CHAPTER SUMMARY: This chapter documents the cost and funding plan to build and operate the Van Ness Avenue BRT Project, The primary source for capital costs in this chapter is the 2012 Small Starts Annual Update (submittal for the FY 2014 New Starts Annual Report) prepared in September 2012 by SFCTA, in addition to operating and maintenance cost estimates from SFMTA and SFDPW.

CHAPTER 9

Financial Analysis

The 2004 Countywide Transportation Plan recommended a citywide BRT network based on expected cost effectiveness of BRT relative to alternative transit improvements. FTA, which reviews and rates the project, has given the project a "high" rating for cost effectiveness since 2008 – one of only three current Small Starts projects nationwide to receive this designation and the only Small Starts project in the nation to receive a "medium-high" rating for Project Justification (Source: Fiscal Year 2014 FTA Annual Report on Funding Recommendations).

The Federal Transit Administration has given the Van Ness Avenue BRT Project a "high" rating for cost effectiveness since 2008 – one of only three current Small Starts projects nationwide to receive this designation and the only Small Starts project in the nation to receive a "medium-high" rating for Project Justification:

9.1 Capital Costs

9.1.1 | Van Ness Avenue BRT Project Capital Costs

As updated in 2012, the Van Ness Avenue BRT Project is estimated to cost between $93 million and $136 million to design and construct, depending on the build alternative selected. The LPA is estimated to cost $125.6 million. Total capital costs are in Year of Expenditure (YOE) and based on the FTA Small Starts Annual Report submitted by SFCTA and SFMTA in September 2012.[105] Capital costs for the three build alternatives (Alternatives 2, 3, and 4) are presented in Table 9-1, and include all features of the BRT described in Chapter 2 (see Table 2-2), including Design Option B for Alternatives 3 and 4. (The incremental cost for Design Option B would range from an additional $165,000 [Build Alternative 3 with Design Option B] to an additional $250,000 [Build Alternative 4 with Design Option B] more than the costs for Build Alternatives 3 and 4 without Design Option B.) Note that for separate but related projects, which are described in Chapter 2.2.1 and Section 9.1.2, the capital costs in Table 9-1 only include the incremental cost of making the project compatible with BRT (e.g., BRT vehicle enhancements beyond regular low-floor vehicle replacement, enhancements to the OCS support poles/streetlights, additional accessible pedestrian signals, pavement rehabilitation for the transitway) rather than the entire cost of the separate but related features.

The Van Ness Avenue BRT Project is estimated to cost $125.6 million for the Locally Preferred Alternative.

Table 9-1: Capital Cost Estimates for Build Alternatives

BUILD ALTERNATIVE	BRIEF DESCRIPTION	CAPITAL COST (YOE IN MILLION $)
Alternative 2	Side-Lane BRT with Street Parking	93
Alternative 3 (with Design Option B)	Center-Lane BRT with Right-Side Boarding and Dual Medians	136
Alternative 4 (with Design Option B)	Center-Lane BRT with Left-Side Boarding and Single Median	112

NOTE: Incremental costs associated with Alternative 3 with Design Option B and Alternative 4 with Design Option B are discussed in Section 9.1.1. Costs have been updated since the Draft EIS/EIR to reflect more current unit costs and inflation assumptions.

Source: FTA Small Starts submittal, 2012.

[105] The Small Starts cost estimate did not incorporate the SB Vallejo Street station now included in the LPA (see Section 2.2.2.4),nor did it include the Vallejo Northbound Station Variant as part of the LPA. Construction of these stations is projected to cost approximately $500,000 per station. The up to $1 million cost increase is less than the contingency amount in the cost estimate. A revised cost estimate based on the final LPA adopted by the Authority Board at the time of certification would be included as part of the Conceptual Engineering Report and 30% design.

9.1.2 | Improvements to be Coordinated with Van Ness Avenue BRT Project

As noted above, Chapter 2.1 describes improvements to Van Ness Avenue that would be constructed in a no-build scenario, and/or would be coordinated with the Van Ness Avenue BRT Project and designed to support and enhance it. These related projects, which have funding strategies separate from the Van Ness Avenue BRT Project, are described in this section.

- **SFgo and Signal Replacement.** The SFgo and Signal Replacement Program, led by SFMTA, is a package of technology-based transportation management system tools that will be implemented on Van Ness Avenue, and in part on Franklin and Gough streets, in coordination with the BRT project. Typically, SFgo does not include signal replacement and mast arm installation, but the project on Van Ness Avenue will include these additional elements, as described in Chapter 2.1. The project is fully funded by federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds and Prop K funds.
- **Vehicle Replacement.** As existing buses reach the end of their useful life, SFMTA is gradually converting its fleet to low-floor buses. Replacement of the 38 buses needed for operation along the Van Ness Avenue corridor (Muni Routes 47 and 49) is currently anticipated to be funded by federal FTA Section 5307/09 formula funds and Prop K funds.
- **OCS and Support Pole/Streetlight Replacement.** SFMTA, together with SFDPW and SFPUC, plans to replace the existing OCS and support poles/streetlights along Van Ness Avenue from Market Street to North Point Avenue to address the failing structural condition of the system. Funding will be split between the SFPUC and the SFMTA. Replacement of the OCS is anticipated to be funded by federal FTA Section 5309 formula funds and Prop K funds.
- **Van Ness Avenue Pavement Rehabilitation for Mixed Traffic Lanes.** SFDPW and Caltrans will repave and resurface the mixed traffic lanes of Van Ness Avenue in coordination with the BRT project. The project is anticipated to be funded through a combination of state SHOPP funds and other local funds.

9.1.3 | Budgeted/Planned Funding

The Van Ness Avenue BRT Project currently has identified more than 75% of the capital funding needed for the project.

The Van Ness Avenue BRT Project currently has identified more than 75 percent of the capital funding needed for the project LPA. Budgeted and planned funding sources for the proposed project, whose costs are discussed in section 9.1.1 above, are described below:

- **Small Starts ($74,999,999 million).** This program, which is administered by FTA, provides competitive grants for new transit projects whose total capital costs do not exceed $250 million. The maximum grant award is $74,999,999 million. SFCTA and SFMTA have requested $74,999,999 million in Small Starts funding for the project. In 2012, the project was one of three Small Starts potential projects in the nation to receive a High rating for cost effectiveness and the only Small Starts project in the nation to receive a Medium-High rating for project justification (Source: Fiscal Year 2014 FTA Annual Report on Funding Recommendations). In 2010, FTA awarded $396,000 in Small Starts funds to SFMTA to support project development engineering activities. In addition, in 2010, the Van Ness Avenue BRT Project received $15 million in Small Starts funds in FY 2011. Finally, in 2011, the Van Ness Avenue BRT Project received an additional $30 million in the FY 2012 budget, for a total of $45 million awarded to date.
- **Prop K ($20.5 million).** In November 2003, San Francisco voters approved Prop K, approving a new 30-year Expenditure Plan and extending the local half-cent transportation sales tax. The Board-adopted 2009 Proposition K Strategic Plan programs approximately $20.5 million in sales tax funds to the Van Ness Avenue BRT Project. The Authority will examine the Prop K programming during the next Strategic

Plan update to determine if more Prop K funds can be used for the Van Ness Avenue BRT Project.

- **State Highway Operations and Protection Program (SHOPP).** SHOPP funds are used by Caltrans to maintain and preserve the investment in the State Highway System and its supporting infrastructure. Projects included in the program are limited to capital improvements relative to maintenance, safety, and rehabilitation of state highways and bridges that do not add a new traffic lane to the system. As part of US 101, which is a State highway, Van Ness Avenue qualifies for these funds. Caltrans is developing cost and estimates as part of a Project Report for the Van Ness/Lombard Pavement Rehabilitation project for funds to be programmed in the 2014 SHOPP and made available in FY 2016/2017.

9.1.4 | Other Potential Funding Sources

A combination of several potential funding sources, described below, could provide the remaining capital funding. Many of these sources include project readiness as one of their evaluation criteria, so the project is expected to compete more successfully for these funding sources after an LPA has been adopted and preliminary engineering and design have commenced.

- **AB 664 Net Bridge Toll Revenues.** AB 664 Net Bridge Toll Revenues are allocated to eligible transit operators, including SFMTA, to serve as matching funds for FTA formula funds programmed to capital projects that further the development of public transportation systems in the vicinity of the toll bridges. The revenues are programmed in proportion to each eligible operator's share of the FTA formula fund program. In recent years, AB 664 Net Bridge Toll Revenues have generated approximately $10 million to $12 million annually.
- **FTA Formula Funds (Section 5307 – Urban Transit Formula Funds, Section 5337 – State of Good Repair Formula Program).** SFMTA is an eligible recipient of federal transit formula funds that can be used on a variety of transit capital projects, including the Van Ness Avenue BRT. Section 5307 is the largest transit formula program, and eligible projects include capital investments in bus and bus-related activities such as replacement of buses, overhaul of buses, rebuilding of buses, and construction of maintenance and passenger facilities; and capital investments in new and existing fixed guideway systems, including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software. Section 5337 is a new formula program, established under Moving Ahead for Progress in the 21st Century (MAP-21), dedicated to repairing and upgrading the nation's rail transit systems, along with high-intensity motor bus systems that use HOV lanes, including BRT. Section 5337 eligible projects include capital projects to maintain a system in a state of good repair, including projects to replace and rehabilitate rolling stock; track; line equipment and structures; signals and communications; power equipment and substations; passenger stations and terminals; security equipment and systems; maintenance facilities and equipment; and operational support equipment, including computer hardware and software.
- **Highway Safety Improvement Program.** SAFETEA-LU, which was signed into law on August 10, 2005, established the Highway Safety Improvement Program (HSIP) as a core Federal-aid program. That program is continued under the new federal transportation bill, MAP-21, which was signed into law on July 6, 2012. The overall purpose of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements. For 2012/13, Caltrans expects to apportion approximately $67 million to local agencies.
- **Impact Fees from Land Development Projects.** Many land development projects have been proposed along the Van Ness Avenue corridor. In the southern end of the Van Ness Avenue corridor, the Market and Octavia Plan calls out Van Ness Avenue BRT as an eligible recipient of development impact fees. Separately, the proposed CPMC

development at the corner of Van Ness Avenue and Geary Boulevard will serve as the hub for CPMC's future campus network. Development impact fees from the new CPMC hub could be allocated towards the Van Ness Avenue BRT Project, and negotiations between the developer and the City are underway.

DEFINITION

PRIORITY DEVELOPMENT AREAS: Designated parts of the Bay Area recognized by MTC in which there is a local commitment to developing housing, amenities, and services. The proposed Van Ness Avenue BRT alignment runs through a Priority Development Area.

- **OneBayArea Grant (OBAG).** MTC established the OBAG program in May 2012. Through OBAG, MTC will direct an estimated $38.8 million in federal transportation funds (CMAQ/Surface Transportation Program [STP]) to San Francisco over 4 years to fund streetscape projects with pedestrian/bicycle/transit improvements, street and road preservation, transit station improvements, and Congestion Management Agency planning activities. At least 70 percent of the funds must be spent on projects located in Priority Development Areas (e.g., Transit-Oriented Developments), which is applicable to the Van Ness Avenue BRT Project. This is a competitive grant program, and the Van Ness Avenue BRT project will be able to compete in the current funding cycle (FY 2013 – FY 2016) and the next funding cycle (FY 2017 – FY 2019).
- **Proposition AA Vehicle Registration Fee (VRF).** In November 2010, San Francisco voters approved a $10 increase in the fee for vehicles registered in San Francisco, with revenues dedicated to transportation improvements identified in the 30-year Expenditure Plan. Under this source, the Van Ness Avenue BRT Project would be eligible for funds under all three Expenditure Plan categories: (1) street repair and reconstruction; (2) pedestrian safety; and (3) transit reliability and mobility improvements. The VRF is expected to generate approximately $5 million annually and is administered by the SFCTA. Funds will be available for allocation starting in FY 2012/13.
- **Safe Routes to Transit (SR2T).** In March 2004, Regional Measure 2 was approved, which increased Bay Area bridge tolls by $1. Part of this additional revenue goes to the SR2T Program, which awards grants to facilitate walking and bicycling to regional transit. MTC serves as the lead public agency co-sponsor for allocating more than $20 million in total. There will be a funding cycle in 2013, with approximately $4 million available. SR2T funds may be used for safety enhancements for pedestrian/bike station access to transit stations/stops, and systemwide transit enhancements to accommodate bicyclists and pedestrians.
- **Transit Performance Initiative Funds (TPI).** In May 2012, MTC established a new TPI program, which is comprised of two programs: (1) a capital program focused on incremental investments to improve performance in major transit corridors, and (2) an incentive program to reward agencies that improve ridership and service productivity. In May, MTC approved an initial investment of TPI capital funds. MTC staff is now proposing an additional $13 million annually for FY 2012/13 – 2015/16 for a total of $52 million for future TPI capital funding cycles and $15 million annually for a total of $60 million over the same 4 fiscal years for the TPI incentive program. Funds for the latter would be distributed by formula to transit operators such as SFMTA. The Van Ness Avenue BRT Project would likely be eligible and competitive for funding under both the TPI capital and the TPI incentive programs. TPI is funded with federal STP/CMAQ funds.
- **Transit Sustainability Fee.** San Francisco is currently working on establishing the Transportation Sustainability Program (TSP), which is a revised metric for determining the impacts of a new development on the City's transportation system and associated fee program, Transportation Sustainability Fee (TSF), through which development projects can mitigate their impacts on the system. The proposed fee would supplement existing local transportation funding sources and would fund a $1.4 billion expenditure program over 20 years to directly offset impacts on the transportation system made by new development. There is $24.9 million for the Van Ness Avenue BRT Project included in the expenditure program. These funds are dependent on the pace of development in San Francisco.

9.2 Operations and Maintenance Costs

This section documents the expected operations and maintenance (O&M) costs and savings associated with the Van Ness Avenue BRT Project alternatives incurred within the corridor between Mission/Otis and Lombard streets. The proposed project would not change the cost to operate the service south of Mission Street or north of Lombard Street. O&M costs consist of two primary costs:

The build alternatives, including the LPA, would allow SFMTA to provide the same amount of service to passengers for a 16 to 32 percent lower operating cost. These operating savings could be reinvested in the corridor and used to increase the frequency of the BRT service, or they could be invested in other parts of the SFMTA system.

- **Operating Cost.** Table 9-2 shows the annual costs for SFMTA to run vehicles and provide revenue service for the No Build Alternative and build alternatives. The build alternatives would allow SFMTA to provide the same amount of service to passengers for a 16 to 32 percent lower operating cost, as shown in the table. The LPA operating cost would be similar to that of Build Alternatives 3B and 4B, with 32 percent lower operating cost compared to the No Build Alternative. This savings is due to the faster speed and shorter running times, which means maintaining the same frequency of service would require fewer vehicles operating on the corridor at any one time. These operating savings could be reinvested in the corridor and used to increase the frequency of the BRT service, or they could be invested in other parts of the SFMTA system. Note that the analysis does not take into account increased fare box revenue from increased ridership.
- **Maintenance Costs.** The build alternatives would have a modest incremental maintenance cost over and above the no-build scenario. Increased maintenance costs include repairs to potholes and patches to the runningway; additional landscaping costs to prune trees under Build Alternatives 3 and 4 due to their proximity to the OCS; additional platform cleaning and repair; and maintenance of additional TVMs required to support platform proof of payment (see Chapter 2 for a description). The LPA maintenance costs would be similar to those of Build Alternative 3B; although not the major component of runningway maintenance costs, tree pruning costs would be similar to Build Alternative 4B. Incremental costs attributed to the build alternatives are based on estimates from SFDPW and SFMTA.

The build alternatives would have a modest incremental maintenance cost over and above the no-build scenario.

Table 9-2: Annual Operating and Maintenance Costs for Proposed Service

	NO BUILD ALT.	BUILD ALT. 2	BUILD ALT. 3	BUILD ALT. 3 (WITH DESIGN OPTION B)	BUILD ALT. 4	BUILD ALT. 4 (WITH DESIGN OPTION B)
Annualized Revenue Hour Vehicle Operating Cost*	$8,300,000	$6,900,000	$6,100,000	$5,600,000	$6,100,000	$5,600,000
Other Incremental Annualized O&M Costs**	n/a	$200,000	$400,000	$400,000	$300,000	$300,000
Total	$8,300,000	$7,100,000	$6,500,000	$6,000,000	$6,400,000	$5,900,000

*Only includes costs to operate BRT between Mission and Lombard Street.

**Only includes incremental costs associated with BRT.

Overall, the estimated annual operations cost for the No Build Alternative, in current year dollars, would total approximately $8.3 million, which does not include baseline maintenance costs. As shown in Table 9-2, annualized operations and incremental maintenance costs range from $5.9 million for Build Alternative 4 with Design Option B, which is a 29 percent savings relative to the No Build Alternative, to $7.1 million for Build Alternative 2, which is

a 14 percent savings relative to the No Build Alternative. Build Alternative 4 could also incur additional maintenance costs for the additional doors on the five-door vehicles (not shown in the table). For the LPA, annualized operations and incremental maintenance would cost $6 million, which is a 28 percent savings relative to the No Build Alternative. This cost savings could either be reinvested into higher bus frequencies in the corridor or invested in other parts of the system (see Chapter 3.2).

9.3 Risk Analysis

A risk analysis accounts for potential issues that could increase the total project costs, including as a result of schedule delays. FTA conducts a risk analysis of the project through its Project Management Oversight Program, summarized below:

- Due to the early stage of the project, some changes could still occur that would increase the cost of the project; however, the level of development is considered to be appropriate for a project at this stage.
- There is a risk to the schedule of the project due to the City, State, and Federal approvals required, in addition to the remaining design and engineering tasks. If the preferred construction approach of simultaneous construction on three block segments in the northern and southern portions of the corridor at a time is not implemented, the construction duration would be substantially lengthened. The longest construction duration would occur if a block-by-block construction approach was implemented. The advantage of the block-by-block approach is that traffic and parking impacts would be lessened during construction; however, the construction period would be notably longer than if three block segments were constructed at one time. Under a block-by-block approach, delays at one location would likely impact the entire project schedule, and it would be the least efficient approach in terms of resource management and mobilization. The Project Construction Plan (Arup, 2012) for the proposed project shows the following construction duration ranges, depending on the approach taken, and identifies the "preferred construction approach" planned by partnering agencies thus far and described in such documents such as the Project Study Report/Project Report and (Parsons, 2013):
  - Build Alternative 2: 19 to 57 months
  - Build Alternative 3: 21 to 69 months
  - Build Alternative 4: 14 to 47 months
  - LPA: 20 to 58 months

  The short end of the ranges reflects the durations under the preferred construction approach. The long end of the ranges reflects a block-by-block construction approach.

  Nevertheless, FTA's Annual Small Starts Review found that schedule uncertainties do not pose a major risk to implementation because potential delays are not likely to result in significant increases in costs for the project.

9.4 Financial Analysis Conclusions

In conclusion, at least 75 percent of the needed capital funding for the build alternatives has been identified. During the design phase of the project, SFCTA and SFMTA will apply for additional grants from various sources to complete the funding plan. The annual O&M costs associated with the build alternatives, including the LPA, are significantly lower than those of the No Build Alternative, with cost savings ranging from 14 to 29 percent. Operation of the Van Ness Avenue BRT Project would come from existing revenue sources for SFMTA, which include fare and parking revenues, operating grants (e.g., State Transit Assistance), traffic fees, and fines.