

# FINANCING SAN FRANCISCO'S URBAN FOREST



## THE BENEFITS + COSTS OF A COMPREHENSIVE MUNICIPAL STREET TREE PROGRAM

December 2013

PREPARED FOR:



SAN FRANCISCO  
**PLANNING DEPARTMENT**



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# EXECUTIVE SUMMARY

San Francisco's urban forest is comprised of approximately 670,000 trees on both public and private property<sup>1</sup>. These trees provide valuable ecological and economic services ranging from improved air and water quality to energy savings and neighborhood greening. Trees increase San Francisco's desirability as a place to live, work and visit. As part of its long-term sustainability goals, the City and County of San Francisco (City) seeks to maintain and expand its urban forest for generations to come. Street trees are a component of the larger urban forest, and San Francisco is home to approximately 105,000 trees located in the public right-of-way. This study explores various options for expanding resources to better maintain, augment and care for the city's street trees.

## STUDY OBJECTIVES

The primary objective of this study is to evaluate the costs and benefits of a comprehensive, municipally-operated street tree program in San Francisco, in which the Department of Public Works (DPW) would be responsible for the planting and maintenance of all trees within the public right-of-way. Specifically, this study seeks to:

- **Determine the current costs to private property owners** of street trees under their care and quantify the additional cost or benefit of a comprehensive municipal program to property owners.
- **Explore the costs and benefits of a municipal street tree program** if DPW were to assume responsibility for all street trees in the public right-of-way (approximately 105,000) and expand the urban forest by 55,000 additional street trees over the next 20 years.
- **Assess potential financing strategies to generate revenue** for the implementation of a municipally-operated street tree program in San Francisco.

## KEY FINDINGS

- **A comprehensive municipal program would provide net benefits to San Francisco residents.** Property owners would save \$10-\$65 per tree annually compared to current costs (estimated at \$160-\$175 per year) incurred for maintenance, sidewalk repair, and claims associated with sidewalk falls. The program has the added benefit of growing the urban forest by 50 percent over 20 years, while the status quo is expected to result in a continuing decline of the street tree population.
- **Routine maintenance is more efficient and cost effective**, potentially reducing DPW's per-tree maintenance costs by as much as 50 percent by leveraging economies of scale from block pruning instead of the current approach of emergency and service request response. Routine maintenance would further reduce costs by releasing the City from a portion of claims payments, as the City could effectively argue that it took all necessary precautions to assess and maintain trees. Presumably the incidence of injuries and damage would also decline with routine maintenance.
- **Augmenting DPW staff with contractors could increase capacity while minimizing costs.** Other cities with comprehensive urban forestry programs often rely on contractors to handle a range of activities, such as increased pruning, post-storm maintenance and intense bursts of tree planting. Augmenting City staff with contractors—both private and non-profit (e.g., Friends of the

<sup>1</sup> According to information provided by the United States Forest Service in its 2007 report, *Assessing Urban Forest Effects and Values: San Francisco's Urban Forest*, and input from DPW urban forestry personnel.

Urban Forest)—could reduce program costs (e.g., staff, equipment purchase and maintenance) by 45 percent compared to sizing DPW staff to meet these demands. Even so, the core municipal staff (DPW) would grow under the creation of a comprehensive municipal urban forestry program.

## RECOMMENDATIONS

- **Pursue a program of moderate expansion**, planting 2,900 new street trees per year and replacement trees to keep pace with an estimated four percent annual mortality, thereby increasing the number of trees in San Francisco's right-of-way from about 105,000 to 162,000 over 20 years. Average annual costs would total between \$25M and \$33.5M.
- **Fund capital costs with outside sources**, such as General Obligation bonds, state grants, capital improvement program funds and in kind contributions. Under the scenario described above, the costs of planting and establishment (early tree care and watering) would average \$8.9M-\$11.5M per year over 20 years.
- **Levy a parcel tax, based on street frontage, to fund operations and maintenance (O&M)**. A stepped parcel tax would charge a lower fee to properties with very small frontages (under seven linear feet), and a higher fee to properties with very large frontages (over 500 linear feet). For the average San Francisco lot (25 linear feet), the annual fee for street tree O&M under the scenario described above, with the use of contractors, would be \$39-\$52. This is substantially less than if planting and establishment were included. Limiting the funding required from property owners or residents would increase the likelihood of approval.
- **Reduce the use of truck drivers** by requiring that they accompany maintenance crews only when the additional manpower is required (i.e., for emergencies or large tree removals), rather than for all maintenance. This would decrease DPW's per-tree maintenance costs by more than 20 percent.
- **Complete the City's street tree inventory**. DPW is currently conducting a pilot inventory of street trees in three neighborhoods to inform the broader planning effort underway for San Francisco's urban forest. Expanding inventory efforts to include the City's entire street tree population would ensure that DPW obtains accurate data for all trees in the public right-of-way. Accurate data yields considerable efficiencies, facilitating block pruning and tracking of maintenance history, ultimately helping to manage costs.
- **Develop a Street Tree Management Plan** that clearly outlines DPW's planting and maintenance plans over the long term. This would leverage economies of scale and reduce costs by implementing block pruning, while also clearly demonstrating the need for capital and O&M funding to the community and municipal leaders.
- **Undertake a comprehensive public outreach campaign** to elevate awareness of the importance of San Francisco's urban forest, and the consequences of the City's current street tree policies and practices. This is a crucial step before launching any campaign to levy additional funds from residents, as it will not only communicate the funding required from the public but also illustrate the benefits to all residents.





Tenderloin National Forest - Cohen Alley



## BENEFITS OF A HEALTHY URBAN FOREST

A healthy urban forest provides numerous environmental, social and economic benefits (Figure 1). Trees help purify water, absorb air pollution, sequester atmospheric carbon and provide wildlife habitat, among other environmental benefits. San Francisco's urban forest removes more than 287 tons of atmospheric pollutants and 5,100 tons of carbon each year<sup>2</sup>. Trees provide important social benefits, helping to create places to recreate and improving public health. The economic benefits of urban trees include increased property values, reduced heating and cooling costs and greater economic activity in commercial areas. San Francisco's trees provide over \$7.5M in combined benefits each year, according to research conducted by the United States Forest Service's Center for Urban Forest Research<sup>3</sup>. Trees are one of the few assets in a city that increase in value over time. Investing in a healthy urban forest can provide greater returns on investment for the City and all San Francisco residents.

**Figure 1. Benefits of Street Trees**

ENVIRONMENTAL	ECONOMIC	SOCIAL
<ul style="list-style-type: none"><li>• Produce oxygen</li><li>• Filter air pollution</li><li>• Reduce stormwater runoff</li><li>• Sequester carbon (CO<sub>2</sub>)</li><li>• Create habitats</li></ul>	<ul style="list-style-type: none"><li>• Reduce demand on infrastructure (sewer, energy)</li><li>• Boost economic activity in commercial areas</li><li>• Reduce building heating/cooling costs</li><li>• Increase property values</li></ul>	<ul style="list-style-type: none"><li>• Create green spaces for recreation and improved aesthetics of streetscapes</li><li>• Improve public health (physical, mental)</li><li>• Calm traffic and promote pedestrian/bicyclist safety</li><li>• Muffle noise from freeways and other sources</li><li>• Help reduce crime rates</li></ul>

## CHALLENGES FACING STREET TREES

While street trees are the most visible component of the urban forest, they face serious maintenance and funding challenges in San Francisco. The main street tree-related challenges include fragmented maintenance, inadequate funding and inefficient and inconsistent care. Fiscal constraints resulting from local, state and national economic conditions have required the City to cut funding for non-essential services to maintain essential services such as health and safety programs. As long as San Francisco's urban forestry program is a discretionary expenditure, its funding will remain unstable and continue to fluctuate.

### A Fragmented Maintenance Structure

Some street trees in San Francisco are the responsibility of private property owners, while DPW cares for others. Although DPW has the ultimate authority over all trees within the public right-of-way, the agency is responsible for maintaining only about 40 percent of these trees. Responsibility for the remaining 60 percent falls to adjacent private property owners. As a result, achieving a standard and coordinated level of care is challenging. DPW has historically maintained trees planted by the City and those along major commercial streets or thoroughfares. However, DPW has also inherited maintenance of certain street trees planted by the San Francisco Redevelopment Agency, or through special state or federal funds. This has created an uneven patchwork where DPW maintains some

<sup>2</sup> United States Forest Service, Northern Research Station. 2007. *Assessing Urban Forest Effects and Values: San Francisco's Urban Forest*. Resource Bulletin NRS-8. Newton Square, PA: USDA Forest Service.

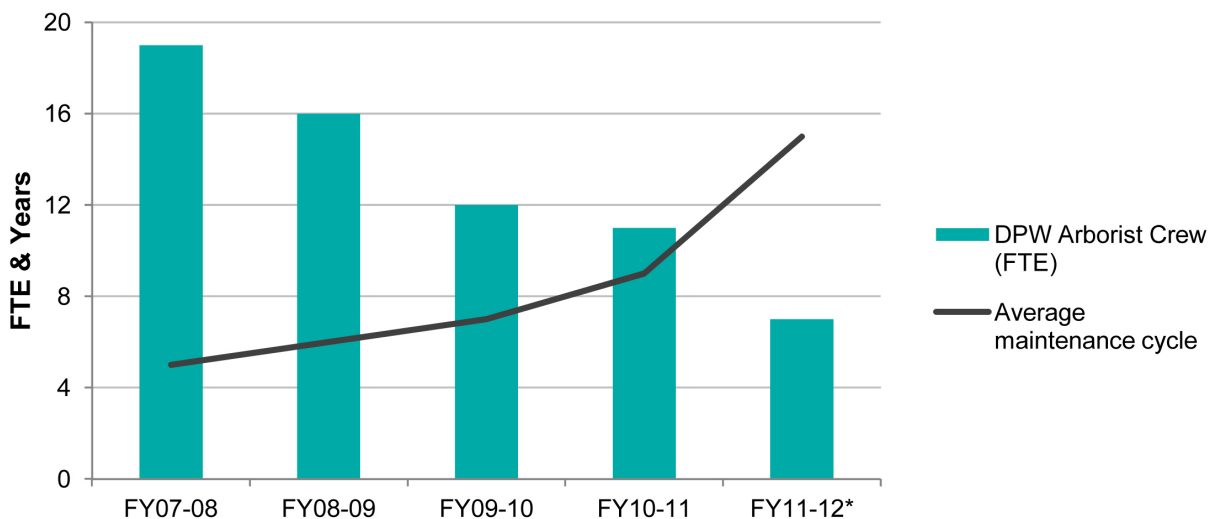
<sup>3</sup> Geiger, Jim (ed.). 2004. *San Francisco Trees Poised to Provide Big Benefits*. *Western Arborist*. 30.2: 30-31.

trees but not others, making it difficult for property owners to know when maintenance responsibilities fall to them or to the City. It also creates a divided system whereby some property owners pay to maintain their street trees while DPW assumes the cost and responsibility for others, and still others do no maintenance because they are unaware that it is their responsibility or unwilling to pay for it.

### Declining Funding

Successive years of budget cuts and decreases to DPW's urban forestry program have restricted its ability to sustain staffing and desired maintenance levels. The agency's street tree maintenance budget has decreased for the last five consecutive years. Declining resources have further exacerbated the agency's ability to care for street trees. As of FY11-12, San Francisco street trees are anticipated to be on a 15-year pruning cycle (Figure 2). Professional standards recommend that trees be pruned an average of every three-to-five years, depending on the age and species of the tree.

**Figure 2. DPW Resources for Street Tree Care**



*\*Projected*

*Source: DPW 2012*

### Maintenance Deficiencies

Both DPW and property owners (through permits) have the authority to plant street trees. The responsible party (DPW or the property owner) is also required to maintain the tree and to repair sidewalk damage resulting from a street tree. This division of maintenance responsibility means that no single maintenance approach applies citywide, resulting in inefficient and substandard care. While some property owners hire professionals, many more try to maintain the trees themselves or hire untrained individuals. Nearly 20 percent of property owners in a recent survey reported never pruning street trees for which they are responsible.<sup>4</sup> Substandard maintenance increases the risks to safety

<sup>4</sup> Urban forest property owner survey performed in February and March 2012. Approximately 5,440 surveys were administered online and through direct mail with a response rate of 11 percent.



and property (e.g., from sidewalk damage and tree or limb failure). Trees that have been severely over-pruned may result in unsightliness, a weak branch structure that can fail and risk public safety, and death of the tree. The consequence is not only risk of damage or injury but also costly removal and replacement, as well as a loss or reduction in the environmental benefits provided by a mature tree. Moreover, the decline in available budget to maintain the City's urban forest has led to deferred maintenance and a street tree program that is reactive. This approach ultimately increases the costs of street tree care, as trees in poor condition require greater care and contribute to emergencies and claims for personal injury and property damage.

### **Tree Maintenance Transfer Plan**

In response to recurring budget cuts that have left DPW with inadequate resources to sustain maintenance operations, the agency announced its seven-year Tree Maintenance Transfer Plan in 2011. Under this plan, DPW intends to transfer the responsibility for approximately 24,000 street trees currently under its care to adjacent private property owners. The program is costly, as DPW must first assess the health of each tree to be transferred, and it has raised concerns among San Francisco residents regarding the additional burden on property owners and the ultimate health of the urban forest. Research conducted on other cities as part of this study has indicated that publicly managed and maintained street trees are more likely to receive regular maintenance than street trees generally left in the domain of private property holders. This not only compromises tree health and stability, risking public safety, but also diminishes the social and environmental benefits that street trees provide.

## **A COMPREHENSIVE MUNICIPAL STREET TREE PROGRAM**

Both DPW and Friends of the Urban Forest (FUF), a San Francisco-based non-profit organization whose mission is to promote a healthy urban forest, report reluctance among property owners to plant new trees. The main reasons are the ongoing maintenance responsibilities and potential costs associated with liabilities such as sidewalk repair. FUF currently plants approximately 1,100 trees per year, a decline from its peak of over 2,900 trees in 1999. Given the benefits of a healthy urban forest and the risks associated with poor maintenance, DPW is exploring the potential of a long-term sustainable funding stream to support an expanded, comprehensive, municipally-operated program for the care of San Francisco's street trees.

Preliminary research conducted as part of San Francisco's Urban Forest Plan, currently under development, revealed that cities recognized as leaders in urban forestry (e.g., Santa Monica, Sacramento, Minneapolis, New York) have responsibility for all street trees. These cities recognize both the benefits that street trees provide, as well as those associated with a comprehensive program for their care. A strategy that increases urban forestry funding in San Francisco would allow DPW to not only reverse the transfer of maintenance of those trees that it has historically maintained, but also to take on the maintenance of all street trees.

In this study, a comprehensive municipal street tree program is defined by the following components:

- DPW would assume responsibility for the care and maintenance of all of San Francisco's street trees.



*Vallejo Street*

- All street trees, under DPW's care, would receive regular maintenance (with an average five-year pruning cycle) to ensure a high standard of care.
- Property owners would no longer be required to maintain street trees fronting their property.
- Property owners would no longer be required to repair sidewalks damaged as a result of a street tree.
- The City would assume the liability associated with tree-related sidewalk falls, relieving property owners of this risk.
- The program would expand San Francisco's urban forest by 50 percent over the next 20 years, with a substantial increase in the planting of new trees.

## STUDY FINDINGS

**A municipal street tree program results in net benefits for San Francisco residents.** Under a comprehensive municipal street tree program, property owners who currently care for street trees would no longer be required to maintain trees or repair sidewalks damaged as a result of a street tree. In addition, the City would cover the liability associated with tree-related sidewalk falls, which have averaged just over \$23,000 per claim over the past eight years. A municipal program would save property owners between \$10 and \$65 per tree annually compared to current costs (estimated at between \$160 and \$175 annually) incurred for maintenance, sidewalk repair and claims associated

with sidewalk falls<sup>5</sup>. All street trees would receive regular assessment and maintenance (under a five-year pruning cycle on average) from qualified arborists to ensure a high standard of care. Property owners and the City would benefit from economies of scale, as efficiencies associated with caring for all street trees would drive costs down. A comprehensive street tree program would entail not just maintenance, but would expand San Francisco's urban forest, by 50 percent, benefitting residents citywide.

**Routine maintenance is more efficient and cost effective.** The majority of DPW's current street tree work involves responding to service calls and emergencies, with routine pruning comprising only about 20 percent of maintenance activities. By assuming responsibility for all trees in the public right-of-way, DPW could implement block pruning and double the number of trees routinely pruned each year without any increase in its labor force. Routine maintenance could cut DPW's per tree maintenance costs by as much as 50 percent with block pruning rather than the current approach of responding to emergencies and service requests which provides only spot maintenance. Preventive maintenance also translates into fewer emergencies, which are more labor intensive and therefore more costly than routine pruning. Routine maintenance would further reduce costs by releasing the City from a portion of claims payments because it can effectively argue that it took all necessary precautions to assess and maintain trees<sup>6</sup>. The City's risk would further decline with sufficient funding to perform routine inspections and keep sidewalks in good repair.

**Augmenting DPW staff with contractors could increase capacity while minimizing costs.**

Other cities with comprehensive urban forestry programs often rely on contractors to handle a range of activities, such as increased pruning, post-storm maintenance and intense bursts of tree planting. Supplementing City staff with contractors—both private and non-profit (e.g., FUF)—could reduce program costs (e.g., staff, equipment purchase and maintenance) by over 45 percent compared to sizing DPW staff to meet these demands. The use of contractors would enable the City to save on both staff costs and the purchase and maintenance of equipment. Even so, the core municipal staff (DPW) would likely grow under the creation of a comprehensive municipal urban forestry program.

## ECONOMIC ANALYSIS

### Comprehensive Program Costs

This study initially evaluated two scenarios based on San Francisco's goal of increasing its urban forest: Accelerated Planting and Moderate Planting. Prior analysis determined that the Accelerated Planting scenario, which increase the number of street trees to 205,000 over 20 years (5,000 trees per year in addition to replacement trees) per San Francisco's Street Tree Action Plan (Urban Forest Council 2004), would be too costly. Therefore, this report focuses on the Moderate Planting scenario, which meets San Francisco's urban forest goals within 35 years, with a more modest approach to planting, for a total of 162,000 trees by 2032. This would require planting approximately 2,900 trees per year, in addition to replacement trees.

<sup>5</sup> The full technical report discusses the current costs of street tree maintenance to San Francisco property owners in greater detail.

<sup>6</sup> Warriner, Walt. Community Forest & Public Landscape Superintendent. City of Santa Monica, Public Landscape Division. Personal communication, June 21, 2012.



Costs were estimated for major activities associated with San Francisco's street trees: Planting, Establishment (early tree care and watering), Maintenance and Sidewalk Repair. This study explored the use of private contractors for all street tree activities to determine the effect on costs. Costs were estimated for two options: one where private contractors would conduct half of the routine pruning and provide additional capacity for DPW in the areas of Planting, Establishment and Sidewalk Repair, and one where DPW would conduct all work under a municipal program. For both options, this study evaluated two different levels of efficiency to present a range of costs for street tree activities. Table 1 presents average annual costs for the Moderate Planting scenario, both with and without the use of private contractors.

**Table 1. Average Annual Street Tree Costs**

ACTIVITY	DPW AND CONTRACTORS	DPW ONLY
<b>Capital Costs</b>		
Planting	\$3.3M-\$3.4M	\$4.1M-\$4.7M
Establishment	\$5.6M-\$8M	\$11.5M-\$14.2M
<b>Operations &amp; Maintenance Costs</b>		
Maintenance	\$9.1M-\$14M	\$10.5M-\$17.5M
Sidewalk Repair	\$5.3M-\$6.3M	\$9M-\$10M
Non-Sewer Claims	\$1.8M	\$1.8M
<b>TOTAL COSTS</b>	<b>\$25M-\$33.5M</b>	<b>\$36.9M-\$48.2M</b>

Source: AECOM 2012

NOTE: May not sum to totals due to rounding

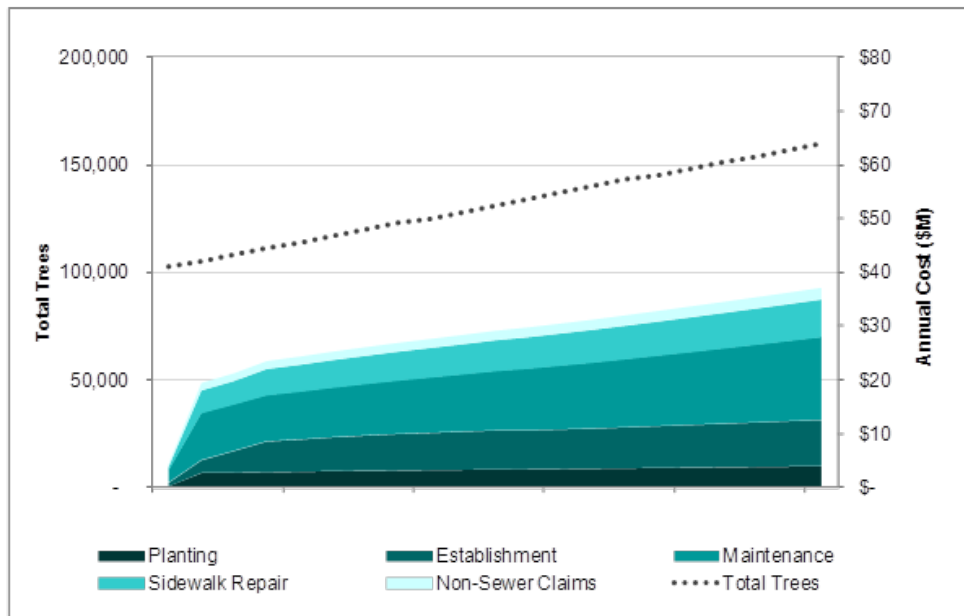
### DPW and Contractors

The average annual cost for the Moderate Planting scenario with private contractors is approximately \$25M-\$33.5M over 20 years. Maintenance is the most costly activity, averaging \$9.1M-\$14M per year, followed by establishment at an average cost of \$5.6M-\$8M per year. Annual Planting costs average \$3.3M-\$3.4M, and Sidewalk Repair costs average \$5.3M-\$6M. Non-Sewer Claims costs average \$1.8M per year. Figure 4 illustrates average costs over 20 years.

### DPW Only

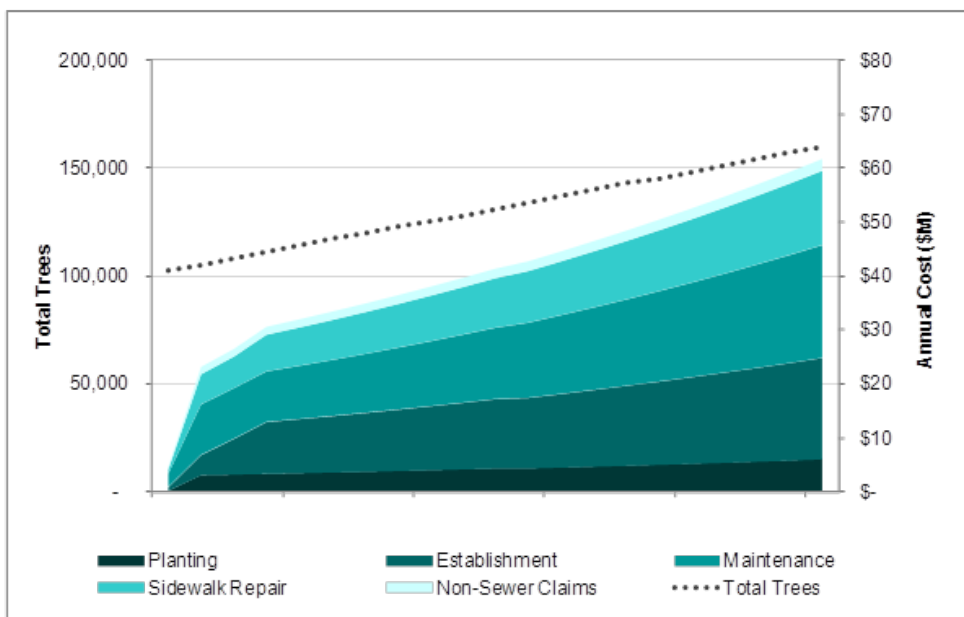
Without private contractors, the average annual cost of the Moderate Planting scenario is approximately \$36.9-\$48.2M. This represents a 45 percent increase in costs compared to the option where contractors conduct a portion of the work. Maintenance remains the most costly activity, increasing by 22 percent to \$10.5M-\$17.5M per year, followed by Establishment—which experiences the greatest increase (90 percent)—at \$11.5M-\$12.9M per year. Annual planting costs increase by 31

**Figure 3. Average Costs for the Moderate Planting Scenario with Contractors, FY12-FY32**



Source: AECOM 2013

**Figure 4. Average Costs for the Moderate Planting Scenario without Contractors, FY12-FY32**



Source: AECOM 2013

percent to approximately \$4.1M-\$4.7M, and Sidewalk Repair costs increase by 64 percent, at an average of \$9M-\$10M per year. Non-Sewer claims costs are unchanged, at approximately \$1.8M per year.

### **Benefit to Property Owners**

Under a municipal program, property owners would no longer be responsible for pruning and sidewalk repair. All street trees would receive regular maintenance (under a five-year pruning cycle) from certified arborists to ensure a high standard of care. In addition, property owners would not be liable for sidewalk falls resulting from street trees, which have averaged just over \$23,000 per claim over the past eight years. A municipal program would cost between \$110 and \$150 per tree per year for Maintenance, Sidewalk Repair and Non-Sewer Claims with contractors. Compared to current costs incurred by property owners for the same activities (\$160-\$175 per tree per year), this results in an annual savings of \$10-\$65 per tree, depending on the level of efficiency achieved. If DPW conducts all work in-house, the program would cost between \$145 and \$205 per tree annually, and the effect on property owners would range from an additional cost of \$45 to a savings of \$30 per tree per year.

A comprehensive street tree program would entail not just maintenance, but would expand San Francisco's urban forest by 50 percent, benefitting residents citywide. A municipal program would add thousands of new trees each year, compared to several hundred under current conditions, a situation that is causing the urban forest to shrink, as new tree plantings do not currently keep pace with mortality. Overall, a comprehensive municipal program would produce a larger, healthier urban forest, benefitting not just property owners but all San Francisco residents (and visitors).

## **FINANCING A COMPREHENSIVE PROGRAM**

This study evaluated a wide range of potential financing options for a municipal street tree program and determined the three most feasible: special assessment, parcel tax and general obligation (GO) bonds.

### **Operations and Maintenance**

A **Parcel Tax** is a special tax levied for the provision of special benefits. Revenues from special taxes must be used for the specific purpose for which they are intended, so a parcel tax would create a dedicated funding stream for street trees. Similar to a special assessment, a parcel tax cannot be based on the value of property; however, the amount levied on each parcel need not be directly related to the benefits provided. A parcel tax requires strong public support, as it must be approved by two-thirds of all voters, rather than just the majority of property owners, as with a special assessment. Parcel taxes are designed to encompass entire cities and, therefore, are good candidates for a citywide street tree program, as opposed to the district-level approach that often occurs under special assessments (discussed below).

A **Landscape and Lighting Assessment District (LLAD)** is likely the most appropriate form of special assessment. LLADs are widely used throughout California to fund a range of public realm improvements and services related to street trees, streetscape improvements, street and traffic lights, and recreational facilities, among others. As a special assessment, LLADs are subject to the provisions of Proposition 218, which requires the assessment levied to be directly related to the





*Bush & Octavia Streets*

benefit provided, as well as approval from the majority of property owners (50 percent plus one) within the LLAD. LLADs are typically designated at geographies smaller than the entire city, and therefore not as good candidates for a citywide street tree program. The interaction between multiple assessment district fees in San Francisco also presents a legal and administrative challenge, absent in the parcel tax approach.

### **Tree Planting and Establishment**

**General Obligation Bonds** are a common resource for local governments to fund the construction and improvement of projects involving real property (e.g., buildings, infrastructure and parks). GO bonds typically carry low interest rates, making them attractive for capital projects. GO bonds could be a suitable tool to fund costs of tree planting and establishment (capital costs) identified in the scenarios. Ongoing maintenance is ineligible for GO bond funding pursuant to federal tax law.

California cities pay debt service from GO bonds through ad valorem property taxes, where assessments are based on property value. As a result, the issuance of GO bonds requires two-thirds voter approval. San Francisco voters have approved two GO bonds for streets and road repair in recent years that include funding for street tree planting. In addition to GO bonds, an assortment of other resources is currently available to the City for tree planting, including plantings by FUF and Proposition K funds, state grants, capital improvement program funds and in kind contributions.

## RECOMMENDATIONS

**Pursue a program of moderate street tree expansion**, increasing the number of trees in San Francisco's right-of-way by 55 percent. The addition of nearly 2,900 trees per year (plus replacement trees) under the Moderate Planting scenario is the most feasible approach, given the costs associated with a more ambitious planting scenario. Average annual costs for all program elements (Planting, Establishment, Maintenance, Sidewalk Repair and Non-Sewer Claims), with the use of contractors, would total between \$25.1M and \$33.6M over 20 years. At its most efficient, this scenario would save property owners \$65 per tree each year compared to the current cost to maintain street trees privately, with the added benefit of growing the urban forest and covering sidewalk claims.

**Fund capital costs with outside sources**, specifically for street tree Planting and Establishment. Funding capital costs with outside sources would complement either a special assessment or parcel tax focused exclusively on O&M, as described below. Under the Moderate Planting scenario, with the use of contractors, capital costs would average \$8.9M-\$11.5M per year over 20 years. Although GO bonds that include monies to improve the City's streets and streetscapes are an option, they will still result in a cost to the City. Alternatively, capital costs could be funded through grants or in kind contributions from public and private sources. While properly financing ongoing O&M activity can be difficult, capital sources have historically been more accessible, either through private grants or through state and federal dollars. An assortment of resources is currently available to the City for tree planting, including plantings by FUF and Proposition K funds, state grants and capital improvement program funds.

**Levy a parcel tax based on street frontages to fund ongoing maintenance of San Francisco's street trees**, specifically Maintenance and Sidewalk Repair activities (Non-Sewer Claims are paid out of a separate litigation fund). This would fund the O&M of all existing street trees, as well as O&M of new trees planted with separate, capital funds. O&M activities average \$14.4M-\$20.3M per year over 20 years with the use of contractors. This translates into a parcel tax of \$1.55-\$2.18 per linear foot of frontage. Street frontage is directly related to the number of street trees abutting a property, and therefore represents a good approximation of an individual property's relation to street tree maintenance. This study recommends creating frontage brackets, with corresponding tiered fees based on the per-linear-foot cost, as shown in Table 2. These figures are substantially less than if Planting and Establishment were included. Limiting the funding required from property owners or residents would increase the likelihood of approval. The range in fees reflects the range in estimated costs for a municipal street tree program. The lower fees represent the lower bound of estimated municipal street tree program costs, while the high fees represent the upper bound of estimated municipal street tree program costs, based on a range of programmatic efficiency gains and cost savings.

**Table 2: Tiered Fees Per Frontage Bracket**

PROPERTY TYPE (TYPICALLY)	PERCENT OF ALL PROPERTIES	FRONTAGE BRACKET (linear feet)	ANNUAL FEE
Apartment / Condominium	13%	0 – 7	\$15-\$25
Average Residential Lot	57%	7 – 30	\$39-\$52
Large Residential Lot / Corner Lot / Neighborhood Commercial Building	26%	30 – 150	\$102-\$147
Large Non-Residential Lot	3%	150 – 500	\$350-\$492
Ultra-Large Commercial Lot	1%	Greater than 500	\$1,585-\$2,234

Source: AECOM 2013

**Reduce the use of truck drivers** to realize additional cost savings. Current union agreements require that a truck driver accompany DPW crews on all maintenance jobs, even though all City arborists hold commercial drivers licenses, allowing them to operate large trucks. Requiring a truck driver to accompany maintenance crews only when the additional manpower is required (i.e., for emergencies or large tree removals), rather than for all maintenance, would decrease DPW's per tree maintenance costs by more than 20 percent. This reduction would further decrease the funds levied on San Francisco residents.

**Complete the City's street tree inventory** for street trees transferred from private to public responsibility. DPW is in the process of conducting a pilot inventory for all street trees in three neighborhoods to gain information about tree species, condition and maintenance needs, in order to inform the broader planning effort underway for San Francisco's urban forest. However, the agency has limited information about the two-thirds of street trees currently in the private domain. A comprehensive street tree inventory would ensure that DPW obtains accurate data for all trees in the public right-of-way. Accurate data yields considerable efficiencies, facilitating block pruning and tracking of maintenance history, ultimately helping to manage costs.

**Develop a Street Tree Management Plan** to clearly outline DPW's planting and maintenance plans over the long term. A management plan would enable DPW to plan for the succession of trees, create planting plans and identify capital funding needs. A management plan would also help to leverage economies of scale and reduce costs by implementing block pruning. Other urban forestry leaders note the importance of a long-range management plan as a tool to help facilitate regular maintenance and demonstrate this need to the community and municipal leaders, thereby garnering support and regular funding for street trees.



**Undertake a comprehensive public outreach campaign** to elevate awareness of the importance of San Francisco's urban forest and of the consequences associated with the status quo. A municipally-operated street tree program represents a dramatic shift from the current approach, in which property owners have responsibility for maintaining two-thirds of the City's street trees. An educational campaign that explains the municipal program, its benefits to property owners, and the challenges associated with the current approach can help build support for San Francisco's urban forest. Property owners who currently care for street trees would be relieved of their responsibilities and see their costs decline, and many others would receive street trees in front of their homes. Other cities that have successfully increased funding for their urban forestry programs, including funding from property owners, have relied upon public outreach as an essential tool for success. This is a crucial step before launching any campaign to levy additional funds from San Francisco residents, as it will not only communicate the funding required from the public but also illustrate the benefits to all residents.



*Dolores Street*





Ellis & Hyde Streets



EXECUTIVE SUMMARY

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