Appendix A

SFTP INVESTMENT PLAN DEVELOPMENT PROCESS

KEY TOPICS

- How the SFTP investment plan and investment vision plan are structured
- How projects were selected for inclusion in the investment plans
- How programmatic funding levels were set

1 Introduction

1.1 | Overview

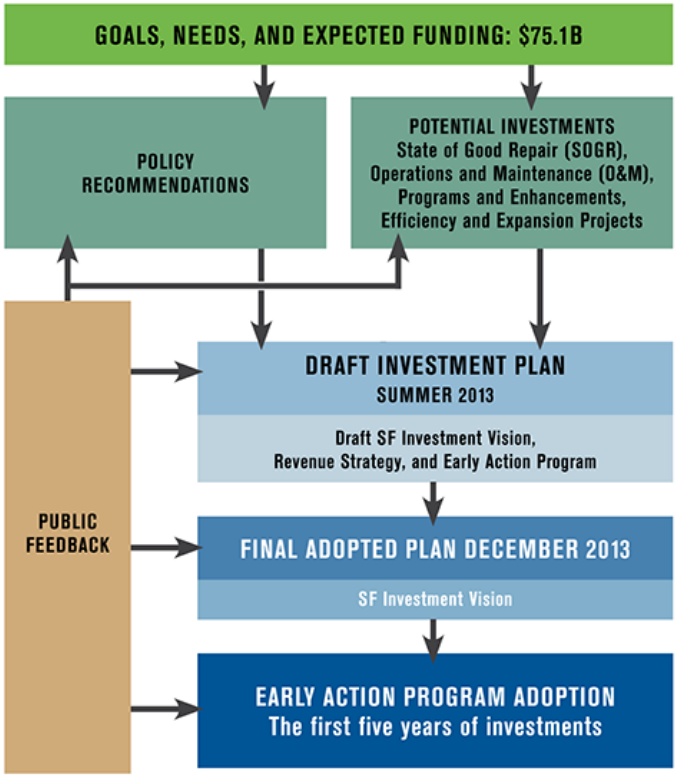
The core of the San Francisco Transportation Plan is an investment plan that details how available transportation funds will be spent between now and 2040. This document describes how the investment plan was created.

The investment plan includes two funding scenarios. The financially-constrained scenario matches available revenues to future investments. The vision plan demonstrates how outstanding transportation needs could be met with new revenues.

Investment plan funding is grouped into four categories:

- **Baseline / already committed projects.** These include all major projects that the city has already committed to, such as the Transbay Transit Center, the Presidio Parkway, and others.
- **The ongoing maintenance and operations ("State of Good Repair") category** includes funding for roadway-repaving and operation (e.g. street sweeping, traffic signal maintenance); and transit system operation, maintenance and vehicle replacement. This funding is programmatic, meaning that it provides

Figure 1. SFTP Development Process



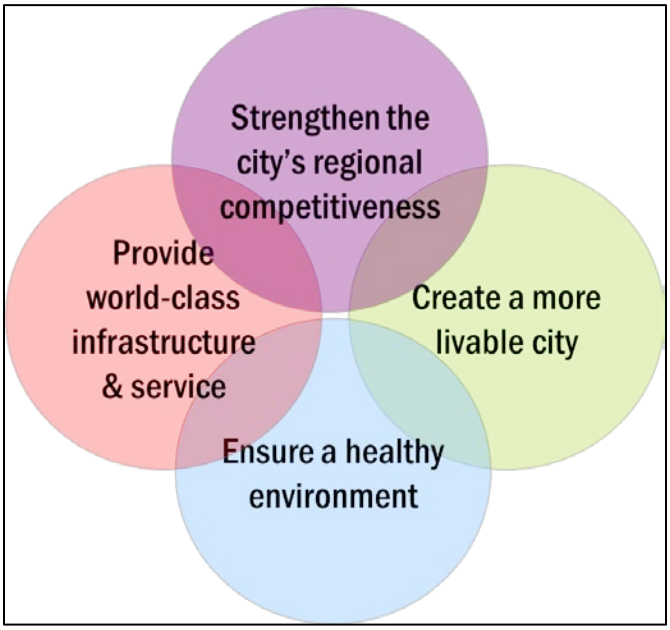
flexible funding for categories of improvements rather than for specific, defined projects. It is also referred to as "State of Good Repair" funding in that it maintains the existing transportation system rather than expanding or enhancing it.

- **The transportation program category** includes funding for seven transportation programs that expand or enhance the transportation system. These include: (1) Street/signal upgrades and street network development, (2) walking and traffic calming, (3) bicycling, (4) MUNI enhancements, (5) regional transit enhancements, (6) transportation demand management, and (7) equity. This programmatic funding is also flexible and can be spent on a variety of project types as long as they are consistent with the definition of the category.
- **The ranked transportation projects category** includes funding for a list of specific transportation capital projects. Each project has a defined location, project description, and cost estimate.

The process for developing these components of the SFTP included the following sub-steps:

- **Develop goals and performance measures.** Goals and performance measures were developed to guide which types of projects and programs should be prioritized. Four goals were selected (Figure 2)[1]
- **Estimate available revenues.** About $75 billion in federal, state, and local revenue is expected for transportation in San Francisco through 2040. Over 65 percent of this will come from local and regional funding sources, such as the Prop K transportation sales tax and the Prop AA vehicle registration fee. About 80 percent of this funding is required to operate and maintain today's transit and street networks in their current condition. An additional $10B is committed to projects and investments that are already underway (such as the Presidio Parkway, Central Subway, Caltrain electrification, Van Ness Avenue Bus Rapid Transit, and more). This means that of the $75 billion in revenue we expect through 2040, only about $5 billion is uncommitted revenue. SFTP Appendix B describes the assumptions used to estimate available revenues in more detail.

Figure 2. SFTP Plan Goals



- **Estimate funding needs by category.** Future transportation needs were assessed through a comprehensive needs analysis (see the Needs Analysis White Paper for more detail), and

[1] The SFTP goal areas were developed through a collaborative process that drew on goals identified in the 2004 Countywide Transportation Plan, city policies like Transit First and the Climate Action Plan, and input from the public and other city agencies.

through a public call for transportation project proposals, described in the SFTP Appendix D: Outreach Summary.

- **Allocate available discretionary revenues roughly between the major plan categories.** Available revenues were roughly divided amongst the major categories (e.g. state of good repair, transportation programs, and capital projects). The financially-constrained scenario allocates 13 percent of revenues to already-committed projects; 83 percent to state of good repair needs; about one percent to transportation programs; and about 3 percent to major capital projects.
- **Rank capital projects.** Candidate capital projects were ranked to determine which should receive funding in the plan and which should be candidates for receiving any new revenues.
- **Set programmatic funding amounts.** Discretionary revenues were distributed amongst the seven transportation programs.
- **Refine and complete.** Funding amounts for state of good repair, projects, and programs were refined to respond to public and stakeholder input, and to ensure that funding levels match available revenues (for the financially constrained scenario), or estimated future new revenues (for the vision scenarios).

The next sections describe in more detail how the process worked, focusing on the capital project prioritization and funding process (Section 2), and the selection of programmatic funding levels (Section 3).

2 Capital Project Selection Process

2.1 | Overview

Major capital enhancement projects were selected for the SFTP based on whether they would cost-effectively support the SFTP goals and associated performance measures (as determined through a project prioritization process), and based on whether they met several policy criteria.

Table 1 lists the performance measures used in project prioritization.

Table 1 – Performance Measures In Support of SFTP Goals

SFTP Goal	Performance Measure
Economic competitiveness	Average motorized travel time per trip (travel time)
Livability	Share of trips made by walking, bicycling, and transit (modeshare)
A healthy environment	Greenhouse gas emissions (GHG)
World class infrastructure	Level of crowding on transit lines (crowding)

Projects were grouped into one of four tiers based on the cost effectiveness evaluation results. Projects in the highest Tier have the greatest beneficial contribution to the four SFTP goals relative to their costs. A project's tier was combined with other policy considerations to determine whether it should be included in the plan. The project evaluation process is discussed in more detail below.

2.2 | Project Identification and Initial Screening

Candidate projects evaluated for inclusion in the SFTP originated from several sources:

- Projects submitted as part of the joint regional and San Francisco call for projects associated with the Bay Area Metropolitan Transportation Commission's (MTC) Regional Transportation Plan (RTP) in February-March 2011, or as part of a second San Francisco call for projects for the SFTP only, administered by the Authority in September-October 2011. These submissions included projects submitted by the public and by local and regional agencies.
- Projects suggested by the public and agencies in response to outreach conducted by the Authority in August-October 2011 to collect input on transportation needs and priorities for the SFTP[2].
- Projects considered or recommended in recent transportation sector studies and plans (e.g., the SFMTA 20-year Capital Program, the Authority's Bi-County Transportation Study, the Mobility and Pricing Study, the City's Climate Action Plan, and others).
- Projects included in approved Area Plans and priority development areas.
- Projects included in the Proposition K Transportation Sales Tax Expenditure Plan.
- Project ideas developed in support of the SFTP analysis of aspirational scenarios.[3] These scenarios, developed in the first phase of the Plan update, tested packages of projects designed to achieve specific long term performance targets in each of the four Plan goal areas. Some of the top-performing projects identified in this analysis are evaluated for potential inclusion in the SFTP.
- Project ideas identified through the SFTP needs analyses, such as the SFTP Baseline Needs analysis and the Core Network Circulation Study needs analysis.

From this initial list, the SFTP team screened out twenty-seven projects considered not appropriate for inclusion in the project evaluation process. These included:

- Baseline projects. Baseline projects are those which are (1) under construction, (2) fully funded, or for which all funding for the project is committed, (3) are identified as a regional transit expansion priority in the RTP / Sustainable Communities Strategy, or (4) are included in the inter-related program of projects identified in the signed memorandum of understanding: High Speed Rail Early Investment Strategy for a Blended System on the Peninsula Corridor.
- Previously evaluated and rejected projects. Projects which have been previously evaluated and rejected through an alternatives analysis, environmental impact report / statement, feasibility study, or similar, are not included in this evaluation process.
- Non-transportation projects. For instance, policy changes are not evaluated using this methodology.
- An inventory of all project concepts considered as part of this evaluation process, including those ideas received but screened from further analysis, is provided as Appendix A.

In the original September 2012 analysis, "programmatic" improvements were excluded from the performance evaluation exercise. "Programmatic" project concepts include: (1) relatively low project

[2] A list of all agency-submitted projects is available upon request.
[3] For more detail on the Aspirational Scenarios, see Appendix B.

cost, e.g., <$10M; (2) project features, location, or other aspects of project description not sufficiently defined to allow a detailed evaluation; and (3) projects difficult to evaluate due to their small scale or incompatibility with available research and analytical tools. However, in response to stakeholder input received during Fall 2012 outreach, three programs (the Bicycle, Pedestrian, and Travel Demand Management) were evaluated alongside projects in the performance evaluation. This evaluation influenced the amount of programmatic funding devoted to these categories (see Section 3.0 for a description of how programmatic funding levels were set).

2.3 | Project Evaluation Methodology

This section describes the project evaluation methodology, which involved scoring each project based on its likely contribution to Plan goals (benefit score), and dividing this score by the project's annualized cost to produce a proxy benefit-cost index. Projects were grouped into performance Tiers based on this index. The following sections describe each step in the evaluation process.

BENEFIT SCORE CALCULATION: The "benefit" score for each project was intended to capture how well the project contributes to positive outcomes in each of the four Plan goal areas (economic competitiveness, livability, healthy environment, and world-class infrastructure). Correspondingly, the benefit score included each project's contribution to change in travel times, mode shares, GHG emissions, and crowding.

A project's score for each of these four performance measures – GHG emissions, travel time[4], modeshare, and crowding - was the product of three sub-scores. These sub-components of the "benefit" score are depicted in Figure 3, and include a market sub-score, problem sub-score, and effect sub-score. These capture the magnitude and significance of a project's effect on each performance measure.

- Market sub-score (ranging from 1-3). The market sub-score reflects the number of travel markets potentially affected by the project; in other words, how many trips will the project affect?
- Problem sub-score (ranging from 1-3). The problem sub-score reflects the degree to which the main travel market served by the project has existing or expected future transportation performance deficiencies in the Plan goal areas: high levels of greenhouse gases, high automobile dependence, increasing travel delay, or high levels of transit crowding. In other words, how severe is transit crowding, GHG emissions, and so on in the travel markets that the project would serve?
- Effect sub-score (ranging from -1 to 2). The effect sub-score reflects the degree to which the project would improve transportation performance in each of the goal areas. In other words, how much would the project affect GHG emissions, transit crowding, and so on.

[4] For the bicycle and pedestrian programmatic project evaluation, the motorized travel time metric was replaced with safety, as safety was judged a more appropriate metric for these program types.

Figure 3 – Project Benefit Score Components

Metric	Market Score		Problem Score		Effect Score		Total Score
Greenhouse Gas (GHG)	1 to 3	×	1 to 3	×	-1 to 2	=	GHG Score
Motorized Travel Time	1 to 3	×	1 to 3	×	-1 to 2	=	Travel Time Score
Non-Auto Mode Share	1 to 3	×	1 to 3	×	-1 to 2	=	Mode Share Score
Transit Crowding	1 to 3	×	1 to 3	×	-1 to 2	=	Crowding Score
Total							Project Benefit Score

The method for calculating the scores is discussed below.

Market Sub-Score: The number of travel markets served by a project determined the project's market score. A project could serve one or more of 21 Bay Area districts, including 12 within the city of San Francisco, eight representing the other counties in the Bay Area, and an additional district representing all locations outside the nine-county Bay Area region. Together these districts comprise about 200 unique origin-destination pairs (for example, Alameda County to the South of Market), referred to as travel markets. A project's market sub-score was based on the number of primary travel markets it would potentially serve.

Problem Sub-Score: The Problem sub-score captured the severity of transportation needs in the primary travel market served by the project. The severity / degree of transportation need for any given travel market is determined for each of the four Plan goal-area performance measures (GHG emissions, modeshare, travel time, and crowding) using the Authority's travel demand model (SF-CHAMP) estimates of two analysis years: the existing (2010) and future 2035 Baseline Scenarios. The Problem Sub-Scores for each goal area range from 1 to 3, where 1 indicates the least severe problem and 3 indicates the highest severity problem for each metric. For most metrics, the scoring thresholds take into account both absolute future conditions and the degree of change from 2010 to 2035.

Effect Sub-Score: The Effect Sub-Score captured how well a potential project would improve transportation conditions in each of the four Plan goal-area performance metrics. A project's Effect Sub-score could range from -1 to 2 for each of the four metrics, where -1 indicates a negative effect and 2 indicates a strongly positive effect. For the majority of projects, the score is based on SF-CHAMP model results. Other effectiveness scores are based on research and some are informed by planner judgment.

Overall Project Benefit (Benefit Score): The market sub-score, problem sub-score, and effect sub-score for each of the performance measures is combined to produce a total, composite benefit score for each project.

PROJECT COST CALCULATION: The second component of each project's evaluation score was the project cost, including both the capital and incremental, new cost of each potential project. Incremental operating costs were only included for transit projects that would increase service levels. When available, cost estimates were obtained from project sponsors or existing plans and expressed in Year of Expenditure (YOE) dollars. For other projects, capital costs were estimated using the per-unit or per-mile cost of a similar reference project, and operating costs were estimated using modeled or sponsor-provided service plans and the average cost per revenue hour of service for each agency and transit mode.

Capital and operating costs for each project were converted to an average annual total cost to allow for comparing projects with different implementation timeframes and to avoid disadvantaging more expensive investments with longer lifecycles. The capital costs were annualized by dividing the total capital cost by the project's expected useful life. Then the annualized capital cost was added to the average incremental (new) operating cost to obtain the average total cost per year.

2.4 | Project Evaluation Results and Additional Considerations

The team calculated a final proxy benefit cost index for each project by dividing the project benefit score by the annualized project cost. This provides a dimensionless, proxy benefit-cost index illustrating the project's cost-effectiveness relative to other scored projects.[5]

Projects were grouped into four Tiers based on the proxy benefit-cost index. Although the proxy benefit-cost index was the main basis for a project's Tier grouping, overall project benefit was also considered. The High project tier includes projects with a proxy benefit-cost index greater than 2.5 *and* a Benefit score in the top third of all projects (these high-benefit projects are marked with an asterisk in the tables).

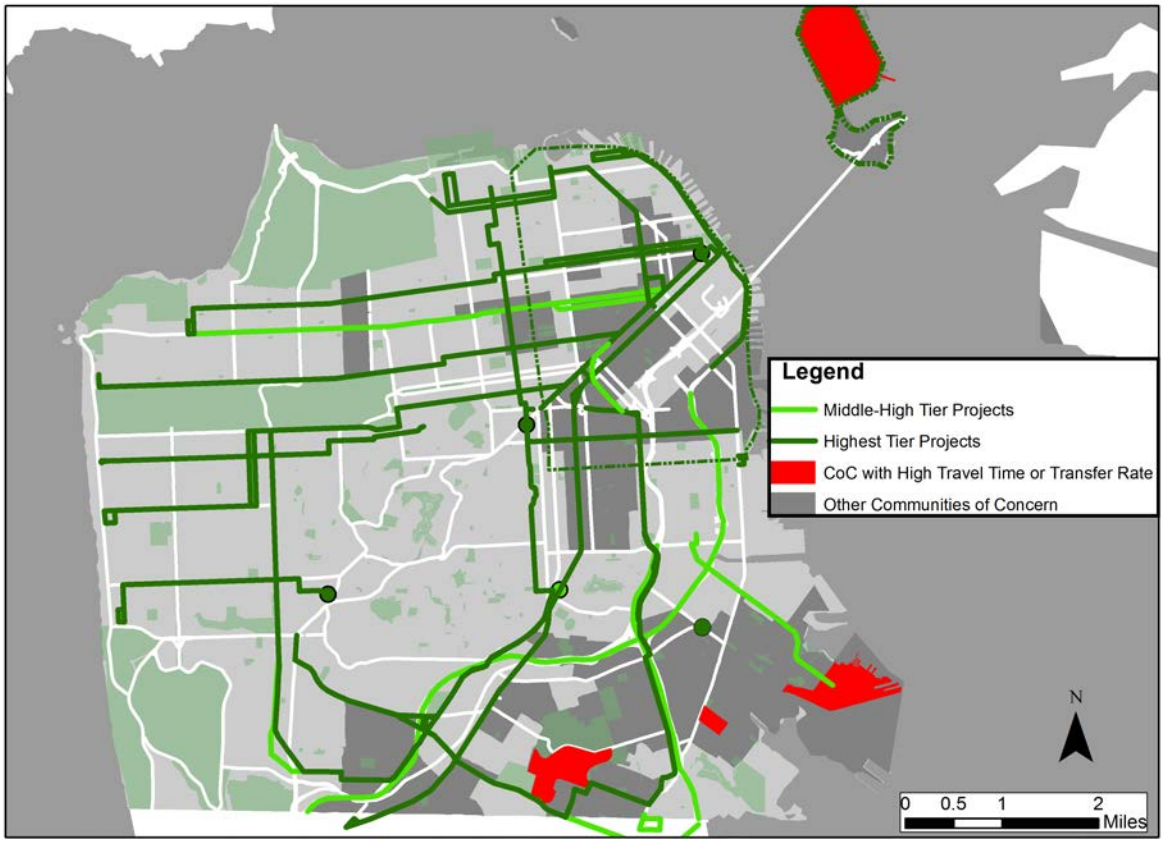
ADDITIONAL CONSIDERATIONS: A project's proxy benefit-cost Tier was not the sole consideration for including a project in the Preferred or Vision Scenario of the SFTP. Several other policy priorities were also considered. These include a project's contribution to:

- Safety. Projects are considered to provide a safety benefit if they would address life-safety risks such as emergency response.
- Operational Benefits. Projects are considered to provide an operational benefit if they would improve the ability manage services for reliability, such as by providing operational flexibility or reducing delays in deploying services.
- Support for growth in a Priority Development Area (PDA). Projects are considered to support PDA growth if they provide additional access routes, transit frequency, or capacity to a designated PDA. Appendix B provides a map of San Francisco's PDAs.
- Equity. Projects that support the equity consideration are defined here as those that enhance access to Communities of Concern (COC). Figure 4 illustrates how the middle-high and highest-tier projects overlap with designated communities of concern. A comprehensive equity

[5] Unlike a standard benefit-cost ratio, which compares the monetary value of project benefits to costs, the index cannot be used to determine if the project is economically justified (e.g. benefits exceed costs), and cannot be used to compare projects outside the context of the SFTP, since the benefit scores are based on relative comparisons within the group of scored projects.

analysis was used to determine whether the projects would improve conditions in these communities.

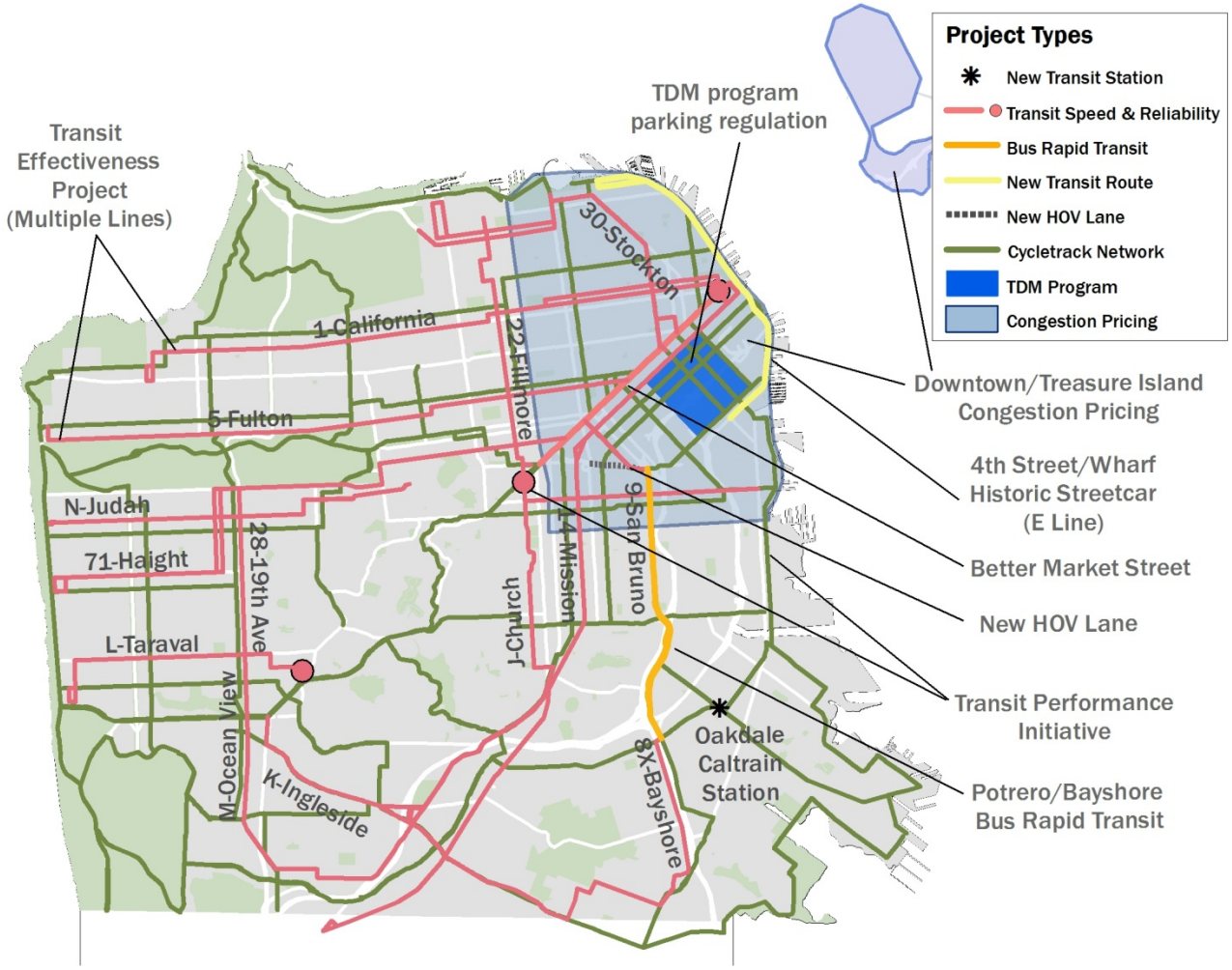
Figure 4 – Highest and Middle-High Tier Projects – Relationship to Communities of Concern



Figures 5 through 8 and Tables 2 through 5 show the projects included in each Tier, along with applicable additional considerations for each project.

HIGHEST TIER: The highest Tier of projects includes those with widespread benefits, such as the Congestion Pricing Pilot Program, Bicycle Program, and the Transit Effectiveness Project, as well as relatively low-cost targeted improvements such as a new Caltrain Station at Oakdale Avenue or a conversion of existing lanes to create HOV lanes on the Central Freeway.

Figure 5 – Highest-Tier Projects



**Note: Bicycle and Travel Demand Management programs are not shown.*

Table 2. Highest Tier Projects

Project Tiers Projects shown with an * are in the top third of Benefit scores.	Additional Considerations[15]			
	Safety Benefit	**Operating Benefit**	**PDA-Supportive[16]**	**Equity Benefit[17]**
Highest Tier - Benefit Cost Index > 2.5 and Overall Benefit in Top Third; or, Benefit Cost Index > 4				
Better Market Street* ($258M)[18] Re-design and improve Market Street for transit, bicycling, and pedestrians between Steuart Street and Octavia Boulevard.	✓		✓	
Bicycle Program* ($252M) Provide a citywide network of cycletracks similar to Oak/Fell improvements, bicycle education programs, a bike sharing system downtown, and bicycle parking citywide.	✓		✓	✓
Congestion Pricing - Cordon and Treasure Island* ($119M) Install a peak hour congestion charge for cars entering or leaving downtown or Treasure Island, and invest net revenues in transit improvements and other multi-modal investments. (This project generates revenue that would be used to fund its implementation and related improvements)			✓	
Historic Streetcar Expansion Program - E turnaround* ($149M) Provide a turnaround to enable direct historic streetcar service between Fisherman's Wharf and the 4th Street Caltrain station			✓	
HOV lane on the Central Freeway ($15M) Convert an existing travel lane into a carpool lane in each direction between I-80 and the South Van Ness/Mission off-ramps.				
New Caltrain Station at Oakdale Avenue ($62M)			✓	✓
Potrero / Bayshore Bus Rapid Transit ($128M) Provide rail-like transit service by installing dedicated bus lanes and other transit priority treatments on Potrero and Bayshore.			✓	✓
Transit Effectiveness Project* ($178 million) Improve Muni reliability and reduce travel times systemwide through stop infrastructure, lane modifications, stop controls and placement, and other transit preferential measures			✓	✓
Transit Performance Initiative* ($400M+) Provide one or more major capital investments to improve transit travel times and reliability at key bottlenecks, such as the Embarcadero Muni Metro turnaround, Mission Bay Loop, J-Church and N-Judah merge point, and at West Portal.		✓	✓	
Travel Demand Management Program* ($73M) Implement the TDM Partnership Project (Muni Partners Project and pilot TDM projects with institutions citywide), and continue TDM programs such as Emergency Ride Home.	✓		✓	✓
Sub-Total Cost, Top Tier	**$1,634M**			

[15] Additional considerations are project benefits that are not captured in the quantitative Benefit-Cost proxy analysis. Projects in lower Tiers may be considered for inclusion in the SFTP if they would address these additional considerations.

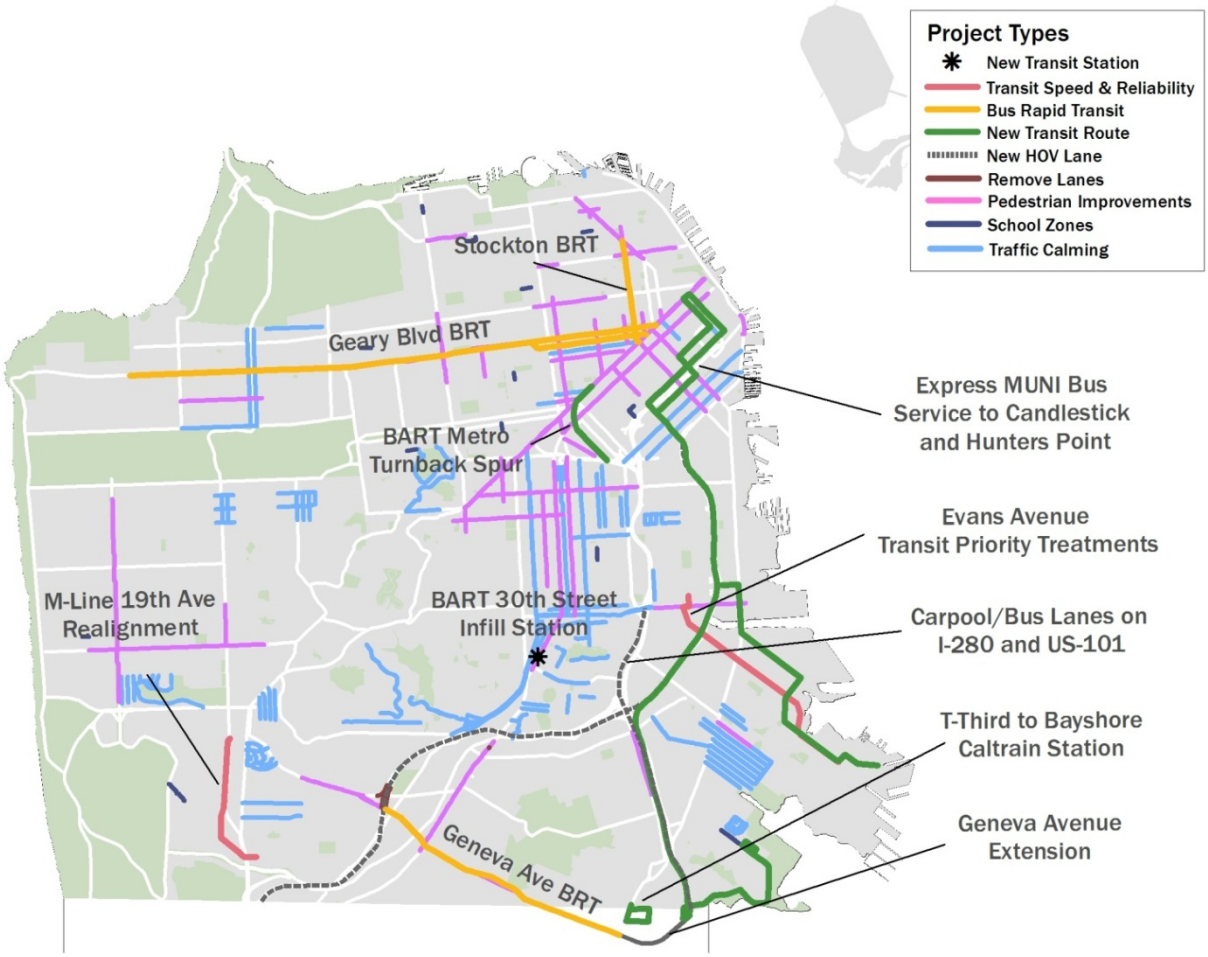
[16] Project is located in one of San Francisco's Priority Development Areas (PDAs).

[17] Project is located in one of San Francisco's Communities of Concern.

[18] Costs shown are capital cost plus the incremental (new) operating cost for transit projects, where applicable.

MIDDLE-HIGH TIER: The middle-high Tier includes twelve projects totaling approximately $3 billion. These projects tend to have low to moderate costs and high benefits but serve a limited set of travel markets. They include focused transit capital improvements such as line extensions, transit priority treatments, and bus rapid transit projects.

Figure 6 – Middle-High Tier projects



**Note: Pedestrian and Traffic Calming programs are not shown.*

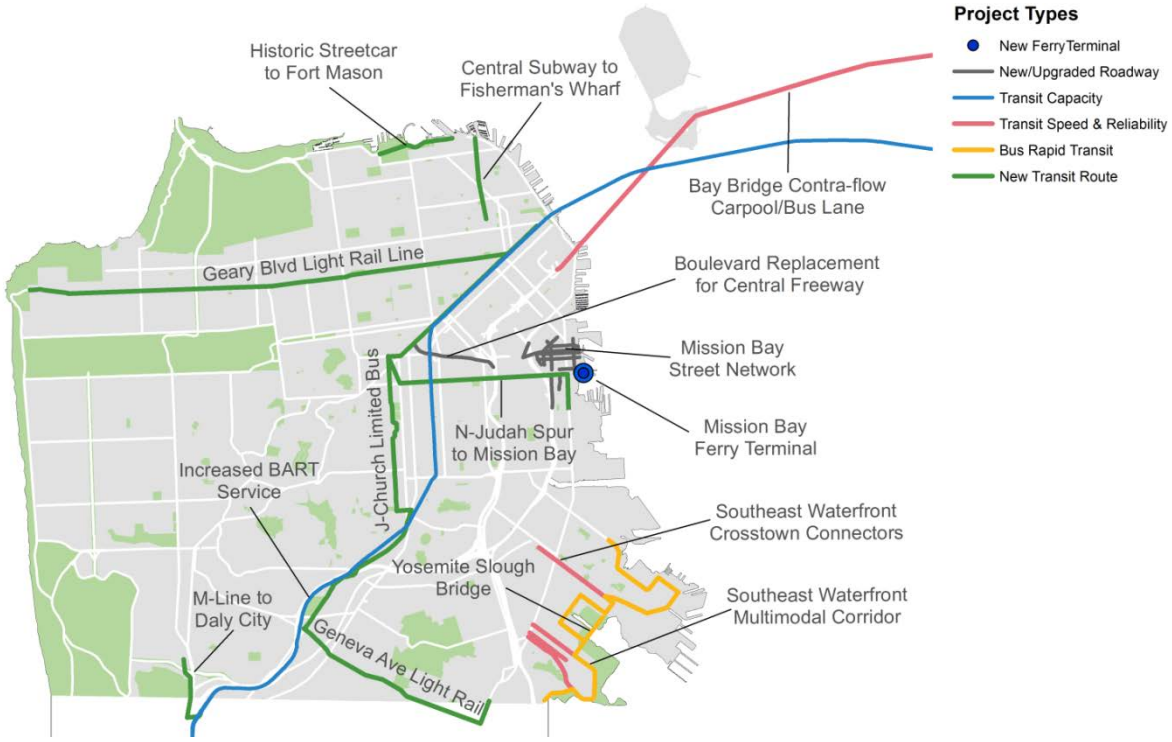
Table 3. Middle-High Tier Projects

Project Tiers Projects shown with an * are in the top third of Benefit scores.	Additional Considerations			
	Safety Benefit	**Operating Benefit**	**PDA-Supportive**	**Equity Benefit**
Middle-High Tier – Benefit Cost Index > 1.5, < 4				
BART Metro Turnback* ($500M) Construct a track extension allowing BART trains from the East Bay to turn around in San Francisco, and provide additional improvements that allow BART to run more frequent transbay service to the core of San Francisco.		✓	✓	
BART 30th St. Infill Station ($813M) Construct a new BART station between the 24th Street and Glen Park stations.			✓	
Carpool/bus lanes on I-280 and Highway 101 (to Cesar Chavez) ($148M) Convert an existing travel lane into a carpool/bus lane on I-280 from the county line to 6th Street and on Highway 101 from the county line to Cesar Chavez Street.			✓	
Evans Avenue transit priority treatments* ($71M) Provide a dedicated transit lane with signal priority from Highway 101 to Hunters Point.			✓	✓
Stockton Transit Priority and Partial Bus Rapid Transit ($35M) Improve reliability and reduce travel times for Stockton Street buses by providing transit priority treatments between between Market and Columbus, and a separated bus lane on Stockton Street between Bush and Market.			✓	✓
Express bus service from Hunters Point and Candlestick Point to downtown ($147M)			✓	✓
Geary Boulevard BRT ($229M) Construct rail-ready bus rapid transit (BRT) on Geary Boulevard from downtown to the ocean.			✓	
Geneva Avenue Extension ($148M) Extend Geneva Avenue from Bayshore Boulevard to Harney Way, under or over Highway 101, to provide access to new development at Hunters Point and Candlestick Point.			✓	
Geneva TPS/BRT ($92M) Install BRT, in dedicated lanes, from Bayshore Boulevard to Prague Street; and provide transit-preferential treatments in mixed-traffic lanes from Prague to Ocean Avenue/Balboa BART station.			✓	✓
M-line 19th Avenue west-side alignment ($271M) Construct a west-side alignment and grade separation to improve travel times and reliability on the Muni Metro M line.	✓		✓	
Pedestrian and Traffic Calming Program ($357M) Implement MTA's revised traffic calming program, including arterial traffic calming; provide pedestrian safety improvements citywide, including signals, bulb outs, and other pedestrian safety enhancement	✓		✓	✓
T-line extension to Southern Intermodal Terminal* ($152M) Extend the T-Third Street line from Bayshore/Sunnydale to the Bayshore Caltrain station.			✓	✓
Subtotal Cost, Middle-High Tier	**$2,963M**			

MIDDLE-LOW TIER: The low-middle Tier includes sixteen projects totaling approximately $9.4 billion (excluding the second BART tube, which could cost as much as $15 billion). This Tier includes several high-benefit but high-cost transit capital and operating projects. For instance, this Tier includes a $15 billion dollar project to build a second transbay BART tube to accommodate expected growth in BART ridership. In this case, the project would provide significant benefits, but has a very high capital and operating cost.

Other projects in this Tier with high benefit but relatively high costs include the Muni Service Expansion to Accommodate Growth, the Southeast Waterfront transit priority and expanded service, and the BART Rail Vehicle Capacity Expansion. Several of these projects, such as the Muni Service Expansion to Accommodate Growth, also address non-modeled other considerations, such as equity benefits and service to PDAs. The performance result in the Low-Middle Tier is generally the result of significant capital and/or operating costs for these projects rather than low benefit.

Figure 7 – Middle-Low Tier projects



**Note: Muni Service Expansion to Accommodate Growth and a new BART tube are in Middle-Low Tier but are not shown.*

Table 4. Middle-Low Tier Projects

Project Tiers Projects shown with an * are in the top third of Benefit scores.	Additional Considerations			
	Safety Benefit	**Operating Benefit**	**PDA-Supportive**	**Equity Benefit**
Middle-Low Tier (Benefit Cost Index > 0, < 1.5)				
BART expansion: Additional Transbay Tube* ($15,000M)			✓	
Bridge over Yosemite Slough ($69M) Four-lane bridge to connect planned new neighborhoods in the former Hunters Point Naval Shipyard to Candlestick Point.			✓	✓
Central Freeway removal/Octavia Boulevard Extension ($226M)				
Central Subway extension to North Beach and Fisherman's Wharf* ($1,686M)				
Contra-flow carpool lane on the Bay Bridge* ($335 million) Convert an existing travel lane on the Bay Bridge in the off-peak direction into a lane for AC Transit buses and carpools, with direct access to the Transbay Terminal.			✓	
Extend M-Line to Daly City ($377M) Extend the Muni Metro M-line from ParkMerced to the Daly City BART station, using dedicated transit lanes.			✓	
Geary Surface Rail* ($1,430M) [NOTE: assumes subway alignment east of Van Ness]			✓	
Geneva Avenue light-rail line* ($440M) Extend rail service along Geneva Avenue (either the T-Third Street line to the Balboa Park BART station or the J-Church to the Bayshore Caltrain station).		✓	✓	✓
Harney Way rebuild and BRT * ($445M) Rebuild Harney Way with 2 mixed traffic lanes, BRT, bike lanes and sidewalks to better connect new development at Candlestick Point to the Bayshore Caltrain station.			✓	✓
Increased BART service in San Francisco ($702M) Purchase 225 cars and operate additional service to accommodate expected increases in ridership.			✓	
Mission Bay ferry terminal ($75M) Construct a new ferry terminal at the end of 16th Street and operate ferry service between the east bay and the Mission Bay and Central Waterfront neighborhoods.			✓	
Muni Service Expansion to Accommodate Growth* ($2,000M)		✓	✓	✓
N-Judah spur to Mission Bay, along 16th Street ($619M) Build a new segment of Muni-rail track along 16th Street to provide direct N-Judah service between the Sunset and Mission Bay.		✓	✓	✓
Southeast Waterfront transit priority and increased service ($876M) Implement transit priority treatments, such as signal priority, on key east-west streets in Bayview/Hunters Point, and purchase new buses and rail vehicles for the T-Third Muni Metro line. Operate expanded Muni bus and T-Third service on these routes to accommodate new growth in residents and jobs in Candlestick Point and Hunters Point.			✓	✓
Historic Streetcar Expansion Program – Fort Mason Extension ($93M)				
J-Church limited bus ($45M) Provide Limited-stop bus service paralleling the J-Church line during peak hours.				
Subtotal Cost, Middle-Low Tier (excluding BART tube)	**$9,418M**			

LOWEST TIER: The lowest Tier of projects includes those not expected to provide measurable greenhouse gas-reduction, travel time, modeshare, or crowding benefits beyond baseline future conditions, and therefore have a proxy benefit/cost index score of zero. Four projects totaling approximately $369 million fall into this category. For example, the Cable Car Extension to Japantown would serve a portion of a corridor with adequate existing transit capacity, so would not relieve corridor crowding or other performance problems. However, some of these projects may still be considered for inclusion in the SFTP if they have benefits not fully captured by the evaluation process. For example, the 14-Mission Trolleybus Extension to Daly City would serve Communities of Concern and help improve reliability of the connection to the Daly City BART Station.

Figure 8 – Lowest Tier projects

Table 5. Low Tier Projects

Project Tiers Projects shown with an * are in the top third of Benefit scores.	Additional Considerations			
	Safety Benefit	**Operating Benefit**	**PDA-Supportive**	**Equity Benefit**
Lowest Tier (Benefit Cost Index = 0)				
14-Mission trolleybus extension to Daly City ($39M)		✓	✓	✓
Cable Car Extension to Japantown ($123M)			✓	
Candlestick Park Ferry ($83M)			✓	
Replace L surface rail with BRT ($124M)				
Subtotal Cost, Lowest Tier	**$369M**			

These project performance assessment results provided a starting point for designing the SFTP investment plan. Projects were ultimately included in the plan based not only on their evaluation Tier but also the additional policy considerations, available project-specific funding/leveraging, public input, and other factors, as detailed below.

2.5 Selecting projects for inclusion in the plan

Projects were selected for inclusion in the plan based on an inclusion score. The score was as a sum of the following components:

- **Project Performance (point range 1-4):** Projects received points based on their project performance tier (e.g. highest-tier projects received maximum number of points).
- **Operating Benefit (0-1):** Projects received a score of one if they would provide a transit operating benefit. This was included because the project performance analysis did not account for the fact that some projects (for example, the Transit Effectiveness Project) would improve transit efficiency and thereby reduce transit operating costs per unit of service provided.
- **PDA-Supportive (0-1):** Projects that serve a priority development area (PDA) received one point. Investment in these areas supports efficient transportation system usage by focusing new transportation facilities in areas where new development is expected to concentrate.
- **Previous Plan Inclusion (0-1):** Projects included in the Prop K expenditure plan or in a developer agreement received one point. Inclusion in these plans indicates a strong track record of community support for the project.
- **Equity (0-6):** Projects received an equity score based on a comprehensive community equity analysis presented at the April and May 2013 Community and Technical Advisory Committee meetings respectively (meeting materials are available upon request). Supervisorial districts were evaluated to determine which experience worse (e.g. inequitable) transportation conditions than the city-wide average in the areas of safety, transportation network quality, and transportation system performance. Projects with potential to improve these conditions in under-performing districts received a higher equity score.

A project was included in the financially constrained scenario if it:

- Scored in the high or middle high performance tier;
- Had a project inclusion score was greater than the average project inclusion score for all scored projects; and
- Leverages a significant non Prop K funding source.

A project was included in the vision scenario if it:

- Scored in the high or middle-high tier; and
- Had a project inclusion score in the top two-thirds of all project inclusion scores.

Not all included projects were fully funded. Some high cost projects, such as the M-Line realignment, were partially funded. Table 6. below lists all projects included in the financially constrained and vision scenarios.

Table 6. Projects Included in the Plan and Vision Scenarios

Efficiency and Expansion Projects		Plan	Vision
Long-Range Transit Network Development, including Transit Performance Initiative (TPI)	Partially funded. Includes planning and implementation for TPI, rapid bus, and/or Muni Metro upgrades.	$0.10	$1.50
Expanded Transit Service and New Vehicles: Muni + Regional Operators	Partially funds expansion of transit services	$0.41	$0.71
BART Metro	Partially funded in vision only	$0.00	$0.50
M-Line West Side Alignment + Grade Separation	Partially funded; fully funded in vision	$0.12	$0.43
Better Market Street (transportation elements only)	Partially funded; fully funded in vision	$0.20	$0.39
Transit Effectiveness Project	Fully funds project	$0.34	$0.34
Geary Bus Rapid Transit	Fully funds project	$0.28	$0.28
Bayshore / Potrero Bus Rapid Transit	Fully funds project	$0.13	$0.13
Freeway Performance Initiative (FPI)	Partially funded; fully funded in vision	$0.04	$0.13
Bi-County Program (T-Third Street Light Rail to Caltrain Bayshore Station and Geneva Harney Bus Rapid Transit)	Fully funds project	$0.09	$0.09
Oakdale Caltrain Station	Fully funds project	$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	Fully funds project	$0.05	$0.05
Express Bus Service from Candlestick and Hunters Point	Fully funds project	$0.03	$0.03
Congestion Pricing: Northeast Cordon and Treasure Island, Capital Start-up	Fully funds project	$0.03	$0.03
Congestion Pricing: Northeast Cordon and Treasure Island, Ongoing Operations and Multimodal Capital Investments		N/A[1]	
Southeast Waterfront Transit Priority and Increased Service	Southeast Waterfront improvements proposed to be funded by future growth in the General Fund resulting from development	N/A[2]	
	(amount in $billions YOE)	**$1.88**	**$4.67**
	Share of Plan Funding	**2%**	**6%**

Notes:

1 The congestion pricing program raises approximately $2.5 Billion in revenue that is invested into supportive multimodal projects and programs.

2 Southeast Waterfront improvements proposed to be funded by future growth in the General Fund resulting from development.

Also note that both scenarios include full funding for previously committed projects, including Transbay Transit Center Phase 2/Caltrain Downtown Extension; Presidio Parkway; Transbay Transit Center Phase 1; Central Subway; Developer Funded Projects (Parkmerced, Mission Bay, Treasure Island, SE Waterfront Local Streets); Caltrain Electrification/Signal System (SF share of total cost); Van Ness Avenue Bus Rapid Transit; and the Yerba Buena Island Ramp Improvements.

2.6 | Agency and Public Input into the Evaluation Process

The evaluation methodology and results incorporate input from Technical Advisory Committee (TAC) and Community Advisory Committee (CAC) members and the public. The Authority conducted outreach to agencies and the public during each call for projects to identify and refine the universe of projects to be evaluated for consideration in the SFTP.

The analysis team presented the draft evaluation methodology to the SFTP TAC and CAC and adjusted the scoring methodology in response to input received. For instance, an initial methodology was modified in response to concerns that it gave too much priority to the needs of rapidly developing areas of the City; this was changed to consider existing and future transportation needs equally. The team also conducted a sensitivity test on the Market problem sub-scores to test the effect of implementing non-Baseline, development-related projects on the problem sub-scores. The team also adjusted the Market problem scores to incorporate both absolute future needs and forecasted change over time. Perhaps the most substantive change to the analysis involved adapting the methodology to incorporate the bicycle, pedestrian / traffic calming, and TDM programs, in response to stakeholder input. Finally, the team conducted a gap analysis to ensure that all of the travel markets with the greatest transportation needs and potential for cost-effective improvement had projects intended to address those issues included in the list of projects evaluated. Additional detail on SFTP outreach and its impact on plan recommendations is available in SFTP Appendix D: Outreach Summary.

3 Programmatic Funding Levels

3.1 | Overview

The capital project ranking process described previously applied only to a small share of plan investments (about 3 percent of the revenues in the financially constrained scenario). The majority (e.g. 84 percent) of SFTP funding goes to programmatic funding categories, including state of good repair / operations and maintenance and citywide programmatic enhancements (Table 8 lists these categories). Progammatic funding categories differ from capital projects in that they provide flexible funding that can fund any project that meets the criteria of the program. Specific projects can be called out for funding within programmatic categories, but those projects are not separately ranked.

Programmatic funding levels were set through a two-step process. The first step established a range of need in each programmatic category using two benchmarks:

- Projections of the funding that would be available if historic funding levels were continued over the life of the plan. This typically represented the low end of need. Historic funding projections were not available for all categories.
- Projections of the estimated future funding need by category (if available). These projections were based on an analysis of state of good repair needs and programmatic needs (see the Needs Analysis White Paper for detail), as well as the SFTP calls for projects, which produced lists of smaller-scale projects or groups of projects that will be funded through programmatic categories.

After establishing an appropriate funding range for each category, funding levels were selected using staff discretion informed by:

- Public outreach results indicating which types of investments are most desired by the public (see SFTP Plan Appendix D: Public Outreach Summary Findings); and
- Inter-agency dialogue. SFCTA staff met with numerous constituencies to collect their input on funding levels. Coordination with the ongoing Mayor's Transportation Task force was an important consideration.
- Results of program analysis, if applicable. As noted previously, in response to citizen request, three programs (travel demand management, walking/traffic calming, and bicycle) were submitted to an analysis similar to that undertaken to rank projects. The analysis showed all three programs performed well.

These inputs led to several guiding principles that informed final funding levels, listed in Table 7. Additionally, staff were sensitive to the need to balance amongst multiple competing priorities, such as maintaining versus expanding the transportation system; funding cost-effective programs while responding to public demand for popular investment types; and ensuring investments achieve geographic and socioeconomic equity. Table 8 lists the final funding levels for each program. Figures 9 and 10 compare these funding levels to historic funding and estimated total funding need (if available).

Table 7. Guiding Principles that Informed Programmatic Funding Levels

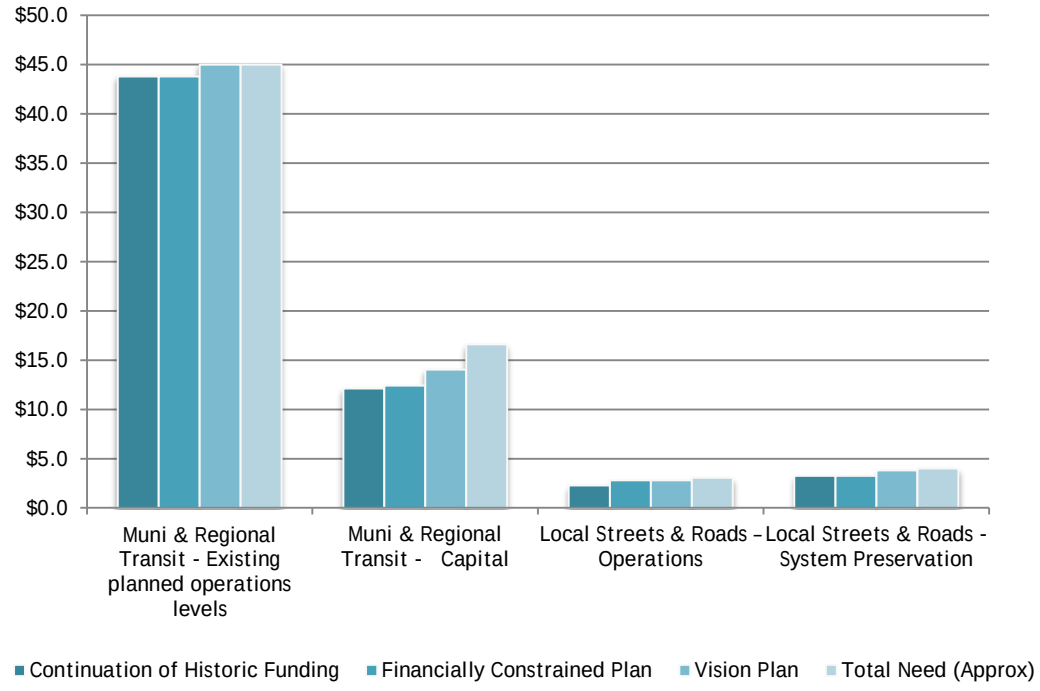
Guiding Principle	Influences
Fund at least 80 percent of the need for State of Good Repair needs	Full funding of state of good repair need is not possible within available revenue (e.g. SOGR needs exceed all available revenues); however, the largest share of funding was dedicated to this category, because public outreach indicated that, generally, the public would rather focus on maintaining existing infrastructure than new construction (See SFTP Appendix D: Outreach Summary).
Prioritize preservation and replacement of the most critical vehicles	Vehicle maintenance and replacement needs exceed available revenues. Funding the regionally-identified top-priority vehicle replacement needs was judged most important (these top-priority vehicles are referred to as "Score 16" vehicles). These include not just MUNI vehicles but vehicles from regional operators (BART, AC Transit) that San Francisco residents depend on. Full funding of vehicle mid-life overhauls was also a top-priority, as this will improve transit service reliability by reducing vehicle breakdowns, and will improve geographic equity by reducing unscheduled service turnbacks to outlying neighborhoods.
Prioritize funding for transit vehicle maintenance over operation	Public outreach results indicate that both transit frequency and reliability are top concerns, but also indicated that system maintenance is more important than expansion. Therefore, investments in transit vehicle maintenance, which will improve reliability, were prioritized above investments in expanding the frequency of transit service. The plan aimed to at least preserve existing transit frequencies while improving vehicle maintenance.
Significantly increase funding for bicycling and walking	Significant increases in funding for bicycling and walking infrastructure were included in the vision scenario, and to a lesser extent, the financially constrained scenario. This was based on public outreach results indicating that bicycling and walking infrastructure are top public priorities after transit (See Appendix D: Outreach Summary). Additionally, addressing pedestrian safety is a critical policy priority as indicated in the 2013 Mayor's Pedestrian Strategy; and increasing rates of bicycling commuting is another important priority (see the Needs Analysis White Paper).
Increase funding for travel demand management strategies above historic levels	Although the public did not rank investments in travel demand management strategies as high priority, staff felt that funding for these strategies should be increased due to their cost-effectiveness in reducing automobile congestion (see Need Analysis). Historically, funding for these strategies has been very low, so an increase over historic levels can be accomplished with minimal additional resources.
Increase funding for street/signal upgrade program	The calls for projects generated many projects involving street network and signal upgrade improvements. Staff significantly increased funding for this category in response.
Maintain or somewhat increase funding levels for programs of lesser priority.	Programs judged to be of lesser priority based on public outreach results and staff discretion included funding for MUNI enhancements (e.g. upgrades not associated with providing more service), and Regional Transit Enhancements (e.g. improvements to regional transit stations etc). the increase in the street network development program category was in response to the calls for projects, both agency and public responses.
Address geographic and funding equity	Supervisors and community members expressed a desire for SFTP funding to address socioeconomic and geographic disparities in the quality of transportation infrastructure. In response, a small amount of funding was set aside specifically to fund projects that would address inequities.

Table 8. Programmatic Funding Levels Selected for the Constrained and New Revenue Scenarios (Billions of Year of Expenditure Dollars 2013-2040).

Investment Category	Investment Level	Plan	Vision
State of Good Repair / Operations & Maintenance			
Muni & 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 & Regional Transit - Capital Asset Maintenance. Provides funding to maintain and replace MUNI and regional transit vehicles, stations, and vehicle housing facilities.	Plan: Fully fund transit vehicle replacement needs for all operators; all MTA vehicle mid-life overhauls; and 70% of score 16 assets. Vision: fund additional Muni SOGR needs beyond Score 16.	$12.41	$14.06
Local Streets & 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.	$3.27	$3.83
Local Streets & 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 & Bridges Structures - Capital Maintenance. Provides funding to maintain or replace aging structures (e.g. bridges and tunnels).	Fund umnet need of $3M/decade.	$0.01	$0.02
SUBTOTAL	**(amount in $billions YOE)**	$62.29	$65.71
	Share of SFTP Total Funding	**83%**	**79%**
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 (based on 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 Hunter's 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 and project development in Communities of Concern and citywide	Provides $10M/year for planning, operations, and/or implementation	$0.14	$0.28
SUBTOTAL	**(amount in $billions YOE)**	**$1.23**	**$2.53**

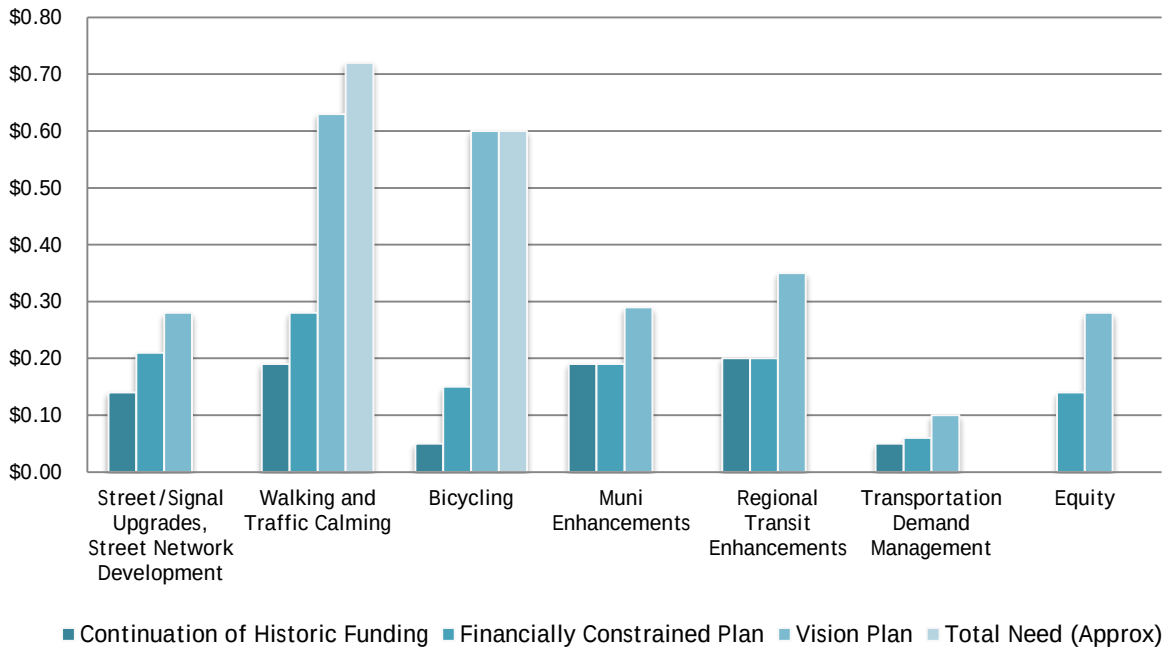
	2%	3%

Figure 9. Operations and Maintenance Plan Funding Levels in Comparison to Need



Note: All figures are in billions of year of expenditure dollars over the life of the plan (today through 2040)

Figure 10. Transportation Program Funding Levels in Comparison to Need



Note: All figures are in billions of year of expenditure dollars over the life of the plan (today through 2040).