# Department of Public Works City and County of San Francisco

## PROPOSED \$208 MILLION G.O. BOND

**FOR** 

# STREET RESURFACING, PEDESTRIAN SAFETY & ACCESS IMPROVEMENTS



April 2005

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#### I. EXECUTIVE SUMMARY

The City of San Francisco has been developed and improved for more than 150 years. Development began with the gold rush of 1849, with major population increases following the 1906 earthquake and Second World War. The roads and public right-of-ways of San Francisco were built or improved during those eras and now consist of more than 12,000 City-maintained street segments, totaling more than 900 miles in length.

For many years, San Francisco has experienced funding shortfalls for street maintenance and improvements. To complicate matters, our current revenue sources are also projected to decline. As a result, the conditions of the City's street infrastructure have steadily worsened; consequently, potholes and pavement failures are more common. Funds are used for emergency repair rather than preventative maintenance and strategic capital improvement. In addition to the deterioration of streets, accessible curb ramps, sidewalks, public stairs, pedestrian and bicycle safety improvements are also affected by this shortfall. The replacement cost for a single street segment is currently over \$330,000. Using that replacement cost as a value, the investment our predecessors have made for San Francisco's street infrastructure is more than \$4 billion. It is the responsibility of this generation to maintain this infrastructure and improve it for our successors. Until the City dedicates adequate funding for maintenance and improvement, San Francisco's streets and right-of-ways will continue to deteriorate, some to the point where they must be completely reconstructed at dramatically increased costs.

The resulting deterioration of the streets due to funding shortfalls was duly noted by the citizens of San Francisco in the recent "City Survey 2005" report by the Controller's Office. The survey report state,

"San Franciscans' perceptions of the conditions of the City's pavement are lower than they were in the last two years. This year, one in four residents rates the condition of citywide pavement "good" or "very good" (23%), compared to 29% in 2003 and 28% last year. State, federal and local grants for street resurfacing have fallen sharply in the last three years, resulting in a drop in the number of blocks repaired annually."

Pavement deterioration affects all users of the streets of San Francisco: cyclists, pedestrians, motorists and Muni riders. Deferring local street repair and maintenance due to lack of funding hurts San Franciscans by increasing their tax burden and diminishing their quality of life. It increases the citizen's overall tax burden in the long run because the cost of road repairs increases exponentially the longer regular maintenance is deferred, resulting in higher taxes and fees in the future. By being constant sources of complaint, street deterioration diminishes quality of life for all citizens including pedestrians, bicyclists, transit riders, and the disabled.

In light of the continuing need and the funding shortfalls, the Department of Public Works (DPW) recommends that the City place a \$208 million General Obligation Bond on the November 2005 ballot for Street Resurfacing, Pedestrian Safety, and Access Improvements. Under this bond proposal, the funds for the improvements will be allocated in three major programs as follows:

#### Street Resurfacing, Pedestrian Safety, and Access Improvements Bond

•	Street	Reconstruction and Pavement Renovation Program		\$115 M
•	Street	Structures, Sidewalks, and ADA Improvement Program		\$55 M
	0	Americans with Disabilities Act (ADA) Curb Ramp Projects	\$34 M	
	0	Americans with Disabilities Act (ADA) School Safety Projects	\$6 M	
	0	Sidewalk Repairs and Related Improvements	\$7 M	
	0	Street Structure Rehabilitation and Improvements	\$8 M	
•	Traffic	Calming, Pedestrian and Bicycle Program		\$36 M
	0	Traffic Calming, Pedestrian Safety Projects	\$28 M	
	0	Bicycle Safety Projects	\$8 M	
•	Progra	m Oversight, Management Systems, and Bond Issuance Cos	ts	\$2 M
Tot	tal Bo	nd Authorization		\$208 M

#### Street Reconstruction and Pavement Renovation Program

\$115 M

DPW uses a Pavement Management and Mapping System (PMMS) to set priorities for resurfacing Citymaintained streets. Our priorities are determined by pavement condition, type of street use, and transit routes. After developing a priority list, each street goes through a utility clearance to avoid future excavation of newly paved streets. DPW then determines which streets to pave based on the amount of funding available in a given year. The proposed resurfacing treatment for asphalt-concrete streets will be "mill and fill", where the deteriorated asphalt concrete surface is removed and a new layer is constructed. Defective concrete streets shall be removed to their full depth and reconstructed.

The Pavement Management and Mapping System identified approximately one-half of the street segments in need of renovation, with an estimated backlog of \$332 million. That backlog and the estimated need for renovation of streets is \$751.4 million over the next ten years. Projected sources available through that period are \$125.2 million leaving an amount of \$626.2 million still needed. The proposed allocation of bond proceeds from this proposal is \$115 million, which will fund improvements for the next five years until a more reliable source of revenue is secured.

#### Street Structures, Sidewalks, and ADA Improvement Program

\$55 M

#### Americans with Disabilities Act (ADA) Curb Ramp Projects

Curb ramps are essential for pedestrian travel on the City's sidewalks for the physically challenged community. The Access Compliance Section of the Office of the State Architect and the State Department of Rehabilitation developed Title 24 Part II, which is a building code enacted in 1982 specifying the requirements for making sidewalks and intersections accessible. Since then, City departments and private contractors doing

work adjacent to angular curb returns are required to construct curb ramps according to standards and specifications which incorporate both federal and state disability construction codes.

A DPW survey of major transportation routes, public facilities, transit and recreation areas throughout the City identified approximately 13,430 street corners that need curb ramps to be newly constructed or reconstructed. These locations have a potential for "trip and fall" accidents and expose the City to personal injury claims. The estimated need for renovation of these locations is \$70 million over the next ten years. Projected sources available through that period are \$9.6 million leaving a need of \$60.4 million. The proposed allocation of proceeds from this bond proposal is \$34 million.

#### Americans with Disabilities Act (ADA) School Projects

The San Francisco Unified School District recently settled a lawsuit requiring the City and County of San Francisco to provide curb ramps, accessible loading zones and routes in the sidewalks and streets adjacent to school facilities. Such improvements are required to be completed in sequential deadlines beginning March of 2006 and finished by March 2012. DPW has estimated the cost of these improvements at \$6.25 million over six years. To date, \$250,000 in General Funds revenues have been allocated to this task but no other funding source has been identified for this legally required work. The proposed allocation of proceeds from this bond is \$6 million.

#### Sidewalks, Street Structure Rehabilitation and Improvement

DPW has an on-going program of identifying repairs needed on City-owned DPW maintained sidewalks and street structures such as retaining walls, tunnels, bridges, pedestrian overpasses, guardrails, stairways, and rock-fall barriers. Traditionally the Gas Tax/Road Fund and the City's General Fund have funded this type of work. However, these funds are no longer adequate to meet the demand due to the number of structures and/or pedestrian facilities that need more extensive work.

DPW estimates that the City's investment in sidewalks and street structures is over \$600 million (in today's dollars). The backlog for repair work on sidewalks around DPW-maintained street trees and school properties is estimated at \$11.1 million and \$3.0 million for DPW-maintained street structures. This backlog does not include locations around City, State and Federal properties. The City's failure to correct these conditions increases the risk to public safety and exposure to liability. The cost to repair the current backlog and the estimated need over the next ten years for renovation of sidewalks and street structures is \$51.7 million. Projected sources available through that period are \$7 million leaving an amount of \$44.7 million. The proposed allocation of proceeds from this bond proposal is \$15 million, which will fund improvements for the next five to six years until another source of revenue is identified.

#### Pedestrian Safety and Traffic Calming Program

\$36 M

#### Pedestrian Safety and Traffic Calming Projects

San Francisco has the highest vehicle density of any North American city and an unusually high rate of pedestrian injury for a city its size. With these issues in mind, the City created the Department of Parking and Traffic's Livable Streets Programs in the year 2000. This Bond will address the following projects within these programs: traffic calming, countdown pedestrian signals, crosswalk striping, pedestrian safety signs, and crosswalk signal crossing times. Projected sources available over the next several years are unidentified. The proposed allocation of proceeds from this bond is \$20 million.

#### **Bicycle Safety Projects**

San Francisco is committed to being a "transit first" city, which means encouraging alternative modes of transportation, such as bicycling. Nearly half of San Francisco adults own a bicycle, and approximately 36,000 San Franciscans (or 4% of the public) ride their bike for commuting on a consistent basis. In addition, over 70% of San Franciscans think that the City should create more bike lanes on public streets.

In 1997, the Board of Supervisors and the Mayor approved San Francisco's first Bicycle Master Plan. Since then, over 30 miles of new bike lanes have been striped. These 30 miles only account for approximately 3.5% of the street miles that the City maintains. A revised Bicycle Master Plan was issued by the Department of Parking and Traffic in 2003 and will serve as the guide for which bicycle projects will be funded by the bond, with input from the bicycle Community.

Estimated available funding through Fiscal Year 2013-14 totals \$23.4 million of the \$31.5 million estimated need to fully implement bicycle improvement projects remaining from the 1997 Bicycle Master Plan. The proposed bond issue of \$8 million will fund improvements to bicycle safety, mobility and security integrated with street resurfacing projects throughout the City, over the six years of the bond program.

#### Program Oversight, Management Systems, and Bond Issuance Costs \$2 M

Approximately 1% of the proceeds from the Bond Issuance will be used for Oversight, Management Systems and Issuance Cost. Issuance cost has been estimated at \$1.2 M with additional funds planned for the further development of project management; project reporting, maintenance tracking and asset management systems to provide the public with accurate status and financial accounting for bond expenditures.

#### II. BACKGROUND OF FINANCIAL NEED

In the past, the City allocated State Gas Tax and Road Fund revenues to pave City streets. However, with the ever-increasing demand for street cleaning services, the City now allocates all of its State Gas Tax and Road Fund revenues to cleaning the streets, not paving them. In the early 1980s, Mayor Dianne Feinstein appropriated millions of dollars from the General Fund surplus to repair streets. Today, there is no General Fund support for street resurfacing.

In 1986 and 1987, through Senate Bill No. 300 (SB 300), the State of California allocated \$9.29 million to the City and County of San Francisco for street maintenance and reconstruction. The bill required the City to spend the SB 300 funds within one year of receipt and also required the City to concurrently spend a preestablished local matching amount for street maintenance and reconstruction.

Even this allocation of funds was not sufficient to address the deteriorated streets. Therefore, in 1987 a decision was made to submit a \$27 million bond proposal to the electorate. The proposal called for spending \$21 million to rehabilitate streets, \$3 million to repair publicly-owned sidewalks, \$1.8 million for traffic signal and traffic calming projects, and \$1.2 million for safety projects. In November 1987, the electorate approved the bond issue.

In the late 1980s in response to new State legislation, many counties began formulating proposals for imposing a ½-cent sales tax to fund transportation projects. In 1988 the Board of Supervisors created the San Francisco Transportation Committee, which was charged with developing a Transportation Expenditure Plan based on the implementation of the ½-cent sales tax. In 1989 the Board approved the Plan and submitted it to the voters. The voters passed Proposition B in the November 7, 1989 special election. The plan was based on a 20-year period.

Thirty percent of the revenues were allocated for Street Traffic Safety projects. The remaining sixty percent were earmarked for Transit projects with a percentage dedicated to Para-transit and Transportation System Management projects. Over the past years of the program, the San Francisco County Transportation Authority Board allocated an average of \$15 million annually for street renovation projects.

In 2003, anticipating the expiration of Proposition B, the voters approved Proposition K, which extended the imposition of the ½-cent sales tax for another 30 years. Proposition K included \$135 million for street resurfacing over 30 years or \$4.5 million annually. Because the City will receive minimal federal funds and no state funds for street resurfacing for several years, Proposition K is the primary funding source available for street resurfacing. Thus, the City is facing a drastic reduction in street resurfacing funding for several years.

The table below outlines the project type to which we are proposing to allocate the \$208 million bond proceeds. Each of these project types, their allocations and implementation strategies are discussed in more detail in the subsequent sections of this report.

Proposed Division of \$208 Million
Street Resurfacing, Pedestrian Safety & Access Improvements Bond (in \$ millions)

Project Type	Ten Year Estimated Need	Estimated Available Funding Through FY2014	Estimated Unfunded Need	Proposed Bond Allocation		
Street Reconstruction and Pavement Renovation	751.4	125.2	626.2	115.0		
Americans with Disabilities Act (ADA) Curb Ramp Projects	70.0*	9.6	60.4	34.0		
Americans with Disabilities Act (ADA) School Safety Projects	6.3	.3	6.0	6.0		
Street Structure Rehabilitation and Improvements	30.0	1.4	28.6	8.0		
Sidewalk Repairs	20.9	5.9	15	7.0		
Pedestrian Safety and Traffic Calming Improvements	70.0	18.0	52.0	28.0		
Bicycle Safety Improvements	31.5	23.4	8.1	8.0		
Program Management, Oversight and Bond Issuance Costs				2.0		
Grand Total \$208.0						

<sup>\*</sup>The estimated need for curb ramps throughout San Francisco is over \$210 million. Approximately one-third, or \$70 million should be accomplished as a portion of other development projects. Using a 20-year program period for completion of the remaining \$140 million, the ten-year need is \$70 million. The goal of the G.O. Bond program is to fund approximately one-half or the initial 5 years of improvements while developing a dedicated fund source to accomplish the remaining work.

#### III. STREET RECONSTRUCTION AND PAVEMENT RENOVATION

#### A) GENERAL

Through DPW, the City and County of San Francisco maintains approximately 850 miles of streets and roadways comprising of 12,458 street segments. The streets provide mobility for pedestrians, motorists, and bicyclists and provide access to properties. Goods movement and public transportation would not be possible without a system of well-maintained streets.

The City's roadway network is a complex one. While surface transportation occurs on the roadway's surface, below it lie gas, electric, water, sewer, telephone, traffic signal, steam and other utility lines. In addition to the lines running along each block, City residences may receive water, sewer, gas, electricity, telephone and cable television service through underground service connections running from the main lines to each building. Although durable, streets do not last forever. There are three main reasons why a street deteriorates:



Broken pavement at bus stop

- 1. Heavy wear and tear in San Francisco, streets and roads have an average useful life of sixteen to twenty-three years. However, a street's useful life is shortened when there is more traffic and heavy vehicles traveling over it. Typically, the asphalt on a heavily used street wears out seven years sooner than a lightly used street.
- 2. Excavation as mentioned above, there are many utility lines that lie beneath the roadway. Each time one of these utility lines or services needs repair or replacement, the utility companies must excavate the street by saw cutting a trench through the pavement which, in effect, can cause a vulnerable spot in the street. This saw cut area results in construction impacts and patched trenches.
- 3. Lack of routine maintenance, repair and replacement at scheduled intervals. Even with heavy wear and tear, excavation and construction impacts, the life span of city streets can be prolonged with routine and regular maintenance. The funding for the upkeep and improvement of streets has not kept pace with the rate of pavement deterioration as indicated in the graph (Fig. 3-3).
  Consequently, potholes and pavement failures are more common. Funds are used for emergency repair rather than preventive maintenance and strategic capital improvement.

#### B) PAVEMENT MANAGEMENT AND MAPPING SYSTEM (PMMS)

Since 1984, the Department of Public Works has used a Pavement Management System to track the condition of every block in the City. This system, now called the Pavement Management and Mapping System (PMMS), establishes a rating of streets that allows DPW to determine which streets are nearing the end of their useful lives. For streets with asphalt surfaces, PMMS assists by identifying which streets should be resurfaced before damage is done to the concrete base.



Cracked pavement and potholes



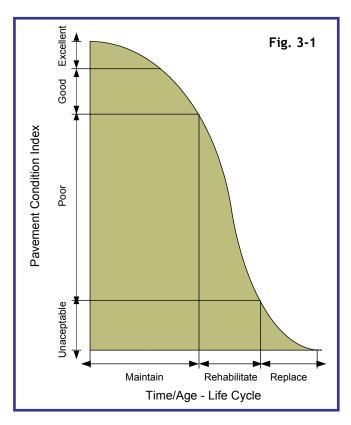
Trenched and broken surface around utilities

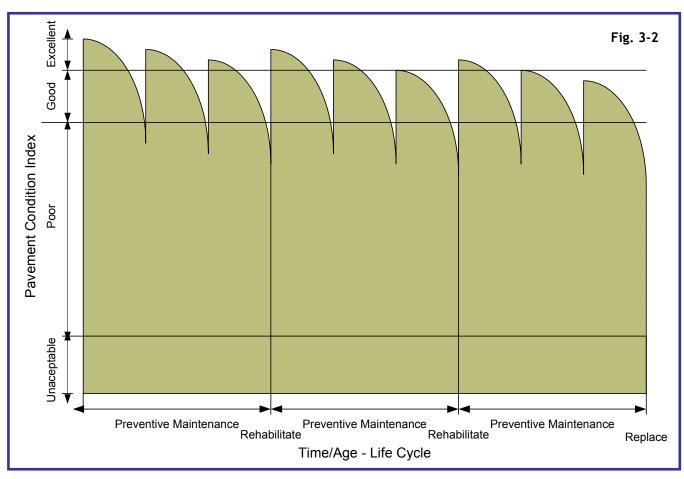
DPW selects the City streets repaving priorities according to PMMS data. Pavement condition includes the ride quality, cracking, and raveling ratings of the roadway. These ratings are based on the smoothness and comfort of the ride as well as visual inspection. The data is analyzed to generate a list of streets requiring maintenance. In determining the need for maintenance, the analysis considers pavement condition, bus and trolley use, and automobile and truck traffic. DPW makes an effort to support those streets with heavily used MUNI routes and maintains a conscientious effort to ensure that improvements are equitably distributed among various neighborhoods and commercial districts throughout the City.

The best score a street segment can get is 100 (the optimal PMMS condition score); the range requiring repaving is between 25 and 60. Records from PMMS show that, due to fiscal restraints, San Francisco has been spending less on street maintenance each year than is needed to keep them in good condition, causing the average condition scores to decrease over time from 74 in the 1988 to a new low of 54.8 (see Attachment A.) DPW considers a street eligible for repaving once its PMMS condition score falls below 53. PMMS has identified approximately 5,930 street segments that are in need of renovation (see Attachment B.) This number represents the deferred maintenance backlog, which is currently estimated at \$332,204,917. On the following page is a graphic representation of the life cycle of paved City streets (Fig. 3-1.) If adequate funding is available, the life of paved streets can be extended through routine maintenance. If funding is not available the life cycle of a paved street is limited, requiring replacement much earlier and at much higher costs.

Fig. 3-1 shows how pavement condition changes over time when maintenance is deferred. While new pavements generally remain in good-to-excellent condition for several years with little or no upkeep, the rate of deterioration increases rapidly after 7-10 years. At approximately 20 years, the pavement wearing surface must be replaced at higher costs.

The following diagram (Fig. 3-2) demonstrates how periodic preventive maintenance efforts (such as crack sealing, and/or the application of thin overlays) significantly extends the longevity of pavements, to up to 60 years. By reducing the frequency of asset replacement, research has shown that preventive maintenance efforts can reduce the life-cycle costs in infrastructure by 75-90 percent.





#### C) STREET CONSTRUCTION COORDINATION CENTER (SCCC)

In 1998, the Department of Public Works created the Street Construction Coordination Center (SCCC) as a result of the Board of Supervisors passing legislation that added regulations on excavations in city streets to the Public Works Code. The SCCC is responsible for planning and coordinating excavation in streets. Their main goal is to minimize neighborhood and traffic disruptions by excavation and other construction by improving construction coordination. It also keeps the public informed of street construction projects, reduces damaging work to streets with good PMMS scores while preserving the taxpayers' investment in City streets.

Every year, after developing a candidate list, DPW updates its five-year plan of anticipated streets to be paved. Prior to scheduling a street for paving, the street is checked against utility excavators' 5 Year Plans of anticipated major work. All excavators are required to submit plans of anticipated major work twice a year.

City paving work is coordinated with utility excavation projects and, where possible, jointly contracted. Each street is either cleared by utilities of future utility street excavations to avoid excavation of newly paved streets or utility excavation projects are coordinated with paving projects to extend the life of the pavement and to minimize disruption to neighborhoods and the traveling public. The ability of the City to expedite



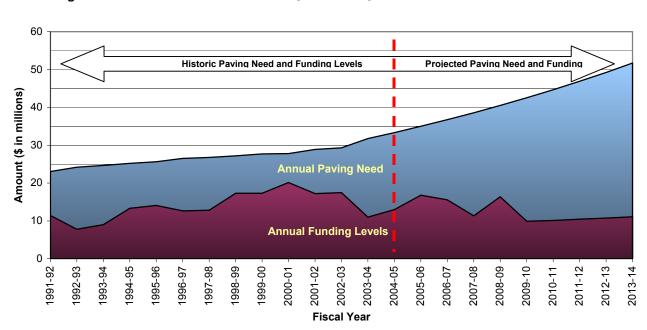
**Cracking and Erosion** 

paving projects is limited by its ability to "clear" streets of utility work prior to paving the streets. For example, the City's Public Utilities Commission needs to televise sewers under the streets to determine whether the sewers beneath also need replacement or repairs. Delays in televising, evaluating, repairing, and/or replacing sewers delay pavement work. Under this bond, funds will be available to televise and evaluate sewer conditions. Cost of repair and/or replacement of sewers will be borne by the City's Public Utilities Commission.

#### D) ESTIMATED COSTS AND FUNDING

#### **Annual Project Funding Analysis**

There are two important aspects of the Street Resurfacing Program with respect to funding. The first is the estimated annual cost to keep the City streets at optimum conditions. DPW's annual cost estimates are based on optimum paving cycles ranging from 15.8 to 22.8 years, depending on the type of street, and an average paving cost of \$3.75 per square foot (excluding ADA required curb ramps). The following graph (Fig. 3-3) indicates the level of funding level necessary to meet the annual paving need to maintain streets with scores above 53.



#### Fig. 3-3 Annual Funding and Paving Need Chart

#### Street Resurfacing Ideal and Actual Historic Funding Levels

Based on the use and condition of San Francisco's streets, we should ideally appropriate \$34 million annually (increasing with inflation) to street resurfacing. For the past ten years, DPW has received approximately \$15 million annually for street resurfacing which is \$19 million less than the ideal. The City's Proposition B funds allocated by the Transportation Authority comprised most of this \$15 million, which also included approximately \$2 to 3 million annually from the State Transportation Congestion Relief Fund (TCRF/Proposition 42).

The proposed bond issue will allocate \$115 million for street resurfacing and improvement. This will provide a level of funding equivalent to the annual funding necessary to maintain City streets for five years, which is based on the paving work needed for Arterial and Local Collector Streets with and without Bus Traffic. The total average annual cost is calculated as follows:

**Total Average Annual Cost** 

Street Type	Paving Cycle (Years)	Number of Miles	Number of Miles/Year	Sq. Ft.	Average Number of Sq. Ft. / Year		Average Annual Cost
				•			
Local / Collector	22.8	571.6	25.1	110,150,757	, ,	-	18,116,901
Local / Collector w/ Bus	19.2	157	8.2	34,237,932	1,783,226	\$	6,687,096
Arterial	16	33.8	2.1	7,414,653	463,416	\$	1,737,809
Arterial w/ Bus	15.8	148.9	9.4	30,471,231	1,928,559	\$	7,232,096
TOTAL:		911.3	44.8	182,274,573	9,006,374	\$	33,773,902

#### **Deferred Maintenance Backlog Funding Analysis**

The second important funding aspect of the Street Resurfacing Program is the deferred maintenance backlog. The backlog consists of the paving need that has been generated from deferring road maintenance in the past. The PMMS currently estimates 5,930 segments of City-maintained streets are in need of rehabilitation, which would cost approximately \$332 million (see Attachment B.) If the City does not pave these streets within the optimal period, the streets that normally only require "mill and fill" (grinding off and replacement of pavement) may need to be reconstructed at 5 times the cost (see Attachment C.)

The City's deferred maintenance backlog is broken down as follows:

City Maintained Streets Needing Rehabilitation\*

Street Type	Number of	Number of	Cost to		
	Segment Blocks	Square Feet		Rehabilitate**	
Local / Collector Streets	3,680	53,960,677	\$	202,352,538	
Local / Collector Streets w/ Bus	1,053	15,648,982	\$	58,683,681	
Arterial	192	3,437,025	\$	12,888,842	
Arterial w/ Bus	1,005	15,541,295	\$	58,279,855	
TOTAL:	5,930	88,587,978	\$	332,204,917	

<sup>\*</sup>Total paving needs shown above only include streets with a PMMS condition score below 53.

The optimal PMMS scoring range for repaving is between 25 and 60. However, the total annual paving need shown above only includes streets with a PMMS score below 53. It does not include streets with PMMS scores between 53 and 60, which should be resurfaced to maintain optimal efficiency. DPW's annual need of approximately \$33.7 million plus our backlog of \$332 million creates our total paving need of \$365.7 million. Our total paving need includes costs associated with a wide range of street treatments, from a simple overlay to "mill and fill" (grinding and overlaying) to total reconstruction.

DPW's first priority is maintaining the local and arterial streets with bus routes, which currently comprise approximately \$116,963,536 of the total paving need. An arterial street is defined as a street that provides the highest level of service at the greatest speed, may carry local bus routes and provides intra-community continuity. Typical examples of an arterial street are Van Ness Avenue and Geary Boulevard. An arterial street will typically degrade approximately four PMMS points annually which means, on average, the Department has nine years in which to repave an arterial street during its optimal repaving time span. If the City does not pave these streets within the optimal period, and the pavement fails, the streets that currently require a "mill and fill" may need to be reconstructed at five times the cost. DPW resurfaces less traveled streets, such as local access streets in residential areas of the City, less frequently based on severity of need and the availability of funding.

<sup>\*\*</sup>Costs do not include curb ramp installation as required under the Americans with Disabilities Act (ADA).

#### The Effect of Funding Shortfalls on the Deferred Maintenance Backlog

Inadequate funding of Annual Maintenance has a dramatic effect on the maintenance backlog and the future costs for repair. The following graph (Fig. 3-4) demonstrates the need for a permanent solution to funding shortfalls for street maintenance. As less maintenance is performed, more streets fall to levels where routine maintenance will no longer suffice. The backlog will increase annually to even larger crisis conditions. The current 10 year Capital Plan estimates the backlog in FY 2013-14 to be \$626 Million. With this bond, a significant amount of work could be accomplished and allow the Mayor and Board the opportunity to develop a sound financial plan.

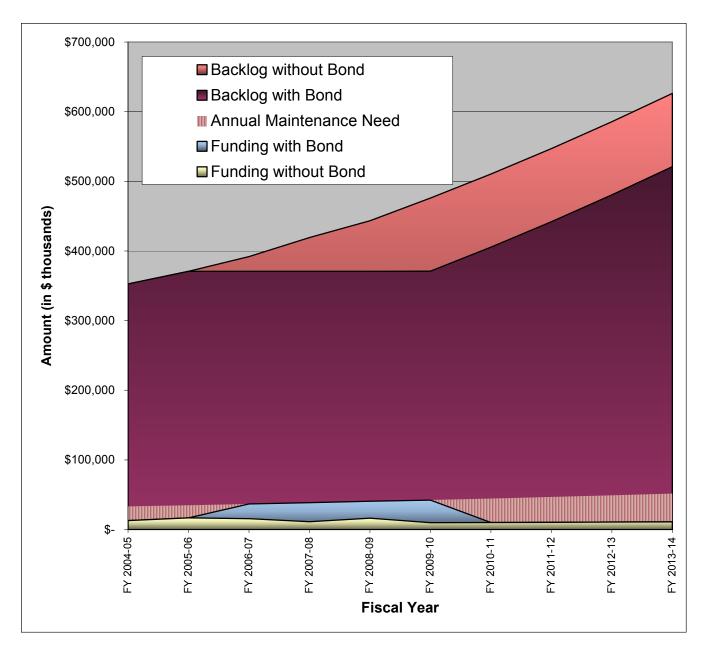


Fig. 3-4 Anticipated Funding vs. Need and Backlog

#### **Current Funding Situation**

Beginning in FY 2004-05, the City is facing a dramatic decrease in its street resurfacing program funding due to state cuts and the restructuring of our annual sales tax allocations. The following is an analysis of the street resurfacing funding cuts.

The Governor has suspended the TCRF/Prop. 42 program since FY 2003/04, and it is uncertain if DPW will receive any additional state funds for street resurfacing until FY 2007/08. It was originally anticipated that the City would receive approximately \$4 million annually in TCRF/Prop. 42 funds through FY 2007/08. Beginning in FY 2008/09, it was projected we would begin receiving approximately \$10 million annually. At this time, Metropolitan Transportation Commission (MTC) projections show the City receiving TCRF/Prop. 42 funds suspended until FY 2007-08, when the City would begin to receive approximately \$6.5 million annually. These estimates require a "Prop. 42 fix". They are subject to change if the Governor and Legislature suspend and/or repeal Prop. 42 in the future.

Although the City is anticipated to receive approximately \$2 million annually in federal funds in FY 2004/05 through 2008/09, this funding is very slow to filter to San Francisco because of all the time-consuming requirements tied to the use of federal funds.

Locally, the voters approved Proposition K in November 2003 that included \$135 million for street resurfacing over a 30-year or \$4.5 million annually. In order to keep current street resurfacing fund levels, the Transportation Authority adopted a spending plan that allocates \$14.1 million for FY 2005-06, \$12.8 million for FY 2006-07 but drops to approximately \$3 million annually thereafter. Because the City will only receive limited federal funds for a few years and won't receive state funds for several years, Proposition K is the only reliable funding source available for street resurfacing. Furthermore, DPW must pay debt issuance costs in order to accelerate the availability of sales tax funds. This means that, in the long run, there will be less than \$135 million available in capital maintenance. If this proposed bond measure passes, DPW would not have to spend sales tax funds over the next several years, thereby reducing and/or eliminating debt issuance costs. As a result, that source will only generate \$3 million annually beginning in 2007. Thus, the City is facing a drastic reduction in street resurfacing funding.

Although there are some local, and future federal and state funding sources available to support street resurfacing, these sources do not provide revenue in the short term to meet the annual resurfacing program needs and reduce the backlog. The problem is further exacerbated by the fact that ignoring the annual need of approximately \$34 million and an existing backlog of \$332 million will cause the overall cost of deferred maintenance to grow. As treatments are deferred, they often increase in cost because the declining condition of the roadway causes the required treatment to increase in severity. Deferring maintenance may result in a street or road needing reconstruction instead of just a "mill and fill" overlay.

#### **Street Resurfacing Projects**

The allocated portion of the proposed bond issue (\$115 million) will provide the funds to complete approximately 1,486 blocks. The scope of work will vary pending condition and clearances but an example of types of treatment and number of blocks that need resurfacing is as follows:

Type of Treatment	Estimated Project Cost*	Number of Segment Blocks	Estimated Total Cost
Mill & Fill	\$65,000	1076	\$70,000,000
Mill & Fill (w/ base repair)	\$93,000	381	\$35,400,000
Reconstruction	\$330,000	29	\$9,600,000
		TOTAL	\$115,000,000

\*Costs do not include curb ramp installation as required under the Americans with Disabilities Act (ADA).

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#### IV. AMERICANS WITH DISABILITIES ACT (ADA) PROJECTS

#### A) LEGAL REQUIREMENTS

The Rehabilitation Act of 1973, Section 504, first required that *all* programs receiving Federal funding, including capital projects in the public right-of-way, be accessible to persons with disabilities.

The Americans with Disabilities Act of 1990, recognizing the crucial importance of the public path of travel, specifically requires the construction of curb ramps in the public rights-of-way. At 28 CFR 35.150 the ADA implementing regulations require that:

"If a public entity has responsibility or authority over streets, roads, or walkways, its transition plan shall include a schedule for providing curb ramps or other sloped areas where pedestrian walks cross curbs, giving priority to walkways serving entities covered by the Act, including State and local government offices and facilities, transportation, places of public accommodation, and employers, followed by walkways serving other areas."

#### At sub-section (c) the regulations state:

"Time period for compliance. Where structural changes in facilities are undertaken to comply with the obligations established under this section, such changes shall be made within three years of January 26, 1992. . ."

Federal law required the City, along with all local jurisdictions, to develop a plan for accessibility of the public rights-of-way by 1993, and implement it by early 1995. Honolulu recently settled an ADA lawsuit for \$50 million for failure to provide curb ramps. Sacramento, in a lawsuit resolved in February 2004, had a partial judgment requiring them to construct curb ramps and repair and maintain sidewalks. The settlement requires Sacramento to spend 20% of annual transportation funds (gas tax and other ballot measure funds) for up to 30 years on accessible curb ramps and sidewalks. Although San Francisco has built many curb ramps piecemeal over the years, the City faces the same potential liability if it does not implement a comprehensive plan for accessibility in its public rights-of-way.



When a curb ramp is not installed, wheelchair users are forced to travel in street traffic or to pull themselves onto the sidewalk

State Government Code includes an even older accessibility requirement at 4450 (a):

"It is the purpose of this Chapter to ensure that all buildings, structures, sidewalks, curbs, and related facilities, constructed in this state by the use of state, county, or municipal funds, or the funds of any political subdivision of the state shall be accessible to and usable by persons with disabilities." (Added 1968, Amended 1971, 74, 75, through 1993.)

Furthermore, the California Unruh Civil Rights Act, Civil Code Sect 54 states:

"Rights to streets, highways, and other public places; disability
(a) Individuals with disabilities shall have the same right as the general public to the full and free use of the streets, highways, sidewalks, walkways, public buildings, medical facilities including hospitals, clinics, and physicians' offices, public facilities, and other public places."

#### **B) GENERAL**

The ADA required that cities survey their public rights-of-way, draw up a plan for completion of required curb ramps, and complete construction by January of 1995. Most cities did not meet this goal. San Francisco did not. San Francisco faces significant liability if it does not take a proactive approach.

Curb ramps are an essential link in the public path of travel. For people with disabilities, many seniors, parents with strollers, and others, they provide the only way to safely navigate public street intersections and sidewalks. San Francisco completed a Curb Ramp Inventory to establish the need and cost of required curb ramp construction. The inventory revealed that there are 6,726 functioning intersections in San Francisco with 23,581 corners. Most of these corners should have two curb ramps; many have only one or none. Some very old curb ramps are non-complying: they are too steep and too narrow, and some are severely cracked or broken, seriously limiting access, as well as being potentially unsafe. The inventory indicates that we need to build ramps at 13,430 corners. These are located in every district in the City.

#### C) CURB RAMP RECONSTRUCTION & NEW INSTALLATIONS

The city surveyed every intersection to determine the condition of existing curb ramps and identify corners without curb ramps. The following are DPW's curb ramp conditions prioritization guidelines for curb ramp installations:

- Priority 1: Reconstruct curb ramps where the existing curb ramps are potentially unsafe. For example, a curb ramp is vertically displaced or there are steep flared sides.
- Priority 2: Construct new curb ramps where none exist.
- Priority 3: Where conditions permit, construct a curb ramp in a corner where two ramps will fit, but only one exists (i.e. one curb ramp at each end of each crosswalk.)
- Priority 4: Construct or reconstruct a curb ramp at a location with difficult physical conditions such as major utility conflicts or physical barriers.
- Priority 5: Reconstruct an existing curb ramp that does not meet the City's current standards but is otherwise in safe condition.

Specific locations are currently being ranked for prioritized implementation by a location and condition assessment. Additionally, new curb ramp locations within each district shall accommodate citizen requests in order to provide program accessibility under the ADA. Each Supervisorial District shall have unsafe ramps

replaced and new curb ramps installed where other projects such as street resurfacing and utility retrofits are not already constructing curb ramps. (See Attachment C.)

San Francisco is currently building approximately 650 curb ramps per year (approximately 450 curb ramps are built under City projects including street resurfacing, traffic calming, and curb ramp projects, and another 75 to 90 curb ramps are built by private builders and utilities). Funding is needed to reduce the backlog of approximately 460 citizen requests for curb ramps. It is anticipated that planning and design of the curb ramps will occur in the first year and will continue through the next five years. This \$34 million bond allocation, in addition to the other annual project-related construction would address approximately 40% of the city's needed curb ramp installations and upgrades.



Many older curb ramps are narrow and steep, requiring reconstruction to comply with current codes

#### D) ESTIMATED COSTS AND FUNDING

The bond program will fund approximately 2,550 corners for \$34 million.

	Estimated Total Cost Per Corner	# of Corners*	Estimated Total Cost
Typical Curb Return **	\$13,300	2,550	\$34,000,000

<sup>\*</sup>Each corner usually requires construction of two curb ramps.

<sup>\*\*</sup>Typical corners may include some or all of the following: Relocation of utility vaults, poles, catch basins; reconstruction of additional street and sidewalk; sub-sidewalk basement abatement; retaining walls; pedestrian barrier railings; additional traffic control.

#### E) ADA SCHOOL SAFETY PROJECTS



There are over 130 properties owned by the San Francisco Unified School District. All of these sites need improvement to provide for safe pedestrian passage and accessibility to the disabled. The City and County of San Francisco is responsible for the maintenance and improvement of the right-of-ways and sidewalks adjacent to those schools. The bond funds allocated to this project will provide a source of funds to complete work required by a stipulated judgment; approximately 75 school sites

need to be improved on or before March of 2012. This bond measure would improve the sidewalks, install curb ramps and provide accessible routes in the right-of-ways adjoining those schools. There is currently \$250,000 in General Funds allocated to this work. The funding provided by this bond would be sufficient for the work needed to be accomplished by 2012, but other sources of funds will be needed to address the remaining work at other school sites in the future.

School Sites	75	% Non		
Street Segments/Site	4	Conforming	Unit Cost	Total Cost *
Total Street Segments	300			
Curb Ramps @ Loading Zone	75	70.00%	2,725	143,000
Painting and Signage	75	70.00%	500	26,000
Curb Returns @ Intersections	300	85.00%	13,300	3,392,000
Crosswalk Painting @ Intersections	300	85.00%	500	128,000
Side Walks Repair (Accessible Route)	300	55.00%	15,520	2,561,000
Estimated Total Project Cost				6,250,000

<sup>\*</sup> Rounded to the nearest \$1,000

# V. RECONSTRUCTION OF STREET SIDEWALKS AND RELATED IMPROVEMENTS

#### A) GENERAL

Sidewalks are an integral part of the City streets and highways system. The State Vehicle Code defines sidewalks as "...that portion of a highway, other than the roadway, set apart by curbs, barriers, markings or other delineation for pedestrian travel."

As important as good roadways are to vehicular travel, well-maintained sidewalks are important to pedestrian travel. In San Francisco, the Public Works Code places the responsibility for sidewalk construction and maintenance on the property owner. Sidewalks fronting private properties are the responsibility of the private property owner. Sidewalks fronting public City-owned properties are the responsibility of the City.

Sidewalk projects requiring funds from the proposed bond issue include:

- Public Property Sidewalk Replacement
- Sidewalk Replacement Around City Street Trees

#### **B) PUBLIC PROPERTY SIDEWALK RECONSTRUCTION**

Curbs and sidewalks fronting City properties such as City office buildings, schools, libraries and parks are the responsibility of the respective City agencies. The inspectors of the Department of Public Works conduct field investigations, prepare and forward notifications to the various City agencies. In addition, the City is responsible for the repair and maintenance of sidewalks fronting State and Federal properties. Often, these locations have a high potential for "trip and fall" accidents. Failure to identify and correct these defects would increase the City's exposure to claims and lawsuits. DPW estimates that approximately 120,000 square feet of defective sidewalks



Unsafe sidewalk marked as precaution for pedestrians

fronting City / State / Federally owned properties must be replaced.

#### C) SIDEWALK REPLACEMENT AROUND CITY STREET TREES

The City maintains approximately 30,000 street trees located throughout the City. The majority of these trees are planted in sidewalk areas. As the trees mature, the associated root growth oftentimes breaks, uplifts, or buckles the sidewalk around the trees. The resulting damage become tripping hazards, for which the City is liable. Sometimes removal and replacement of the tree is required if root pruning would cause the

tree to decline or fall. DPW estimates that approximately 300,000 square feet of sidewalk repair work is needed around City street trees.

#### D) ESTIMATED COSTS AND FUNDING

Historically, the local sales tax (Proposition B) contributed approximately \$600,000 annually for sidewalk repair projects around public properties and City trees. DPW depleted this source of funding for sidewalk repair in FY 2003/04, or six years before the end of the Proposition B's 20-year life. Current revenue estimates for annual funding under Proposition K provides approximately \$500,000 annually for sidewalk repairs. This is the DPW's only source of funds for this work.

The City has identified approximately 420,000 square feet of defective sidewalk that needs to be corrected. The backlog for replacing defective sidewalks is approximately \$20.9 million, with an annual maintenance cost of \$850,000 in order to keep current with sidewalk deterioration.

It is proposed that \$7 million of the funds generated by the Bond Issue be used to improve sidewalks and adjacent areas.

#### VI. STREET STRUCTURES REHABILITATION

#### A) GENERAL

Street structures are an integral part of the street network, which include bridges, pedestrian overpasses, and neighborhood stairs. Their traveled surfaces and other components must be occasionally renovated to prevent premature failure. While the City has recently completed the seismic retrofit program for bridges, pedestrian overpasses and viaducts, much work remains for the lower profile but often used City maintained structures.

# B) DPW MAINTAINED STREET STRUCTURE MAINTENANCE, REPAIR AND REPLACEMENT

DPW has an on-going program identifying repairs needed on DPW maintained street structures such as retaining walls, guardrails, stairways, and rockfall barriers. Traditionally, the Gas Tax/Road Fund is used for maintenance and the City's General Fund finances capital projects. However, these are no longer adequate in meeting the demand caused by increasing need for annual street structure maintenance, or minor capital improvements requiring repair and replacement.



Major cracking of street structure

Routine maintenance work under this category includes repairing spalled concrete, repairing or replacing metal components, rebuilding damaged construction joints, and reconstructing settled stairway landings that pose a tripping hazard for pedestrians. When maintenance is deferred, or codes change or major structural problems arise, capital projects to effect repair and replacement become necessary. DPW estimates that the backlog of deferred maintenance, repair and replacement work on City-owned street structures is currently \$30 million of which, and an annual appropriation of \$1.5 million as a minimum for the future. \$2 million of the backlog is identified as in immediate need of rehabilitation.

As the costs for annual maintenance, repair and maintenance far exceed the funding allocation for these tasks, the backlog for deferred maintenance is expected to increase over time; failure to correct these conditions will not only increase the City' exposure to liability, but will also incur significantly more expenses to the City when corrective actions are no longer discretionary.

#### C) CANDIDATE PROJECTS

The majority of stairways located in the public-right-of way were built many years ago. Most are nonconforming with respect to current codes and regulations. Bringing these stairways into compliance with building, accessibility, and other relevant regulations will eventually be necessary.

The estimated replacement cost of these stairways in today's dollars is in the magnitude of \$600 million.

Although the renovation and replacement of these



**Deteriorating Stairway** 

structures will not approach this cost, the improvements needed will result in an excessive sum that cannot be met by this or any future bond program. Therefore, an annual capital repair and replacement program is necessary to systematically improve the City's asset.



Cracking and erosion of street structure

If passed, the bond program will provide a source to fund the current backlog and four additional years of an annual \$1.5 million capital repair and replacement program. This will allow for development of a systematic approach to solving this major capital need. DPW will develop criteria and priorities to begin improving the City's Street Structures and Stairs based on this fund stream. This source will also provide a match to supplemental alternative financing strategies, such as grants and gifts, which leverage local funds to make improvements at several locations. However, the City will need to find a permanent funding solution at or before the end of this program.

#### D) ESTIMATED COSTS AND FUNDING

The \$8 million from the proposed bond issue will be allocated as follows:

Repair and Maintenance, including backlog	\$2,000,000
Retaining Walls and Public Stairs, 4 yr. Capital Improvement Program, \$1.5M/yr.	\$6,000,000
Total Estimated Costs	\$8,000,000

#### VII. PEDESTRIAN SAFETY PROJECTS

#### A) GENERAL

San Francisco has the highest vehicle density of any North American city, with more than 9,000 registered motor vehicles per square mile overnight. During the day this number swells. By measure of population, San Francisco has an unusually high rate of pedestrian injury for a city its size.

With these issues in mind, the City created the Department of Parking and Traffic's (DPT) Livable Streets Programs in the year 2000. This program includes the Pedestrian Safety Program and the Traffic Calming Program. Traffic calming includes neighborhood streets, arterial streets, and school safety.

#### B) LIVABLE STREETS PROGRAMS

Livable Streets Corridor Projects are located on major arterial and commercial streets ranging from 4 to 14 blocks long, and are located in all eleven Supervisorial Districts. These projects are targeted to receive specific physical treatments to ensure pedestrian safety and create a more walk able environment. These measures include enhanced crosswalk treatments (ladder crosswalks); sidewalk corner bulb-outs; bus bulb-outs; median refuges with accessible channels; disabled access curb ramps; pedestrian-scale lighting; and a variety of other improvements.



SIDEWALK BULB-OUTS FOR NEIGHBORHOOD AND SCHOOL AREAS

Neighborhood Streets Projects focus on those streets designed to accommodate only local traffic. DPT recently developed the Local Streets Traffic Calming Program to address escalating congestion and vehicle density on local streets, particularly cut-through traffic and speeding. These projects may require site-specific or area-wide treatments with the scope and budgets of these treatments being subject to the specific transportation environment and the needs and desires of the surrounding community. Site-specific treatments may range from measures such as mini-traffic circles or speed humps to sidewalk bulbouts or street narrowing. Area-wide treatments will



SPEED HUMPS FOR NEIGHBORHOOD AND SCHOOL AREAS

implement a network of traffic calming measures applied to an entire neighborhood street grid. These measures could include speed humps, mini-traffic circles, bulb-outs, street narrowing, chicanes, enhanced crosswalk treatments and other measures.

Pedestrian crossing signals are critical to pedestrian safety. Increasingly, this signage is electronic. Walk/ Don't Walk signs are now installed with "Countdown" signage to let pedestrians know how much time they have left to safely cross an intersection. Countdown signals have been installed at about 700 of San Francisco's 1,100 signalized intersections. The cost to install the remaining 400 intersections, which currently have no pedestrian signals, will be



about \$40 million. The bond issue is proposed to fund \$13.2 million of these countdown signal projects with the remainder being funded by sales taxes. In addition, audible pedestrian signals are now being installed in a pilot project to improve safety for sight-impaired pedestrians. When a final design is adopted, this program will be expanded citywide. Currently the estimate is approximately \$3,000 per intersection, which would mean \$3.3 million for a citywide conversion. The bond issue will cover installation, testing, and modification, as needed for all traffic control devices.

#### D) ESTIMATED COSTS AND FUNDING

All major arterial and commercial streets were evaluated using criteria established in the San Francisco Traffic Calming Guidelines. Thirty-one Livable Streets Corridor projects have been identified, and further ranked for implementation. All eleven Supervisorial Districts have at least one project. Within each district, bond-funded projects will be implemented according to how they score on the priority list. A thorough community input process will initiate each effort to identify specific roadway segments and treatments.

According to MTA/DPT, the estimated available funding through Fiscal Year 2014 totals \$18 million of the \$70 million needed to fund Livable Streets Projects. This proposed bond allocation of \$28 million will provide the funds to complete one project in each of the 11 Supervisorial Districts, at an approximate cost of \$2.54 million/project in 2005 dollars. An example allocation of \$2.54 million for a typical district is as follows:

#### LIVABLE STREETS CORRIDOR PROJECT-SAMPLE TREATMENTS (2005 dollars)

Type Of Improvement	Est. Cost Per Item	# of Items	Estimated Total Cost
Countdown Signals	\$120,000	10	\$1,200,000
Crosswalk Striping (includes ladder crosswalks, advance limit lines)	\$5,000	10	\$50,000
Pedestrian Safety Signs	\$100	500	\$50,000
Crosswalk Crossing Times	\$5,000	15	\$75,000
Traffic Control changes to improve safety and promote transit (new signals and signal modifications, new audible pedestrian signals, traffic signal interconnects, transit signal priority)	\$100,000	1	\$100,000
Traffic Signal Patrol Program to Identify Safety Problems	\$450	500	\$225,000
Traffic Circles, Corner Bulbs, Bus Bulbs, Sidewalk Widening, Textured Crosswalks	\$60,000	10	\$600,000
Median Island Extensions	\$25,000	5	\$125,000
In-pavement Lights, Flashing Beacons	\$35,000	2	\$70,000
Landscaping, Tree Planting	\$1,000	50	\$50,000
Subtotal Per District			\$2,545,000
Subtotal (\$2,545,000) X 11 Districts			27,995,000
TOTAL			\$ 28,000,000

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#### VIII. BICYCLE SAFETY PROJECTS



#### A) GENERAL

Automobiles are the single largest source of air pollution in the Bay Area. Motor vehicles emit more than 50% of the ozone forming compounds, and over 70% of the carbon monoxide released in the Bay Area. Bicycles, on the other hand, are highly versatile, energy efficient, low cost, quiet, non-polluting, healthy, and enjoyable

forms of transportation.

San Francisco is committed to being a "transit first" city, which means encouraging alternative modes of transportation, such as bicycling. Nearly half of San Francisco adults own their own bicycle, and approximately 36,000 San Franciscans (or 4% of the public) ride their bike for commuting on a consistent basis. In addition, over 70% of San Franciscans think that the City should create more bike lanes on public streets.

The majority of potential bicyclists do not currently ride primarily due to street safety concerns. Expanded bicycle facilities (like bike lanes and paths) can help increase the safety of bicyclists on San Francisco's streets, and will give more San Franciscans the option of bicycling.

In 1997, the Board of Supervisors and the Mayor approved San Francisco's first Bicycle Master Plan. Since then, over 30 miles of new bike lanes have been striped. These 30 miles only account for approximately 3.5% of the street miles that the City maintains. An updated version - the San Francisco Bicycle Plan: Policy Framework is anticipated to be adopted by the Board of Supervisors in Spring 2005. The other part of the Bicycle Master Plan - the San Francisco Bicycle Plan: Network Improvement Document (to be approved by the Municipal Transportation Agency in the near future) recommends many new bicycle projects including new bike lanes and improved bicycle paths that include signing and striping, secure bicycle parking, and children's bicycle learning areas.

#### B) ESTIMATED COSTS AND FUNDING

Estimated available funding through FY 2014 total \$23.4 million of the \$31.5 million estimated need to fully implement bicycle improvement projects remaining from the 1997 Bicycle Master Plan. The proposed bond issue of \$8 million will fund improvements to bicycle safety, mobility and security throughout the City, over the five years of the bond.

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### IX. APPENDIX

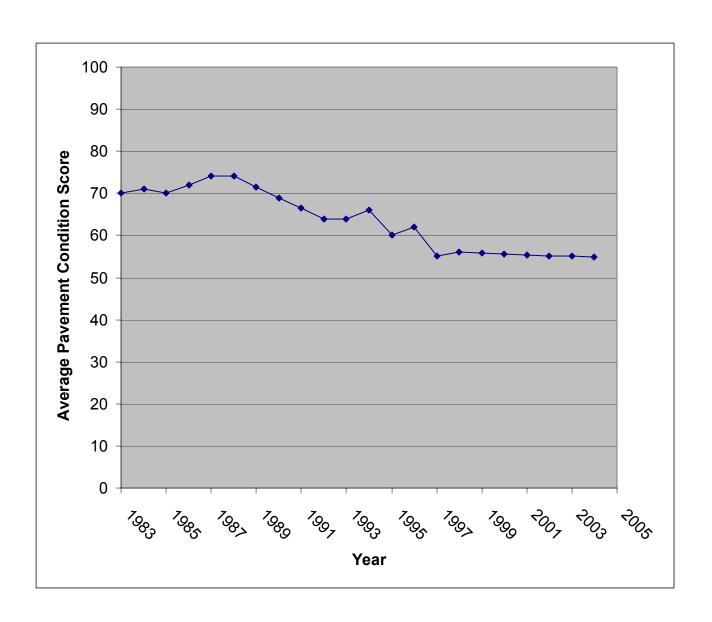
Attachment A - Pavement Conditions (1983-2005)

Attachment B - Below 53 PMMS Score Pavement Conditions Map

Attachment C - Cost Savings from Preventive Maintenance

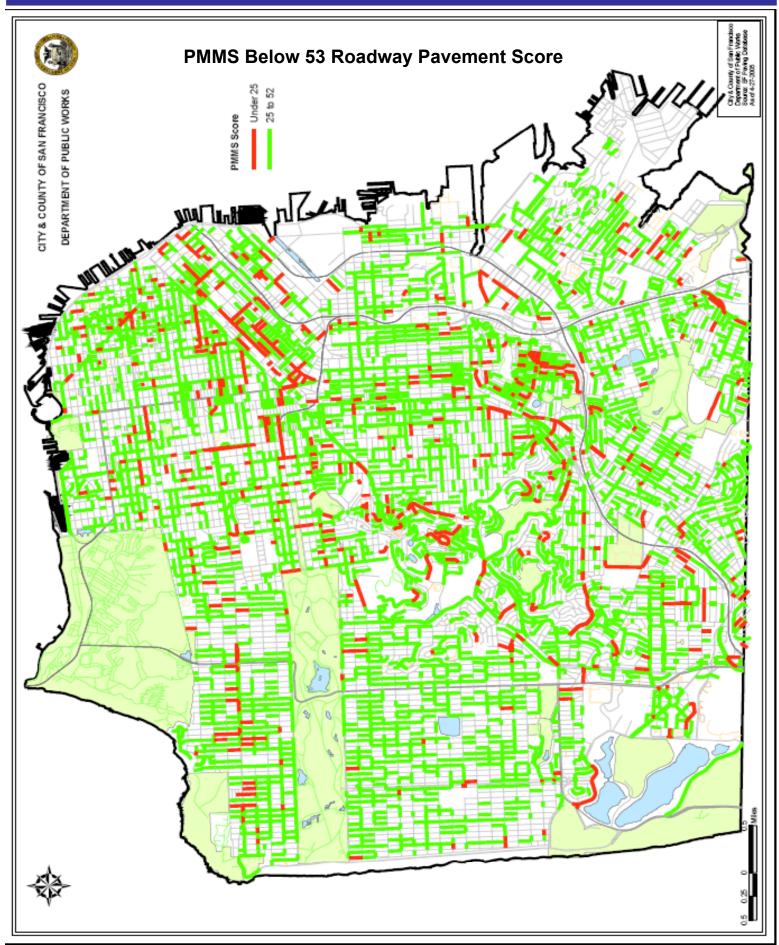
Attachment D - Curb Ramp Database Map

### **ATTACHMENT A**



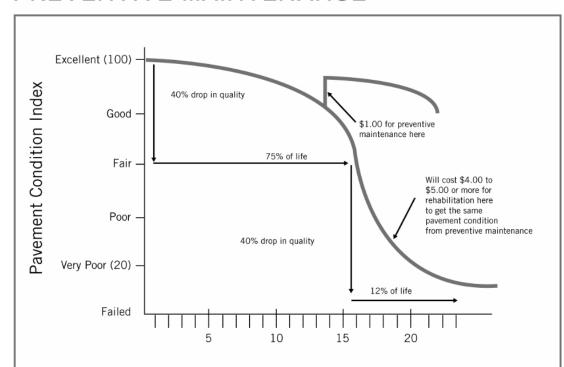
1983 - 2005
PAVEMENT CONDITIONS

## ATTACHMENT B



#### ATTACHMENT C

# FIGURE 5: TYPICAL VARIATION IN PAVEMENT CONDITIONS AND COST SAVINGS FROM PREVENTIVE MAINTENANCE



Source: Midwest Regional University Transportation Center, Department of Civil and Environmental Engineering, University of Wisconsin, Madison, Capital Preventive Maintenance. February, 2004. www.mrutc.org/research/ 0301/Capital%20Prev%20Jan%2003.pdf

The deterioration of physical infrastructure often accelerates over time if it is not properly maintained. Road pavement, for example, often retains its high quality during the early portion of its life, then drops precipitously over a short period of time. Because of this sharp drop, investing one dollar in maintenance while the road is still in relatively good condition can prevent the need to spend four or five dollars to bring the road up to the same level of quality if maintenance is deferred a handful of years. Thus, investing in timely maintenance is often very cost effective for local government.

