APPENDIX A – 46

2015 TIP Detail

Financial Plan

Plan Bay Area Chapter 4: Investments

Plus Supplementary Reports

- **Final Financial Assumptions, July 2013**
- **Final Local Street and Road Needs and Revenue Assessment, July 2013**
- **Final Transit Operating and Capital Needs and Revenue Assessment, July 2013**

4

Investments

Noah Berger

San Francisco-Oakland Bay Bridge, East Span

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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.

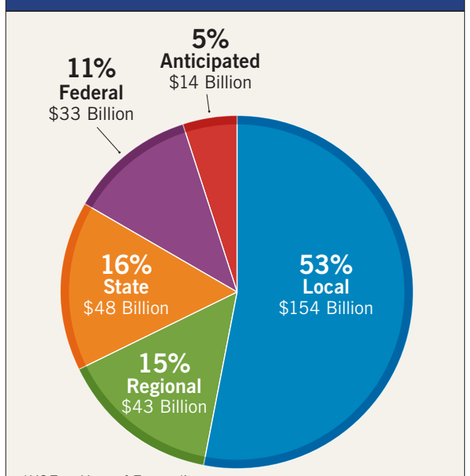
How to best support the expected growth in jobs and housing over the next quarter-century? How much do we invest to maintain, expand and improve the efficiency of our regional transportation system, when the needs exceed available revenue? How should we weigh specific project performance characteristics 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.

FIGURE 11 Revenue Forecast $292 Billion (YOE $)*



*YOE = Year of Expenditure

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 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.

Karl Nielsen

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.

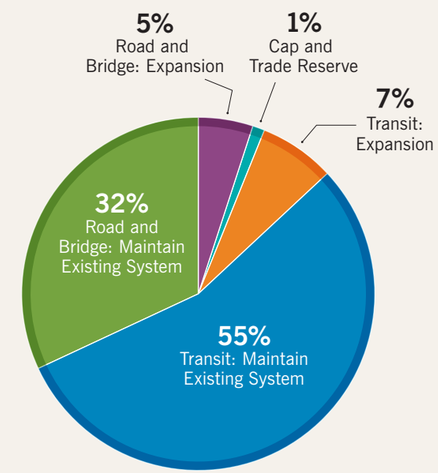
Plan Bay Area Investments—Committed and Discretionary Funds

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.

FIGURE 12 Total Investments* by Function $292 Billion (YOE $)



*Committed and discretionary

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 pedestrian projects and programs are included with road maintenance and expansion due to the region's policies to ensure roads are built or modified to be accessible for all users, so-called "complete streets."

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

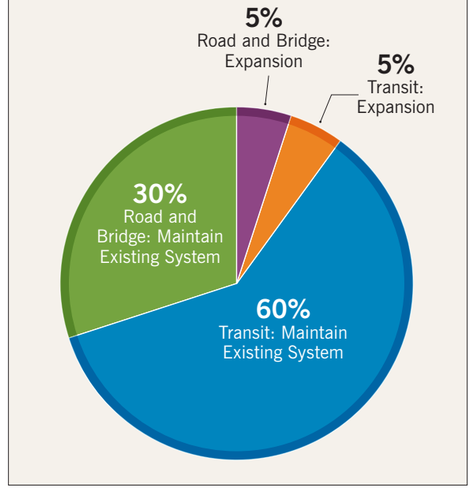
Function	Committed	Discretionary	Total
Transit: Maintain Existing System	$139	$20	$159
Road and Bridge: Maintain Existing System	$69	$25	$94
Transit: Expansion	$13	$8	$21
Road and Bridge: Expansion	$11	$4	$15
Cap and Trade Reserve	$0	$3	$3
Total	**$232**	**$60**	**$292**

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-Marin Area Rail Transit (SMART) Initial Operating Segment from Santa Rosa to San Rafael; and the Caldecott Tunnel Fourth Bore project.

FIGURE 13 Committed Investments $232 Billion (YOE $)



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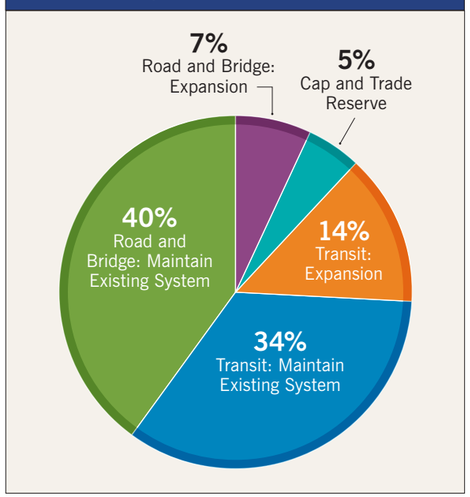
The allocation of committed funds supports growth in our established rural, suburban and urban communities by directing 90 percent of these funds to the region's existing transit and road systems as shown in Figure 13. These investments, totaling more than $200 billion of the committed funds, ensure 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.

FIGURE 14 Discretionary Investments $60 Billion (YOE $)



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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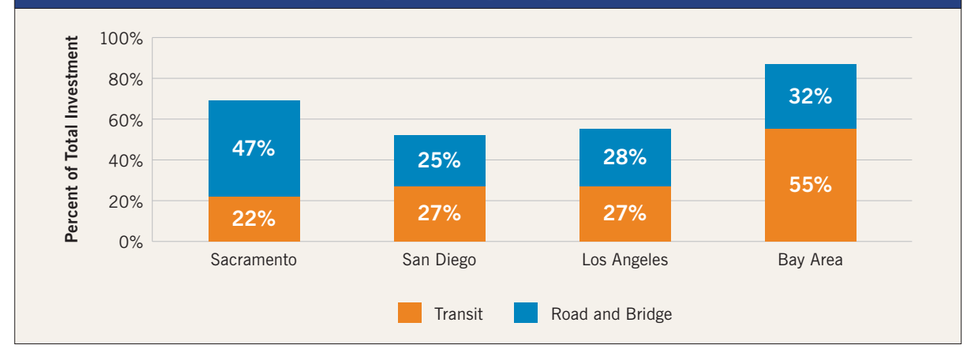
Investment Strategy 1 Maintain the Existing Transportation System

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

FIGURE 15: System Maintenance and Management Share of Total Investment: California's Largest Regions' Long-Range Plans



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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

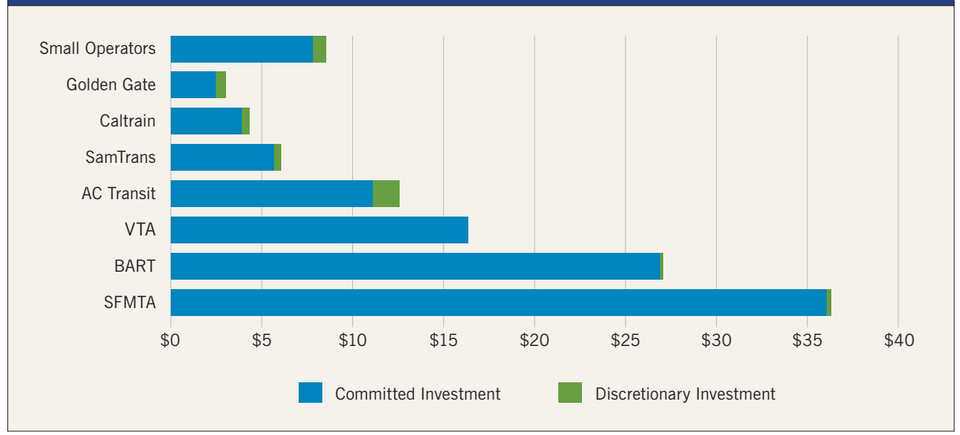
Operating and Maintaining Transit: A Key Challenge

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.

TABLE 18: Plan Bay Area Transit Investment Strategy (in billions of YOE $)

	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**

FIGURE 16: Transit Operating Funding by Operator, 2013–2040 (in billions of YOE $)



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 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.

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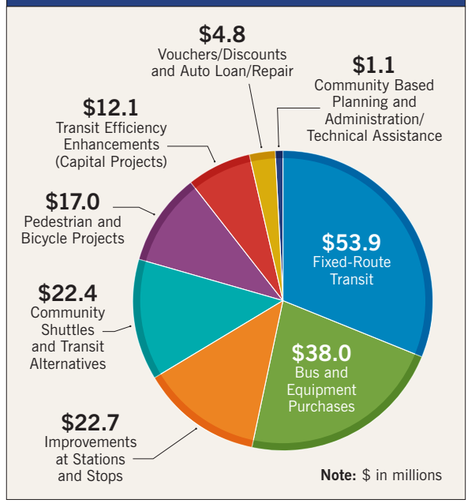
FIGURE 17 Lifeline Transportation Program Project Types, 2006–2012 $172 Million



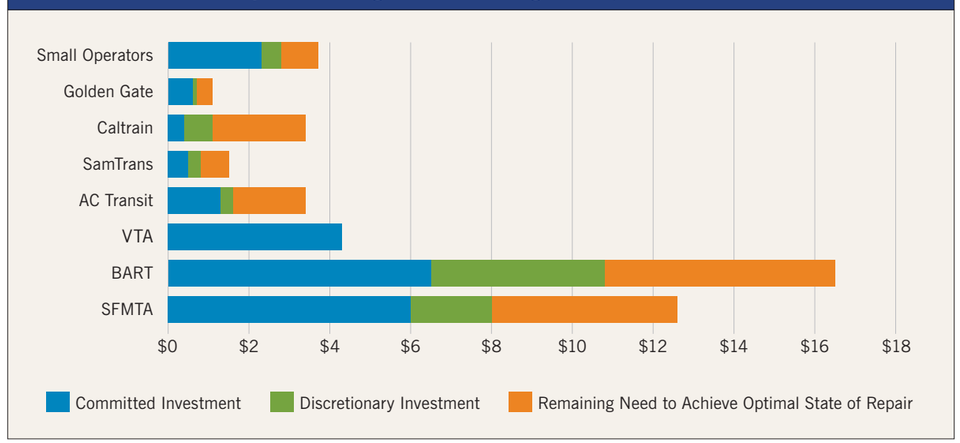
Transit Capital Replacement and Rehabilitation: A Big Hole to Fill

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.

FIGURE 18: Transit Capital Funding and Remaining Needs, 2013–2040 (in billions of YOE $)



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.

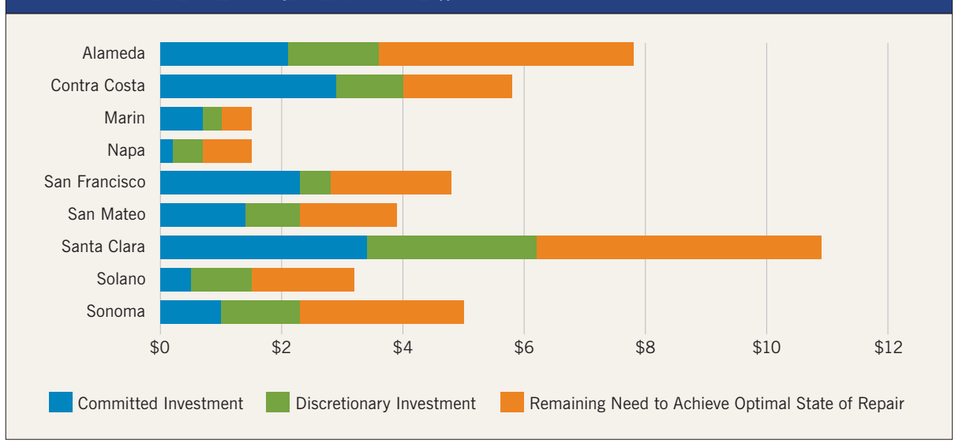
Investment in Local Streets and Roads

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 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.

FIGURE 19: Local Streets and Roads Investments and Remaining Needs by County, 2013–2040 (in billions of YOE $)



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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.

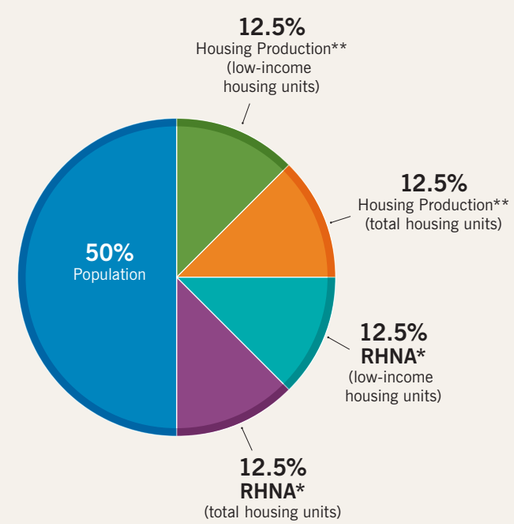
In May 2012, MTC approved a new funding approach that directs specific federal funds to support more focused growth in the Bay Area. The OneBayArea Grant (OBAG) program commits $320 million over the next four years ($14.6 billion over the life of the plan), from federal surface transportation legislation 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



OBAG County Fund Distribution
(millions $, rounded)

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

*RHNA 2014–2022
**Housing Production Report 1996–2006, ABAG

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

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	
BART: Berryessa to San Jose/Santa Clara	3,962	Environmental Docs Approved
Transbay Transit Center/Caltrain Downtown Extension: Phase 2	2,596	
AC Transit Berkeley/Oakland/San Leandro Bus Rapid Transit	218	
Downtown to East Valley; Light Rail & Bus Rapid Transit Phases 1 & 2	559	
Caltrain Electrification	785	Environmental Docs in Process
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.

Noah Berger

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.

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

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.

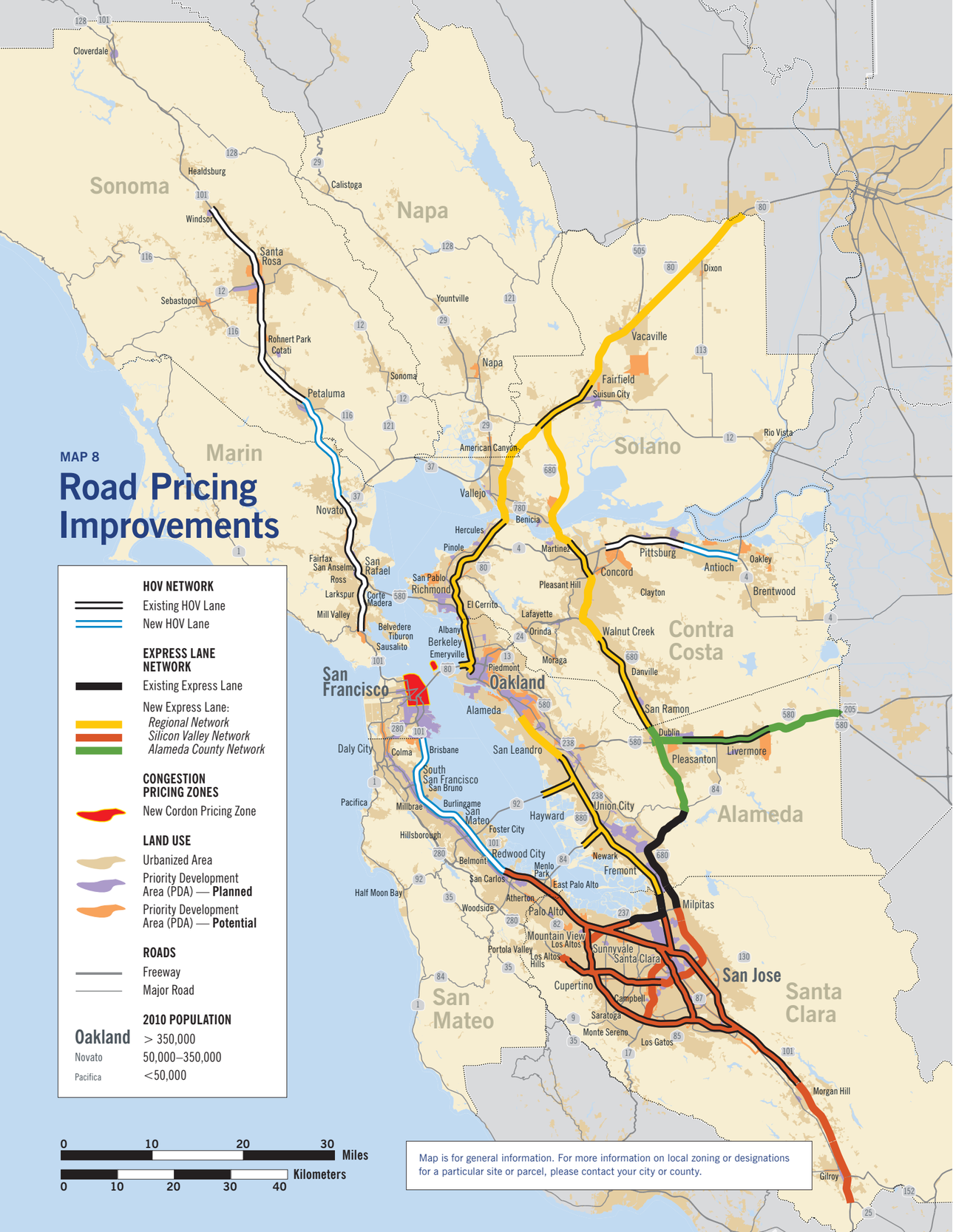
Express lane tolls vary based on levels of congestion. They are priced low enough to attract drivers out of slow traffic in the regular lanes, but high enough to ensure a free flow of cars in the express lane at all times. Drivers pay based on distance traveled in the express lane. Tolls are collected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

MAP 8

Road Pricing Improvements



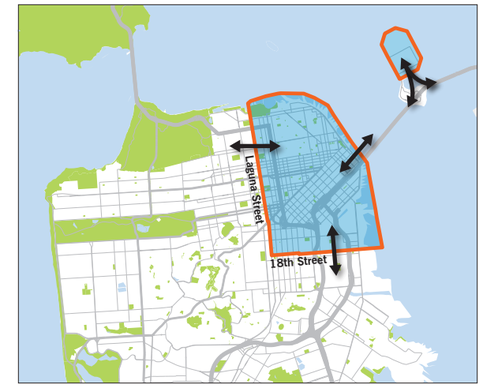
The goals of the Regional Express Lane system remain the same as they were in the Transportation 2035 Plan:

- **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

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.

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.

FIGURE 21: County Investment Priorities $16 Billion (YOE $)

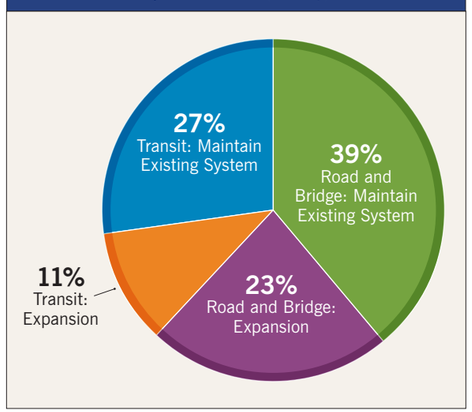


TABLE 23: Summary of Climate Initiatives Program

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.

Peter Beeler

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.

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.

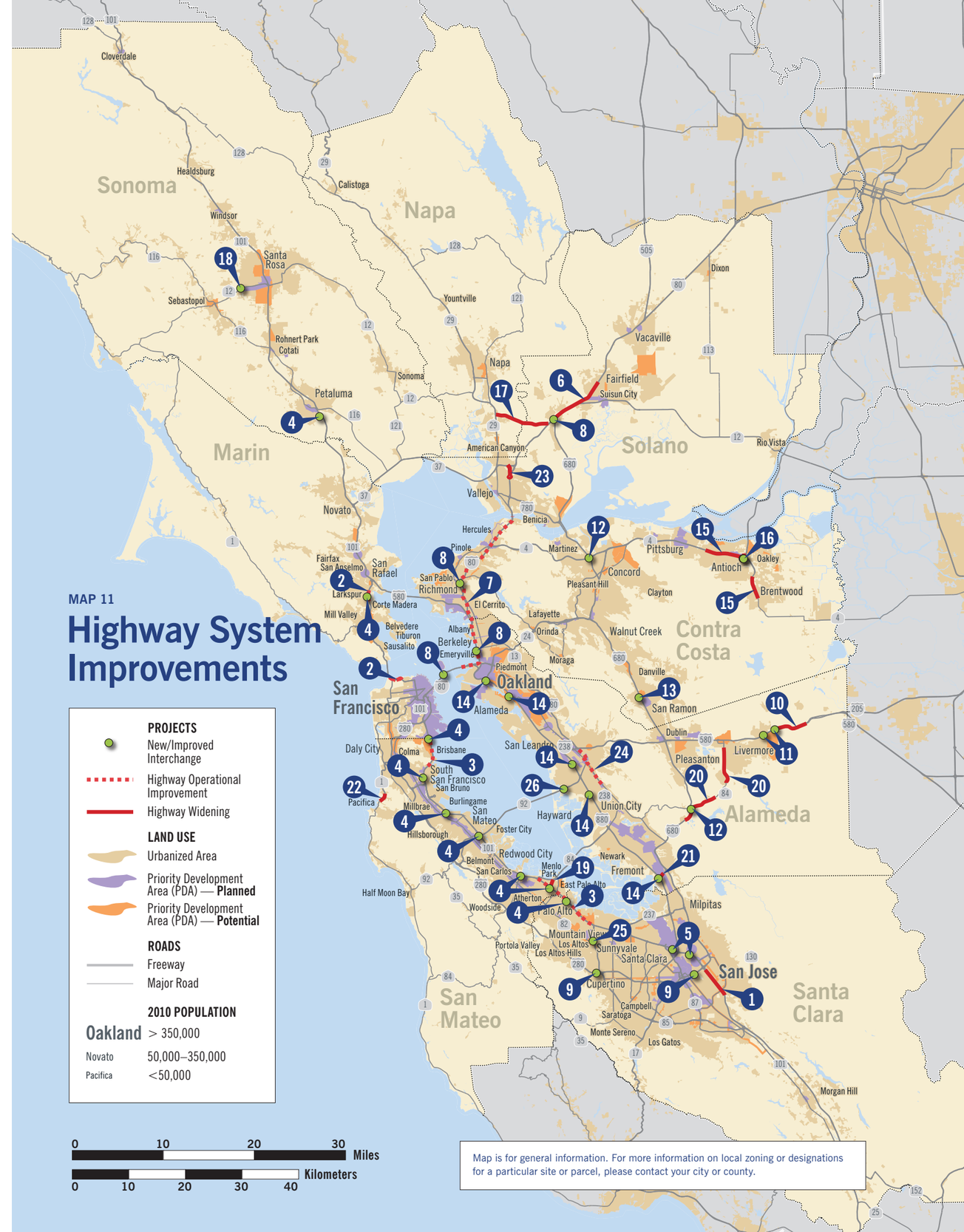


TABLE 24: Plan Bay Area Investment Strategy Summary – Discretionary Revenues (in billions of YOE $)		
Strategy	**Investment**	**% of Total**
1 Maintain Our Existing System	$15	25%
2 Build Next Generation Transit*	$7	12%
3 Boost Freeway and Transit Efficiency	$4	7%
4 Support Focused Growth – OBAG	$14	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

Plan Bay Area

July 2013

Strategy for a Sustainable Region

Association of Bay Area Governments

Metropolitan Transportation Commission

Final Financial Assumptions

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Financial Assumptions

Funds to implement Plan Bay Area come from federal, state, regional, and local funding sources. Many funding sources and programs have specific purposes and eligibility restrictions, while various funding sources and programs provide flexibility. The following section details the fund sources and their respective funding programs of Plan Bay Area's revenue projections. The revenues detailed in the following section are presented in Table 2-1. The 28-year period begins in Fiscal Year (FY) 2012-13 and extends through FY 2039-40.

Projected revenues in Plan Bay Area reflect Fiscal Constraint as required by 23 CFR part 450.322. Forecasted revenues are presented in nominal, or "year-of-expenditure dollars" and consist of all revenues that are "reasonably expected to be available" within the plan period.

Federal Funding

Federal transportation revenues are generated through a Federal fuel excise tax (18.4 cents a gallon of gasoline and 24.4 cents a gallon of diesel fuel). The generated revenues are deposited into the Highway Trust Fund (HTF). Generally, about 85% of the HTF revenues are directed to the Highway Account and the remaining 15% of the HTF revenues are directed to the Transit Account.

At the time the revenue forecasts for Plan Bay Area were prepared, the transportation funding framework that was in place for federal funds was the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA). On July 5, 2012, President Obama signed into law the Moving Ahead for Progress in the 21st Century Act (MAP-21). This new two-year bill builds upon past multimodal policies, consolidates certain funding programs, and establishes a framework for performance-based planning and policies. Although the signing of MAP-21 made some modest changes in the way that transportation programs are funded at the federal level, there was no significant change in the overall amounts and intended purpose of funding from SAFETEA.

<u>Federal Highway Administration (FHWA) Funding</u>
The federal highway program is assumed to continue in its current form. Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program and Highway Bridge funds are assumed to grow at a rate of 3-percent annually. Base year revenue is set at the SAFETEA nationally authorized level for fiscal year (FY) 2009-10, and the Bay Area is projected to receive its historically proportionate share of these programs.

<u>Federal Transit Administration (FTA) Funding</u>
Federal Transit Administration programs — Sections 5307, 5309, 5310, 5311, 5316 and 5317 — are based on the FY 2009-10 nationally authorized levels and are assumed to

grow at a rate of 3 percent annually. The Bay Area is assumed to receive its historical proportionate share. MAP-21 consolidates some of these programs (as noted on the Revenue Projections chart at the end of this section) and creates other new funding programs but the overall level of federal funding for transit remains similar to that under SAFETEA.

State Funding

State transportation revenues are generated through a State fuel excise tax (18 cents a gallon of gasoline and 13 cents a gallon of diesel fuel), truck weight fees, a fuel tax swap that eliminated the state sales tax on gasoline and instead imposed an additional excise tax on gasoline that would fluctuate annually to remain revenue neutral with the former sales tax, and a general state sales and use tax. Senate Bill 45 (SB 45) 1997 establishes the program structure and distribution formulas for most state transportation funds. These assumptions are based on a continuation of SB 45.

The state funding programs estimated to be available over the 28-year period to the Bay Area region include: the State Highway and Operations Program (SHOPP), the State Transportation Improvement Program (STIP), State Transit Assistance (STA), and funds for local street and road maintenance and operations through gas tax subvention funds and the fuel tax swap (AB 105). In addition, revenues from state bond programs are included under state funding. Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, approved by voters in 2006, provides funding for a variety of transportation programs. Proposition 1A, the Safe, Reliable High-Speed Passenger Train Bond Act, passed by voters in November 2008, will help to finance construction of a high-speed rail link between San Francisco and San Diego.

Assumptions concerning fuel price and consumption growth are consistent with the MTC travel demand model and the EMFAC 2007 forecasting software. Fuel consumption estimates reflect an assumption that the state gasoline consumption will decline at an increasing rate until 2020 and then grow slowly at a constant long-term rate. The decline in the initial years for consumption is attributable to the improvements in the fuel efficiency of the fleet as brought about by AB 1493 (Pavley), Phase 1. Fuel prices are expected to grow at approximately 8 percent annually until 2020, and at approximately 3 percent annually thereafter.

<u>SHOPP</u>
SHOPP revenues are based on funding levels and growth rates assumed in the 2010 STIP Fund Estimate. The share of SHOPP funds assumed to flow to the Bay Area over the 28-year period is based on historical expenditure averages as reported in the 2006 SHOPP plan.

<u>STIP</u>
STIP funds and STIP TE funds are consistent with the estimates of the 2010 STIP Fund Estimate and are distributed 75 percent to the Regional Transportation Improvement

Program (RTIP) and 25 percent to the Interregional Transportation Improvement Program (ITIP). The RTIP funds are further distributed, consistent with the formula specified in SB 45. STIP revenues are assumed to maintain the current structure and distribution formula, as laid out in SB 45, over the 28-year period. Revenue projections and regional distribution shares for state funds are based on FY 2009-10 levels.

STA

STA program revenues are distributed 50 percent to the Population-Based program, and 50 percent to the Revenue-Based program. STA program revenues are based on current funding formulas and projections for fuel price and consumption growth consistent with MTC's travel demand model and the EMFAC 2007 forecasting software. The revenue forecast assumes that the STA program is funded primarily through the 1.75 percent sales tax on diesel that was instituted by the 2010 gas tax swap legislation (AB 6 and AB 9), and revenue transfers from the Public Transportation Account (PTA). The regional shares of both the Population-Based and Revenue-Based programs are based on the state controller's distribution factors for FY 2010-11. All distribution factors are assumed fixed for the duration of the forecast.

Gas Tax Subventions

Gas tax subvention revenues are assumed to maintain the current structure and distribution formula, as laid out in SB 45, over the 28-year period. Revenue projections and regional distribution shares for state funds are based on FY 2009-10 levels.

Fuel Tax Swap (AB 105)

The fuel tax swap, enacted in 2011, eliminates the state sales tax on gasoline and instead imposes an additional excise tax on gasoline that is adjusted annually to remain revenue neutral with the former sales tax. Fuel tax swap revenues are assumed to maintain the current structure and distribution formula over the 28-year period. Revenue projections and regional distribution shares for state funds are based on FY 2009-10 levels.

Proposition 1B

Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, approved by voters in 2006, provides funding for a variety of transportation programs. Senate Bill 88 (2007) lays out the structure and distribution method for several of the bond programs. For those programs that do not yet have a structure or distribution formula in place on which to base assumptions regarding the region's share of these funds, it was assumed that the Bay Area's share of the funding would be proportionate to the region's share of population relative to the rest of the state. The revenue forecast for Plan Bay Area includes estimates of the Bay Area's remaining share of Proposition 1B programs beyond what has been received or programmed through FY 2011-12.

Traffic Congestion Relief Program (TCRP)

TCRP is a series of legislative projects throughout California to improve traffic mobility and relieve congestion, provide for safe and efficient movement of goods, and provide

system connectivity. The revenue estimate includes the Bay Area's share of Tier I and Tier II projects.

High Speed Rail

Revenues forecasted to become available for high-speed rail include approximately $1.5 billion from California's Proposition 1A (2008), the Safe, Reliable High-Speed Passenger Train Bond Act. This act authorized $10 billion in general obligation rail bond proceeds to help finance construction of a high-speed rail link between San Francisco and San Diego. Estimates of the Bay Area's share of revenue from Proposition 1A include just over $400 million from the act's formula-based local connectivity program and approximately $1.1 billion as the Bay Area's proportional share of the remaining bond revenues. It was also assumed that the region would receive 12.5 percent, or $1.5 billion, of federal revenues that are expected to become available to finance the project. The region's share was estimated based on the percentage of the entire high-speed rail project funding that is estimated to be invested in the Bay Area.

Cap-and-Trade

Revenues generated from the Cap-and-Trade program are projected to be available starting in FY 2014-15. Approximately 40% of generated revenues are expected to be invested into transportation, of that, 40% is expected to be distributed to regional transportation planning agencies based on their share of total population. Plan Bay Area proposes establishing a reserve account for projected Cap-and-Trade revenues to be used for transit-oriented affordable housing, for transit operating and capital rehabilitation/replacement, and for local street and road rehabilitation, consistent with the focused land use strategy outlined in Plan Bay Area.

Regional Funding

Regional transportation revenues are generated through a number of sources, including: general sales and use taxes, bridge tolls, express lanes, and a regional excise tax on gasoline.

Assembly Bill 1107 (AB 1107)

Revenues from AB 1107 (1977), the half-cent sales tax for the three BART counties of Alameda, Contra Costa and San Francisco, are distributed 75 percent to BART, and 25 percent to MTC. Revenues are assumed to grow at a rate derived by taking a weighted average of sales tax growth rates estimated by the Association of Bay Area Governments within the three counties.

Bridge Toll

Bridge toll revenues are based on projected travel demand on the region's seven state-owned toll bridges. Toll-paid travel on the bridges is projected to grow at varied annual rates of between 0.3 and 0.5 percent over the 28-year period. It was assumed that in FY 2018-19, there would be a $1 increase in non-carpool vehicle toll on all state-owned bridges.

Regional Express Lanes

Regional Express Lane Network revenues included in the financially constrained plan represent projected gross toll revenue for express lanes in Solano, Contra Costa and Alameda counties, which will be operated by MTC, the Alameda County Transportation Commission and Sunol Smart Carpool Lane Joint Powers Authority. Over the course of the Plan Bay Area period, these revenues will be wholly dedicated to meet the operations, maintenance, rehabilitation and capital financing of the Network. The revenue estimates are from MTC's 2011 application to the California Transportation Commission. The financial plan also includes toll revenues from express lanes in Santa Clara County, which are considered Committed.

Regional Gas Tax

Regional gas tax revenues included in the financially constrained plan represent revenues collected from a regional 10 cent excise tax on gasoline beginning in FY 2017-18. The revenue estimate is based on the Bay Area's share of statewide gasoline consumption.

Local Funding

The majority of funds that support Plan Bay Area come from local funding sources, primarily dedicated sales tax programs, revenues dedicated to local street and road maintenance and operations, transit fares and other transit revenues, and other local pricing initiatives.

Sales and Use Taxes

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, as in the case of Alameda County. Where they do not currently exist, transportation sales tax measures were not assumed in the financially constrained plan.

Transportation Development Act (TDA)

TDA revenue, derived from the statewide quarter-cent sales tax, is estimated based on a multivariate regression model developed by the Association of Bay Area Governments. This model takes into account several demographic and economic factors such as median income, regional employment and population growth. The data points used in the model to estimate TDA revenue are consistent with the demographic estimates used in the Sustainable Communities Strategy element of Plan Bay Area.

Local Streets and Roads

Local streets and roads revenue includes funds made available from local sources (not including county transportation sales tax measures). Local revenue estimates are based on information provided to MTC by local agencies in response to a comprehensive

survey. A region-wide growth rate based on historical averages was applied to these revenues over the 28-year period.

All Other Local Revenues
Operator-specific revenue projections including transit fares, VTA Express Lane tolls, San Francisco pricing initiatives, Golden Gate Bridge tolls, AC Transit and BART property taxes, AC Transit parcel taxes, BART seismic bond proceeds, and San Francisco Municipal Transportation Agency general fund and parking revenue, have been provided by the respective operators.

Anticipated Funding

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 predecessor long-range plans, including a review of unexpected revenues that had come to the region but had not been anticipated or included in these 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. These revenue sources include Traffic Congestion Relief Plan, Proposition 42, nonformula federal funds, Proposition 1B, and American Recovery and Reinvestment Act funding. For each fund source, only the amount distributed to the Bay Area was included. Based on this retrospective analysis, MTC believes it is reasonable to anticipate that additional revenues will become available to the region over the course of the Plan Bay Area period. MTC generated an estimate of these anticipated revenues by projecting the $400 million figure forward at a 3 percent annual growth rate. To be conservative, these revenues are not assumed in the first five years of the plan.

Table 1. Plan Bay Area Revenue Projections
(In Escalated $)

Revenue Source	Plan Bay Area Revenue Assumptions	FY 2012-13 Revenue Estimate ($ millions)	Plan Bay Area 28-Year Revenue ($ billions)
FEDERAL			
FHWA Surface Transportation Program (STP)	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$97.4	$4.2
FHWA Congestion Mitigation and Air Quality (CMAQ)	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$88.9	$3.8
FHWA Ferry Boat Discretionary	Base Year: FY 2009 – 10 Data Source: FHWA Growth Rate: 3% nominal	$3.3	$0.1
FHWA Bridge/Safety Program	Base Year: FY 2009 – 10 Data Source: FHWA Growth Rate: 3% nominal	$62.3	$2.7
FTA 5307 Urbanized Area Formula	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$237.0	$10.2
FTA 5309 Fixed Guideway (Now 5339 State of Repair)	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$142.5	$6.1
FTA 5309 Bus	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$4.5	$0.2
FTA 5309 New Starts	Assumes 5% share of total Federal program based on 5-year average of MTC full funding grant agreements	N/A	$3.8
FTA 5309 Small Starts	Assumes 5% share of total Federal program based on 5-year average of MTC full funding grant agreements	N/A	$0.7
FTA 5310 Elderly and Disabled	Base Year: FY 2008 – 09 Data Source: FTA Growth Rate: 3% nominal	$3.4	$0.1
FTA 5311 Non-Urbanized Area Formula	Base Year: FY 2008 – 09 Data Source: FTA Growth Rate: 3% nominal	$1.5	$0.1

FTA 5316 Jobs Access and Reverse Commute (JARC) (Now part of FTA 5307 Formula)	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$2.8	$0.1
FTA 5317 New Freedom (Now part of FTA 5310 Elderly & Disabled)	Base Year: FY 2009 – 10 Data Source: FTA Growth Rate: 3% nominal	$2.2	$0.1
FTA 5303 Planning	Base Year: FY 2011 – 12 Data Source: FTA Growth Rate: 3% nominal	$0.9	$0.0
High-Speed Rail	Assumes % share of total CHSRP (12.5% of $20B) $10B from state prop 1A bonds and $10B in Federal contributions	N/A	$1.3
	FEDERAL SUBTOTAL	**$646.7**	**$33.5**
STATE			
State Highway Operations and Protection Program (SHOPP)*	Assumption Base: 2010 STIP FE and estimate of gas tax subvention revenue Distribution Base: Bay Area historical share of total funds	$434.0	$14.1
STIP - Regional Transportation Improvement Fund (RTIP)*	Assumption Base: 2010 STIP FE and estimate of gas tax subvention revenue Distribution Base: Bay Area historical share of total funds	$106.3	$6.0
STIP - Interregional Road/Intercity Rail (ITIP)*	Assumption Base: 2010 STIP FE and estimate of gas tax subvention revenue Distribution Base: Bay Area historical share of total funds	$25.4	$1.5
STIP - Transportation Enhancement (TE)	Data Source: 2010 STIP FE	$25.5	$1.1
State Transit Assistance (STA) Population-Based - PUC 99313	Assumption Base: Estimate of diesel sales tax and excise tax revenue Distribution Base: FY 2010-11 distribution factors derived from state 2010 population estimates	$35.0	$2.2

State Transit Assistance (STA) Revenue-Based - PUC 99314	Assumption Base: Estimate of diesel sales tax and excise tax revenue Distribution Base: Based on FY 2010-11 State Controller's factors	$95.9	$6.1
Gas Tax Subvention	Assumption Base: Estimate of Fuel excise tax revenue Distribution Base: Bay Area share of registered vehicle, road mileage, and population	$171.2	$4.2
AB 105 Revenue for Local Streets and Roads	Assumption Base: Estimate of the AB 9 portion of the Gas Tax Swap for LSR Distribution Base: Bay Area share of registered vehicle, road mileage, and population	$140.9	$8.5
Proposition 1B	Based on existing law or estimates of region's relative share for both competitive and formula-based programs--All shares are 20% except for Transit, Transit Security, SLPP,TCIP, and CMIA	N/A	$0.4
Traffic Congestion Relief Program (TCRP)	Estimate is equal to the dollar amount of all Tier I and Tier II projects for the Bay Area, beginning in 2013	N/A	$0.1
High-Speed Rail	Assumes % share of total CHSRP (12.5% of $20B) $10B from state Proposition 1A bonds and $10B in Federal contributions	N/A	$1.3
Cap-and-Trade	Assumes % share of total revenues Only revenues from FYs 2015 - 2040 are included in forecast	N/A	$3.1
	STATE SUBTOTAL	**$1,034.2**	**$48.6**
REGIONAL			
AB 1107 ½-cent Sales Tax in three Bart Counties (BART Share - 75%)	Base Year: FY 2009-10 Growth Rate: Growth rates derived from the TDA estimates provided by ABAG	$181.4	$7.5

AB 1107 ½-cent Sales Tax in three Bart Counties (MTC Share - 25%)	Base Year: FY 2009-10 Growth Rate: Growth rates derived from the TDA estimates provided by ABAG	$60.5	$2.5
BATA Base Toll Revenues	Base Year: FY2008-09 Growth Rate: Varied (0.3% - 0.6%)	$119.4	$3.1
Seismic Retrofit		$116.4	$3.4
RM2		$116.4	$3.4
Seismic Surcharge		$116.4	$3.4
Seismic Surcharge + Carpool		$131.5	$3.9
AB 664		$12.6	$0.4
2% Toll Revenues		$2.9	$0.1
5% State General Fund		$3.1	$0.1
Rail Extension East Bay*		$7.2	$0.1
Rail Extension West Bay		$3.1	$0.1
AB 1171*		N/A	$0.3
New Bridge Tolls		N/A	$2.7
Transportation Fund for Clean Air (TFCA)/AB 434 (Regional Funds)	Base Year: FY 2009-10 Growth Rate: MTC estimate based on Vehicle Registration data	$13.9	$0.4
Service Authority for Freeway and Expressways (SAFE)	Base Year: FY 2009-10 Growth Rate: Estimate provided by Jaime M and Danielle S	$5.8	$0.2
Regional Express Lane Revenues	Planning Model	N/A	$5.4
Regional Gas Tax ($0.10)	Assumption Base: Estimate of Fuel Consumption Distribution Base: Bay Area share of population Only revenues from FYs 2018 - 2040 are included in forecast	N/A	$5.1
	REGIONAL SUBTOTAL	**$890.6**	**$42.0**
LOCAL			
County Sales Tax Measures	Base Year: FY 2009-10 Growth Rate: Growth rates provided by County Transportation Authority sales tax agencies	$814.1	$26.8
Sales Tax Reauthorizations	Base Year: FY 2009-10 Growth Rate: Growth rates provided by County Transportation Authority sales tax agencies	N/A	$12.9

Transportation Development Act (TDA)	Base Year: FY 2009-10 Growth Rate: Growth rates provided by ABAG	$279.4	$12.7
Transit Fare Revenues	Base Year: FY2009-10 Data Source: Each operator Growth Rate: Based on operators' estimates	$801.1	$36.2
Transit Non-Fare Revenues	Base Year: FY2009-10 Data Source: Each operator Growth Rate: Based on operators' estimates	$213.2	$16.6
San Francisco General Fund (SFMTA)	Base Year: FY2009-10 Data Source: SFMTA Growth Rate: SFMTA estimates	$188.2	$7.7
San Francisco Parking Revenue (SFMTA)	Base Year: FY2009-10 Data Source: SFMTA Growth Rate: SFMTA estimates	$107.7	$6.3
Property Tax	Base Year: FY2009-10 Data Source: Operator Survey for BART, AC Transit, and Alameda Ferry	$94.6	$4.5
AC Transit Parcel Tax	Base Year: FY 2009-10 Data Source: AC Transit Survey	$29.3	$0.8
Local Streets and Roads	Base Year: FY 2009-10 Data Source: LS&R surveys, MTC Projections Growth Rate: Weighted according to each jurisdiction's mix of funds per expenditure category	$394.8	$15.0
Golden Gate Bridge	Base Year: FY2006-07 Data Source: MTC Model Growth Rate: Based on Traffic Growth	$101.0	$3.0
Transportation Fund for Clean Air (TFCA)/AB 434 (Local Funds)	Base Year: FY2009-10 Data Source: Local Agencies	$9.3	$0.3
Existing County-wide Vehicle Registration Fee ($10)	$10 fee in all Alameda, Marin, San Francisco, San Mateo, and Santa Clara Counties	$40.5	$1.3
Land Sales and Developer Revenues	Proceeds from land sales related to Plan Bay Area related projects; per sponsoring agencies	N/A	$1.0
BART General Obligation Seismic	Proceeds from bond measure	N/A	$0.2

Bond	expected within FYs 2013-2040; per BART		
San Francisco Treasure Island Pricing Revenues	Estimates provided by San Francisco County Transportation Authority	N/A	$2.5
VTA Express Lane Revenues	Estimates provided by Santa Clara Valley Transportation Authority	N/A	$3.0
Other Local	Development fees and other local revenues; per sponsoring agencies	N/A	$2.9
	LOCAL SUBTOTAL	**$3,073.2**	**$153.7**
ANTICIPATED/UNSPECIFIED			
Anticipated	Base Year: FY 2013 Growth Rate: 2.2% Data Source: Retrospective analysis of a 15-year period Only revenues from FYs 2018 - 2040 are included in forecast	N/A	$14.0
	GRAND TOTAL	**$5,645**	**$292**

**28-Year revenue net of programming and allocations for FY 2013 and beyond*

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BayArea Plan

July 2013

Strategy for a Sustainable Region

Sonoma
Napa
Solano
Marin
Contra Costa
Alameda
Santa Clara
San Pablo Bay
San Francisco Bay
Pacific Ocean
San Francisco
Oakland
Berkeley
Richmond
Vallejo
Fairfield
Concord
Walnut Creek
Danville
San Ramon
Pleasanton
Livermore
Hayward
San Leandro
Alameda
Castro Valley
Fremont
Union City
Daly City
South San Francisco
San Mateo
Redwood City
Palo Alto
Mountain View
Sunnyvale
Santa Rosa
Petaluma
Novato
San Rafael
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Tiburon
Belvedere
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Ross
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Martinez
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Dixon
Healdsburg
Windsor
Rohnert Park
Cotati
Sebastopol
Forestville
Guerneville
Monte Rio
Bodega Bay
Tomales
Point Reyes Station
Inverness
Olema
Stinson Beach
Muir Beach
Mill Valley
Corte Madera
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Ross
Kentfield
Greenbrae
Novato
Petaluma
Cotati
Rohnert Park
Sebastopol
Forestville
Guerneville
Monte Rio
Bodega Bay
Tomales
Point Reyes Station
Inverness
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Local Streets and Roads Needs and Revenue Assessment

The Bay Area's local street and road (LS&R) network includes nearly 42,500 lane miles of roadway, and includes a lot more than just the paved surfaces used for travel by cars, buses, trucks and bicycles. The LS&R system also includes curbs and gutters, sidewalks, storm drains, traffic signs, signals and lights. These "non-pavement" items are necessary for functioning street and road network. 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.

The average condition of the Bay Area's LS&R network, rated on a scale of 0 to 100, is currently at 66. This pavement condition index (PCI) places the region's roadway network in the "fair" category. The classifications used to rate LS&R pavements are shown in the table below.

Table1. Pavement Condition Categories

Very Good-Excellent (PCI = 80-100)	Pavements are newly constructed or resurfaced and have few if any signs of distress
Good (PCI = 70-79)	Pavements require mostly preventive maintenance and have only low levels of distress, such as minor cracks or spalling, which occurs when the top layer of asphalt begins to peel or flake off as a result of water permeation.
Fair (PCI = 60-60)	Pavements at the low end of this range have significant levels of distress and may require a combination of rehabilitation and preventive maintenance to keep them from deteriorating rapidly.
At Risk (PCI = 50-59)	Pavements are deteriorated and require immediate attention including rehabilitative work. Ride quality is significantly inferior to better pavement categories.
Poor (PCI = 25-49)	Pavements have extensive amounts of distress and require major rehabilitation or reconstruction. Pavements in this category affect the speed and flow of traffic significantly.
Failed (PCI = 0-24)	Pavements need reconstruction and are extremely rough and difficult to drive on.

While the region's average pavement condition is still in the fair category, it is important to note that the deterioration curve of a typical pavement is exponential, and not linear. As shown in Figure 1 below, a new pavement will deteriorate slowly for the first 15 years of its standard 20 year life span. Once it reaches a PCI of 60, it will begin to deteriorate rapidly. Without any intervention, the pavement will drop from the fair category to the "failed" category in the next five years. This deterioration holds serious implications for

the cost of system preservation. Pavements that are still in good condition (a PCI of 70 or above) can be preventively maintained at a low cost, whereas pavements that need significant rehabilitation or reconstruction require five to 15 times the amount of funding.

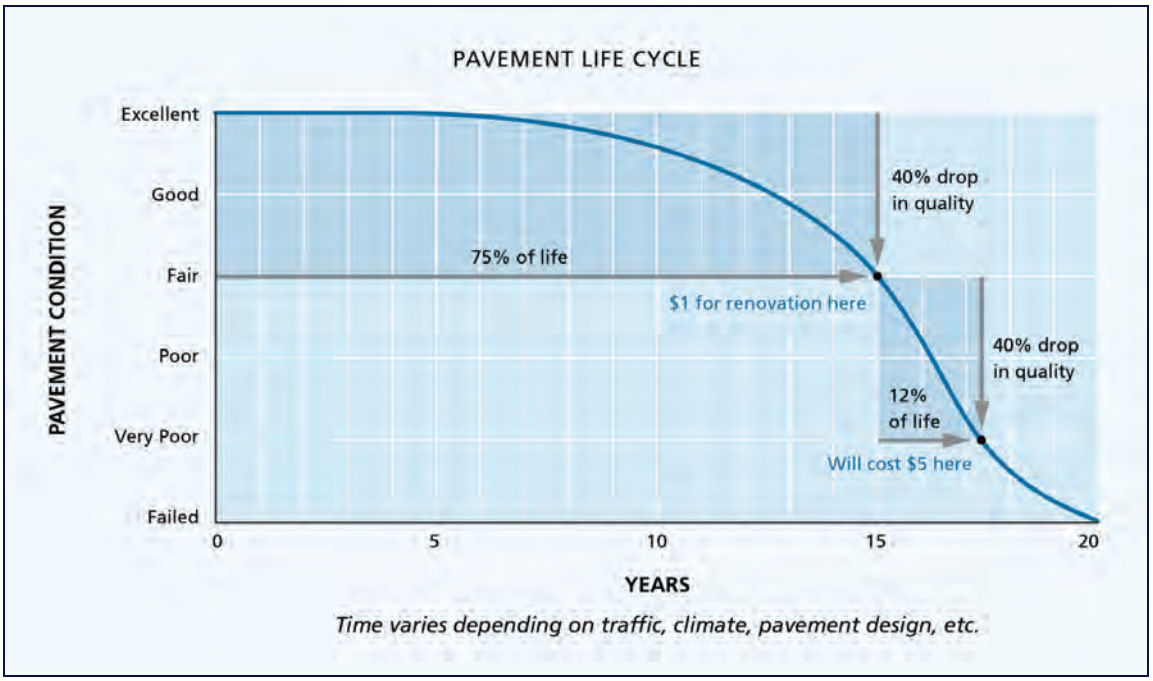

Figure 1. Pavement Life Cycle Curve

Unfortunately, local and state revenues available for system preservation have not kept pace with the needs. In response, Plan Bay Area provides regional funding through the One Bay Area Grant (OBAG) program to help meet some of the LS&R system preservation needs in the region. Within OBAG, sufficient funding is provided to help the region maintain pavement quality in the fair condition.

Local Street and Road Revenue Projections

The Metropolitan Transportation Commission (MTC) has been documenting LS&R system preservation needs and revenues for cities and counties in the Bay Area since the early 1980s in order to understand the complete funding picture for LS&R. The following sections describes the projection process that was undertaken to determine the LS&R system preservation needs and revenues for Plan Bay Area and the resulting estimates.

Needs

For Plan Bay Area, MTC staff evaluated how much funding will be needed to preserve the LS&R system over the 28-year plan period (Fiscal Years 2013 to 2040). System preservation consists of activities that extend the useful life of the roadway asset by five or more years. This category can be further broken down into preservation for pavements and

non-pavement assets (sidewalks, storm drains, traffic signals, curb and gutter, etc.). It is important to note that system preservation needs do not include the cost of "operations" which consist of routine maintenance such as pothole filling, street sweeping and striping, as well as overhead expenses. Operations costs were calculated separately and total $14 billion for the region.

The system preservation needs were calculated for two different "condition level" scenarios in order to better inform future trade-off discussions related to Plan Bay Area.

1.) **Maintain Existing PCI** – Local jurisdictions maintain the existing pavement condition index (PCI) but deferred maintenance costs are allowed to grow.
2.) **State of Good Repair** – The LS&R system reaches the target condition level, a PCI of 75, within the first ten years and is maintained at that level for the duration of the Plan period

To maintain existing PCI conditions, approximately $32.5 billion is needed, and to reach the target PCI of 75 for pavement, with a corresponding condition level for non-pavement assets, an investment of nearly $45 billion is needed over the next 28 years.

In November, 2010, MTC staff surveyed all 109 local jurisdictions for information on pavement treatment unit costs, non-pavement asset inventories and revenues available for LS&R capital maintenance and operation activities. Survey information, combined with condition, inventory and cost data derived from jurisdiction's StreetSaver® pavement management system databases, is used to calculate the long-range LS&R needs and revenues.

<u>Pavement Need</u>

Maintain Current PCI Scenario:
For this scenario, staff utilized MTC's pavement management system software, StreetSaver®'s, "Target-PCI Driven" module to determine the needs over the 28-year plan period. With the Target-Driven scenario calculation, the pavement network is maintained at the desired state (in this case the current/existing PCI for each jurisdiction) at the minimum cost, while identifying the best combination of projects to maximize treatment effectiveness. The timing of applying treatments makes a significant difference in future investment needs. Each jurisdiction's target PCI was set to remain at the current level over the 28-year plan period. The costs were escalated at a 2.2% annual growth rate, consistent with the inflation rate that is assumed for Plan Bay Area. The 28-year total pavement need for each jurisdiction was then summed at the county level.

State of Good Repair Scenario:
The optimal scenario represents the cost of attaining the regional goal of a PCI of 75. To calculate this need, StreetSaver® was used to determine how much funding would be needed for each jurisdiction to reach a PCI of 75 within the first ten years of the analysis period, and then to maintain that PCI level for the duration of the 28 years. Maintenance costs were escalated at a 2.2% annual growth rate.

Non-Pavement Need

To estimate the Non-Pavement needs on the LS&R system, MTC used a model prediction model that uses information provided by local jurisdictions on non-pavement asset inventory and useful life to estimate long term costs to maintain non-pavement assets. Through the development of the model, it was determined that replacement costs can be predicted by the inventory of two non-pavement assets - curb and gutter and streetlights. The total regional non-pavement asset replacement cost is then divided by the average useful life for each of the major non-pavement asset groups – storm drains, sidewalks, curb & gutter, street signs and street lights – in order to estimate an annual preservation cost. The regional totals are then divided into city non-pavement need and county non-pavement need. The city need is distributed across all jurisdictions based on relative population share and the county need is distributed across the unincorporated jurisdictions based on total lane mileage. San Francisco was considered as a city only.

Since the model only provides a total non-pavement need under an "unconstrained" scenario (assumes there are revenues available to meet required needs and deferred maintenance is not a factor) a ratio of unconstrained pavement to non-pavement need was calculated, by jurisdiction, and applied to the pavement need in both scenarios in order to estimate the corresponding non-pavement needs for each.

Revenues

Information derived from a recent survey of all Bay Area jurisdictions was used to determine revenues for LS&R maintenance derived from local and county sources, as well as to determine the categorical split—pavement maintenance, non-pavement, operations and new construction—by which each jurisdiction expends revenues available for LS&R maintenance. While all revenues available for LS&R maintenance and operations were estimated, only revenues available for pavement and non-pavement system preservation were used in this assessment. Revenues estimated to be used for operations and new construction, were not considered.

For the local and county generated revenue sources, an annual average was determined based on five years worth of each jurisdiction's budget data. In order to generate the annual average, only the values within one standard deviation were taken into account. This helps to eliminate any one-time spikes or severe reductions in funding. The annual average was then grown over the 28-year period. The growth rate used for locally generated revenue was 2.2% (based on the assumed inflation rate for Plan Bay Area) and the growth rate used for countywide sales tax measure revenue was based on information provided by the county sales tax authorities.

Projections of revenue for county vehicle registration fees, state gas tax subvention and AB 105 were prepared by MTC. The nominal growth rate for gas tax revenue averages about -0.2% annually, and for AB 105 funding, about 5% annually.

Plan Bay Area proposes establishing a reserve account for projected Cap-and-Trade revenues to be used for transit-oriented affordable housing, for transit operating and capital rehabilitation/replacement, and for local street and road rehabilitation, consistent with the focused land use strategy outlined in Plan Bay Area. The projected Cap-and-Trade revenues would increase the investment capacity for local street and road rehabilitation. However, these projected revenues were not distributed among Bay Area jurisdictions, and in turn are not reflected in the needs and revenue assessment results detailed on the following pages.

Assessment Results

As mentioned above, in order to maintain the LS&R System in a state of good repair, about $45 billion is needed over the 28-year Plan Bay Area period. Committed revenue available to meet that need over the same period, is approximately $15 billion. To maintain the region's *pavements* at current conditions (not including non-pavement assets), approximately $10 billion is needed in addition to committed revenues. Within the Plan Bay Area investment strategy, sufficient funding has been made available through the OBAG program to maintain the region's current PCI. The Investment Strategy distribution shown in Table 2 below is based on the OBAG distribution formula. It should be noted that within the OBAG program, each county's Congestion Management Agency has discretion over the total funding amounts directed towards OBAG eligible projects. The amounts invested in LS&R system preservation may be more or less than the amounts depicted in Table 2.

Table 2. Local Street and Road Needs and Revenues

County	Pavement Needs	Non-Pavement Needs	Total System Preservation Needs	Committed Revenue	Plan Bay Area Investment Strategy	Remaining System Preservation Needs to Meet Performance Target
Alameda	$3,715,245	$4,082,437	$7,797,682	$2,147,587	$1,477,014	$4,173,081
Contra Costa	$3,111,346	$2,674,212	$5,785,558	$2,914,794	$1,078,936	$1,791,829
Marin	$864,832	$641,477	$1,506,309	$654,672	$332,981	$523,087
Napa	$1,087,116	$428,822	$1,515,938	$704,995	$457,632	$368,422
San Francisco	$2,415,717	$2,362,721	$4,778,438	$2,298,843	$487,602	$1,991,992
San Mateo	$1,929,281	$1,983,937	$3,913,217	$1,440,204	$919,297	$1,607,188
Santa Clara	$5,776,128	$5,117,758	$10,893,886	$3,373,599	$2,838,700	$4,695,585
Solano	$1,906,084	$1,288,751	$3,194,835	$487,841	$998,578	$1,708,415
Sonoma	$3,698,515	$1,319,208	$5,017,723	$994,268	$1,349,131	$2,674,323
TOTAL	**$24,504,263**	**$19,899,322**	**$44,403,585**	**$15,016,804**	**$9,939,872**	**$19,533,922**

Bicycle Infrastructure Need

In addition to pavement and non-pavement, the local street and road system also includes bicycle facilities. Bicycle facilities can consist of both on-road striped lanes and grade separated trails. The bicycle infrastructure needs were estimated at the regional level and are therefore not included in the table above.

The bicycle infrastructure need was estimated by using the current inventory of Class I, II and III facilities defined by the California Highway Design Manual with an assumption that growth of these facilities would occur in the future. The Bay Area currently has 700 miles of Class I facilities, over 2,000 miles of Class II facilities, and over 1,300 miles of Class III facilities. Costs for these three facility types were estimated using the total cost which included the project development costs, right-of-way acquisition and constructions costs. MTC's Regional Bikeway Network was also included in the total bicycle infrastructure needs at a cost of $500 million. The costs were escalated with a 2.2% annual growth rate to the mid-year of the 28 year plan period. The growth of the network of bicycle facilities was estimated at a 50% increase over the base year for a total need of $4.5 billion for Plan Bay Area. Pedestrian infrastructure needs were not estimated since it was assumed that these costs would be included in the non-pavement needs.

Local Bridge Needs and Revenue Assessment

Another component of the Bay Area's local street and road system is the over two thousand bridges that span 20 or more feet. Local bridges are an integral part of the transportation system. While relatively rare, local bridge failures can have significant consequences. Aside from the threat to public safety, many local bridges are the only access to homes and communities, and a failure can result in lengthy detours and economic losses.

The local bridge needs estimate for Plan Bay Area utilized the Caltrans bridge management system, Pontis, to assess and forecast the health and preservation needs of the local bridges over the 28-year Plan Bay Area period. Pontis is designed to analyze bridge data to predict future bridge conditions and needs, determine optimal policies, and recommend projects and schedules within budget and policy limitations. For this update, MTC staff trended the needs derived from a 2008 analysis to reach the 2011 base year and then escalated the costs over 28 years at the rate of 2.2 percent.

The estimate of revenues available to meet the system preservation needs consist of federal Highway Bridge Program (HBP) funds in addition to local match as well as a small amount of Proposition 1B funds for seismic retrofitting. Since HBP program funds are competitive and at the state's discretion to allocate, revenue estimates were developed based on historic shares of funding received in the region. The revenue was then distributed among the counties according to the prioritization recommendations from the Pontis bridge model. Other assumptions include allocating a 50-50 share of HBP funding between local and transit/state bridges in the region.

As seen in the table below, the estimated need for local bridge maintenance over the Paln Bay Area time frame is $2.4 billion. Approximately $1 billion in revenue was identified over the same time period, leaving a remaining need of $1.4 billion.

Table 3. Comparison of Local Bridge Funding Need by County (In Millions)

County	Needs	Revenue	Additional Funding Need
Alameda	$295	$186	$109
Contra Costa	$326	$93	$232
Marin	$122	$9	$113
Napa	$149	$105	$44
San Francisco	$276	$99	$177
San Mateo	$206	$118	$89
Santa Clara	$587	$239	$348
Solano	$190	$61	$129
Sonoma	$278	$115	$162
TOTAL	**$2,430**	**$1,026**	**$1,404**

Note: Only non-transit local bridges were included in the financial analysis above.

Local Bridge Sufficiency Rating and Health Index

Sufficiency rating (SR) is the standard measure used to evaluate whether a bridge is sufficient to remain in service. The SR ranges from zero to 100 where,

- Zero is entirely insufficient;
- Sixty to 80 is the acceptable range of sufficiency; and
- Greater than 80 is sufficient.

For Federal Highway Bridge Program (HBP) funding eligibility, bridges must be rated Structurally Deficient (SD) or Functionally Obsolete (FO) with the SR less than or equal to 80 to be eligible candidates for rehabilitation. Bridges must be rated SD or FO with the SR < 50 to be eligible candidates for replacement (See 23 CFR 650.409 for details).

The 2010 average SR for the Bay Area is 78.4, down from 80.7 in 2008. The average age for the Bay Area local bridges is 51 years. Table 4 represents the average SR, age of structures by county. Local bridges exclude transit bridges.

Table 4. 2010 Bridge Condition by County

County	# of Bridges	Avg Age (Yr)	Avg Sufficiency Rating	Structures with SR >80	Structures with SR <=80	Structures with SR <50	No SR data
Alameda	225	46	83.2	129	64	9	23
Contra Costa	345	45	82.8	197	76	16	56
Marin	118	59	77.0	56	45	11	6
Napa	104	63	73.0	49	38	17	0
San Francisco	61	60	64.6	15	18	5	23
San Mateo	133	52	79.0	69	45	10	9
Santa Clara	531	47	79.1	310	140	51	30
Solano	194	40	87.4	144	37	6	7
Sonoma	425	49	79.1	246	135	42	2
Average		51	78.4				
Total	**2,136**			**1,215**	**598**	**167**	**156**
%				57%	28%	8%	7%

As shown, counties with older bridges tend to have a lower sufficiency rating, while young jurisdictions tend to have higher SR.

Another common measure for demonstrating bridge performance over time is the bridge health index (BHI) developed by Caltrans. The BHI measures the condition of each element on a structure, with a range of zero to 100, with 100 representing the best condition. In 2008 assessment, the BHI for the region then was 91. Based on projected needs and available funding, the BHI will drop to 77 by 2038.

Figure 1 represents the age distribution of the local bridges in the Bay Area. As shown, the local bridges are aging – more than 75 percent of the structures are 30 years or older. Over 40 percent of the structures are 50 years or older and 15 percent are over 80 years old.

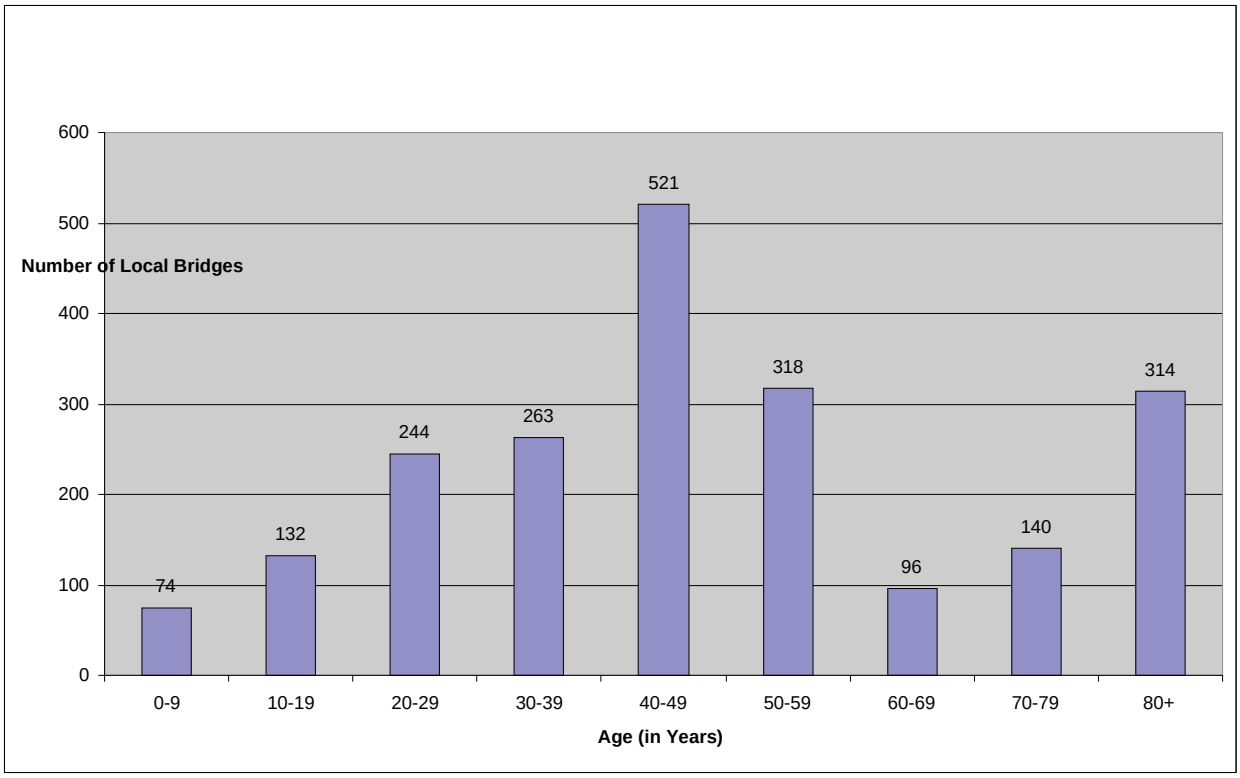

Figure 2. Age Distribution of Local Bridges

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Plan Bay Area

July 2013

Strategy for a Sustainable Region

Association of Bay Area Governments

Metropolitan Transportation Commission

Final Transit Operating and Capital Needs and Revenue Assessment

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Transit Operating and Capital Needs and Revenue Assessment

MTC analyzed how much funding is needed to operate and maintain existing transit services over the 28-year plan period from FY2012-13 to FY2039-40. On the cost side, the analysis has two components: (a) operating and maintenance costs, and (b) capital replacement and rehabilitation costs. On the revenue side, the analysis also has two components: (a) revenues that are committed to transit operating or capital costs by law or MTC or transit agency policy, and (b) discretionary funds that are allocated to transit operating or capital needs by MTC or Congestion Management Agencies (CMAs).

Transit Operating Needs and Revenues

The cost to operate and maintain existing service levels was projected by the transit operators. MTC requested a cost breakdown of expenses by mode (bus, paratransit, rail, etc.) and system wide non-operating expenses including debt service by year-of-expenditure. All projections were checked for consistency against cost projections provided in operators' Transportation Development Act (TDA) claims, which cover an audited historical year, as well as budgeted projections for the current and approaching fiscal years. Projections also were checked for reasonableness and consistency against cost projections included in *Transportation 2035 Plan for the San Francisco Bay Area*. Inflation assumptions were checked for reasonableness across similar expense categories. The cost impact of projected changes in service levels during the plan period was accounted for only in instances where those changes are a result of the transit operators' policy directives. The operating cost projections include existing service levels and cost projections for committed expansion projects. Where there were questions on the assumptions, MTC generally worked with the transit operator to get clarification and used information deemed most accurate by the transit operator. Estimates of transit operators' annual costs to operate the Clipper® system, were added to operators' annual projected costs. Lastly, beginning in FY 2017-18, a five-percent cost savings reduced annual cost projections for the seven largest transit operators, consistent with the MTC's Transit Sustainability Project (TSP) performance measure implementation.

Dedicated local funds that are controlled by the operators include fares, non-fare revenue (such as general fund contributions or revenue from advertising), other revenue (such as those from charter service), and county sales tax for operating and maintenance needs. Operating revenues were projected by the transit operators, and were again checked for consistency with revenue projections provided in the operators' most recently submitted TDA claim. The 28-year fare revenue projections were used as provided by the operators, with most projected to keep pace with inflation. Revenues from county sales tax measures were projected only up to the sunset date of the measure, and were projected to increase consistently with growth rates estimated by the county sales tax authorities. Revenues from Alameda County's proposed sales tax measure, a ½-cent augmentation to an existing measure, was included in the revenue projections beginning in FY 2016-17.

Revenues that pass through or are typically estimated by MTC include federal grants, State Transit Assistance (STA) funds, Transportation Development Act (TDA) funds, and bridge tolls for operating and maintenance needs (refer to the Financial Assumptions supplemental report for information on the projections for these sources). The revenues were assigned to each of the operators on an annual basis using MTC adopted formulas and any other applicable restrictions on the use of those funds. Some fund sources are restricted by either statute or policy to either operations or capital uses, while some fund sources are flexible. MTC staff generally assumed that all flexible transit revenues would first cover operating expenses; and then additional revenue, if any, were assigned to capital replacement if there was an identified need.

The projections resulted in 28-year total operating expenses for all operators combined of $114.3 billion, and operating revenues of $110.4 billion, leaving $3.9 billion of operating costs remaining to be funded. The remaining operating costs were addressed with $2.1 billion in regional discretionary funds and $1.7 billion in CMA discretionary funds (numbers do not add to $3.9 billion due to rounding). Projected operating service levels, expenses, and revenues are summarized in Table 1, and projected operating revenues are presented in greater detail in Table 2.

Plan Bay Area proposes establishing a reserve account for projected Cap-and-Trade revenues to be used for transit-oriented affordable housing, for transit operating and capital rehabilitation/replacement, and for local street and road rehabilitation, consistent with the focused land use strategy outlined in Plan Bay Area. Projected Cap-and-Trade revenues were not distrusted among Bay Area transit operators, and would increase the investment capacity for transit operations. Consequently, the needs and revenue assessment results detailed in Tables 1 and 2 do not include projected Cap-and-Trade revenues.

Transit Capital Replacement and Rehabilitation Needs and Revenues

The transit capital replacement and rehabilitation need projections are based on data in the Regional Transit Capital Inventory (RTCI), a database of all of the region's transit capital assets, such as buses, railcars, ferries, track, bridges, tunnels, train control and traction power systems, stations, maintenance facilities, and communications systems. The objective of the RTCI is to collect consistent and comparable data on the region’s transit capital assets and replacement and rehabilitation costs for each transit operator.

In addition to an inventory of assets, the RTCI includes replacement and rehabilitation lifecycle costs for each type of asset. Asset data for the RTCI was developed by each operator, using multiple sources, such as maintenance management systems, fleet plans, condition assessments, and fixed asset accounting systems. Industry standard replacement and rehabilitation cycles and costs for each asset type were developed based on a national inventory maintained by the Federal Transit Administration (FTA) and other sources. The industry standard costs and lifecycles were used for assets for which the operator did not have complete data. The RTCI data was initially collected in 2007, and updated with data on new and retired assets, as well as refined cost and lifecycle information, in 2011.

Transit capital needs were defined as the cost of replacing all assets at the end of their useful lives, and performing all capital rehabilitation work in accordance with the recommended rehabilitation cycle for the asset type. This includes eliminating the existing $5.0 billion backlog of deferred replacement and rehabilitation projects over the first ten years of the planning period. In some cases, particularly for long-lived assets such as stations or tunnels, major components were assumed to be replaced, rather than the entire asset. Clipper® equipment replacement and upgrade costs were projected by Clipper® staff and included in a centralized Clipper® line item.

Transit revenues that are currently committed to capital replacement and rehabilitation by statute or policy were assumed to continue to be dedicated to capital over the 28-year planning period. These sources include FTA Urbanized Area Formula (Section 5307), and Fixed Guideway Modernization (Section 5309 FG) funds, AB 664 and 2 percent bridge tolls, certain county transportation sales taxes, local and state bond proceeds for seismic work, and, as noted above, projected operating surpluses, if any. The MAP-21 federal transportation authorization made several changes to FTA funding programs, including replacing the Fixed Guideway Modernization with a new State of Good Repair (Section 5337) program, and creating a new Bus & Bus Facilities (Section 5339) program. However, the total FTA funding for the region under MAP-21 remains generally consistent with the projections used for Plan Bay Area, so the projections were not revised based on MAP-21's program changes.

FTA revenue projections were based on actual apportionments with assumed 3.0 percent annual growth. The FTA and bridge toll revenues for each operator were projected by using the current programming policies for those sources applied to the projected needs. The 10 percent ADA Operating Set-Aside funds in the FTA 5307 program were assumed to be used as operating revenues. The remaining 90 percent of projected 5307 funds, as well as the other FTA formula funds, were assigned to operators using the Transit Capital Priorities Project Apportionment Model used for annual programming of the FTA funds. The FTA funds come into the region through 12 urbanized areas, and each operator is eligible for funding from one or more urbanized areas. The Project Apportionment Model assigns funds to projects based on urbanized area eligibility and project score. Refer to the Financial Assumptions supplemental report for information on projections of other revenue sources.

Projected committed capital revenues totaled $20.9 billion before the assignment of Plan Bay Area discretionary revenues. The projected capital needs totaled $46.5 billion, resulting in $25.6 billion of remaining needs before adding the discretionary revenues. For projects that are high-scoring (Score 16) under the region's Transit Capital Priorities policy – revenue vehicle replacement, fixed guideway rehabilitation, and major systems – projected needs totaled $32.7 billion, with $13.3 billion of the Score 16 needs remaining unfunded after applying the eligible committed funds.

The Commission directed $8.3 billion of the region's projected discretionary revenues to address transit capital rehabilitation and replacement shortfalls, and CMAs contributed

another $950 million. These actions reduced the amount of remaining transit maintenance needs to achieve the Plan Bay Area performance target to $16.4 billion.

Plan Bay Area prioritizes the region's revenue vehicle replacement needs, followed by other Score 16 needs, such as fixed guideway and major systems. Of the $9.3 billion total discretionary revenues (Commission and CMA), approximately $700 million was directed to meet the remaining revenue vehicle needs, and $8.6 billion for other Score 16 needs. The $8.6 billion for other Score 16 needs was allocated to individual transit operators in proportion to each operator's share of the remaining other Score 16 needs.

The $30.2 billion total project revenues for transit capital rehabilitation – committed, Commission discretionary and CMA discretionary – are sufficient to cover 100% of projected vehicle replacement needs, 76% of other Score 16 needs, and 65% of all capital needs.

It is important to note that these Plan Bay Area funding assignments are based on projections of aggregate need over 28 years; actual programming will vary year to year and will take into account actual project eligibility and readiness. Projected transit capital rehabilitation and replacement needs and revenues for all projects are summarized in Table 3. The distribution of Plan Bay Area discretionary revenues for transit capital rehabilitation and replacement is detailed in Table 4. Projected revenues for transit capital rehabilitation and replacement, including committed revenues and the discretionary revenues assigned to these needs, are summarized in Table 5.

Similar to transit operations, projected Cap-and-Trade revenues were not distributed among Bay Area transit operators, and would increase the investment capacity for transit capital rehabilitation/replacement. However, these projected revenues were not included in the needs and revenue assessment. The needs and revenue assessment results detailed in Tables 3-5 do not include projected Cap-and-Trade revenues.

Table 1. Plan Bay Area 28-Year Transit Operating Needs & Revenues for Existing and Committed Service Levels

(In Escalated $ Millions)

Operator	FY 2011-12 Revenue Vehicle Hours (1,000s)	Operating Expenses	Committed Operations Funds	Regional Discretionary Funds	CMA Discretionary Funds	Total Operating Revenue Used For Operations	Remaining Needs
Large Operators							
AC Transit	1,624	$12,572	$11,080	$0	$1,491	$12,572	$0
BART	2,000	27,044	26,948	0	96	27,044	0
Caltrain	30	4,325	3,896	429	0	4,325	0
GGBHTD	406	3,010	2,470	540	0	3,010	0
SamTrans	880	6,067	5,665	402	0	6,067	0
SFMTA	3,439	36,285	36,110	175	0	36,285	0
VTA	1,803	16,356	16,356	0	0	16,356	0
Subtotal	**10,182**	**$105,659**	**$102,524**	**$1,547**	**$1,587**	**$105,659**	**$0**
Small Operators							
ACE	20	$635	$571	$0	$64	$635	$0
CCCTA	306	1,029	1,029	0	0	1,029	0
ECCTA	98	470	432	38	0	470	0
Fairfield	149	667	539	96	32	667	0
LAVTA	188	356	356	0	0	356	0
Marin County	94	302	302	0	0	302	0
Napa	23	84	84	0	0	84	0
Petaluma	6	32	32	0	0	32	0
Rio Vista	112	621	353	269	0	621	0
Santa Rosa	97	396	396	0	0	396	0
SMART	105	570	496	74	0	570	0
SolTrans	0	817	779	38	0	817	0
Sonoma County	203	730	730	0	0	730	0
Union City	49	154	138	0	16	154	0
Vacaville	30	79	79	0	0	79	0
Westcat	93	446	377	69	0	446	0
WETA	13	1,133	1,101	0	32	1,133	0
Subtotal	**1,585**	**$8,522**	**$7,794**	**$584**	**$144**	**$8,522**	**$0**
Clipper®	N/A	96	96	0	0	96	0
Total	**11,767**	**$114,277**	**$110,415**	**$2,131**	**$1,731**	**$114,277**	**$0**

Notes:

1. The total available revenues may exceed the revenues needed for operations. In that case, the additional revenues were assumed to be available to capital replacement and rehabilitation. See Table 2 for details.
2. Costs and revenues listed under Clipper® are for central, systemwide costs. Clipper® operating costs and revenues attributable to individual operators are included under each operator.
3. Included in the projected operating costs are Caltrain's service frequency improvements with electrification, and BART's service expansion to San Jose.

Table 2. Plan Bay Area Transit Operations 28-Year Cost and Revenue Projections Detail

(In Escalated $ Millions)

Operators	Committed Transit Operating Revenues										Plan Bay Area Regional Disc. Revenues	Plan Bay Area CMA Disc. Revenues	Total Operating Revenues Used for Operations	Operating Revenue Available for Capital Replacement *
	Fares	Non-Fare / Other Revenues	County Sales Taxes	TDA Revenues	STA Revenues	AB 1107 Sales Taxes	Bridge Tolls	FTA ADA Operating	County Reg. Fees	Total Committed Revenues				
Large Operators														
AC Transit	$2,203	$4,425	$271	$1,925	$854	$1,243	$273	$193	$78	$11,465	$0	$1,491	$12,572	$384
BART	17,586	2,693	0	0	1,253	7,456	0	143	0	29,132	0	96	27,044	2,184
Caltrain	2,221	1,331	0	0	295	0	0	49	0	3,896	429	0	4,325	0
GGBHTD	778	666	0	549	334	0	70	55	19	2,470	540	0	3,010	0
SamTrans	781	558	2,687	1,271	254	0	9	49	56	5,665	402	0	6,067	0
SFMTA	7,933	23,186	96	1,339	2,150	1,243	75	183	37	36,242	175	0	36,285	132
VTA	3,065	1,821	9,376	4,041	909	0	0	168	0	19,380	0	0	16,356	3,024
Subtotal	**$34,567**	**$34,681**	**$12,431**	**$9,126**	**$6,047**	**$9,942**	**$427**	**$839**	**$190**	**$108,249**	**$1,547**	**$1,587**	**$105,659**	**$5,724**
Small Operators														
ACE	$170	$389	$0	$0	$33	$0	$0	$24	$0	$616	$0	$64	$635	$44
CCCTA	159	59	152	608	201	0	4	32	0	1,215	0	0	1,029	186
ECCTA	131	3	37	350	177	0	15	22	0	735	0	0	730	5
Fairfield	79	151	0	133	50	0	20	0	0	432	38	0	470	0
LAVTA	93	29	35	258	82	0	16	14	12	539	96	32	667	0
Marin County	26	197	141	0	0	0	0	0	0	363	0	0	356	7
Napa	41	1	0	262	44	0	11	1	0	361	0	0	302	59
Petaluma	9	1	8	66	17	0	0	0	0	102	0	0	84	17
Rio Vista	2	19	0	10	3	0	0	0	0	34	0	0	32	1
Santa Rosa	67	0	35	194	57	0	0	0	0	353	269	0	621	0
SMART	176	61	542	0	0	0	0	0	0	779	38	0	817	0
SolTrans	105	9	0	188	80	0	34	30	0	446	0	0	396	50
Sonoma Co.	69	0	30	308	89	0	0	0	0	496	74	0	570	0
Union City	21	0	24	87	23	0	0	0	5	159	0	16	154	21
Vacaville	13	1	0	123	30	0	0	0	0	166	0	0	79	87
Westcat	95	7	52	94	108	0	16	5	0	377	69	0	446	0
WETA	398	295	34	0	0	0	579	0	0	1,307	0	32	1,133	206
Subtotal	**$1,653**	**$1,220**	**$1,090**	**$2,682**	**$992**	**$0**	**$695**	**$129**	**$17**	**$8,479**	**$584**	**$144**	**$8,522**	**$685**
Clipper®	0	96	0	0	0	0	0	0	0	96	0	0	96	0
Total	**$36,220**	**$35,998**	**$13,521**	**$11,807**	**$7,040**	**$9,942**	**$1,122**	**$968**	**$207**	**$116,824**	**$2,131**	**$1,731**	**$114,277**	**$6,409**

* Additional operating revenue available for Capital Replacement or to support other Plan Bay Area projects.

Table 3. Plan Bay Area 28-Year Capital Needs and Revenues Summary for All Projects (All Scores)

(In Escalated $ Millions)

Operators	All Scores Capital Need	Total Committed Revenues	Plan Bay Area Regional Discretionary Revenues	Plan Bay Area CMA Discretionary Revenues	Total Capital Revenues	Remaining Needs* After Discretionary Revenues*
Large Operators						
AC Transit	$3,354	$1,324	$267	$0	$1,591	$1,763
BART	16,473	6,349	3,982	114	10,444	6,028
Caltrain	3,342	358	731	0	1,090	2,252
GGBHTD	1,230	646	132	0	778	452
SamTrans	1,468	461	337	0	797	671
SFMTA	12,712	5,194	2,366	835	8,395	4,317
VTA	4,313	4,313	0	0	4,313	0
Subtotal	**$42,891**	**$18,644**	**$7,815**	**$949**	**$27,408**	**$15,483**
Small Operators						
ACE	$155	$102	$17	$0	$119	$36
CCCTA	415	372	0	0	372	43
Dixon	4	1	2	0	4	0
ECCTA	197	112	61	0	172	25
Fairfield	184	110	0	0	110	74
LAVTA	218	112	67	0	178	40
Marin County	43	32	9	0	41	2
Napa	145	125	0	0	125	21
Petaluma	34	27	0	0	27	7
Rio Vista	10	3	0	0	3	7
Santa Rosa	127	111	0	0	111	16
SMART	241	64	85	0	149	92
SolTrans	409	199	0	0	199	211
Sonoma County	269	78	48	0	126	143
Union City	64	54	5	0	59	4
Vacaville	68	68	0	0	68	0
Westcat	157	60	47	0	107	51
WETA	324	324	0	0	324	0
Subtotal	**$3,065**	**$1,953**	**$341**	**$0**	**$2,293**	**$772**
Clipper®	584	316	157	0	473	111
Total	**$46,540**	**$20,913**	**$8,313**	**$949**	**$30,175**	**$16,365**

* Remaining needs to meet performance target of 0% of assets in service past useful life.

Table 4. Distribution of Regional Discretionary Revenues for Transit Capital Needs

(In Escalated $ Millions)

Operators	Discretionary Funding for Vehicles Based on Vehicle Remaining Need*		Discretionary Funding for Other Score 16 Based on Other Score 16 Remaining Need*		Total Discretionary Funding
	Vehicle Remaining Need	Discretionary Funding	Other 16 Remaining Need	Discretionary Funding	
Large Operators					
AC Transit	$155	$155	$186	$112	$267
BART	0	0	6,601	3,982	3,982
Caltrain	1	1	1,210	730	731
GGBHTD	32	32	166	100	132
SamTrans	283	283	89	54	337
SFMTA	0	0	3,923	2,366	2,366
VTA	0	0	0	0	0
Subtotal	**$471**	**$471**	**$12,176**	**$7,344**	**$7,815**
Small Operators					
ACE	$16	$16	$1	$1	$17
CCCTA	0	0	0	0	0
Dixon	2	2	0	0	2
ECCTA	60	60	2	1	61
Fairfield	0	0	0	0	0
LAVTA	63	63	6	3	67
Marin County	9	9	0	0	9
Napa	0	0	0	0	0
Petaluma	0	0	0	0	0
Rio Vista	0	0	0	0	0
Santa Rosa	0	0	0	0	0
SMART	0	0	140	85	85
SolTrans	0	0	0	0	0
Sonoma County	37	37	18	11	48
Union City	4	4	1	1	5
Vacaville	0	0	0	0	0
Westcat	46	46	1	1	47
WETA	0	0	0	0	0
Subtotal	**$238**	**$238**	**$169**	**$102**	**$341**
Clipper®	0	0	261	157	157
Total	**$709**	**$709**	**$12,606**	**$7,604**	**$8,313**

* Remaining needs to meet performance target of 0% of assets in service past useful life.

Table 5. Plan Bay Area 28-Year Transit Capital Maintenance Revenues Summary

(In Escalated $ Millions)

Operators	Committed Transit Capital Revenues											Plan Bay Area Regional Disc. Revenues	Plan Bay Area CMA Disc. Revenues	Total Capital Revenues
	FTA Formula Funds	County Sales Taxes	AB 664 Bridge Tolls	BART Seismic GO Bonds	Prop 1B Rev-Based	STP Transit Capital Rehab	2% Bridge Tolls	Pop 1B Pop-Based	Operating Funds	Reconcile Adjust.*	Total Committed Revenues			
Large Operators														
AC Transit	$870	$0	$42	$0	$21	$7	$0	$0	$384	$0	$1,324	$267	$0	$1,591
BART	3,635	29	175	215	52	58	0	0	2,184	0	6,349	3,982	114	10,444
Caltrain	321	122	16	0	9	9	0	0	0	(119)	358	731	0	1,090
GGBHTD	633	0	0	0	8	4	0	1	0	0	646	132	0	778
SamTrans	437	0	9	0	11	4	0	0	0	0	461	337	0	797
SFMTA	4,091	776	84	0	69	41	0	0	132	0	5,194	2,366	835	8,395
VTA	2,175	420	0	0	32	14	0	0	3,024	(1,352)	4,313	0	0	4,313
Subtotal	**$12,163**	**$1,348**	**$326**	**$215**	**$202**	**$137**	**$0**	**$1**	**$5,724**	**($1,471)**	**$18,644**	**$7,815**	**$949**	**$27,408**
Small Operators														
ACE	$56	$0	$0	$0	$1	$1	$0	$0	$44	$0	$102	$17	$0	$119
CCCTA	174	0	8	0	1	1	0	1	186	0	372	0	0	372
Dixon	1	0	0	0	0	0	0	0	0	0	1	2	0	4
ECCTA	100	0	5	0	0	1	0	1	5	0	112	61	0	172
Fairfield	109	0	0	0	0	0	0	0	0	0	110	0	0	110
LAVTA	105	0	5	0	0	1	0	1	0	0	112	67	0	178
Marin County	24	0	0	0	0	0	0	0	7	0	32	9	0	41
Napa	65	0	0	0	0	0	0	0	59	0	125	0	0	125
Petaluma	9	0	0	0	0	0	0	0	17	0	27	0	0	27
Rio Vista	1	0	0	0	0	0	0	0	1	0	3	0	0	3
Santa Rosa	110	0	0	0	0	0	0	0	0	0	111	0	0	111
SMART	63	0	0	0	0	1	0	0	0	0	64	85	0	149
SolTrans	139	0	7	0	1	1	0	1	50	0	199	0	0	199
Sonoma County	76	0	0	0	0	1	0	1	0	0	78	48	0	126
Union City	31	0	2	0	0	0	0	0	21	0	54	5	0	59
Vacaville	75	0	0	0	0	0	0	0	87	(94)	68	0	0	68
Westcat	56	0	3	0	1	0	0	0	0	0	60	47	0	107
WETA	222	0	11	0	0	1	29	0	206	(144)	324	0	0	324
Subtotal	**$1,416**	**$0**	**$40**	**$0**	**$6**	**$10**	**$29**	**$6**	**$685**	**($239)**	**$1,953**	**$341**	**$0**	**$2,293**
Clipper®	313	0	0	0	0	3	0	0	0	0	316	157	0	473
Total	**$13,892**	**$1,348**	**$366**	**$215**	**$207**	**$149**	**$29**	**$7**	**$6,409**	**($1,710)**	**$20,913**	**$8,313**	**$949**	**$30,175**

* Revenues for operators with projected capital maintenance surpluses adjusted so total revenues equal amount needed to cover capital needs.

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