



moveSmartSF
SAN FRANCISCO
TRANSPORTATION PLAN
2040

FINAL REPORT
DECEMBER 2013



FROM THE EXECUTIVE DIRECTOR



The countywide transportation plan is where all of the city's transportation modes, operators, and networks come together. Ten years ago we developed the first long-range transportation plan and investment blueprint for San Francisco. This investment strategy served as the basis for Prop K, the half-cent transportation sales tax reauthorized by over 75% of voters in late 2003. To date, we have allocated over \$1 billion in Prop K expenditures, leveraging as we did so significant regional, state, and federal matching dollars. The Transportation Authority's Prop K and other allocations have funded critical improvements in every neighborhood such as traffic calming, safe pedestrian and bicycle networks, new transit vehicles, signal priority, and street resurfacing. With the help of public and private partners, all of the Plan's signature capital investments also have been implemented or are substantially underway, including the Presidio Parkway, Transbay Transit Center, Central Subway, and Van Ness Avenue Bus Rapid Transit. During this time, the city responded together with the region to a statewide call to action on climate change, approving a generation of land use plans with transit-oriented designs and sustainable policies. Together, we weathered an economic cycle whose impacts were mitigated by our ability to use local funds such as Prop K to keep projects moving forward and competitive for new funding opportunities when they eventually arose (such as federal stimulus funds). We also partnered with the City to maintain our transportation assets, though significant needs remain. Now, as economic activity returns, we must continue to invest to address pressing maintenance and safety needs. We should deploy and manage our scarce resources efficiently. And we will develop innovative solutions and deliver the next generation of infrastructure that is necessary to meet our goals for a healthy, vibrant, and equitable transportation system for all users.

A handwritten signature in blue ink that reads "Tilly Chang".

Tilly Chang

EXECUTIVE DIRECTOR, SFCTA



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Photo above courtesy of Perkins + Will | Report design by Bridget Smith

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CHAPTER ONE

INTRODUCING THE SAN FRANCISCO TRANSPORTATION PLAN



THE SAN FRANCISCO TRANSPORTATION PLAN, OR SFTP, is the blueprint for San Francisco's transportation system development and investment over the next 30 years. The SFTP brings all transportation modes, operators, and networks together, with a view to improving travel choices for all users. Through detailed analysis, interagency collaboration, and listening to the public, we've evaluated ways to improve our system with existing and potential new revenues. The SFTP recommends a diverse investment plan that makes meaningful progress towards our important goals: livability, world-class infrastructure, economic competitiveness, and a healthy environment. The SFTP also recommends policy changes that depart from business as usual and will help us make the most of our investments.

INSIDE THE SFTP

The SFTP contains:

- The Investment Plan, to guide spending of existing and anticipated new transportation funds through 2040.
- The SF Investment Vision, to guide spending of additional new locally-controlled revenues.
- Policy recommendations and strategic initiatives to complement the Investment Plan and Vision.
- Next steps for implementing the SFTP recommendations and monitoring results.

Through 2040, we can expect about \$75 billion in funding to support San Francisco's transportation system. Most of this is already committed to specific projects or purposes. This leaves \$5 billion in existing and anticipated new revenues that we can decide how to spend. As shown in Figure 1, this \$75 billion funds the Investment Plan. Because there is far more need than available revenues for transportation, the SF Investment Vision assumes an additional \$7.5 billion in locally-controlled revenues. Figure 2 presents the highlights of the Investment Plan and Vision.

PHOTO: CENTRAL SUBWAY'S TUNNEL BORING MACHINE "MOM CHUNG" IS NOW MAKING ITS WAY BENEATH THE STREETS OF SAN FRANCISCO

FIGURE 1. SF INVESTMENT PLAN AND SF INVESTMENT VISION REVENUE (BY USE)

	\$75B INVESTMENT PLAN	\$82.5B INVESTMENT VISION
\$70B COMMITTED	\$5B DISCRETIONARY	\$7.5B DISCRETIONARY

FIGURE 2. HIGHLIGHTS OF THE SFTP INVESTMENT SCENARIOS

	INVESTMENT PLAN		SF INVESTMENT VISION	
Operations and Maintenance of Transit and Streets	\$66.3B 88%	70% of highest priority transit maintenance needs met Maintains today's pavement condition	\$69.7B 84%	100 % of highest priority transit maintenance needs met Pavement condition improves to "good" levels
Multimodal Street Safety, Enhancement, and Community Mobility	\$1.2B 1%	About 40% of the City's Pedestrian Safety Strategy and 22% of the City's Bicycle Strategy funded Parking and peak period congestion pricing downtown help reduce auto trips by up to 10%	\$2.5B 3%	100% of the Pedestrian Safety and Bicycle Strategies funded Further expansions of cost-effective employer, school, and community trip reduction programs help reduce auto trips by up to 14%
Efficiency and Expansion Projects	\$7.6B 10%	15 miles of protected transit lanes Caltrain electrification and extension to a rebuilt Transbay Terminal	\$10.4B 13%	Up to 33 miles of protected transit lanes, including increased BART capacity and reliability Freeway management and transit efficiency strategies, including increased BART capacity and reliability
TOTAL	\$75.1B		\$82.6B	

KEY FINDINGS AND POLICY RECOMMENDATIONS

- Prioritize revenues to fully fund timely vehicle replacement and rehabilitation
- Expand transit service while supporting steps to stabilize costs
- Achieve city goals for average pavement condition
- Build the pedestrian and bicycle strategies to establish safer neighborhood networks citywide
- Create more complete streets (at lower cost) through coordination with repaving
- Increase investment in employer, school, and community trip reduction programs
- Increase transparency and promote public involvement by sharing agency prioritization and development processes
- Continue to develop pricing approaches to congestion management
- Continue rapid transit network development, including bus rapid transit
- Continue to coordinate transit investment with land use development plans
- Set a vision for managing the city's freeway network
- Identify the next generation transit network priorities for BART, Caltrain, and Muni
- Consider all options for delivering projects

The SFTP recommends a diverse investment plan that makes meaningful progress towards our important goals: safe and livable neighborhoods, well-maintained infrastructure, economic competitiveness, and environmental health.

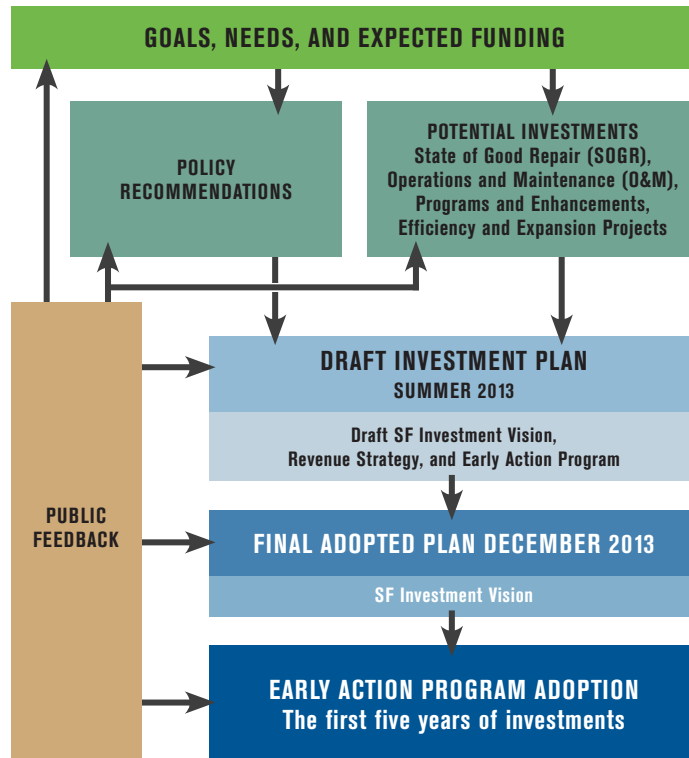


FIGURE 3. SFTP PROCESS FLOW CHART

SFTP GOALS

The SFTP positions San Francisco to meet our city's transportation system goals. We identified the four SFTP goal areas, shown in Figure 4, through Board, partner agency, and community input, and through consideration of city policies like the Transit First Policy in the City Charter and the City's Climate Action Plan. Appendix A (SFTP Plan Development Process) and Appendix B (Needs Analysis White Paper) describe how these goals and associated performance measures shaped our assessment of transportation system needs, the Investment Plans, and policy recommendations.

HOW WE DEVELOPED THE SFTP

As Congestion Management Agency (CMA) for San Francisco, the Transportation Authority is responsible for developing a long-range, countywide transportation plan. We developed the SFTP through extensive technical analysis, consultation with partner agencies, and community outreach over several years. Appendices A-J describe the technical analysis behind the plan.

Throughout the SFTP development process, we heard several consistent policy questions from our Board, partner agencies, and the public, and we responded with research and analysis. Figure 5 (next page) lists the policy research topics and associated products. The research findings led to the creation of the final policy recommendations contained in this document.

THE SIGNIFICANCE OF THE SFTP

The priorities established in the SFTP influence the regional transportation plan prepared by the Metropolitan Transportation Commission (MTC), known as Plan Bay Area, and position San Francisco for regional, state, and federal transportation funding. Transportation projects seeking this funding must be consistent with the SFTP and Plan Bay Area.

Additionally, the SFTP informs and guides other local and regional plans and policy priorities:

- It reflects and reinforces San Francisco's Transit First Policy, adopted in 1973.
- It informs local plans and investments including the General Plan Transportation Element, the SFMTA and City and County of San Francisco Capital Plans, and regional transit operator (e.g. BART and Caltrain) expansion plans.
- It informs San Francisco's efforts to manage congestion and coordinate transportation investment with land use, as described in the Congestion Management Program (CMP).
- It guides project selection for the Proposition K (Prop K) 5-year plans. Prop K is San Francisco's half-cent transportation sales tax, approved by over 75% of voters in 2003. Prop K leverages federal, state, and other funds to direct hundreds of millions of dollars toward SFTP implementation.

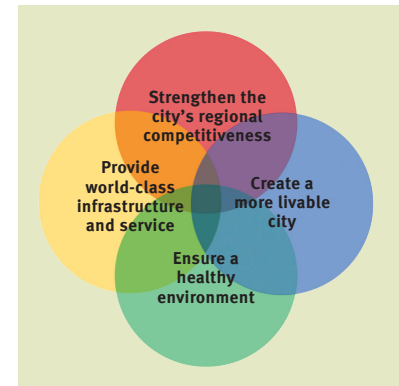


FIGURE 4. SFTP GOAL AREAS

FIGURE 5. ANALYSIS AND POLICY STUDIES DEVELOPED DURING THE SFTP PROCESS

POLICY QUESTION/STRATEGIC INITIATIVE	RESEARCH PRODUCT
How can we...	
Meet our ambitious livability and environmental goals?	Needs Analysis White Paper (Appendix B)
Improve the social and geographic equity of our transportation system?	Transportation Equity Analysis (Appendix F)
Create complete streets that improve safety for all users?	Small Project Delivery White Paper (Appendix H)
Deliver transportation projects faster?	Small Project Delivery White Paper (Appendix H) Large Project Delivery White Paper (Appendix I)
Reduce conflicts between the local and regional transportation systems, and improve connections?	Core Circulation Study (Appendix C)
Collaborate more effectively with the private sector to manage travel demand?	Travel demand management strategic plan (expected spring 2014)
Reduce conflicts and provide for the needs generated by the fast-growing SoMa neighborhood?	Core Circulation Study (Appendix C)
Raise new revenue for transportation?	Revenue Options Analysis (available on request) Revenue White Paper (expected early 2014)
Meet the unique transportation needs of young students, visitors, and deliveries?	Needs Analysis White Paper (Appendix B)

Significant progress has been made on goals set in the 2004 Countywide Transportation Plan, projects that were made possible in part through San Francisco's Prop K transportation sales tax dollars, approved by over 75% of voters in 2003.

ACCOMPLISHMENTS SINCE THE LAST PLAN

The SFTP builds on the accomplishments of the 2004 Countywide Transportation Plan,¹ including:

- Major investments in new transit capacity and system maintenance projects are constructed or underway:
 - » T-Third Light Rail linking the Bayview and South of Market.
 - » Tunneling work for the new Central Subway linking the T-Third to SoMa, Union Square and Chinatown.
 - » Replacement of the old Central Freeway with Octavia Boulevard.
 - » Replacement of Doyle Drive with Presidio Parkway.
 - » A new Transbay Transit Center under construction.
- A citywide network of rapid buses is under development:

- » Completion of environmental work for Van Ness Avenue Bus Rapid Transit (BRT).
- » Environmental impact analyses are underway for Geary Boulevard BRT and the Transit Effectiveness Project.
- Neighborhoods are more livable, through bicycle, pedestrian, traffic calming, and streetscape improvements:
 - » Prop K provided the first and only stable source of funding for traffic calming.
 - » Examples such as Leland Avenue, Valencia Street, and Broadway Street re-designs demonstrate new ways of improving safety, livability, and creating open space.
 - » Majority of SF Bicycle Plan constructed.
- Parking management and road pricing are key concepts in discussions about managing San Francisco's transportation system:

¹ The 2004 Plan is available on the authority web site: <http://www.sfcta.org/documents-and-data/documents/2004-countywide-transportation-plan>

- » SFMTA piloted variable parking pricing and management (SFpark).
- » The Transportation Authority Board adopted the Mobility Access and Pricing Study exploring various scenarios for possible congestion charge downtown.
- » The Board of Supervisors unanimously adopted the innovative road and parking pricing program for Treasure Island.
- Multiple Neighborhood Transportation Plans adopted by the Authority Board have established a pipeline of community-supported neighborhood transportation projects, many of which have been implemented, including in the Outer Mission, Mission South of Chavez, Tenderloin/Little Saigon, Bayview, Western South of Market, and Balboa Park.
- Numerous state of good repair investments to improve the reliability of the transportation network:
 - » Construction of the Muni Metro East Maintenance Facility, the first major expansion to the SFMTA's Light Rail Vehicle maintenance facilities since the 1970s.
 - » Acquisition of nearly 200 new hybrid buses for Muni and the construction of the Islais Creek Maintenance Facility, the first new rubber-tire maintenance facility in 60 years.
 - » Street resurfacing, traffic signal upgrades, sidewalk repairs, and new curb ramps on sidewalks citywide.



Top to bottom: Projects as diverse as the Central Subway, new bicycle facilities, the T-Third light rail line, and Western SoMa streetscape enhancements are all part of the legacy of the 2004 Countywide Transportation Plan.

THE SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

Created in 1989, the Transportation Authority:

- Develops San Francisco's long-range transportation plan (SFTP)
- Helps analyze and fund transportation system improvements
- Administers the Prop K half-cent local transportation sales tax program and the Prop AA vehicle license fee.
- Manages the Transportation Fund for Clean Air (TFCA).
- Serves as Congestion Management Agency (CMA) for San Francisco under state law. Prop 111, passed in 1990, increased the state fuel tax and required urban counties to designate a CMA responsible for coordinating transportation planning, funding and other activities in a congestion management program. To learn more about the Transportation Authority, visit our web site at www.sfcta.org.



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CHAPTER TWO

OUR TRANSPORTATION CHALLENGES AND OPPORTUNITIES



SEVERAL CRITICAL CHALLENGES AND OPPORTUNITIES must be considered as we strive to achieve our transportation system goals for livability, world-class infrastructure, economic competitiveness, and a healthy environment. The following section highlights these issues, and Appendix B provides additional detail. Appendix K (San Francisco Travel at a Glance) depicts three key travel trends that shaped the SFTP.

LIVABILITY

San Francisco aims to be a livable city—one where walking, bicycling, and transit are safe, comfortable, and convenient modes of travel. Accordingly,

- The SFMTA has set a goal of more than 50% of trips by walking, bicycling, and transit by 2018.
- The Mayor's Executive Directive 10-03 called for a 50% reduction in severe and fatal pedestrian injuries by 2021.
- The Board of Supervisors set a goal of achieving a 20% bicycle mode share by 2020.

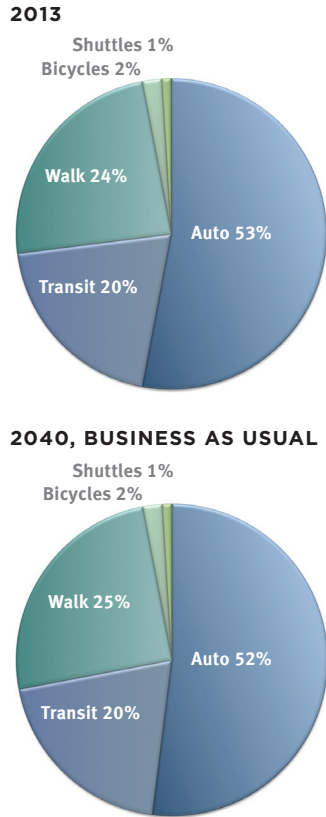
Achieving the desired growth in bicycling, walking, and transit trips while reducing the rate of injuries and fatalities will require increased investment, education, and re-allocation of street space—sometimes with difficult trade-offs—to these modes.

MANY WANT TO WALK AND BIKE TODAY, BUT DON'T DUE TO SAFETY CONCERNS

Supporting travel by walking and bicycling requires safety improvements. Safety concerns discourage pedestrians: about 820 pedestrians are killed or injured every year in San Francisco, many on arterials roadways identified in the Walkfirst Investment Plan (Figure 6). Without

We asked “what would it take?” to achieve San Francisco’s ambitious goals. Some of our goals, such as world-class infrastructure would require major increases in funding. Others require both new funding and bold policies that prioritize transit, walking, and bicycling in our limited rights of way. See page 19 for a summary.

FIGURE 7. SHARE OF TRIPS BY MODE OF TRAVEL, 2013 (TOP) AND 2040 BUSINESS AS USUAL (BOTTOM)



SOURCE: SFCTA, SF CHAMP

significant new investment, this number could grow as high as 980¹ by 2040 due to projected increases in automobile trips.

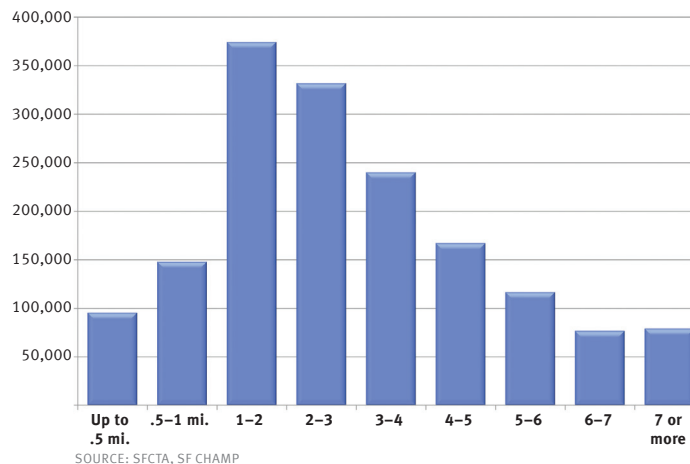
San Francisco's aging population also adds to the challenge of achieving this goal. San Francisco is projected to experience 68% growth in number of people 65 and older by 2040, making this group 20% of the population (compared to 16% today²). Older pedestrians are more vulnerable to serious injury or death when struck by an automobile.

Safety concerns also discourage bicycling. Surveys conducted for the SFMTA's 2012 State of Cycling Report indicate that almost half of those who do not currently bicycle say they are uncomfortable bicycling in mixed flow traffic with cars, and only 13% said they feel safe from traffic when bicycling. At the same time, 94% of respondents said they would feel comfortable riding in bicycle lanes.

UNRELIABLE TRANSIT DISPROPORTIONATELY AFFECTS OUTER NEIGHBORHOODS

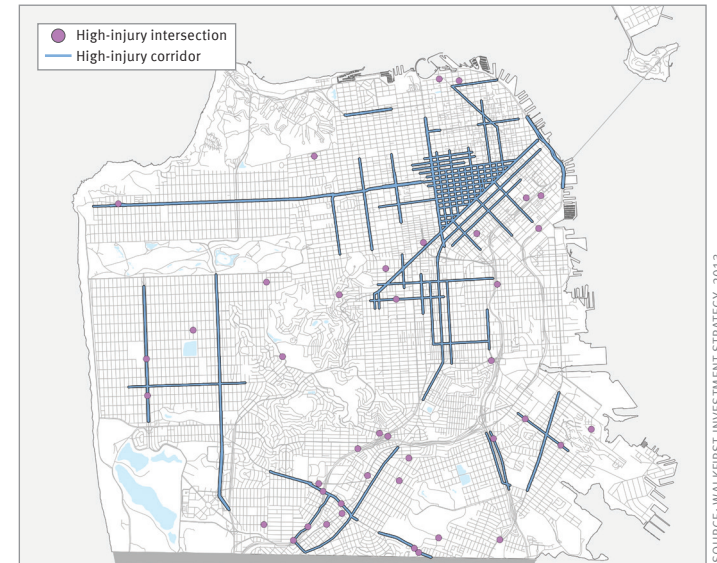
Livable neighborhoods are accessible by transit, not just during peak commute periods, but throughout the day and evening. This

FIGURE 8. AUTOMOBILE TRIPS WITHIN SAN FRANCISCO BY LENGTH, 2040



¹ Based on SFPD Eastern Neighborhoods Impact Analysis which indicated that holding all other variables constant, a 15% increase in vehicle volume produces a 10% increase in pedestrian injury collisions.

² Based on Association of Bay Area Governments population projections for San Francisco.



SOURCE: WALKFIRST INVESTMENT STRATEGY, 2013

FIGURE 6. HIGH-INJURY PEDESTRIAN CORRIDORS

supports San Franciscans' ability to get to and from school, medical appointments and recreational activities by transit. Analysis of transit transfer rates and input received during outreach indicate that outlying neighborhoods, including the Bayview and Sunset, are less accessible throughout the day by transit. A shortage of maintained vehicles results in turning back buses and light rail vehicles before they serve outer neighborhoods, forcing riders into extra waits. The transit network in the lower-density Sunset neighborhoods and hilly Eastern Neighborhoods is less dense, resulting in fewer transit alternatives and fewer direct rides—and making reliability all the more important.

PLANNED INFILL LAND USE PATTERNS SUPPORT WALKING, BICYCLING, AND TRANSIT

The land use plans adopted by the San Francisco Planning Commission and Board of Supervisors over the last decade are expected to move us in the right direction, supporting infill and making walking and bicycling easier. As new residents and jobs locate in areas already convenient for bicycling and walking, the share of trips made by bicycling and walking is expected to grow slightly (Figure

7) but additional investment is needed to meet the city's goal of more than 50% of trips by walking, bicycling and transit. San Francisco has a great potential for further increasing rates of walking and bicycling—as Figure 8 (previous page) shows, nearly 60% of all local automobile trips projected in 2040 will be less than three miles in length, a convenient distance for non-motorized travel.

COMMUNITY SUPPORT FOR TRADEOFFS IS CRITICAL TO ACHIEVE SAFE, EFFICIENT NETWORKS

Research shows that walkability contributes to the livability and affordability of neighborhoods and overall competitiveness of cities. Accordingly, the City has developed strategies that provide a vision for significantly improving the safety of pedestrian and bicycle networks (specifically, the SFMTA Bicycle Strategy and the Mayor's Pedestrian Strategy), but implementation requires investment and, at times, challenging tradeoffs. This is especially so where many of the easy, lower-cost fixes to improve bicycling and walking infrastructure (e.g., striping and signage) are already complete.

Improvements that more significantly benefit bicyclists and pedestrians do so by physically separating these travelers from vehicular traffic or by reducing vehicle traffic and speeds, which may require parking removal or increased signal delay for vehicles. Implementing these improvements requires leadership and community acceptance in return for increased safety for bicyclists and pedestrians.

ECONOMIC COMPETITIVENESS

San Francisco's economic competitiveness depends on having an affordable and reliable transportation system with sufficient capacity to accommodate our travel needs efficiently.

PLANNED HOUSING AND JOB GROWTH CONTRIBUTES TO A MORE SUSTAINABLE CITY AND REGION

The Association of Bay Area Governments has forecast significant job and housing growth in the city. A city of about 800,000 residents and 570,000 jobs today is forecast to house nearly 1.1 million residents and more than 750,000 jobs by 2040—much of this

FIGURE 9. SAN FRANCISCO'S PROJECTED HOUSING GROWTH (TOP) AND JOBS GROWTH (BOTTOM) AREAS THROUGH 2040



San Francisco's economic competitiveness depends on having an affordable and reliable transportation system with sufficient capacity to accommodate our travel needs efficiently.

By 2040, new growth will result in about 300,000 new transit trips per day on a system that is already strained by crowding and reliability issues.

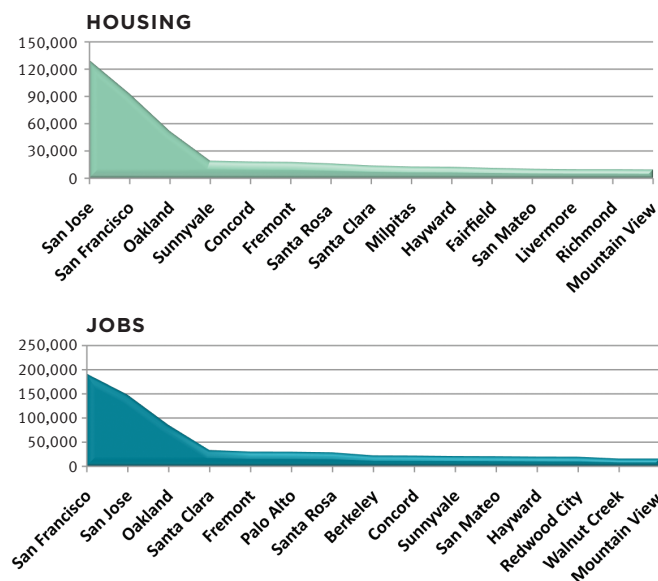
growth is expected in the downtown core, southeast, and southwest (Figure 9). This would mean adding about 9,800 new residents each year for the next thirty years, compared to about 4,200 residents that have been added per year over the prior thirty years.

These projections reflect expectations for robust regional growth and regional policy stemming from Senate Bill 375 (2008), which required regional governments to reduce greenhouse gases from transportation. To meet the SB 375 target, the Regional Transportation Plan, known as Plan Bay Area, calls for concentration of growth in densely developed areas with good transit access especially in San Francisco, San Jose, and Oakland (Figure 10)—a pattern that supports less driving and produces fewer greenhouse gases.

INCREASED TRANSIT CAPACITY AND SERVICES ARE NEEDED TO ACCOMMODATE GROWTH

Concentrating jobs and housing in San Francisco is good for the city's economy as well as the environment, but will also increase congestion and transit system crowding in downtown San Francisco and Eastern neighborhoods. By 2040, new growth will re-

FIGURE 10. POPULATION AND EMPLOYMENT GROWTH PROJECTIONS IN THE TOP 25 BAY AREA CITIES (2010-2040)



SOURCE: METROPOLITAN TRANSPORTATION COMMISSION, PLAN BAY AREA (2013)

sult in about 300,000 new transit trips per day on a local and regional system that is already strained by crowding and reliability issues. The San Francisco Planning Commission has adopted land use plans that direct much of the city's projected growth in the central and eastern neighborhoods, where crowding is already acute. Figure 11 compares transit crowding today and in 2040,

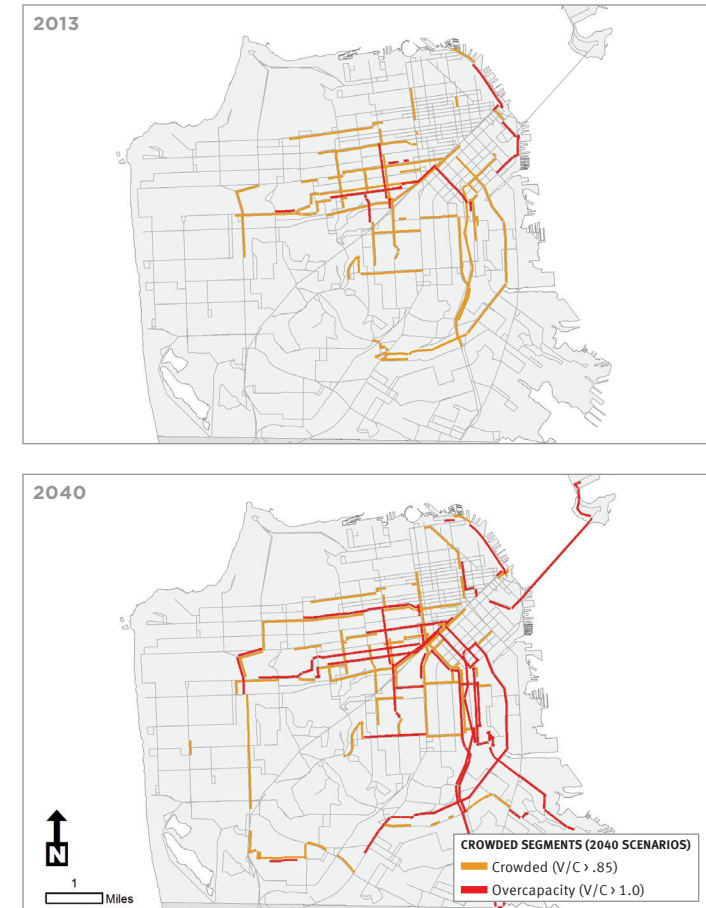
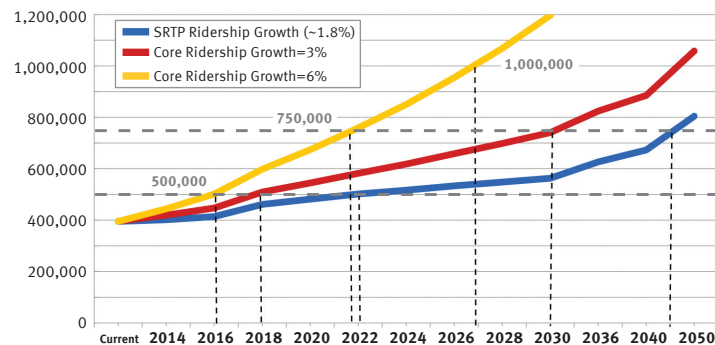


FIGURE 11. CROWDING* ON MUNI IN 2013 (TOP) AND IN 2040 (BOTTOM)

SOURCE: SFCTA, SF CHAMP

* Crowding is defined by the percent of person-hours traveled in crowded (passenger-volume-to-vehicle-capacity ratio is 85% or higher) or over-capacity conditions (volume to capacity ratio is more than 100%).

FIGURE 12. BART STATION CAPACITY CONSTRAINTS



SOURCE: BART

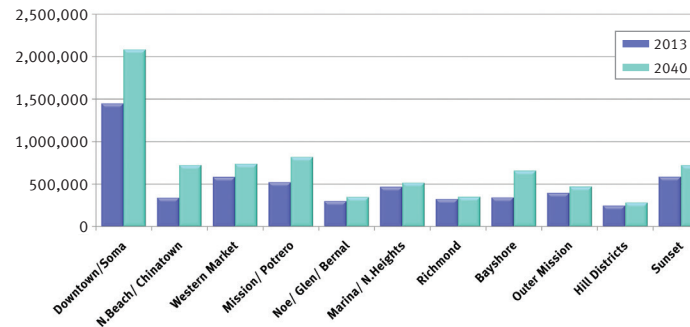
and shows that crowding will grow most on the lines expected to serve these areas and the new development areas, such as the southeast waterfront, Treasure Island, and Parkmerced.

Many regional bus and rail operators already face peak-period crowding and would also see that increase significantly by 2040. BART ridership to, from, and within San Francisco is projected to grow by 37%, and as such, the system's two most crowded stations, Embarcadero and Montgomery, are forecast to hit limits in their person-carrying capacity. BART estimates that at 500,000 daily system riders, stations will be at capacity in 2016, and at 750,000 system riders, the stations will experience significant backups at escalators and overcapacity platforms (Figure 12).

CAPACITY NEEDS MOST ACUTE IN THE CORE: DOWNTOWN, SOUTH OF MARKET, MARKET/OCTAVIA, AND EASTERN NEIGHBORHOODS

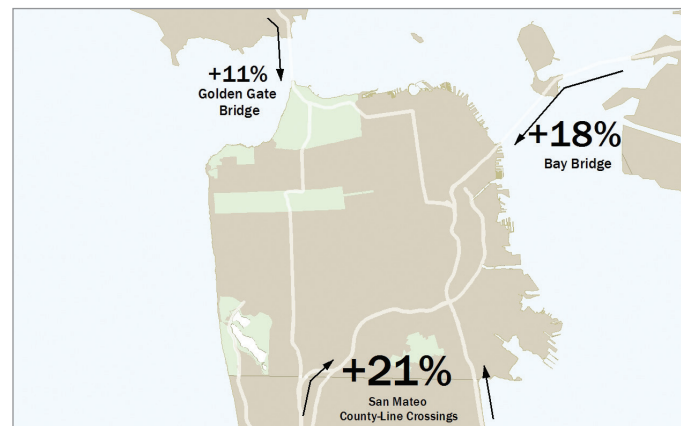
36% of trips to, from, or within San Francisco begin or end in the downtown and South of Market neighborhoods, more than any other neighborhood (Figure 13). Expected growth will significantly increase transit crowding and street congestion downtown. With projected growth and no new investment beyond already-planned projects, increased traffic will slow speeds to gridlocked conditions for cars and buses alike during peak hours. A nearly 30% reduction in projected private vehicle traffic would be necessary to avoid this condition (see Appendix C for detail). Strategies

FIGURE 13. DAILY PERSON TRIPS BY SAN FRANCISCO NEIGHBORHOOD



SOURCE: SFCTA, SF CHAMP. EACH BAR INCLUDES ALL TRIPS TO, FROM, AND WITHIN THE NEIGHBORHOOD.

FIGURE 14. CHANGE IN DAILY COUNTY LINE CROSSINGS BY AUTOMOBILE, 2012-2040



SOURCE: SFCTA, SF CHAMP

recommended to achieve this reduction are discussed on pages 29–30, and are incorporated into the SFTP Investment Plan, SF Investment Vision, and associated policy recommendations.

NETWORK DEVELOPMENT AND MANAGEMENT NEEDED FOR THE SOUTHEAST AND PENINSULA CORRIDORS

Over the SFTP period, daily automobile trips entering San Francisco from the South Bay are expected to grow by 21% (Figure 14). This results in worsening congestion on Highway 101 and 280. The planned extension of Caltrain to the new Transbay Transit Center would help accommodate this growth and provide access

Without a significantly increased financial commitment to reach and maintain a state of good repair, riders will see increasing delays and crowding related to vehicle breakdowns, reduced service levels, and worsening pavement condition.

for the future high speed rail system, but funding is incomplete. Better management of existing freeway space through high-occupancy vehicle lanes or other solutions is also needed.

WORLD CLASS INFRASTRUCTURE

San Francisco's transportation system relies on aging infrastructure that will need significant repair or replacement in the next decades. Without a significantly increased financial commitment to reach and maintain a state of good repair, riders will see increasing delays and crowding related to vehicle breakdowns, reduced service levels, and worsening pavement condition.

TRANSIT VEHICLE REPLACEMENT AND BETTER MAINTENANCE WOULD IMPROVE RELIABILITY

After decades of underinvestment, Muni and regional transit agencies that serve San Francisco have significant unfunded capital needs amounting to more than \$5 billion through 2040 (see Appendix B for detail). These needs include new or updated facilities for maintaining transit vehicles, rail and overhead wire replacement, vehicle maintenance and replacement, and other needs.

As a result of resource limitations, Muni's vehicles have not received mid-life rehabilitations or timely replacement, resulting in a fleet that has high service unreliability and frequent expensive emergency repairs, as well as frequent unscheduled vehicle turn-backs. Figure 15 shows that vehicle maintenance is responsible for a large share of transit-service delays. Increased investment in routine maintenance and timely vehicle replacement would significantly reduce these delays and improve reliability. Figure 16 shows how breakdowns can be minimized with proper maintenance and mid-life replacement.

TRANSIT OPERATING COSTS ARE GROWING FASTER THAN REVENUES

The cost of providing transit service has risen rapidly in recent years, a trend which destabilizes Bay Area transit systems and affects riders impacted by resulting service cuts. Figure 17 (next page) shows the rising real (inflation-adjusted) costs of transit

FIGURE 15. MUNI LIGHT RAIL: MAY 2013 REASONS FOR DELAY

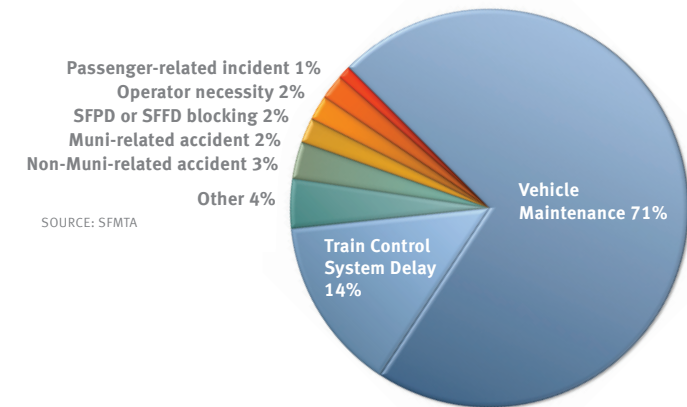
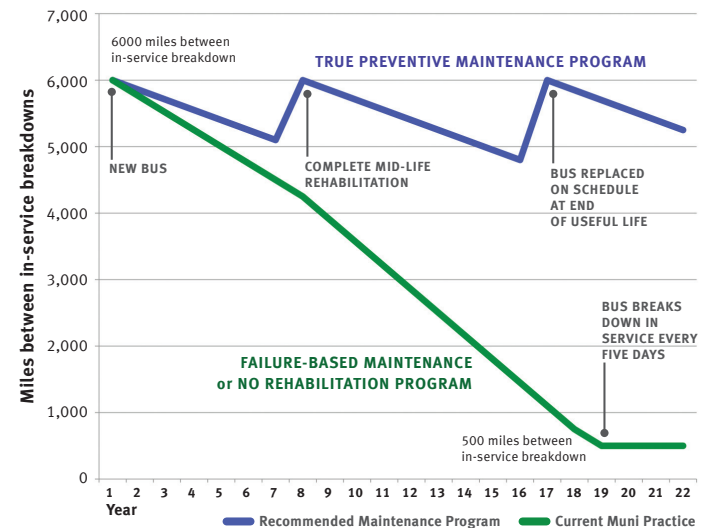


FIGURE 16. LIFE CYCLE OF A TROLLEY BUS



SOURCE: SFMTA (FIGURE IS CONCEPTUAL)

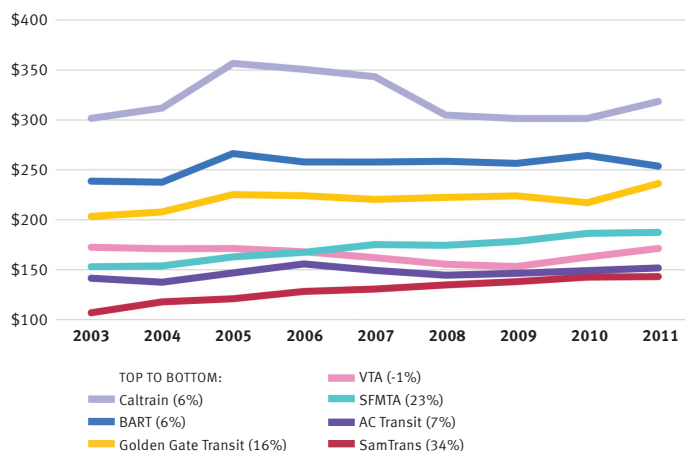
service for major Bay Area transit operators. In its Transit Sustainability Project (TSP) Report, the Bay Area MTC found that cost increases are primarily the product of employee fringe benefit cost growth (e.g. health care and pensions). Between 1997 and 2008, real fringe benefit costs at SFTMA, BART, and AC Transit grew by 72% (after adjusting for inflation), or about 5% per year.

Declining transit performance also affects operating costs. The TSP indicated that speeds on SFMTA's bus and light-rail system fell by more than 10% between 1997 and 2008. Slower speeds mean the same driver and vehicle can complete fewer route runs in a day, leading to less service for the same price.

RECENT IMPROVEMENT IN AVERAGE PAVEMENT CONDITION NEEDS INVESTMENT TO MAINTAIN

The city's Pavement Condition Index (PCI) has slowly fallen over time to the low 60s (fair) from 70s (good). The 2011 Proposition B streets bond enabled an increase in the PCI from 64 to 66 and provides increased funding levels until 2016. The PCI score is projected to fall into the 50s (at risk) by 2030. Without an additional

FIGURE 17. TRANSIT COSTS PER REVENUE SERVICE HOUR



SOURCE: NATIONAL TRANSIT DATABASE TS2.2, SERVICE DATA AND OPERATING EXPENSES TIME-SERIES BY SYSTEM, AND THE CALIFORNIA DEPARTMENT OF FINANCE (FOR BAY AREA INFLATION DATA).

investment in street rehabilitation and replacement, reaching and maintaining a PCI of 70 in the longer term will require about \$2 billion more than what is already committed to street resurfacing over the life of the SFTP, but this is ultimately more cost-effective than further deferring maintenance needs. Maintaining pavement at a good condition costs \$9,000 per block. If the PCI score lowers below 50, the cost to maintain pavement would balloon to \$436,000 per block.

MORE EFFICIENT AND EFFECTIVE PROJECT DELIVERY IS NEEDED GIVEN GROWING CITYWIDE NEEDS

Small project delivery research indicates consensus that small projects and complete street projects can be delivered more efficiently, helping to lower unit costs or make improvements more quickly. As discussed on page 11, the scope of the city's goals for supporting bicycling, pedestrians, and efficient transit require that we construct improvements faster than we have historically. The Project Delivery Strategic Initiative of the SFTP (Appendices H and I) sought to identify opportunities to improve the timeliness, transparency, and efficiency of project implementation in San Francisco's transportation sector.

HEALTHY ENVIRONMENT

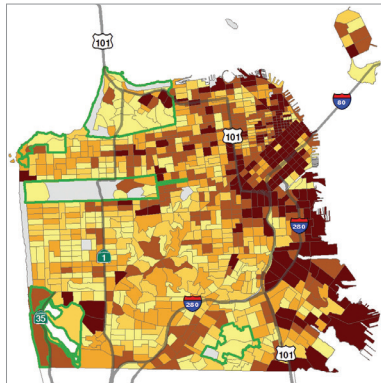
Reducing vehicle pollution—including greenhouse gases and other pollutants—is critical for a healthy environment. More stringent state vehicle emissions regulations will reduce vehicle pollution over the SFTP period, but growth in driving means that additional action will be necessary to for San Francisco to meet our aggressive greenhouse gas reduction goals.

VEHICLE TRAVEL GROWTH EXPECTED, ESPECIALLY TO AND FROM THE EASTERN NEIGHBORHOODS AND SOUTHWEST SAN FRANCISCO, THE PENINSULA

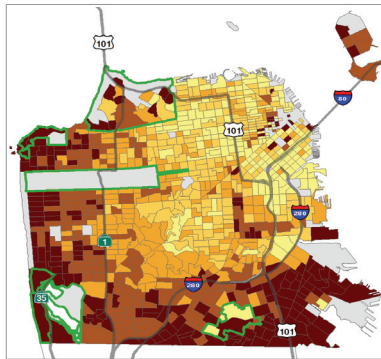
Miles driven by private vehicles, or VMT (vehicle miles of travel), are the main source of greenhouse gases and air pollutants from the transportation sector. Growing population and employment in San Francisco and regionally is expected to result in VMT in-

Research indicates that small projects and complete streets can be delivered more efficiently, resulting in more improvements and more “bang for the buck” as we invest in our streets.

FIGURE 18. VEHICLE MILES TRAVELED IN 2040. (DARKER COLORS INDICATE MORE VEHICLE MILES OF TRAVEL.)



Workplace Vehicle Miles of Travel per Worker



Household Vehicle Miles of Travel per Household Automobile

SOURCE: SFCTA, SF CHAMP

creases of approximately 30% by 2040 under a business as usual scenario. Much of this VMT will be generated by driving trips to and from the downtown core (for workplace VMT), and outlying southwest and southeast neighborhoods (for household VMT)—(Figure 18).

VEHICLE TECHNOLOGY ALONE WILL NOT ACHIEVE SAN FRANCISCO'S AMBITIOUS GOALS

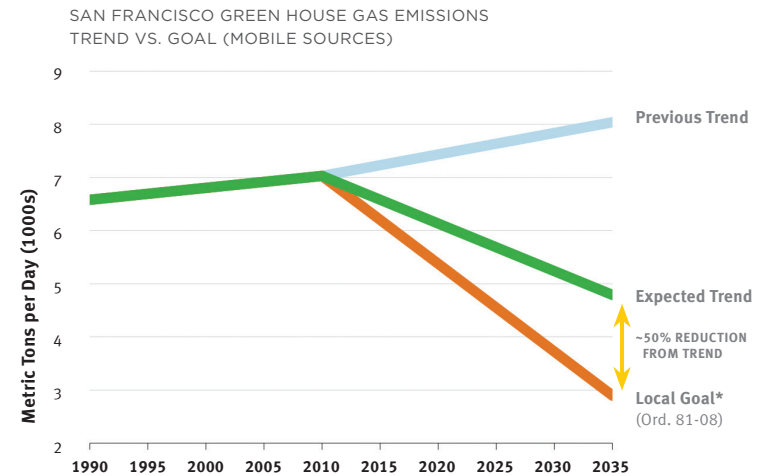
Technology will do much to reduce climate change impacts from private vehicles. Tough state laws (Pavley I and II) regulating vehicle emissions are expected to reduce greenhouse gases by more than 40%. However, this is not sufficient to allow San Francisco to achieve its aggressive greenhouse gas reduction goals, set by ordinance 81-08, which call for an 80% reduction below 1990 levels by 2050 (Figure 19). This is five times more aggressive than regional greenhouse gas reduction goals, and will take tremendous local commitment and regional, state, and Federal support to achieve.

DEMAND MANAGEMENT STRATEGIES ARE CRITICAL TO ACHIEVING PROGRESS TOWARD OUR GOALS

Scenario testing conducted for the SFTP (see the “What would it take” sidebar box on page 19) revealed that, though necessary, supply-side investments such as major new transit lines and transit frequency are alone not very cost-effective at reducing greenhouse gases. Among the more cost-effective strategies are those that reduce vehicle tripmaking by more directly linking the cost or impact of driving to the decision to make a trip:

- **CONGESTION MANAGEMENT.** The Transportation Authority's 2010 Mobility, Access and Pricing study found that implementation of a peak-period congestion charge in San Francisco's northeast cordon would reduce vehicle delay by 21%, and greenhouse gases by 5% citywide, among other benefits. Congestion can also be managed through direct regulation of vehicle trips to the worksite.
- **EMPLOYER OUTREACH AND INCENTIVES.** Incentive and outreach programs in partnership with employers can provide employee travel counseling, transit promotions, tools to facilitate shared rides, and supportive services such as guaranteed ride home programs.

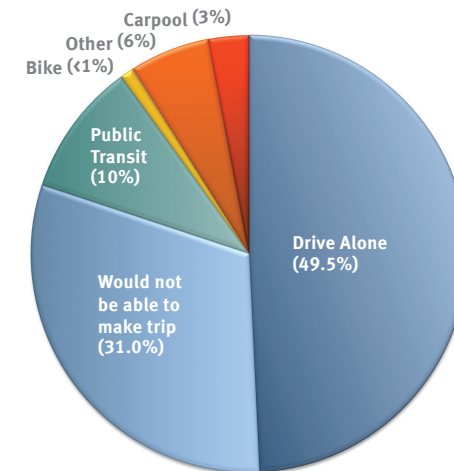
FIGURE 19. SAN FRANCISCO GREENHOUSE GAS (GHG) REDUCTION GOALS



* Assumes on-road mobile sector is responsible for proportional share of economy-wide goals set by Ordinance 81-08

SOURCE: SFMTA, SAN FRANCISCO CLIMATE ACTION PLAN

FIGURE 20. SHARE OF SHUTTLE USERS WHO WOULD DRIVE ALONE WITHOUT THE SHUTTLE*



SOURCE: SFMTA

*Surveys have indicated that shuttles are serving about 35,000 commute trips per day, or about 1% of all trips to, from, and within San Francisco.

- **PARTNERSHIPS WITH THE PRIVATE SECTOR AND COMMUNITY BASED ORGANIZATIONS.** The private sector is increasingly involved in providing transportation services, many of which could reduce single occupancy vehicle trips and greenhouse gases. The SFMTA Shuttle Partners program, for example,

seeks to allow private employer shuttles to use Muni stops in exchange for a fee. SFMTA's data indicates that shuttles displace over 45 million vehicle miles traveled and 11,000 metric tons of GHG per year, and about half of shuttle riders say they would drive alone without shuttle access (Figure 20).

WHAT WOULD IT TAKE TO MEET SFTP GOALS?

To meet our adopted goals and targets for livability, world-class infrastructure, economic competitiveness, and a healthy environment would require significantly increased funding; commitments to prioritize our limited rights of way for transit, walking, and bicycling; and closer linking of the cost of driving to the decision to make a trip. Each of the aspirational scenarios described below includes a package of supply-side and demand-side improvements valued at about \$10 billion above and beyond revenues we expect to have. The complete findings of “what it would take” to meet San Francisco’s ambitious goals are included in Appendix B and summarized below.

LIVABILITY. We examined what it would take to meet the city’s “transit first” goal of no more than 50% of daily trips by car. Expanding the capacity of transit (such as a with a second BART tube across the bay) and elevating safety through citywide traffic calming, road diets, a cycle track network, and more, decreased the expected share of trips by car by 6 percentage points to 53%. Only when paired with demand-management measures (congestion pricing) is the goal achieved (Muni and San Francisco’s share of BART and Caltrain).

WORLD-CLASS INFRASTRUCTURE. We asked how much funding would be required to maintain our road conditions and transit system in a state of good repair in 2040. The unfunded cost to meet this goal is approximately \$5 billion for the transit system and \$1.5 billion for streets, which is in excess of the uncommitted funding available over the plan period. New revenues will be required just to meet these basic needs.

ECONOMIC COMPETITIVENESS. Competitive and reliable travel times are critical for businesses and their workers, customers, and suppliers. We analyzed what it would take to keep commute travel times from worsening in the future, given the large projected increase in new residents and jobs in the city. We found that transit and driving commute times in 2035 could be maintained at today’s levels (average of 40 minutes), but it would take \$5 billion worth of investments in new transit supply including an extension of Caltrain to downtown, bus rapid transit projects on key corridors, and other improvements, as well as demand management approaches including peak period area pricing and related mobility improvements.

HEALTHY ENVIRONMENT. In partnership with the city’s Climate Action Plan team, we tested what it would take to meet the city’s goal of reducing greenhouse gas emissions to 80% below 1990 levels by 2050. We found this goal is only possibly attainable with a robust combination of aggressive local and regional vehicle pricing, widespread use of electric vehicles, and major new infrastructure (including a new BART tube across the Bay at a cost of \$10 billion).

A consistent finding across all scenarios was that strategies to manage travel demand, such as community outreach and education campaigns, employee programs, peak-period or area pricing, and parking pricing, are much more cost-effective in achieving desired goals than supply-side investments.

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CHAPTER THREE

FUNDING OUR TRANSPORTATION NEEDS



SAN FRANCISCO’S NEEDS FOR TRANSPORTATION FUNDING—even to maintain the existing transit and street networks in today’s condition—far exceed expected revenues, and most funds are already committed to specific projects and purposes. The SFTP proposes ways to invest expected funding most effectively to make progress toward our goals, but analysis shows that this progress is limited without policy changes and additional investment from new revenues. Based on public input and technical analysis, we have developed two scenarios (Figure 21) that invest strategically in a diverse set of projects to make meaningful progress towards each of the SFTP’s four goals. Because there is far more need than available revenues for transportation, each scenario anticipates some new revenues:

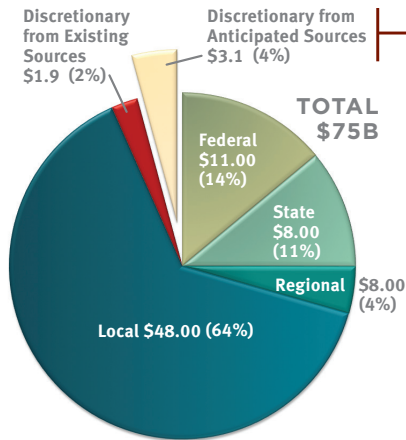
- The Investment Plan shows how existing and some anticipated new federal, state, and regional revenue (consistent with the Bay Area’s long-range transportation plan, Plan Bay Area) could be spent.
- The SF Investment Vision imagines how we could get further towards our goals with major new sources of local revenue.

This chapter summarizes the revenue forecasts for the two scenarios. The next chapter describes the investments we could make and what they could achieve, along with supporting policy recommendations to get the most out of our investments.

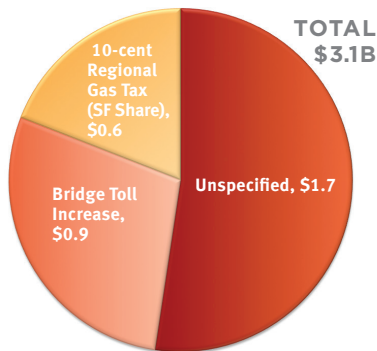
FIGURE 21. THE INVESTMENT PLAN AND SF INVESTMENT VISION



FIGURE 22. PLAN REVENUES BY SOURCE
 (IN BILLIONS OF YEAR-OF-EXPENDITURE DOLLARS THROUGH 2040)



SOURCES OF ANTICIPATED NEW REVENUES



SOURCE: SFCTA (SEE APPENDIX D FOR DETAIL)

INVESTMENT PLAN: INCLUDES BOTH EXISTING AND ANTICIPATED NEW FEDERAL, STATE, AND REGIONAL REVENUE

The SFTP Investment Plan proposes how we should invest revenues we expect to have through 2040, including some expected new federal, state, and regional funds. About \$75 billion in federal, state, regional and local revenue is expected for transportation in San Francisco through 2040. Figure 22 illustrates the sources of existing and anticipated new revenues for the Investment Plan. SFTP Appendix D describes the assumptions used to estimate expected revenues in more detail. All revenues are expressed in billions of year-of-expenditure dollars over the SFTP period.

MOST EXPECTED REVENUE IS FROM LOCAL AND REGIONAL SOURCES

The federal gas tax that funds transportation is not indexed to inflation, and has not been increased since 1992. Similarly, the state has struggled with budget deficits for years. As a result, the responsibility of paying for our transportation system increasingly falls on the shoulders of local and regional governments, or through direct user payment. Over 65% of the \$75 billion expected for the Investment Plan comes from local and regional funding sources, such as the Prop K transportation sales tax and the \$10 Prop AA vehicle registration fee.

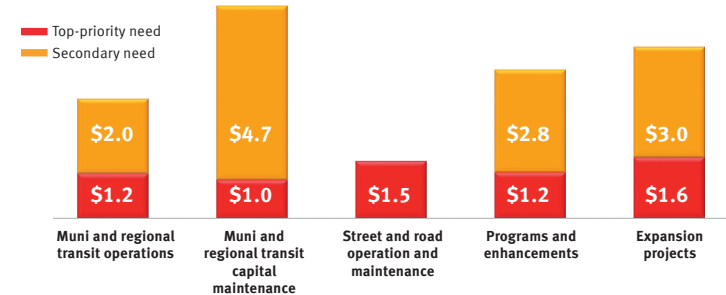
MOST EXPECTED REVENUES ARE ALREADY COMMITTED

Over 90% (\$70 billion) of the expected funds are already committed to specific projects (such as the Presidio Parkway, Central Subway, and Caltrain Electrification) and purposes (such as transit and local streets operations and maintenance). This means that of the \$75 billion in revenue we expect through 2040, only about \$5 billion (or 7%) is discretionary, meaning we can decide how it should be invested to improve our transportation system.

ANTICIPATED REVENUES ARE INSUFFICIENT TO MEET OUR EXISTING AND FUTURE SYSTEM NEEDS

San Francisco's unfunded transportation needs far exceed the expected \$5 billion in uncommitted revenue. Even if we spent every cent of discretionary funds on transit and streets maintenance, repair and replacement projects, we still would not have enough just to maintain the existing transportation system in a state of good repair—let alone make safety and livability enhancements or address planned growth. Figure 23 summarizes the transportation system investment need by category.

FIGURE 23. UNFUNDED TRANSPORTATION NEEDS BY CATEGORY



SOURCE: SFCTA, SFMTA, SFPDW, BART, MTC

TWO-PRONGED REVENUE STRATEGY

The SFTP (through its investment plans and policy recommendations) proposes ways to cost-effectively invest expected transportation funds, but analysis shows that this progress is limited unless we identify new revenues. So, the SFTP recommends a two-pronged revenue strategy. First, the Investment Plan seeks to position San Francisco well to compete for the anticipated additional new federal, state, and regional funding sources. Second, the SF Investment Vision calls for an additional \$7.5 billion in locally-controlled transportation revenues. With \$7.5 billion in additional local revenues, the SF Investment Vision achieves more of our maintenance, livability, and economic competitiveness goals, and makes more progress towards our ambitious environmental goals.

SF INVESTMENT VISION

NEW LOCAL SOURCES OF FUNDING UNDER CONSIDERATION

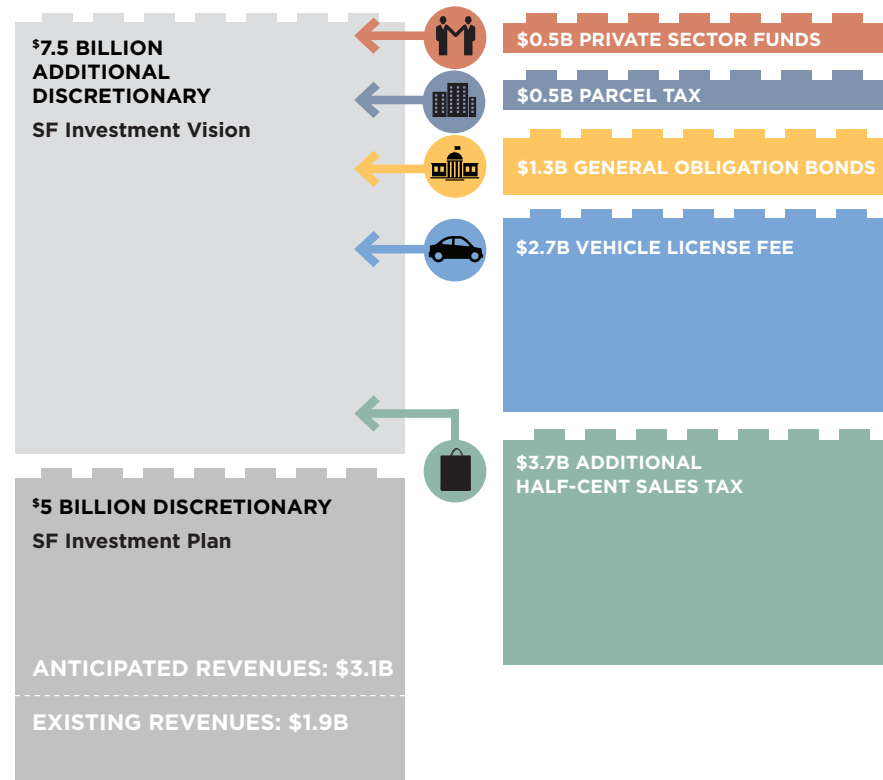
For the SFTP, we evaluated a range of potential new local revenue sources, considering factors like revenue stability, growth potential, equity, and likelihood of being put into place. The SFTP Revenue White Paper provides a comparison table and information on the primary local sources we evaluated. A combination of sources pictured in Figure 24—such as general obligation bonds, a Vehicle License Fee, additional half-cent sales tax, or others could provide the \$7.5 billion needed beyond the Investment Plan to achieve the \$82.5 billion SF Investment Vision.

MAYOR'S 2030 TRANSPORTATION TASK FORCE

We coordinated SFTP development with the Mayor's 2030 Transportation Task Force. The Task Force has developed recommendations for potential new local transportation revenues, and has recommended that voters approve \$1 billion in general obligation bonds, a half-cent increase in the sales tax, and a 1.35% increase in the vehicle license fee to generate just over \$2.95 billion (\$2013) in new transportation revenues between 2015 and 2030.

FIGURE 24. A COMBINATION OF SOURCES CAN PROVIDE \$7.5 BILLION ADDITIONAL DISCRETIONARY

\$12.5 BILLION TOTAL IN DISCRETIONARY TRANSPORTATION FUNDS



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CHAPTER FOUR

INVESTMENT PLANS AND POLICY RECOMMENDATIONS



THE SFTP IS THE BLUEPRINT for the future of our city's transportation system through 2040. With input from the public (detailed in Appendix E), and informed by other agencies and robust technical analysis (Appendices A, B, and F), we've developed two investment scenarios that will allow us to make meaningful progress toward our transportation goals: the Investment Plan and SF Investment Vision. The result is a diverse investment plan paired with specific policy actions and new revenues.

CONTENTS OF THE INVESTMENT SCENARIOS

The Investment Plan and SF Investment Vision are organized into three major categories of spending:

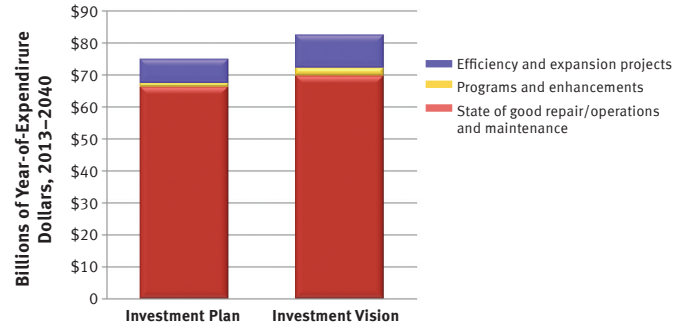
- **ONGOING MAINTENANCE AND OPERATIONS FUNDING.** Each investment scenario recommends funding levels for the ongoing maintenance and operations of our street network (including roadway-repaving street sweeping, traffic signal maintenance); and transit system operation, maintenance and replacement. The vast majority of funding is dedicated to this category.
- **TRANSPORTATION PROGRAMS AND ENHANCEMENTS.** This category includes funding for seven transportation programs that improve safety, expand or enhance the transportation system through small-to-medium scale improvements for all modes.
- **EFFICIENCY AND EXPANSION PROJECTS.** This category recommends funding for a list of major capital projects that would improve the efficiency of the existing system or cost-effectively expand system capacity.

Figure 25 (next page) provides an overview of the amount of funding dedicated to these categories in the Investment Plan and Investment Vision, and the remaining sections describe each category in detail.

The SFTP also recommends policy actions. This chapter highlights some of the key policy recommendations. For a complete list, see Appendix G.

We've developed two investment scenarios that will allow us to make meaningful progress toward our transportation goals: the Investment Plan and SF Investment Vision. What it takes is a diverse investment plan paired with specific policy actions and new revenues.

FIGURE 25. MAJOR USES OF INVESTMENT AND VISION REVENUES (COMMITTED AND DISCRETIONARY FUNDS)



SOURCE: SFCTA

DISCRETIONARY INVESTMENT: USES OF \$5B AND \$12.5B IN DISCRETIONARY FUNDS

As discussed in Chapter 3, 90% of the expected \$75 billion in transportation revenue is dedicated to specific projects or purposes. This leaves \$5 billion in expected and new revenues that we can decide how to spend. With the SF Investment Vision, a combination of new local funding sources can provide the additional \$7.5 billion needed beyond the Investment Plan to go further toward our goals. Figure 26 summarizes the uses of expected and new discretionary funds in the Investment Plan and SF Investment Vision.

PLAN AND VISION INVESTMENTS

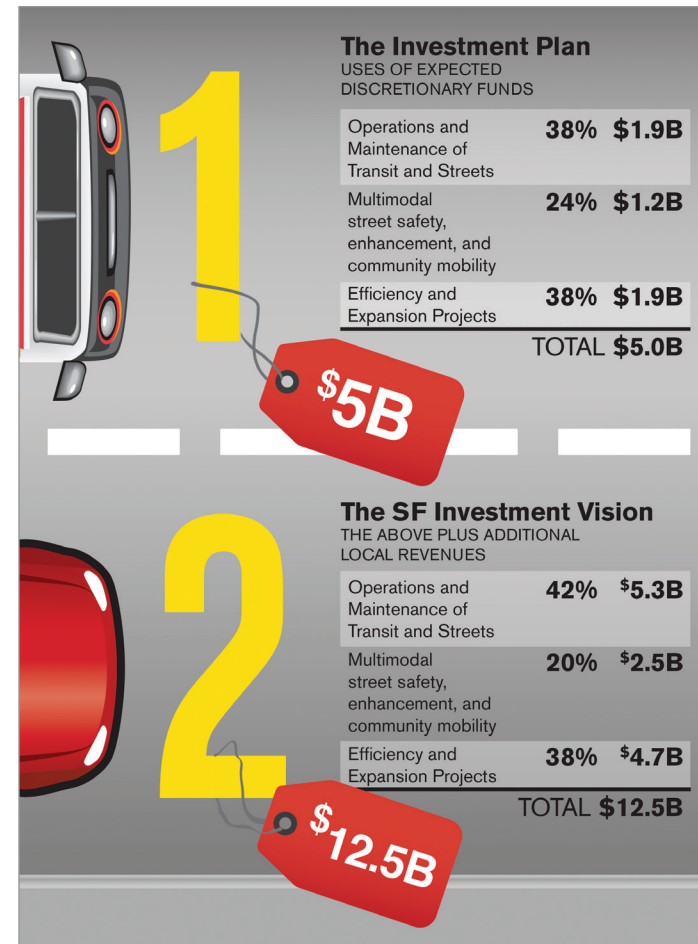
The following sections describe the investments proposed in the SFTP Investment Plan and SF Investment Vision.

DEDICATED MAINTENANCE AND OPERATING FUNDING

About \$60 billion of the expected \$75 billion in transportation revenue is already committed to operations and maintenance of the existing system and major projects that rehabilitate existing infrastructure. These include the Presidio Parkway, Yerba Buena Island Ramp Improvements, and Transbay Transit Center Phase 1. As discussed on page 16, an additional \$5 billion is needed to maintain transit capital assets in an optimal state of good repair.

Another \$1.54 billion is needed to achieve the city's pavement condition goals. An additional \$1.2 billion would be required to provide all of the transit service Muni is scheduled to provide to-day.¹ Figure 27 shows how we allocated funding to help address some of these maintenance and operations needs.

FIGURE 26. USES OF DISCRETIONARY FUNDS



SOURCE: SFCTA

1. Funding constraints are one factor that currently prevents Muni from operating all scheduled service.

FIGURE 27. COMPARISON OF PLAN AND VISION FUNDING LEVELS FOR MAINTENANCE AND OPERATION

INVESTMENT CATEGORY	INVESTMENT LEVEL	PLAN	VISION
State of Good Repair/ Operations and Maintenance			
Muni and Regional Transit: Operations. Provides funding to operate Muni and regional transit service.	PLAN: Maintain today's funding and actual service levels. VISION: Fully fund all today's scheduled service levels.	\$43.80	\$45.00
Muni and Regional Transit: Capital Asset Maintenance. Provides funding to maintain and replace Muni and regional transit vehicles, stations, and maintenance facilities.	PLAN: Fully fund transit vehicle replacement needs for all operators; all MTA vehicle mid-life overhauls; and 70% of Score 16 (most important) assets. VISION: Fund 100% of Muni Score 16 needs.	\$12.41	\$14.06
Local Streets and Roads: System Preservation. Provides funding to re-pave streets and roads.	PLAN: Maintain today's pavement condition. VISION: Reach and maintain pavement condition index of 70 ("good").	\$3.27	\$3.83
Local Streets and Roads: Operations. Provides funding for street sweeping, signal maintenance, and other roadway upkeep.	PLAN AND VISION: Maintain today's levels of street operations.	\$2.80	\$2.80
Local Street and Bridges Structures: Capital Maintenance. Provides funding to maintain or replace aging structures (e.g. bridges and tunnels).	PLAN AND VISION: Fund unmet need of \$3M/decade.	\$0.01	\$0.02
State of Good Repair Projects. Funds major capital replacement and rehabilitation projects.	PLAN AND VISION: Provide full funding for the Presidio Parkway; Transbay Transit Center Phase I Improvements; and Yerba Buena Island Ramp Improvements.	\$4.01	\$4.01
SUBTOTAL (AMOUNT IN \$BILLIONS YOY)		\$66.30	\$69.72
PERCENT OF TOTAL INVESTMENT		88%	84%

RECOMMENDATION:

PRIORITIZE REVENUES TO FULLY FUND TIMELY VEHICLE REPLACEMENT AND REHABILITATION

Underfunding vehicle maintenance contributes to reduced reliability and unscheduled service turnbacks in outlying neighborhoods, a top concern recorded during public outreach. The Investment Plan provides sufficient funding to meet vehicle replacement needs for all transit operators as well as to support mid-life vehicle overhauls for Muni, extending the life of each vehicle and reducing the incidence of vehicles that are out of service.

Local funds prioritized for this purpose will leverage significant regional and federal monies. An example is MTC's Transit Core Capacity program, which benefits Muni, BART, and AC Transit (all of which provide San Francisco service).

RECOMMENDATION:

EXPAND TRANSIT SERVICE WHILE SUPPORTING STEPS TO STABILIZE COSTS

New funding will be necessary to increase transit service frequencies to reduce crowding and serve new riders. However, new funding should be accompanied by measures to stabilize the rapid rise in transit operating costs (described on page 17). Such measures could include prioritizing projects to speed up Muni vehicles, such as the Transit Effectiveness Project; implementing transit operator fringe benefit cost control strategies recommended in the MTC's Transit Sustainability Project; and seeking a regional funding solution to stabilize Caltrain operating and capital funding. SFMTA and other transit agencies have already committed to a 5% real reduction in costs by fiscal year 2016–2017.

The Investment Plan provides sufficient funding to support mid-life vehicle overhauls for Muni, extending the life of each vehicle and reducing the incidence of vehicles that are out of service.

RECOMMENDATION:

ACHIEVE CITY GOALS FOR AVERAGE PAVEMENT CONDITION

Smoother roads benefit all modes of travel. The SFTP Investment Vision dedicates sufficient funding for San Francisco to achieve and maintain an average pavement condition index of 70, or

“good,” over the life of the plan. Streets maintained at pavement score 70 are several times less expensive to keep up than streets which aren’t maintained at this level.

FIGURE 28. COMPARISON OF PLAN AND VISION FUNDING LEVELS FOR PROGRAMS AND ENHANCEMENTS

INVESTMENT CATEGORY	INVESTMENT LEVEL	PLAN	VISION
Programs			
Walking and Traffic Calming. Supports new and widened sidewalk construction, sidewalk bulb outs to shorten crossing distances, crosswalk upgrades, pedestrian countdown signals, landscaping, and vehicle speed control treatments.	PLAN: Provides \$10m/year (exceeds historic funding levels). VISION: Funds full build out of the Mayor’s Pedestrian Strategy.	\$0.28	\$0.63
Bicycling. Supports physical improvements on the citywide bicycle network, such as new cycle tracks (bike lanes physically separated from moving cars), bike lanes and paths, repair of existing lanes, bicycle parking, and bicycle outreach and education.	PLAN: Funds a citywide cycle track network. VISION: Funds full buildout of the SFMTA Bicycle Strategy.	\$0.15	\$0.60
Regional Transit Enhancements. Supports improvements for regional transit operators serving San Francisco, including BART, Caltrain, and Golden Gate Transit, such as additional escalators at stations, new signage, and station access improvements (e.g. more bike parking).	PLAN: Maintain historic levels. VISION: Increase moderately over historic levels.	\$0.20	\$0.35
Muni Enhancements and Customer First Treatments. Supports new Muni equipment to improve transit reliability and passenger amenities, such as on-vehicle cameras, ticket vending machines, and new station platform information displays, as well as new and improved transit stops.	PLAN: Maintain historic levels. VISION: Increase moderately over historic levels.	\$0.19	\$0.29
Street and Signal Upgrades and Street Network Development. Supports new traffic signs and signals, red light photo enforcement equipment, management of major arterials such as Guerrero or Lincoln, and new streets in developing areas of the City such as Hunters Point and Candlestick Point.	PLAN: Doubles historic funding levels. VISION: Triples historic funding levels.	\$0.21	\$0.28
Transportation Demand Management. Supports educational, outreach, and regulatory programs that reduce single-occupant vehicle use for commuters, schools and universities, and institutions.	PLAN: Increase of 20% over historic funding. VISION: Doubles historic funding levels.	\$0.06	\$0.10
Equity. Supports planning, project development, and service to promote equitable access and investment.	Provides \$10M/year for planning, operations, and/or implementation	\$0.14	\$0.28
SUBTOTAL (AMOUNT IN \$BILLIONS YOE)		\$1.23	\$2.53
PERCENT OF TOTAL INVESTMENT		2%	3%

TRANSPORTATION PROGRAMS AND ENHANCEMENTS

The Investment and SF Vision Plans provide \$1.2 and \$2.5 billion, respectively, to eight transportation safety and enhancement programs. Figure 28 describes how the funding levels compare to historic funding and the need.

RECOMMENDATION:

BUILD THE PEDESTRIAN AND BICYCLE STRATEGIES TO ESTABLISH SAFER NEIGHBORHOOD NETWORKS CITYWIDE

As discussed on page 11, the City has set aggressive goals for increasing the share of trips made by bicycling and walking while improving safety. Public outreach indicated that bicycling and walking infrastructure are top public priorities after basic transit operations and maintenance (See Appendix E). Accordingly, the plan and vision scenarios increase funding for traffic calming, walking, and bicycling programs (combined) by 80% and 400%, respectively, over historic funding levels. The vision-level funding is sufficient to support full implementation of the SFMTA's Bicycle and Pedestrian Strategies.

Funding for pedestrian and bicycle safety can be spent most effectively by focusing it on the roadways with the highest incidence of pedestrian and bicyclist injuries and fatalities, many of which are arterial roadways. The Pedestrian Strategy has identified these 70 miles of High-Injury Corridors, which represent only 6% of San Francisco's street miles, but 60% of severe and fatal injuries.

RECOMMENDATION:

CREATE MORE COMPLETE STREETS (AT LOWER COST) THROUGH COORDINATION WITH REPAVING

Safety and enhancement projects can be implemented more efficiently through coordination with roadway repaving, which occurs on a regular schedule city-wide. The SFTP recommends setting aside some Prop K funds to advance safety project coordination with re-paving projects, utility projects, and/or major capital investments. It also recommends developing a checklist for all repaving projects to facilitate consideration of complete streets elements.

RECOMMENDATION:

INCREASE INVESTMENT IN EMPLOYER, SCHOOL, AND COMMUNITY TRIP REDUCTION PROGRAMS

As described on page 16, San Francisco's downtown—especially as growth expands in SoMa and Mission Bay—will see transit performance decline if growth occurs as expected and travel behavior remains the same. The City's 1985 Downtown Plan introduced then-innovative demand management strategies, such as incentives for employers to provide employee travel counseling, helping to reduce peak period congestion and the need for parking. A new generation of incentive and outreach programs is needed for our growing downtown, especially South of Market and Eastern Neighborhoods. These partnerships with employers, institutions, and residential associations can provide travel counseling, incentives for taking transit, tools to facilitate shared rides, and supportive services such as guaranteed ride home programs. The SFTP increases funding for these travel demand management incentive programs by 20% and 100% over historic levels in the Investment Plan and Investment Vision, respectively.

RECOMMENDATION:

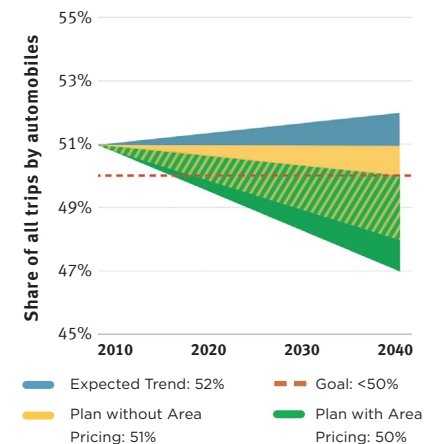
INCREASE TRANSPARENCY AND PROMOTE PUBLIC INVOLVEMENT BY SHARING AGENCY PRIORITIZATION AND DEVELOPMENT PROCESSES

Often during SFTP outreach, the public would express confusion about how San Francisco agencies identify, prioritize, and design street improvements. Fragmented institutional roles can also contribute to slower-than-desired project delivery rates. Small Project Delivery research conducted for the SFTP (Appendix H) found that coordination within and among agencies is inadequate to deliver a multi-modal vision, and that a consensus-based approach to project design diminishes the benefits of many projects. Strategies to increase project delivery and support quality projects include dedicating funds for increasing agency capacity, increasing transparency and coordination of agency prioritization processes, and enhancing public involvement in project development and planning efforts.

FIGURE 29. CONTRIBUTION OF AREA PRICING TO PLAN GREENHOUSE GAS AND AUTOMOBILE TRIP REDUCTION BENEFITS

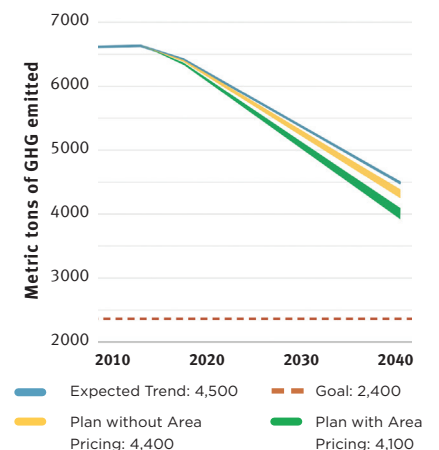
LIVABILITY

Percent of all trips made by auto*



HEALTHY ENVIRONMENT

Greenhouse Gas Emissions
 weekday on-road transportation*



* 2040 forecasts are derived from the Transportation Authority's regional travel demand Model, SF-CHAMP; the more ambitious end of the range represents additional travel demand management (TDM) program assumptions such as bikesharing, shuttles, carsharing, and other TDM policy efforts, which are calculated outside of the SF-CHAMP model and applied on top of modeling results.

**A COMPREHENSIVE
 STRATEGY FOR THE SOUTH
 OF MARKET AND EASTERN
 NEIGHBORHOODS**

The City's original 1984 Downtown Plan introduced new measures such as Transportation Management Associations (TMAs) to address the congestion caused by employment growth. Now a new wave of growth in the downtown, South of Market, and Mission Bay will significantly increase core crowding conflicts and congestion (see Appendix C). A comprehensive strategy is needed for the new, expanded core to manage congestion and maintain livability, including: transit capacity and other infrastructure; dedicated transit and bicycle networks; pedestrian safety measures; area-wide congestion and freeway management measures; and strengthened trip-reduction programs in partnership with employers.

RECOMMENDATION:

CONTINUE TO DEVELOP PRICING APPROACHES TO CONGESTION MANAGEMENT

Scenario testing conducted for the SFTP (see the “what would it take” sidebar box on page 19) revealed that the most cost-effective ways to reduce greenhouse gas emissions are those that reduce vehicle tripmaking by more directly linking the cost or impact of driving to the decision to make a trip. The Investment and SF Vision Plans recommend considering peak or area pricing in the

Northeast Cordon, in addition to the pricing already approved for Treasure Island.² These projects require about \$0.03 billion in start-up capital costs, which is less than .01% of the Investment

² Analysis of Congestion Pricing can be found in the Mobility, Access, and Pricing Study (2008) on the Transportation Authority web site at www.sfcta.org. Information about Treasure Island pricing can be found at www.sfcta.org/TIMMA.

FIGURE 30. SFTP EFFICIENCY AND ENHANCEMENT PROJECT LIST

PROJECT	PLAN	VISION
Transbay Transit Center Phase 2/Caltrain Downtown Extension: Extension of Caltrain to the Transbay terminal	\$2.60	\$2.60
Central Subway: Extension of the T-Third light rail to downtown and Chinatown	\$1.58	\$1.58
Developer Funded Projects (Parkmerced, Mission Bay, Treasure Island, SE Waterfront Local Streets)	\$0.90	\$0.90
Caltrain Electrification/Signal System (SF remaining share of total cost)	\$0.48	\$0.48
Van Ness Avenue Bus Rapid Transit: Dedicated bus lanes and transit-priority treatments.	\$0.13	\$0.13
Long-Range Transit Network Development, including Transit Performance Initiative, one or more major projects to improve BART/Muni transit travel time, and reliability at key bottlenecks, such as the Embarcadero Muni Metro turnaround, the J-Church and N-Judah merge point, and at West Portal.	\$0.14	\$1.54
Expanded Transit Service and New Vehicles, Muni and Regional Operators: Increases funding for transit service by 1% over expected revenues and purchases new vehicles.	\$0.41	\$0.71
BART Metro: One or more major construction projects that allow BART to run more frequent transbay service to the core of San Francisco	\$0.00	\$0.50
M-Line West Side Alignment and Grade Separation: Relocate the M-Ocean View light rail line from the center of 19th Avenue near Stonestown to a dedicated transit lane on the west side of the road to remove conflicts with 19th Avenue auto traffic, improving pedestrian safety and transit travel speed/reliability (only environmental phase funded).	\$0.12	\$0.43

PROJECT	PLAN	VISION
Better Market Street (transportation elements only): Re-designs and improves Market Street for transit, bicycling, and pedestrians.	\$0.20	\$0.39
Transit Effectiveness Project: Improves Muni reliability and reduces travel times system-wide through stop improvements such as bus bulb-outs, stop placement, lane modifications, signals, and other tools to prioritize transit.	\$0.34	\$0.34
Geary Corridor Bus Rapid Transit: Dedicated bus lanes and other transit priority treatments on Geary Boulevard to increase the speed and reliability of the 38/38-Limited lines.	\$0.24	\$0.24
Bayshore/Potrero Bus Rapid Transit: Dedicated bus lanes and other transit-priority treatments on Potrero Avenue and Bayshore Boulevard to increase the speed and reliability of the 9/9-Limited lines.	\$0.13	\$0.13
Freeway Performance Initiative: Convert freeway lanes and ramps to carpool and transit lanes, such as on I-280 between 6th Street and US 101.	\$0.04	\$0.13
Bi-County Program: Includes extension of the T-Third Street to Caltrain Bayshore Station and the Geneva-Harney Bus Rapid Transit	\$0.09	\$0.09
Bi-County Program, T-Third Street to Caltrain Bayshore Station: Extend the T-Third Muni Metro line and provide new service from Bayshore/Sunnydale to the Bayshore Caltrain station.	\$0.05	\$0.05

Plan Cost, but generate almost half the benefits of the Plan (Figure 29). They would also generate as much as \$2.5 billion in revenue that could be re-invested into multimodal projects and programs.

EFFICIENCY AND EXPANSION PROJECTS

About six billion of the expected \$75 billion in transportation revenue is dedicated to committed efficiency or expansion projects, including those under construction (Central Subway), fully funded

FIGURE 30 (CONTINUED)

PROJECT	PLAN	VISION
Bi-County Program, Geneva-Harney Bus Rapid Transit: Dedicated bus lanes from Bayshore Boulevard to Prague Street and transit-preferential treatments such as transit signal priority in mixed-traffic lanes from Prague to Ocean Avenue to increase the speed and reliability of the 28-Limited line.	\$0.04	\$0.04
Oakdale Caltrain Station: New Caltrain station at Oakdale Avenue in the Bayview.	\$0.05	\$0.05
Waterfront transit capacity and performance, e.g., E-Historic Streetcar Service between Fisherman's Wharf and the 4th Street Caltrain Station: Construct a turn-around track for streetcars at the Caltrain station necessary to provide permanent direct historic streetcar service between Fisherman's Wharf and the 4th Street Caltrain station.	\$0.05	\$0.05
Express Bus Service: Service from Candlestick and Hunters Point to Downtown.	\$0.03	\$0.03
Area Pricing, Capital Startup Costs: Northeast Cordon and Treasure Island.	\$0.03	\$0.03
Area Pricing, Ongoing Operations: Northeast Cordon and Treasure Island: Install a peak period congestion charge for cars entering or leaving downtown or Treasure Island, and invest net revenues in its implementation and related transit, pedestrian, bicycle and carpool alternatives.	N/A*	
Southeast Waterfront Transit Priority and Increased Service	N/A**	
SUBTOTAL (AMOUNT IN \$BILLIONS YOY)	\$7.57	\$10.35
PERCENT OF TOTAL INVESTMENT	10%	13%

* The area pricing program raises approximately \$2.5 billion in revenue (not reflected above) that is invested into supportive multimodal projects and programs.

** Southeast Waterfront improvements proposed to be funded by future growth in the general fund resulting from development.

(some development-related projects), or prioritized in regional agreements (e.g., Van Ness Avenue Bus Rapid Transit). The Investment Plan recommends dedicating about \$2 billion in discretionary funding to plan our long-range transit network and provide efficiency and expansion investments. This includes new transit service and defined capital projects beyond existing commitments. See Appendix A for detail on how we prioritized projects for inclusion. Figure 30 lists project costs, and Figures 31 and 32 (pages 32, 33) illustrate project locations.

RECOMMENDATION:

CONTINUE RAPID TRANSIT NETWORK DEVELOPMENT, INCLUDING BUS RAPID TRANSIT

The most cost-effective transportation projects are those that make the most efficient possible use of existing infrastructure. Bus Rapid Transit is an affordable approach to creating a network of rapid transit along key corridors throughout San Francisco, including Geneva Avenue and Potrero / Bayshore Boulevard. Another example of making the most efficient use of existing infrastructure is the Transit Effectiveness Project, which cost-effectively improves transit travel times and reliability through transit-priority treatments on Muni's Rapid Network, the top lines that carry 75% of total transit ridership. Bus Rapid Transit could also be deployed to fill gaps in regional transit connections to the city's west side.

RECOMMENDATION:

CONTINUE TO COORDINATE TRANSIT INVESTMENT WITH LAND USE DEVELOPMENT PLANS

With new state requirements to focus on reducing greenhouse gas emissions through more coordinated land use and transportation planning, regional funding frameworks increasingly emphasize Priority Development Areas (PDAs), where cities are planning for infill, transit-oriented growth. San Francisco agencies have identified PDAs, generally in the eastern part of the city. The Transportation Investment and Growth Strategy identifies the transportation needs to support this growth. As area plans and major developments are contemplated, such as along the Eastern Waterfront, transportation needs in all categories—operations and maintenance, safety and enhancements, and efficiency and expansion—should be identified and prioritized.

RECOMMENDATION: INVEST IN PLANNING AND PROJECT DEVELOPMENT TO REDUCE DISPARITIES

In response to concerns heard during SFTP outreach, we analyzed how transportation conditions such as safety, transit access, and reliability vary geographically in the city (see Appendix F). We found some disparities. For example, low-income communities experience disproportionately high numbers of pedestrian and bicyclist injuries and fatalities, and outlying neighborhoods experience worse transit reliability. We responded by proposing a set-aside equity funding program with \$140 million for projects that improve equity and including equity as a consideration in project prioritization.

RECOMMENDATION:

SET A VISION FOR MANAGING THE CITY'S FREEWAY NETWORK

San Francisco's greatest increases in vehicle travel are projected to be to and from the eastern neighborhoods and the Peninsula/South Bay. Overall development and management strategies are needed for the US 101 and I-280 corridors. As the region develops the Bay Area Express Lane Network, San Francisco agencies should partner with Caltrans, the MTC, and neighboring cities and counties to develop a local strategy for managing our freeway network and related surface streets such as Potrero and Bayshore.

RECOMMENDATION:

IDENTIFY THE NEXT GENERATION TRANSIT NETWORK PRIORITIES FOR BART, CALTRAIN, AND MUNI

Addressing bottleneck points in our local and regional rail networks will significantly improve rides for existing and passengers and allow for new passengers on our system. and The SFTP identifies the need to establish a long-range, multi-operator transit network development strategy. The SF Investment Vision identifies up to \$1.5 billion in expected and potential new revenues for expanding the capacity of BART, Caltrain, and Muni.

RECOMMENDATION:

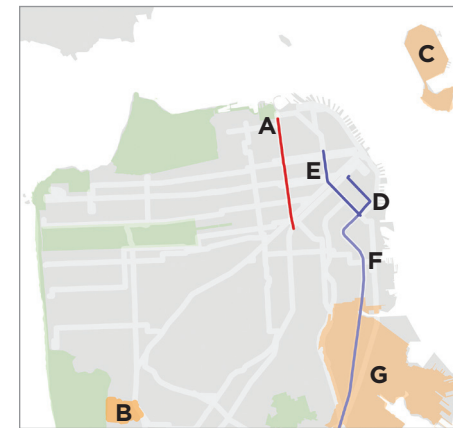
CONSIDER ALL OPTIONS FOR DELIVERING PROJECTS

Transportation projects may fall behind schedule and experience cost increases, and the public generally perceives delivery as taking too long. The SFTP Small and Large Project Delivery White Papers (Appendices H and I) explore strategies to aid project delivery. Key recommendations include consideration of a wide range of public-private partnership opportunities for major capital improvements such as the Caltrain Downtown Extension to the rebuilt Transbay Terminal, and the Treasure Island Transportation Improvement Plan.

INVESTMENT PLAN AND VISION SCENARIO BENEFITS

San Francisco's needs for transportation funding far exceed expected revenue. The SFTP proposes ways to invest the dollars we expect to have to most effectively make progress towards our goals, but analysis shows that our progress will be limited unless we identify new revenues. Figure 33 (pages 34–35) illustrates the additional benefits possible through higher funding levels. See Appendix J for more detail on plan performance results.

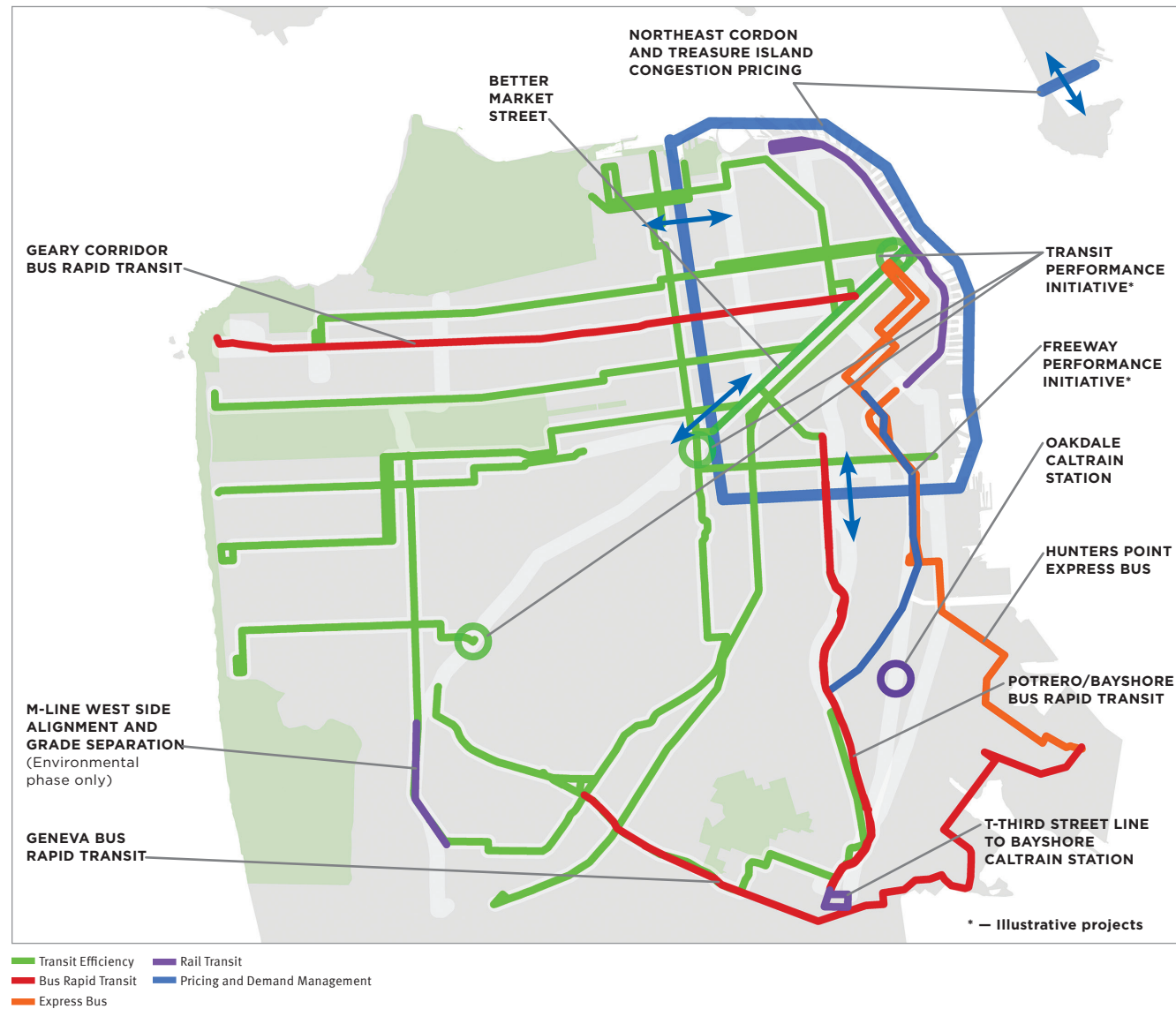
FIGURE 31. COMMITTED EFFICIENCY AND ENHANCEMENT PROJECTS

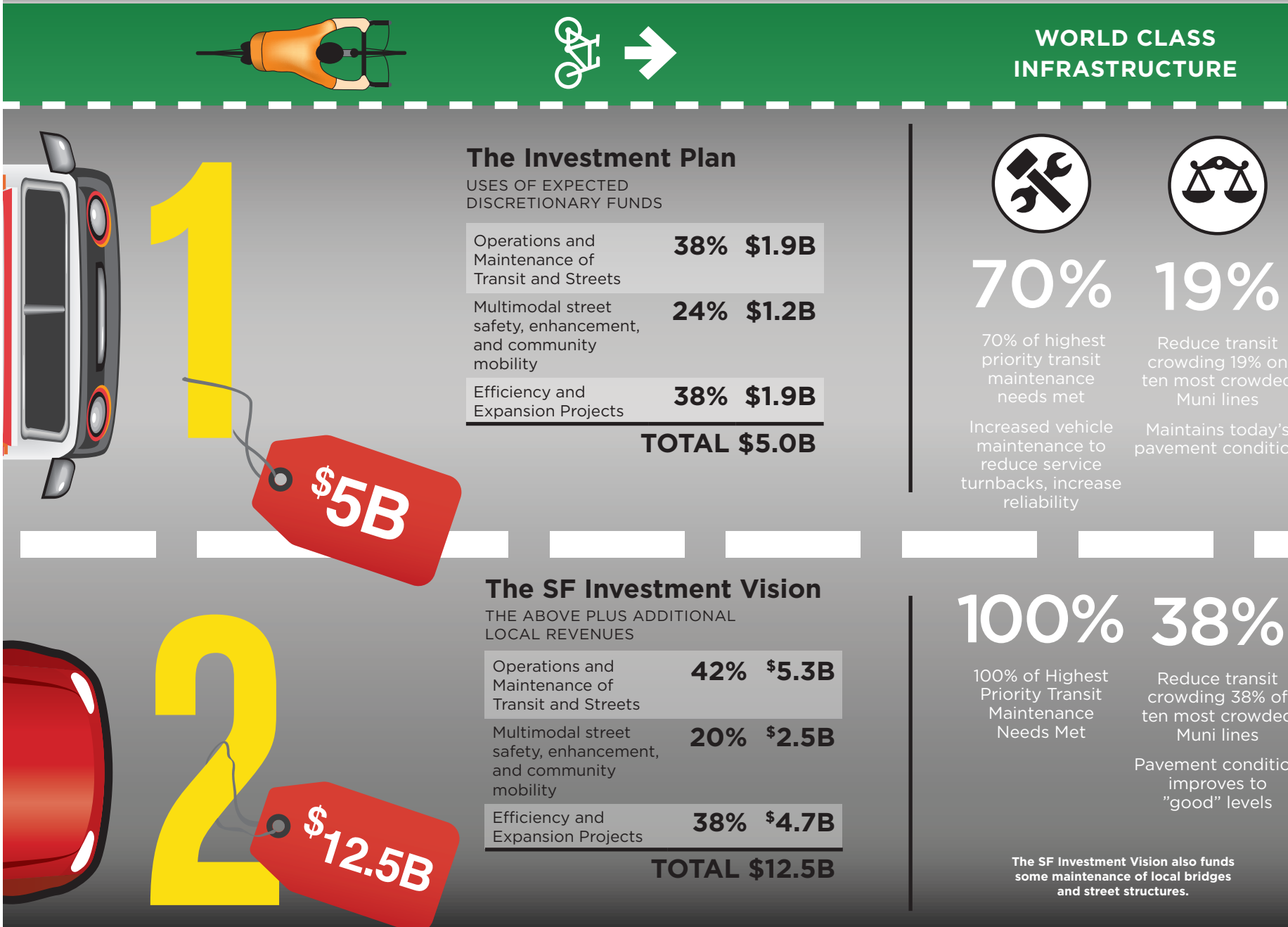


\$9.43 billion in expected revenue is dedicated to projects that San Francisco has already committed to building.

- A.** Van Ness Bus Rapid Transit
- B.** Improvements to support development of Parkmerced
- C.** Improvements to support development on Treasure Island including
- D.** Extension of Caltrain to Downtown
- E.** Central Subway
- F.** Caltrain Electrification and signal system upgrade
- G.** Improvements to support development of Candlestick Point/Hunters Point-Shipyards

FIGURE 32. INVESTMENT PLAN DISCRETIONARY EFFICIENCY AND ENHANCEMENT PROJECTS





SAFE STREETS AND VIBRANT NEIGHBORHOODS



20Mi

About 40% of the City's Pedestrian Safety Strategy funded (nearly 20 miles) of pedestrian safety improvements



22%

Nearly 22% of the City's Bicycle Strategy funded

40Mi

100% of the City's Pedestrian Safety and Bicycle Strategies (Over 40 miles of pedestrian safety improvements)

Both scenarios include dedicated planning funds to develop safety and mobility projects in Communities of Concern and neighborhoods citywide

HEALTHY ENVIRONMENT



10%

Up to 10% reduction in auto trips

Expanded employer, school and community trip reduction partnerships



12%

Up to 12% reduction in GHG emissions

14%

Up to 14% reduction in auto trips

Freeway management and transit efficiency strategies to increase safety and encourage carpools.

Multimodal investments and demand management, including area pricing, downtown and on Treasure Island account for half of these benefits in both scenarios

15%

Up to 15% reduction in GHG emissions



15Mi

15 miles of protected transit lanes including Bus Rapid Transit on key corridors

33Mi

Up to 33 miles of protected transit lanes

Increased BART capacity and reliability

Additional Caltrain service and/or BART express buses increase rapid connections to the South and East Bays.



14%

14% improvement in Muni speeds on rapid network

18%

18% improvement in Muni speeds on rapid network

Muni Metro system bottlenecks addressed to improve reliability and travel times

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CHAPTER FIVE

NEXT STEPS



THE SFTP WILL SHAPE THE WORK of the Transportation Authority and our partner agencies in the years to come. Major next steps are:

- Rolling out the first five years of SFTP investments through an Early Action Program.
- Coordinating with the Mayor's 2030 Transportation Task Force and other local and regional partners to pursue new local revenues to address unmet transportation needs.
- Conducting monitoring and evaluation to ensure efficient and equitable progress towards SFTP goals.

Additionally, the SFTP itself will be updated approximately every several years.

EARLY ACTION PROGRAM

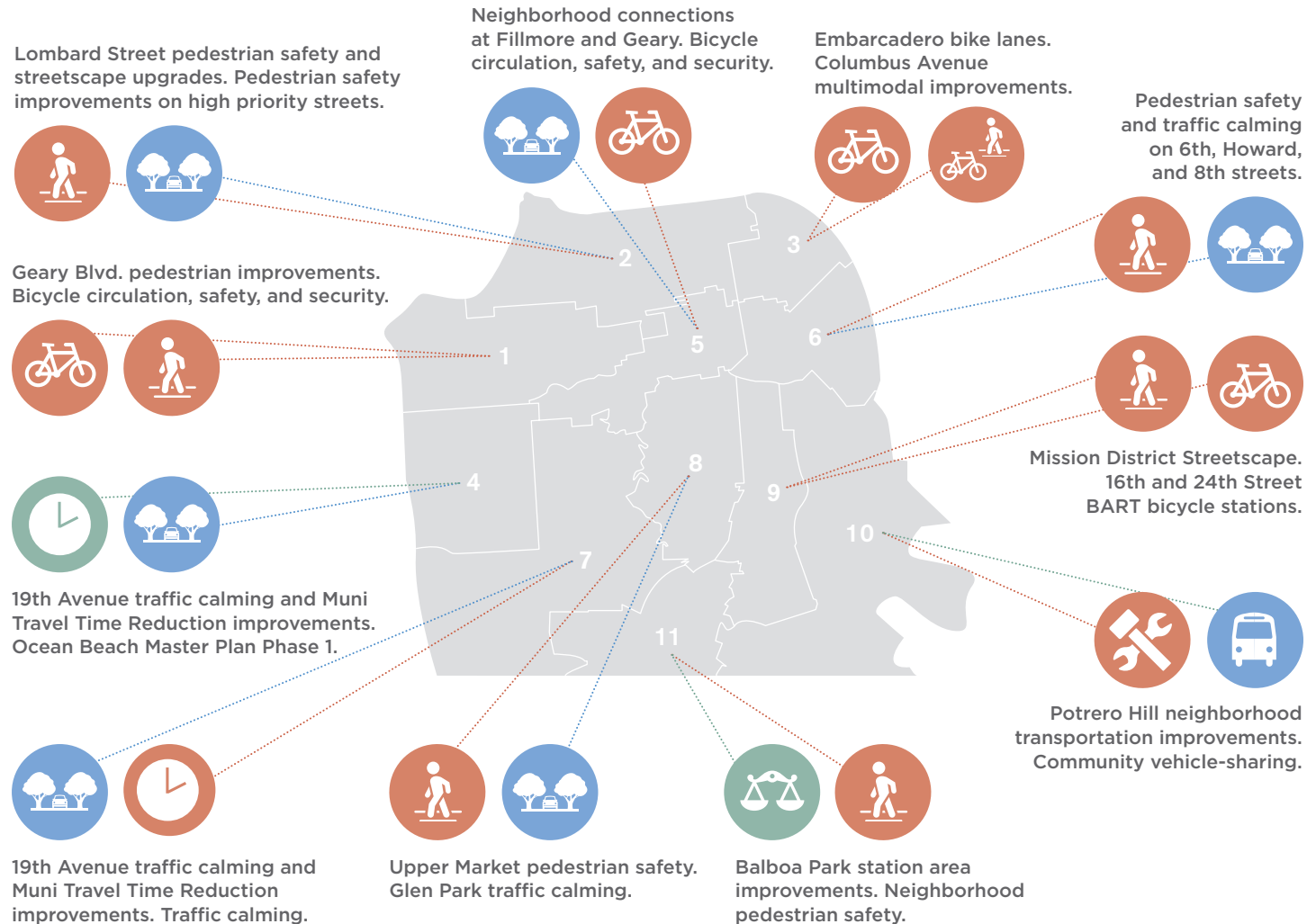
The Early Action Program represents the first five years of the 30-year SFTP and will fund improvements in every part of the city for every mode of travel. The Early Action Program uses the Prop K transportation sales tax and its ability to leverage federal, state and other funds to direct hundreds of millions of dollars toward SFTP investments. Over the next five years, city and regional agencies will work to define and implement these projects. The Figure 34 (next page) shows a representative sample of potential Early Action Program projects. We anticipate Early Action Program projects in each District. Information about these projects is available through the Authority's interactive web site, www.mystreetsf.com. We anticipate Transportation Authority Board approval of the Early Action Program in Spring 2014.

NEW REVENUES

We evaluated a range of potential new local revenue sources to meet existing and future transportation needs. A combination of sources such as private sector funds, a parcel tax, sales tax, and vehicle license fee are possible candidates for generating the additional \$7.5 billion recommended for the SFTP vision. Over the past year, we worked closely with the Mayor's 2030 Transportation Task Force, which has recommended a vehicle license fee, general obligation bonds, and a half-cent sales tax increase for the 2014 and 2016 ballots. We will continue

FIGURE 34. EARLY ACTION PROGRAM: REPRESENTATIVE PROJECTS IN THE FIRST FIVE YEARS OF THE SFTP

The Early Action Program represents the first five years of investments for the 30-year SFTP and will fund improvements in every part of the city for every mode of travel.



to work with the Mayor's Office, partner agencies, and stakeholders to pursue new local, regional, state, and federal transportation funding sources. The Mayor's Transportation Task Force is further analyzing next steps for potential new local revenues.

MONITORING AND EVALUATION

Performance measurement is one of the Transportation Authority's statutory functions in its capacity as Congestion Management Agency, and as administrator of the Prop K half-cent transportation sales tax. The Transportation Authority will focus on performance tracking and evaluation in the following areas of policy interest, spanning the monitoring of system needs and trends, project delivery, and project effectiveness:

- **ONGOING MONITORING AND REPORTING.** Through biennial monitoring as Congestion Management Agency, and through www.mystreetsf.com, the Transportation Authority will track and provide information to the public on the delivery of transportation projects, including those identified for implementation in the Early Action Program. The Transportation Authority will also support the City's efforts to monitor the transportation obligations within development agreements.

- **DEMOGRAPHIC AND TRIP-MAKING TRENDS.** The Transportation Authority will continue to monitor demographic and travel behavior trends and the effect of new growth on the transportation system.
- **TRANSIT SYSTEM PERFORMANCE, ESPECIALLY EQUITY AND RELIABILITY.** SFTP outreach revealed that transit reliability is a socioeconomic and geographic equity issue, as well as a top priority for the general public. Yet data measuring and tracking reliability are limited. More research is needed to improve reliability measurement. Equity monitoring should additionally track safety trends and affordability outcomes.
- **DOCUMENTING THE COST EFFECTIVENESS OF TRANSPORTATION INVESTMENTS THROUGH BEFORE-AND-AFTER STUDIES.** The Transportation Authority will work with implementing agencies to strategically evaluate the effectiveness of new projects and programs to inform future project selection and prioritization, especially in the areas of pedestrian safety, traffic calming, and travel demand management.

Major next steps are:
Rolling out the first five years of SFTP investments through an Early Action Program, pursuing new local revenues to address unmet transportation needs, and conducting monitoring and evaluation to ensure efficient and equitable progress towards SFTP goals.

STAFF ACKNOWLEDGEMENTS

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