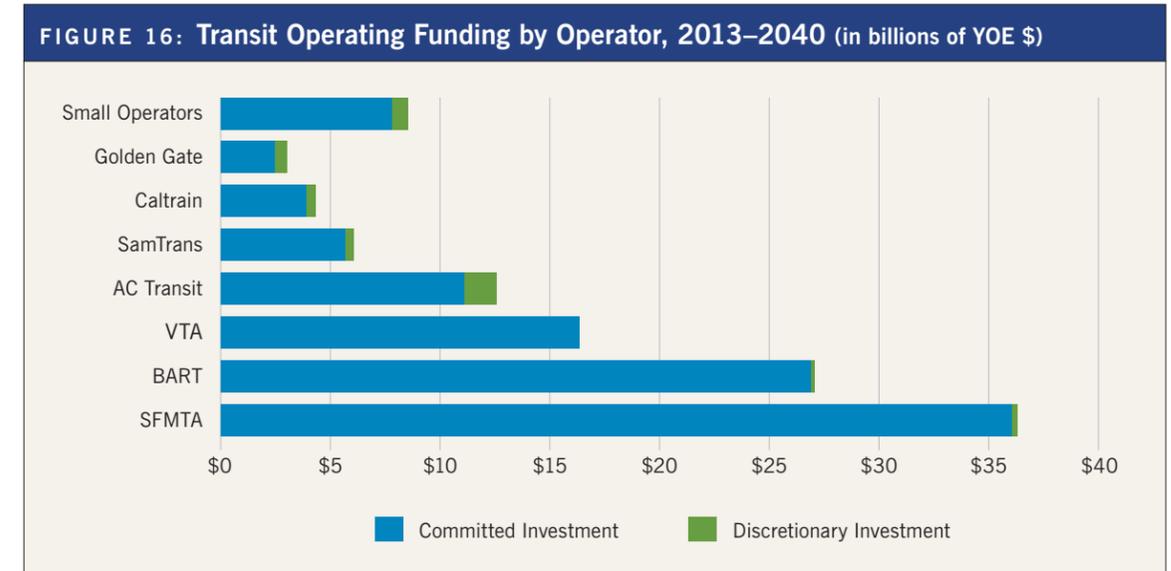
- Our region's greater reliance on rail services results in higher costs to maintain these capital-intensive modes. Plan Bay Area includes nearly \$3 billion for replacing BART's and Caltrain's aging fleets over the next decade.
- The Bay Area is relatively built-out compared to other newer, faster-growing 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.

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



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.

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 billion 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 revenues. 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 16, some transit agencies have operating needs that exceed the forecasted level of committed revenue — such as AC Transit, Golden Gate Transit, 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 assume a continuation of existing levels of service and also take into account 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, 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.

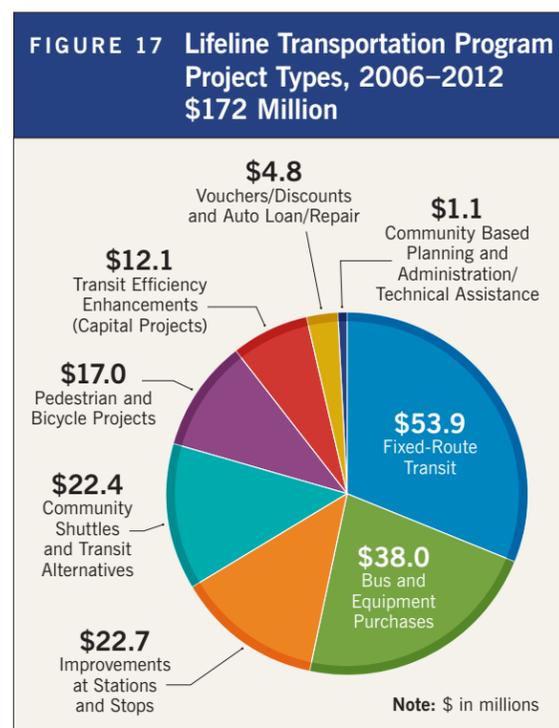
More information on the TSP can be found in Investment Strategy 4, "Boost Freeway and Transit Efficiency."

Lifeline Transportation Program Improves Mobility and Accessibility

Plan Bay Area reaffirms the importance of addressing the mobility and accessibility needs of seniors, persons with disabilities, and residents in low-income



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communities throughout the region. The plan adds approximately \$800 million in discretionary funding for MTC's Lifeline Transportation 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 projects to support high-need travelers. (See Figure 17.) In addition to

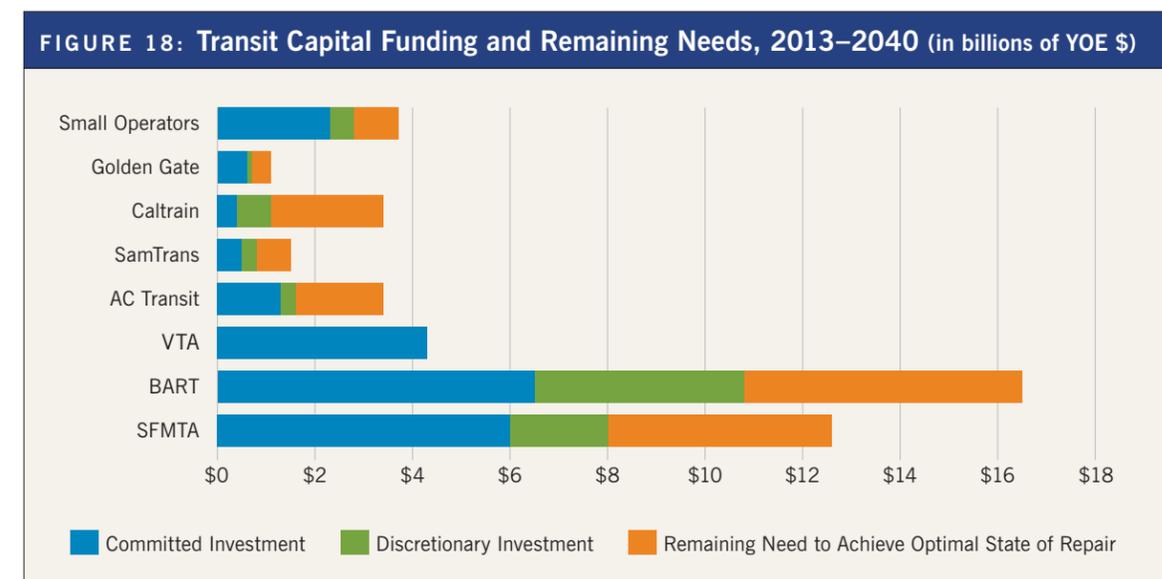
mobility management projects, Lifeline has invested in additional fixed-route transit, shuttles, and non-motorized safety and access improvements.

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 18.) In particular, a robust and efficient public transit network, anchored by expanded local service, is a linchpin of Plan Bay Area's land use strategy to promote future development around existing and planned transit nodes. The plan falls short in achieving two voluntary performance targets that are key indicators of a sustainable transit system: fully funded maintenance and state of good repair of existing capital assets; and transit operating funding necessary to meet the projected growth in non-auto mode share to 26 percent of all trips.

Consistent with MTC's Transit Capital Priorities Policy, high-priority transit capital investments include revenue vehicles (buses, railcars and ferries) — which are 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.

Nearly \$20 billion of the projected transit capital replacement and rehabilitation needs of the Bay Area's transit systems through 2040 are unfunded under the plan. Plan Bay Area will dedicate a significant portion of the revenue generated from Cap and Trade to these unmet transit needs. In addition, promptly after adoption of the plan, MTC will work with the region's operators and other stakeholders to develop a plan to address the gap in funding for transit capital replacement and rehabilitation needs, and to expand the funding available to support future increases in transit service.



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 guideway 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 OneBayArea 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 they 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 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



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maintain that roadway in good condition. Through the OneBayArea 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 19.

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 19. Chapter 6 discusses ways to pursue the revenues that will allow the region to meet its targets for roadway preservation.

Funding Active Transportation

Plan Bay Area makes a significant commitment to increase the convenience and safety of walking and bicycling by delivering complete streets for all

users. State Transportation Development Act (TDA) and local sales tax funds committed to bicycle and pedestrian improvements total \$4.6 billion during the plan period. In addition, the OneBayArea Grant program discussed in the next section includes \$14.6 billion over the life of the plan. These funds may be used for complete streets projects, including stand-alone bicycle and pedestrian paths, bicycle lanes, pedestrian bulb-outs, lighting, new sidewalks, and Safe Routes to Transit and Safe Routes to Schools projects that will improve bicycle and pedestrian safety and travel.

Investment in State Bridges

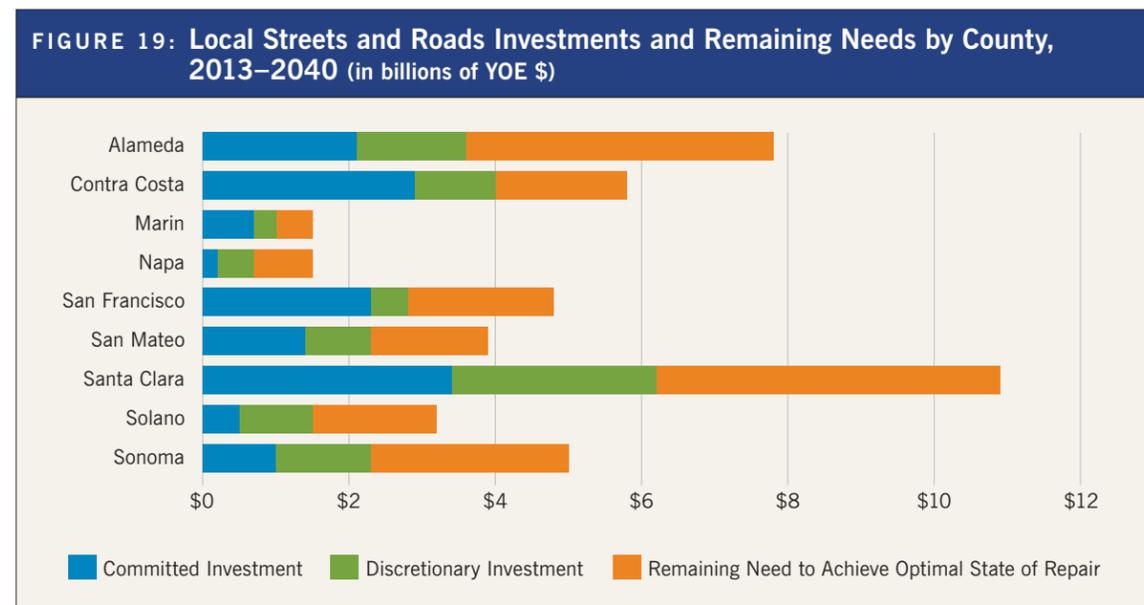
The bridges that span San Francisco Bay are critical transportation links for the region. It is vital to the economic health of the region and quality of life of its residents that these essential structures be kept in a state of good repair. Currently, existing toll revenues are used to strengthen, reinforce and maintain bridge structures and roadways on all of the seven state-owned Bay Area bridges; 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 the state’s economic vitality, linking people and goods with intermodal



“MTC’s new OneBayArea 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.”

— Senator Darrell Steinberg, *President Pro Tempore, California Senate*

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, MTC approved a new funding approach that directs specific federal funds to support more focused growth in the Bay Area. The OneBayArea Grant (OBAG) program 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.

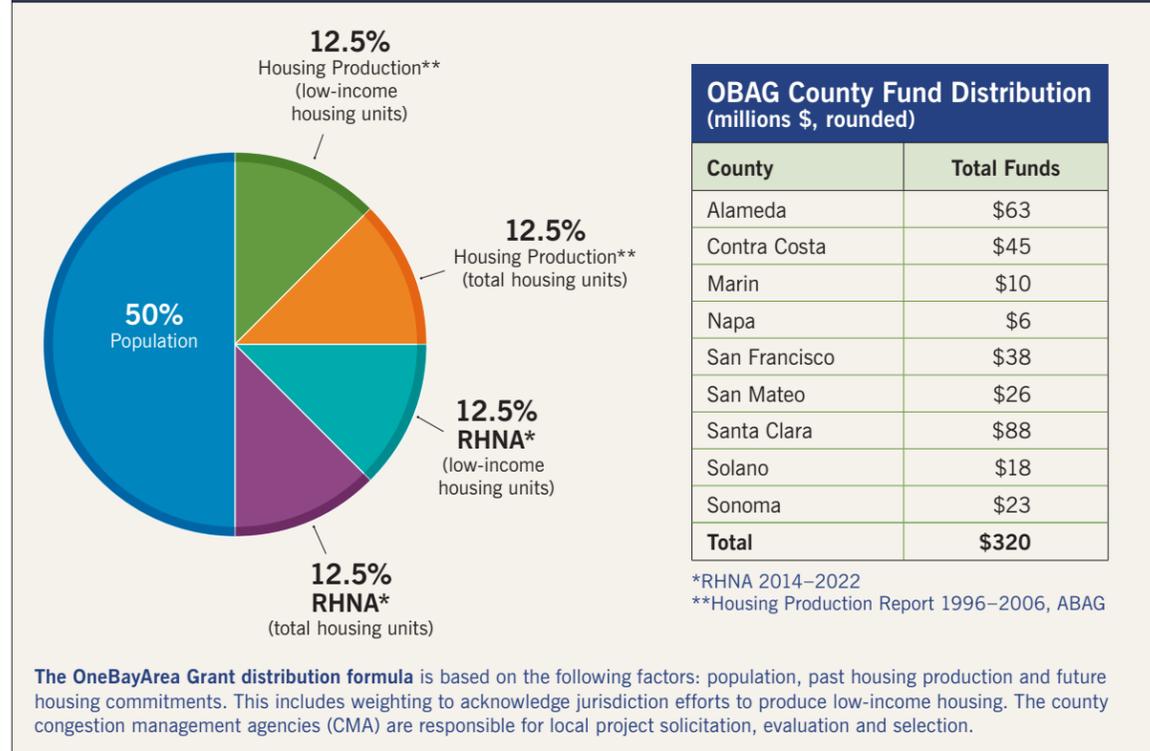
Focus on Priority Development Areas

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.

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.

FIGURE 20: OneBayArea Grant Distribution Formula: FY 2012–13 through FY 2015–16





Renee Goodard

A project lying outside the limits of a PDA may count toward 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 Development 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. TOAH will help finance affordable housing projects in transit-rich locations and target neighborhood-stabilization investments, including housing acquisition and rehabilitation, small-site acquisition and land banking in the region's PDAs. OBAG also includes \$30 million for the PDA Planning Program to assist cities and counties planning for employment and housing growth in their city centers and transit-served corridors. In addition, these funds will continue to facilitate the entitlement of affordable housing. 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 OneBayArea Grant Program will provide a solid platform to advance Priority Development Areas as walkable, amenity-rich "complete communities," and to protect our Priority Conservation Areas 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.

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.

TABLE 19: MTC Resolution 3434 Project Status

| Project | Project Cost* (in 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) | 493 | |
| 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 | 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 | 218 | Environmental Docs in Process |
| Downtown to East Valley; Light Rail & Bus Rapid Transit Phases 1 & 2 | 559 | |
| Caltrain Electrification | 785 | |
| Caltrain Express: Phase 2 | 427 | |
| Van Ness Avenue Bus Rapid Transit | 126 | |
| Tri-Valley Transit Access Improvements to/from BART | 168 | |
| AC Transit Enhanced Bus: Grand-MacArthur corridor | 41 | |
| Dumbarton Rail | 701 | |
| ACE Right-of-Way Acquisition for Service Expansion | 150 | |
| Capitol Corridor: Phase 2 Enhancements | 254 | |
| Total | \$18,121 | |

*Full project cost may not be included in Plan Bay Area.

TABLE 20: New Starts and Small Starts – Plan Bay Area “Next Generation” Projects
(in millions of YOE \$)

| Project | Cost | Previously Committed Funding | New Starts/ Small Starts | Other Funding from Plan Bay Area |
|--|----------------|------------------------------|--------------------------|----------------------------------|
| BART: Berryessa to San Jose/ Santa Clara | \$3,962 | \$1,355 | \$1,100 | \$1,507 |
| Transbay Transit Center/Caltrain Downtown Extension: Phase 2 | 2,596 | 639 | 650 | 1,307 |
| AC Transit Enhanced Bus/BRT: Grand-MacArthur corridor | 41 | 0 | 30 | 11 |
| Van Ness Avenue Bus Rapid Transit Project | 126 | 66 | 30 | 30 |
| AC Transit Berkeley/Oakland/ San Leandro Bus Rapid Transit | 218 | 179 | 28 | 11 |
| New Starts and Small Starts Reserve | 660 | — | 660 | — |
| Total | \$7,603 | \$2,239 | \$2,498 | \$2,866 |

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 (see Table 19), creating a unified regional strategy to secure commitments from this highly competitive national funding source. 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 20. 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 assessments of feasible alternatives, evaluation for cost-effectiveness, and for performance against MTC’s 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.



Bill Hall, Caltrans

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.

TABLE 21: Freeway Performance Initiative

| Program Elements | Description & Benefits |
|--|--|
| Ramp Metering | Activate 300 additional ramp-metering locations on freeways. |
| Intelligent Transportation Systems Infrastructure | Install and maintain traffic cameras, changeable message signs, speed sensors and other related infrastructure to improve travel-time reliability on freeways. |
| Arterial Operations | Implement traffic signal coordination, transit-priority timing and incident/emergency clearance 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. |
| Operations & Maintenance | Maintain existing and future arterial and freeway technology improvements. |

Freeway Performance Initiative

Plan Bay Area supports MTC's Freeway Performance Initiative (FPI), which is designed to maximize the efficiency and improve the operations and safety of the existing freeway, highway and arterial network.

Owing to investments made through the Transportation 2035 Plan, FPI expanded the number of metered ramps throughout the Bay Area, directly resulting in reduced travel times and improved safety on major freeway corridors while managing the impact on local arterial 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 implement the FPI.



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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 22.) These busy routes offer the potential to improve service quality, speed, and reliability, ultimately reducing travel times and increasing ridership.

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.



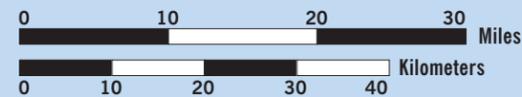
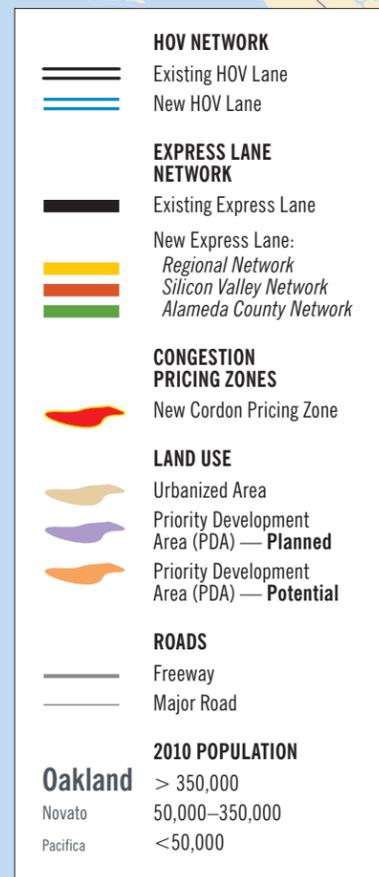
Noah Berger

In October 2011, the California Transportation Commission (CTC) approved MTC's plan to add 270 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.

TABLE 22: Transit Performance Initiative Investments – Spring 2012

| Sponsor | Project | Investment (millions \$) |
|------------|---|--------------------------|
| AC Transit | Line 51 Corridor Speed Protection and Restoration | \$10.1 |
| SFMTA | Mission Customer First | \$7.0 |
| SFMTA | N-Judah Customer First | \$3.7 |
| SFMTA | 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 |

MAP 8 Road Pricing Improvements



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

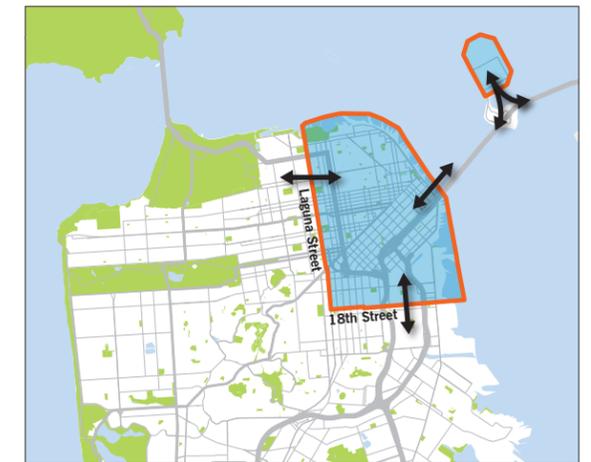
The goals of the Regional Express Lane system remain the same as they were in the Transportation 2035 Plan:

- **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.

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.

All project-level environmental clearances will comply with applicable requirements for environmental justice, and focused outreach will be conducted with low-income communities as part of the express lane network development and implementation. Furthermore, MTC will study the potential benefits and impacts of converting general purpose lanes to express lanes in order to inform implementation of the express lane network.

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



Proposed congestion pricing locations in downtown San Francisco and Treasure Island.

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.



London congestion pricing The Guardian UK

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 are closely aligned with the 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 OneBayArea Grant, Build Next Generation Transit, and Freeway and Transit Efficiency strategies. The county programs also include complete streets programs that will deliver substantial bicycle and pedestrian improvements. Figure 21 summarizes the counties' investment priorities; more details can be found in the Online Project Database, listed in Appendix 1.

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

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

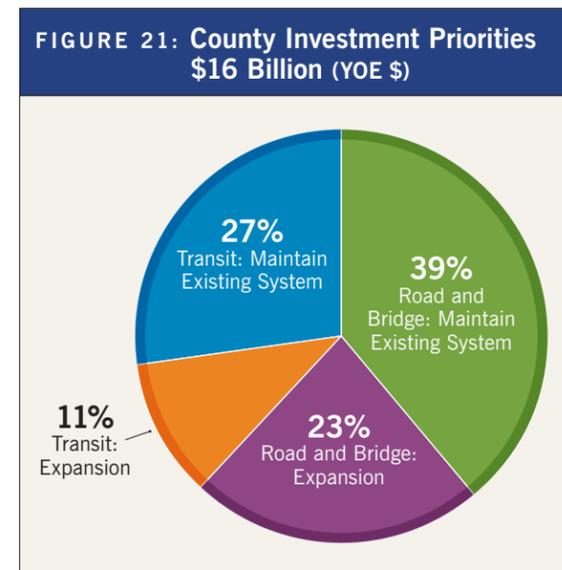


TABLE 23: Summary of Climate Initiatives Program

| Policy Initiative (from most to least cost-effective) | Cost (in millions of YOE \$) | Per Capita CO ₂ Emissions Reductions in 2035 |
|---|---------------------------------|---|
| Commuter Benefit Ordinance | \$0 | -0.3% |
| Car Sharing | \$13 | -2.6% |
| Vanpool Incentives | \$6 | -0.4% |
| Clean Vehicles Feebate Program | \$25 | -0.7% |
| Smart Driving Strategy | \$160 | -1.5% |
| 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 | -6.3% |

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 by 2020 and 15 percent by 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 23.

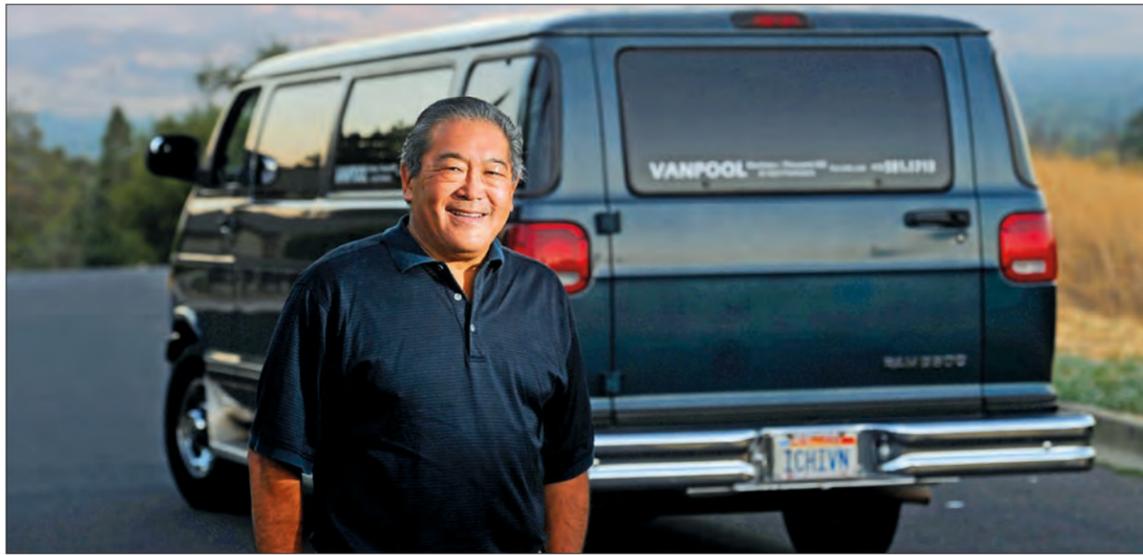
Commuter Benefit Ordinance

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 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 minutes 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.



Noah Berger

Vanpool Incentives

The Bay Area has had an organized vanpool program since 1981. Currently managed by local, 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. Encouraging more people to participate in the vanpool program can help to remove personal cars from crowded freeways and reduce 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.

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

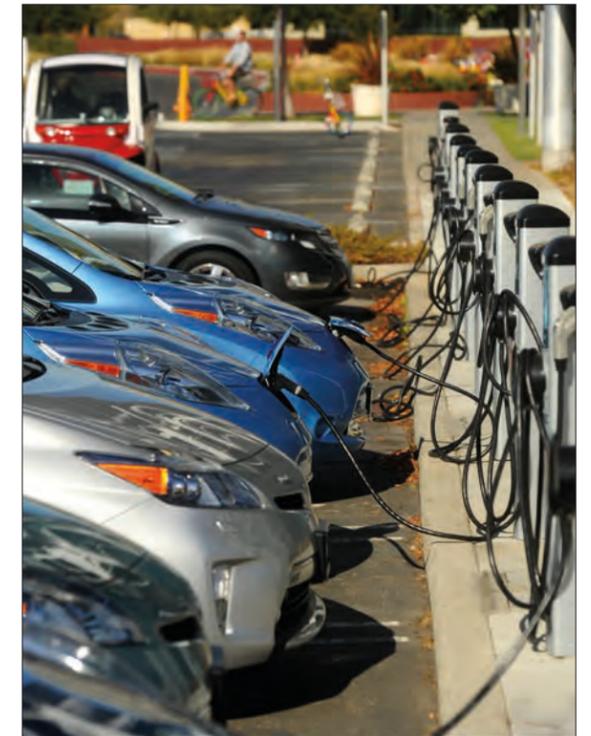
While the federal government and the state are offering incentives for the purchase of electric vehicles, most EVs still cost more than many gas vehicles at the time of purchase. Typically when consumers buy new cars, their older, less-efficient vehicles are re-sold rather than being removed from the 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 of a new plug-in hybrid or electric vehicle.

Regional Electric Vehicle Charger Network

BAAQMD, in partnership with regional and local partners, and auto manufacturers and service providers, is 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 this initiative with 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.



Noah Berger

Climate Initiatives Innovative Grants

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



Peter Beeler

Key Transit and Road Improvements

The following maps show priority transit and road projects from the Plan Bay Area 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.



Caltrain

Peter Beeler

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

* 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.



Future Oakland Airport Connector

BART



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 Avenue, Broadway, SR-92, Woodside Road, Willow Road and Oregon Expressway
- 5 New Interchanges at: Zanker Road/Skyport Drive and Mabury Road/Taylor Street

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 Avenue, 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 Street, 23rd Avenue, 29th Avenue, A Street, 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 Avenue 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 Street Interchange Improvements

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

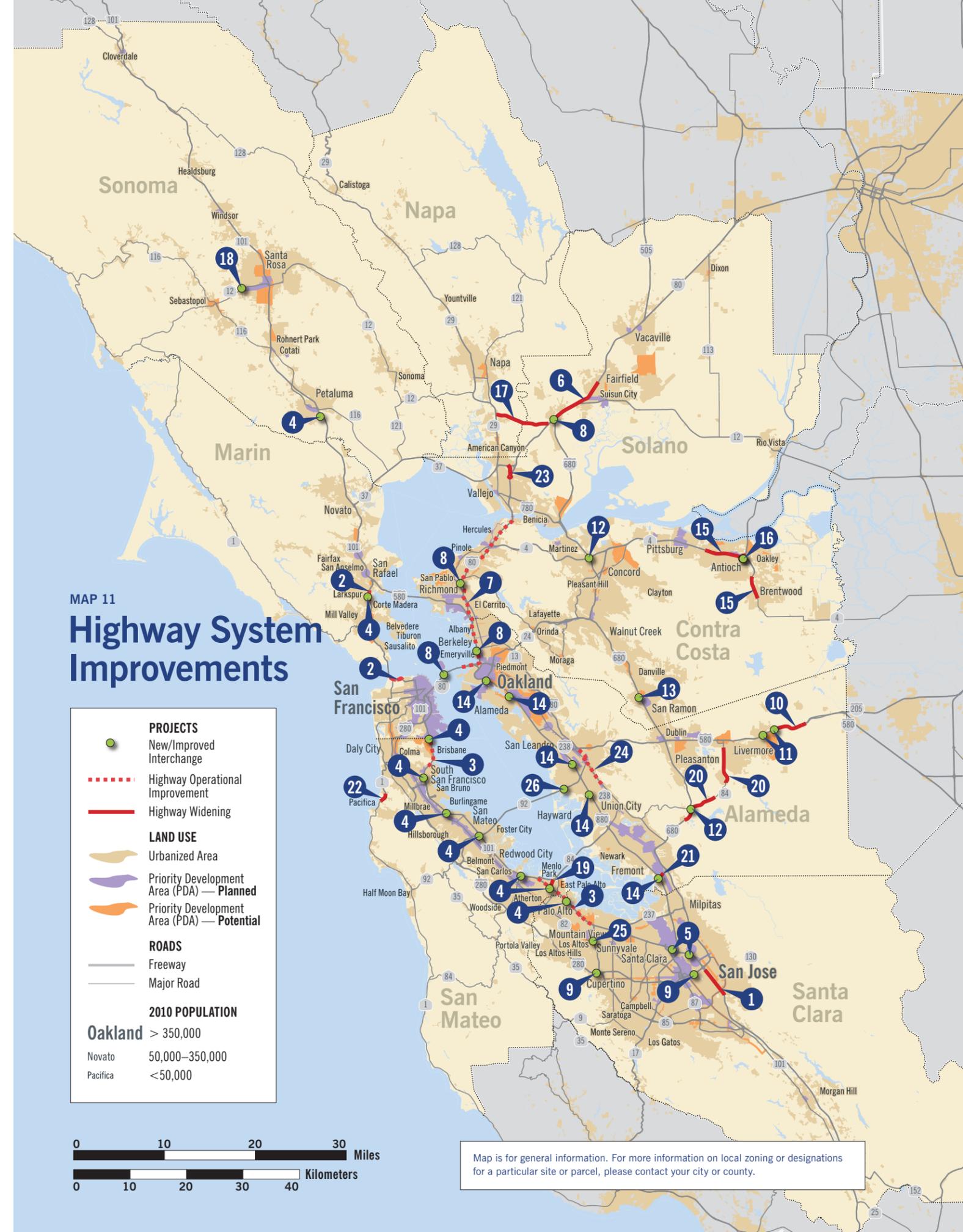


TABLE 24: Plan Bay Area Investment Strategy Summary – Discretionary Revenues
(in billions of YOE \$)

| Strategy | Investment | % of Total |
|---|-------------|-------------|
| 1 Maintain Our Existing System | \$15 | 25% |
| 2 Build Next Generation Transit* | \$7 | 12% |
| 3 Boost Freeway and Transit Efficiency | \$4 | 7% |
| 4 Support Focused Growth – OBAG | \$14 | 23% |
| 5 County Investment Priorities | \$16 | 27% |
| 6 Protect Our Climate | < \$1 | 1% |
| 7 Reserve | \$3 | 5% |
| Total | \$60 | 100% |

*Includes \$2 billion in funds retained for future New/Small Starts and High-Speed Rail projects.

Summary

The investment strategies for the \$60 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 24 above summarizes the investment strategies and their respective funding levels of discretionary revenue in Plan Bay Area.

Plan Bay Area also sets a path for the region to participate in and inform the California Transportation Plan (CTP 2040). This plan, scheduled for completion by the end of 2015, will integrate regional planning efforts from around the state into a comprehensive plan. CTP 2040 will address the state’s mobility, reduce greenhouse gas emissions from the transportation sector, and define performance-based goals, policies and strategies to plan, enhance and sustain California’s statewide, integrated, multimodal transportation system.



Vallejo Transit Center

Karl Nielsen

5

Performance



Noah Berger

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.

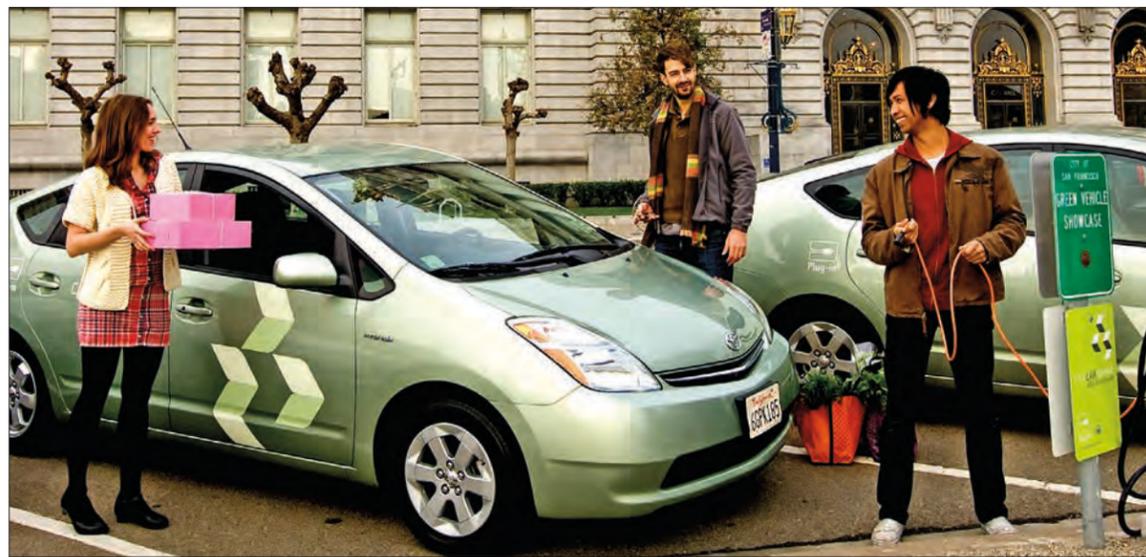
At the same time, Plan Bay Area struggles to achieve many of the region's ambitious voluntary targets. Thanks to investments in transportation alternatives, the plan moves in the right direction when it comes to increasing active transportation and reducing the number of automobile miles driven per capita, though it falls short of the "aspirational" goals set in these areas. While the 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.

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 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 Plan Bay Area performs. (See Chapter 1 for background on the performance targets.) Given the plan's 2040 horizon year, target results reflect year 2040 performance in comparison to year 2005 baseline conditions, unless noted.

Additional analysis of target performance can be found in the Performance Assessment Report, listed in Appendix 1.

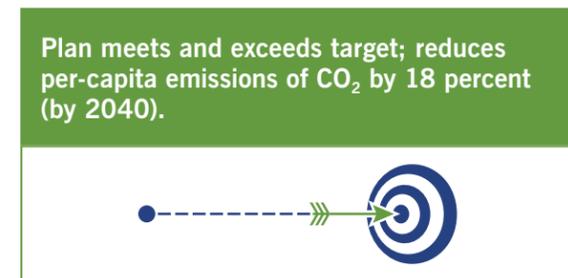


Kit Morris

Required Performance Targets

Climate Protection

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



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.

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 plan leads to a 16 percent per-capita reduction (surpassing the 15 percent target), and for 2020, the 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 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.



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



MTC Archives

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:

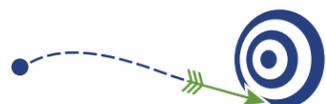
Target #3a:
Reduce premature deaths from exposure to fine particulates (PM_{2.5}) by 10 percent.

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.



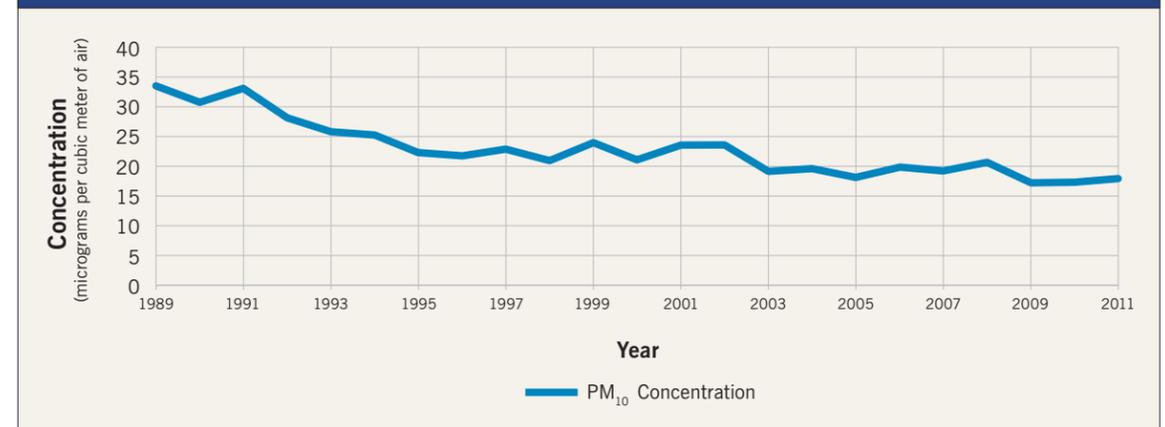
Particulate matter (PM) consists of very small particles that can pass through the throat and nose and into the lungs, and may even enter the bloodstream. Over time this can affect the heart and lungs and lead to serious health effects such as heart attacks or asthma, and can even contribute to premature 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 Bay Area traffic — primarily, to clean up truck

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.

FIGURE 22: Bay Area Annual Mean PM₁₀ (Quarterly Averaged, 9-site Mean, 1989–2011)



Source: Bay Area Air Quality Management District

engines and fuel, the chief sources of particulate emissions. New regional and state regulations are expected to reduce 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 22), 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.

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

toward 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).

Plan moves in opposite direction from target; injury and fatality collisions are projected to increase during plan period by 18 percent.



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 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 plan allocates funding.



John J. Kim

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).



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 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.



YinYang, iStock

Unfortunately, while these investments will boost the amount of time individuals spend 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).



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, 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 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 disproportion-



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ately 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 increases 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.



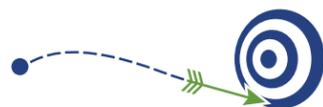
Peter Beeler

Transportation System Effectiveness

Increase Non-Auto Mode Share and Reduce VMT per Capita

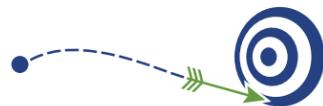
Target #9a:
Increase non-auto mode share by 10 percentage points (to 26 percent of trips).

Plan boosts non-auto mode share to 20 percent of trips, but falls short of target.



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.



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.

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.

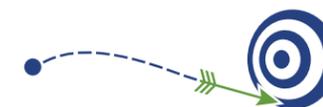
This shift, when combined with reduced average distances between home, work and retail locations, also leads to a reduction in per-capita VMT. The average Bay Area resident traveled about 22 miles by car on a typical weekday in 2005; by 2040, the average resident is expected to travel only 20 miles per 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.

Maintain the Transportation System in a State of Good Repair: Local Road, Highway and Transit 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 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).



Sergio Ruiz

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 a 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 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.



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.



Sergio Ruiz

Summary of Performance

TABLE 25: 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. | |

Table continues on following page

TABLE 25: Results of Plan Bay Area Target Assessment *(continued)*

| 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, Plan Bay Area 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 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.



Noah Berger

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 for 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

TABLE 26: Results of Plan Bay Area Equity Analysis, 2010–2040

| | Equity Performance Measure | Target Population | 2010 | 2040 (Baseline Forecast) | 2040 (Plan Bay Area) |
|---|---|------------------------|-------|--------------------------|----------------------|
| 1 | Housing and Transportation Affordability Percentage 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 Percentage 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 |

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. 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.



Peter Beeler



Evelyn Johnson

to receive key funds, and sets forth a requirement for PDA Investment and Growth Strategies that will examine key housing policy issues.

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 26.

More information and detailed results, including all other alternatives studied, are included in the Plan Bay Area Equity Analysis Report listed in Appendix 1.



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 for 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 23 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 27, most of the high-performing projects in the region are focused on leveraging existing assets and improving their efficiency.



Sergio Ruiz

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.

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 plan. The handful of low-performing projects that remain in the 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 plan.

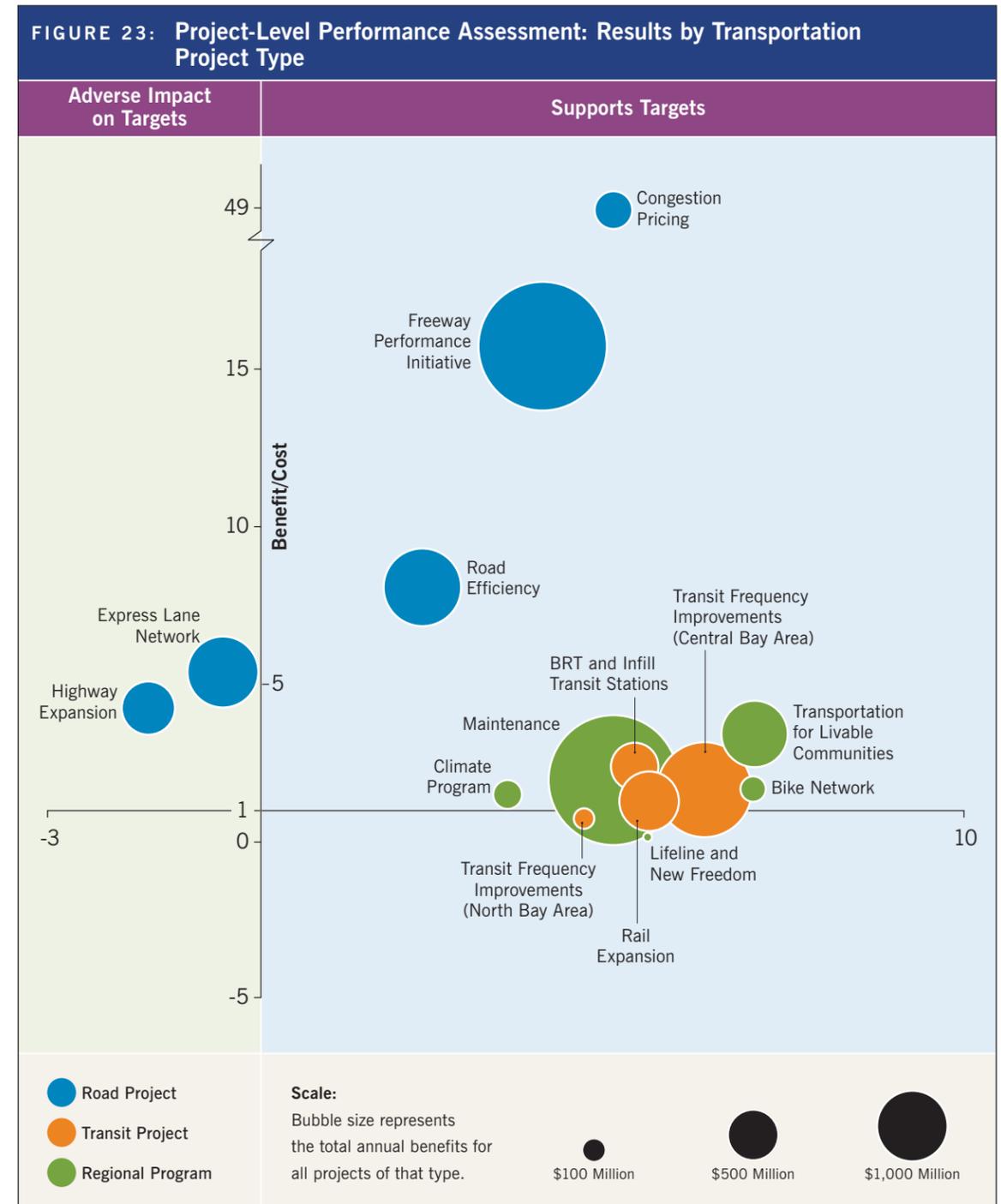


TABLE 27: Highest-Performing Transportation Projects, Ranked by Benefit/Cost (B/C) Ratio and Target Score

| | Project Name | County | Benefit/Cost 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. |

*Project costs as analyzed (in year of expenditure \$).

6

A Plan to Build On



Karl Nielsen

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

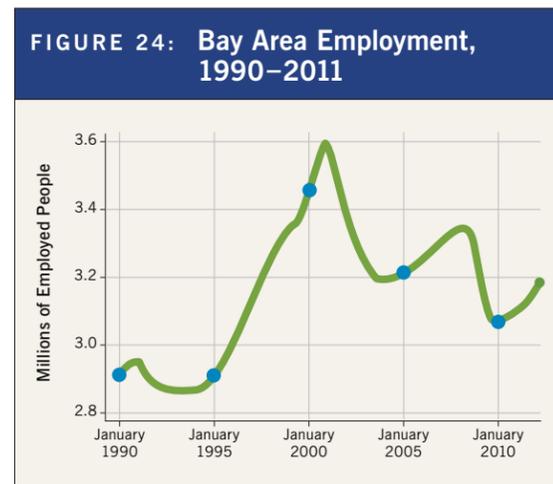
The Bay Area economy has seen massive swings in employment over the last 20 years. While job growth is once again on the rise, MTC and ABAG — through the Joint Policy Committee in partnership with the Bay Area Air Quality Management District (BAAQMD) and the San Francisco Bay Conservation and Development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

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, including supporting community engagement throughout the planning process.

Improve the Bay Area's Economic Prosperity

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.



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

Environmental Protection Agency and the U.S. Department of Transportation. The initiative — the Bay Area Regional Prosperity Plan — 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. Recommended strategies from this effort will be considered by MTC and ABAG in implementing Plan Bay Area and as input to the update of the plan.

In addition to the Prosperity Plan, Bay Area economic development organizations are preparing strategies to strengthen the regional economy. MTC and ABAG will consider these two efforts and conduct additional research to identify job creation and career pathway strategies including local best practices on apprenticeship programs, and local hire and standard wage guidelines. This research

can be utilized in the implementation of the current Plan Bay Area, shared with local jurisdictions in the Bay Area and considered for the next update of Plan Bay Area.

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 hous-

ing 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. Regional agencies will also develop land use guidelines for growing industries, as well as place-based strategies to support the growth of different types of PDAs and job centers, including small towns, mixed-use corridors and existing office parks.

More information is available in the Economic Impact Analysis for Future Regional Plans, listed in Appendix 1.

Goods Movement and Industrial Land, and Inter-Regional Coordination

The nine-county Bay Area is closely connected with its adjacent counties and metropolitan areas. Alameda, Solano, Contra Costa and Santa Clara counties are especially affected by decisions in neighboring counties outside of the nine-county Bay Area related to inter-regional commuting and land use patterns, housing needs and job access. ABAG and MTC recognize the need to encourage more coordinated planning and, in some cases, more coordinated state and local investment strategies to ensure that the Bay Area's inter-regional challenges



Tom Tracy

are adequately addressed. ABAG and MTC will work with local jurisdictions and the county congestion management agencies to advance coordinated planning and modeling efforts with neighboring metropolitan planning organizations such as SJCOG (San Joaquin), SACOG (Sacramento), and AMBAG (Monterey/Santa Cruz).

The movement of freight, and the protection of production and distribution businesses, have important environmental, economic and equity implications for the region. The region is home to the fifth-busiest maritime port in the nation, the Port of Oakland, which serves not only Bay Area residents and industries but also provides a critical link to national and international markets for North Bay and Central Valley agriculture.



Port of Oakland

MTC's *Regional Goods Movement Study*, last updated in 2009, found that manufacturing, freight transportation and wholesale trade account for nearly 40 percent of regional output, and that Bay Area businesses spend over \$6.6 billion on transportation services. Goods movement businesses also create over 10 percent of regional employment, including many high-paying blue- and green-collar jobs accessible to those without higher levels of education. However, continued land development pressure is placing many industrial and manufacturing land uses at risk, and the activities at these places could shift to other locations, as documented in MTC's 2008 *Goods Movement/Land Use Study*. MTC and ABAG will work with the business community and local jurisdictions and stakeholders to explore economic development best practices for goods movement and industrial businesses, and to identify funding to assess the role of goods movement businesses and industrial land in the regional economy.

Air quality considerations related to goods movement activities are an important part of the larger goods movement and industrial lands discussions. The Bay Area Air Quality Management District manages a number of programs related to goods movement, including initiatives to support cleaner trucks within the region, and specifically at the Port of Oakland.

MTC is currently working with Caltrans District 4 and county congestion management agencies to update the information from the 2004 and 2009 studies and to identify key goods movement issues for the region to address in the coming years. This work will help inform the region's input to the California Freight Mobility Plan and implementation of the newest federal transportation bill, MAP-21, which addresses the performance of the national freight network and supports investment in freight-related surface transportation projects.



David Baker + Partners, Architects

In addition to the regional analysis conducted for Plan Bay Area, MTC and ABAG will undertake sub-regional studies (e.g. Solano County, Tri-Valley) to analyze goods movement at a more local level, including truck flows on I-80, I-580 and I-880 corridors, and passenger (Capitol Corridor, ACE) and freight rail. These studies will be conducted in coordination with local jurisdictions, CMAs and the Bay Area Air Quality Management District, as appropriate.

Increase Housing Choices and Community Stability

To achieve the goals of Plan Bay Area — to retain and improve the region's quality of life, accommodate future growth and strengthen the economy by providing homes for a diverse workforce — the region must retain and increase the availability of affordable housing and support the vitality of our existing neighborhoods. Priority Development Areas (PDAs) provide a policy framework that can support investments and stability in disadvantaged communities, as well as encourage housing production in communities with access to employment and educational opportunities based on regional and local collaboration.

Affordable Housing

The loss of local redevelopment funding, combined with reduced funding at the state and federal level, has created a structural financing gap that reduces affordable housing production that would otherwise occur. Given housing production costs in the Bay Area and the complexity of building in locations near transit, additional resources are needed to preserve, rehabilitate and construct new affordable homes.

Plan Bay Area aligns funding from the new One-BayArea Grant (OBAG) program with PDAs and the development of housing including affordable housing in PDAs. The OBAG program requires that 50 to 70 percent of funding, depending on the county, be invested in PDAs. To be eligible for OBAG funding, all local jurisdictions must have certified housing elements, and congestion management agencies are required to develop PDA Investment and Growth Strategies that include a consideration of housing affordability and affordable housing policies. The plan links funding from an expanded Transit-Oriented Affordable Housing (TOAH) loan fund to PDAs, and identifies transit-oriented affordable housing as an eligible use for Cap and Trade revenues. This funding can effectively leverage local



Noah Berger

government, private and foundation resources. Production, acquisition and rehabilitation of affordable housing also will require local planning and entitlement processes that support this effort. Provision of incentives for local jurisdictions and coordination with congestion management agencies (CMAs) will be essential. MTC and ABAG will continue to use PDA Planning Grants to facilitate the entitlement of affordable housing in transit corridors. Through the Bay Area Regional Prosperity Plan, the regional agencies are working with a consortium of local jurisdictions and community-based organizations to identify strategies and pilot projects to build different types of housing and identify new alternative housing funds.

Potential for Displacement

The plan addresses the potential for displacement by increasing resources for the creation and preservation of affordable housing, and improving economic opportunities for current residents. The

task is to support investments in low-income neighborhoods that can expand the range of services and amenities, and provide economic opportunity to local workers.

Local and regional initiatives will need to recognize the unique qualities of individual neighborhoods and the need for locally defined policy interventions. ABAG and MTC will work with local and county agencies to provide a menu of neighborhood stabilization and anti-displacement policies where a jurisdiction deems necessary, as well as affordable housing policies for consideration relative to future funding opportunities. MTC and ABAG also will link OBAG funding to jurisdiction-level approval of affordable housing planning, production, acquisition and rehabilitation. Best practices from the HUD-funded Bay Area Regional Prosperity Plan, including capacity building, knowledge sharing, policy development and funding, will be an important source of input to inform future programs.

Cleaning Our Air

Healthy Infill Development

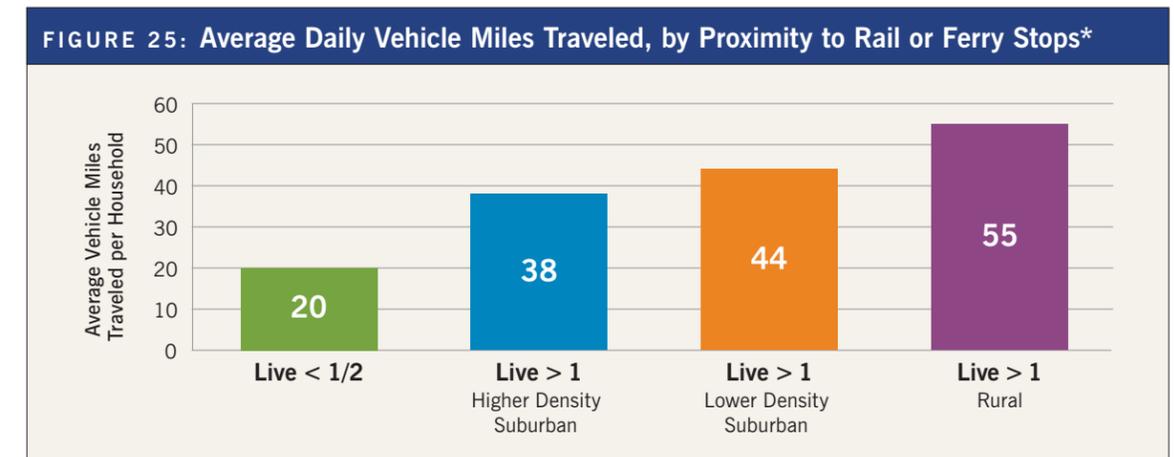
One of the main goals of both Plan Bay Area and the Bay Area Air Quality Management District's 2010 Clean Air Plan is to reduce greenhouse gas emissions from cars and trucks by focusing future land development in existing urban areas that are easily accessible to transit, jobs, shopping and other services. Compact infill development can reduce vehicle use and vehicle miles traveled by 20 to 60 percent when compared to traditional suburban developments. (See Figure 25.) 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 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.



*Distance in miles from rail or ferry stops

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.



Google

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.



Noah Berger

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.

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.



Lyft

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, WeGo Rideshare and Sidecar, alongside other services such as Uber that utilize excess capacity from livery car companies, have effectively increased the region's ridesharing capacity through crowd sourcing. All four companies use smart phone technology to connect vehicles to riders, and in the case of Lyft, WeGo Rideshare and Sidecar, anyone with a private vehicle and a clean driving record can sign up to be a driver.

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 and 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.
- 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 13). 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

The San Francisco Bay Area is especially vulnerable to future sea level rise.

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 in harm's way.

Earthquake Mitigation and Recovery

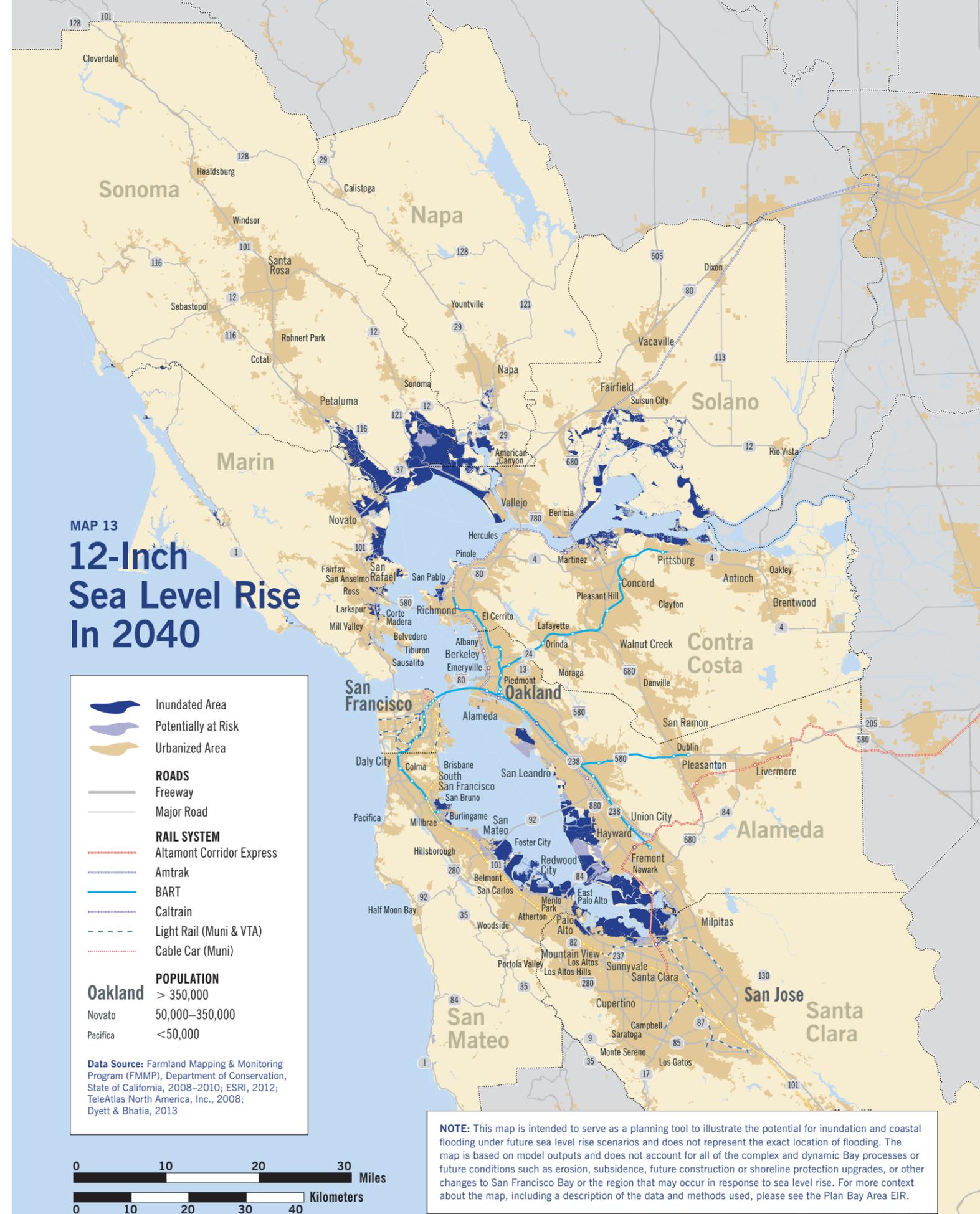
Plan Bay Area seeks to provide more housing options to accommodate our growing region. Yet we are also aware that some of the region's existing housing stock is vulnerable to damage in an earthquake. The United States Geological Survey

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.



Damage from the 1989 Loma Prieta earthquake in San Francisco's Marina District

USGS



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.

Regional Open Space and Agricultural Land Preservation

Plan Bay Area sets the stage for the integration of land use, open space and transportation planning by focusing growth and investment in Priority Development Areas, and by seeking to protect habitat, recreational and agricultural land in Priority Conservation Areas (PCAs). Regional efforts include a \$10 million pilot program to support transportation and conservation projects aimed at protecting PCAs (part of the OneBayArea Grant program). Open space preservation and agricultural vitality remain long-term challenges that will require a continued commitment to regional coordination.

Following adoption of Plan Bay Area, ABAG will update the PCA guidelines to further define the role of different kinds of PCAs to support habitat, agriculture, recreation and other ecological functions. Updates to individual PCAs will be made in consultation with local jurisdictions. ABAG and MTC will draw upon best practices and lessons learned

from the OBAG PCA Pilot Program as well as the resources of open space agencies, local jurisdictions, state and county farm bureaus, non-profit organizations, foundations, and state and federal agencies.

The California Coastal Trail (CCT) is a network of public trails for walkers, bikers, equestrians, wheelchair users and others along the 1,200-mile California coastline. Many of the CCT segments in the Bay Area overlap with the region's Priority Conservation Areas (PCAs) and will be considered in ABAG's update of the PCA guidelines.

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



Tom Meyers

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 toward 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.

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.

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 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

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).

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 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 26).

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



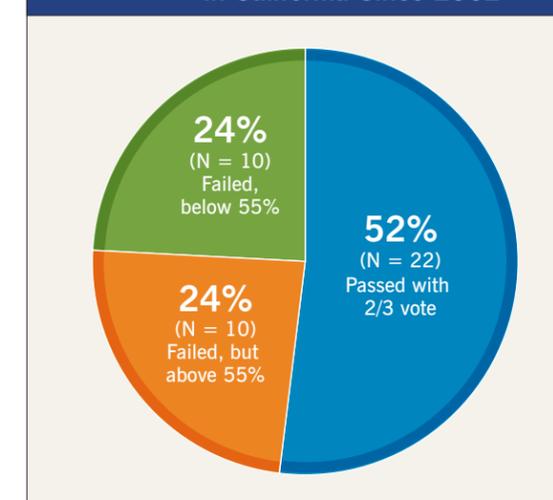
their transportation sales tax measure; with 66.53 percent of voters supporting the measure, it fell short of passage by a mere 0.14 percent. A 55 percent voting standard also could aid the passage of a regional gasoline tax that MTC is already authorized to place on the ballot.

Seek Reliable Federal Transportation Funding Levels and Flexibility

Over the last 50 years transportation funding has been characterized by a federal/state/local partnership. And whether it be 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

FIGURE 26: Missed Opportunities: Local Transportation Measures in California Since 2002



Source: Move LA

Local Transportation Revenues: Bay Area Experience

It has been nearly three 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 twice has failed to meet 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.



Noah Berger

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.

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.