

STAFF REPORT

DATE: December 1, 2015

TO: City Council

FROM: Michael Mitchell, Principal Civil Engineer
Robert A. Clarke, Public Works Director

SUBJECT: 2015 Pavement Management Report and 2015/16 Pavement Maintenance Project, CIP 8250

Recommendations

1. Staff recommends acceptance of the attached Draft 2016 Pavement Management Report.
2. Direct staff to prepare a 2016 Pavement Maintenance Project (CIP No. 8250) focusing on resurfacing local streets and bike paths.

Fiscal Impact

In 2013, City Council adopted a funding strategy to allocate roughly \$4 Million of local funds annually to support pavement maintenance for the City's streets and multi-use paths. New funding allocations for FY 2015-16 are budgeted as follows:

FY 2015-16 New Funding for CIP 8250

Funding Source	Amount
Construction Tax (Fund 200)	\$130,000
Development Impact Fees (Fund 475)	\$800,000
General Fund (Fund 001)	\$3,000,000
TOTAL	\$3,930,000

Of the budgeted funds, \$707,361 of General Funds has been transferred to cover the local matching funds for SACOG grants to repave and improve sections of L Street (CIP 8256) and Mace Blvd. (CIP 8257), leaving approximately \$3.2M available for this FY's project.

2014-2016 Council Goals

Goal 6 – Fund, Maintain and Improve Infrastructure

- ♦ Objective 3 – Sustain existing infrastructure, identifying areas where improvements are necessary.
- ♦ Objective 4 – Provide a safe and efficient circulation system

Background

The City street network consists of approximately 163 centerline miles totaling about 353 lane miles, or more than 30 million square feet of pavement. The bike path network consists of approximately 52 miles, or about 3 million square feet of asphaltic concrete (AC) or Portland cement concrete (PCC) pavement.

The Pavement Management Program focuses on a few key factors to provide “big picture” long-term (20-year) forecasts of which streets should be addressed each year, while still requiring some human judgment for refinement on a year-to-year basis.

The key factors in the Program are: the current condition of the pavement, the street classification (arterials, collectors, local streets), the maintenance treatment strategy (patch repairs, surface seals, overlays and reconstruction to name a few) for each street classification, and the available budget to perform maintenance. As with any “three-legged” decision-making system, one can generally choose to set any two of the factors and the third falls out of the analysis. Because transportation maintenance funding has been a growing challenge for communities across the country for many years, the budget is typically one of the two factors that is “set” by policy decision. However, if the budget is too low, it may not be possible to maintain the entire pavement system to an average pavement condition, but only a portion of the system. In this case, the program tracks the pavement not meeting the condition standard as “backlog.” The backlog is described as a number which represents the estimated cost to “catch up” to the defined pavement condition goal.

When pavement repairs are made, it is necessary to also repair and bring into compliance adjacent curb, gutter and sidewalks; American with Disabilities Act (ADA) ramps; and street striping compatible with vehicles and bicycles. When the City Council adopted the 2013 Pavement Management Report and approved increased funding for pavement maintenance, they consciously addressed the funding of non-pavement scope of work that is essential to perform in concert with pavement repairs. At the time, it was estimated that the typical project would need to invest approximately 15% of the pavement costs into these non-pavement assets. It was also estimated that on average, 15% of the total construction contract would be focused on bike path resurfacing.

Looking at the recent 2015 Pavement Maintenance Project, the costs for the non-pavement scope of work as percentages of the total Construction Contract were much higher than originally estimated and are shown in the table below:

FY 2014-15 Pavement Rehab. Project Cost Breakdown

Description	Percent of Total Construction Contract	Percent of street paving portion of the Construction Contract
Paving	65%	100%
Concrete Flatwork (ADA Ramps, Curb, Gutter, and Sidewalk)	28%	41%
Bike Path	8%	12%
Total Construction Contract	100%	-

As you can see, due to the bid amounts, only 8% of the contract amount went to the bike path (a section of the Community Park bike path network). For future work, Staff will add longer segments of path to resurface so the cumulative percent approaches 15% or higher. Additionally, soft costs are a part of the total CIP funding, such as; planning, design, project management and contract administration, and inspection.

Note that for a program budgeted with roughly \$4 million, only roughly \$2.2 million will go to actually paving streets and \$330,000 to paving pathways. Allocations for curb, gutter, sidewalk and ramp work is variable and may be significantly higher, as was the case in this year’s project noted above, but are typical for rehabilitation projects on local streets.

Budget Planning Cost Breakdown

Description	Estimated % of Construction Contract	Example Cost
Paving	70%	\$2,200,000
Curb, gutter, sidewalk, ramps	15%	\$330,000
Bike Paths	15%	\$330,000
CONSTRUCTION CONTRACT		\$2,860,000
Construction Contingency	10%	\$286,000
TOTAL CONSTRUCTION BUDGET		\$3,146,000
Planning / Study	5%	\$143,000
Engineering and Design	10%	\$286,000
Construction Admin and Inspection	10%	\$286,000
SUBTOTAL SOFT COSTS		\$715,000
GRAND TOTAL		\$3,933,000

City-Wide Street and Path Surveys

Historically, the City surveyed approximately one-fifth of the City’s streets each year to evaluate the pavement condition and update our program. However, in 2012, since a street survey had not been performed in several years, the City surveyed the entire network of streets and bike paths. In 2015, the City again surveyed the arterials and collectors. City Staff will continue to survey the street and path networks every three years for arterials and collectors (next surveys in 2018 and 2021) and every six years for local streets and bike paths (next surveys in 2018 and 2024).

The **2012 Street and Bike Path Survey** and the **2015 Street Survey** resulted in the following pavement condition indexes (PCIs) averages:

Pavement Condition Index (PCI) Comparison

Street Classification	Percent of All Streets	2012 Average PCI	2015 Average PCI	Target PCI ²
Arterials	21%	63	72	68
Collectors	14%	60	66	65
Local Streets	65%	62	58 ¹	60
All Streets	100%	62	63	-

Bike Paths	-	59	51 ¹	68 ³
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¹ PCI number derived from StreetSaver extrapolation, not from the survey.

² Discussed in next section.

³ Council adopted goals in 2013 that the target PCI for bike paths be equal or greater than the highest street PCI.

Pavement data (street segments and PCIs) from these surveys is stored within the City’s StreetSaver Pavement Management database. The PCI is an indication of the condition of the segment, from 0 to 100. A PCI of 100 would be given to a newly constructed street. For segments that were not surveyed (in 2015, this would be local streets and bike paths) StreetSaver can extrapolate “current” PCI score, typically reducing the score by one to two points each year from the last survey.

The StreetSaver program is also used to develop budget strategies and maintenance plans (scenarios) to plan for funding to maintain the City’s streets and bike paths. The Nichols Consulting Engineers (NCE) report investigates the following scenarios for streets:

Street Scenarios:

1. What will be the PCIs for streets using the current City funding (\$2.2 million for streets. See Budget Planning Cost Breakdown Table above), over twenty years
 - a. Current City funding on arterial, collector and local streets.
 - b. Current City funding on arterial and collector only. (i.e., let local streets deteriorate).
2. What funding is needed to maintain the average PCI at the current average of 63.
3. What funding is needed to maintain or improve the PCI targets (Arterial at 68, Collector at 65 and Local at 60).

Additionally, the NCE report investigates the following scenarios for bike paths:

Path Scenarios:

4. What will be the PCIs for bike paths using \$330,000 (15% of a \$2.2 million street paving cost), over twenty years.
5. What funding is needed to maintain the average PCI at the current average of 51.
6. What funding is needed to improve the average PCI at the current, highest street average (68 for arterials).

Inflation Rate

In the 2012 Pavement Management Report from NCE, an inflation rate of 8% was used for the 20-year scenarios. This was based on a projected rate for the increase in oil prices according to Caltrans. Since then, the price of oil has decreased. Our consultant NCE recommended using 6% for this report. However, NCE surveyed surrounding municipalities and found that the majority were using 3%. This would give rise to the assumption that they felt the price of oil would continue to decrease from current prices.

City Staff asked NCE to run the scenarios with both inflation rates: 3% and 6%, assuming the reality could be somewhere in between. Note that only Scenarios 3 and 6 meet the current Council PCI goals.

Summary of Funding Scenarios

		Inflation = 3%			Inflation = 6%		
		Backlog in 2035 (\$M)	Total Funding over 20 years (\$M)	PCI in 2035	Backlog in 2035 (\$M)	Total Funding over 20 years (\$M)	PCI in 2035
Street	Scenario 1A	\$ 127.1	\$ 36.0	36	\$ 235.3	\$ 36.0	33
	Scenario 1B	\$ 136.8	\$ 36.0	33	\$ 256.3	\$ 36.0	31
	Scenario 2	\$ 37.2	\$ 102.2	63	\$ 64.7	\$ 139.5	63
	Scenario 3	\$ 32.6	\$ 109.2	63	\$ 58.1	\$ 150.4	63
Bike Path	Scenario 4	\$ 31.5	\$ 5.4	41	\$ 57.3	\$ 5.4	39
	Scenario 5	\$ 23.7	\$ 12.0	51	\$ 41.2	\$ 15.2	51
	Scenario 6	\$ 7.2	\$ 21.2	68	\$ 13.6	\$ 25.1	68

Based on the above scenario runs, if current Council goals are to be achieved over time, an average of approximately \$5.1M per year needs to be invested in the street pavement (Scenario 3

– 3% inflation) and an average of \$1.06M per year in the pathway system (Scenario 6 – 3% inflation). When factors are applied for non-pavement allocations, construction contingencies and soft costs that results in an average annual total project budget need of approximately \$10M. This is two and half times more than the \$4M currently being budgeted.

2013: A Year of Decisions

In 2013, City Staff brought the subject of Pavement Management to City Council over the course of multiple meetings to come to several decisions. Following are bullet points on the decisions:

- **Budgeting the Program:** Since 2008 virtually all of the past Federal funding mechanisms have disappeared with the exception of competitive SACOG grants. Cities must apply for the SACOG grants annually and compete with other cities for a limited amount of money. The submitted projects must show a “complete street” component or other type of enhancement. Pavement maintenance is not typically competitive for grant programs. City Council considered several budgeting options and landed on the one listed in Fiscal Impacts (allocate roughly \$4 Million of local funds annually to support pavement maintenance for the City’s streets and multi-use paths).
- **Priority Local Streets:** Staff presented a list of local streets that were near parks, schools, commercial districts, and other points of interest. These streets were approved by Council and re-classified in StreetSaver as Collectors.
- **Target PCIs:** Staff presented, and Council approved, target PCIs for arterials, collectors and local streets as shown in Pavement Condition Index comparison Table above. Council also directed that the target, average PCI for bike paths should be equal to or greater than the highest PCI in the street classifications (PCI of 68).
- **Pavement Management Scenarios:** Many scenarios were presented to Council over the year. The basic conclusions drawn from these scenarios is that it will take more funding than is currently being budgeted to improve the street and path conditions in the next twenty years and that the more funding allocated as early as possible improves the situation versus waiting (as streets approach low PCI levels the likelihood of complete reconstruction increases – a considerably more expensive project).

Pavement Projects

Since the 2012 survey to date, the following streets have been resurfaced (costs are rounded to the nearest \$1,000).

Pavement Projects 2012 to Present

Year	CIP / Program	Street Segment	Funding	Grant Contribution	Contract Amount
2013	8209	First Street, A Street to G Street	Local ¹	\$0	\$523,000
2013	7259, 8126	B Street Flatwork, Sixth Street to Fourteenth	CDBG Grant, Local	\$124,000	\$222,000
2014	7252	B Street, Sixth Street to Fourteenth Street	SACOG Grant, Local	\$313,000	\$451,000
2014	7252	B Street, Fifth Street to Sixth Street	Local	\$0	\$104,000
2014	8250	Eighth Street, F Street to J Street	SACOG Grant, Local	\$192,000	\$612,000
2014	8250	Base Repair and Crack Seal of various streets	Local	\$0	\$608,000

Year	CIP / Program	Street Segment	Funding	Grant Contribution	Contract Amount
2015	8250	East Covell Blvd: from Birch Lane to Alhambra Drive	Local	\$0	\$3,981,000 ²
		L Street: Second Street to Fifth Street			
		West Eighth Street: Anderson Road to A Street			
		East Eighth Street: J Street to L Street			
		Lillard Drive: Farragut Circle to 2761 Lillard Drive			
		Lake Blvd: Arlington Blvd to West Covell Blvd			
2013-2015		TOTAL		\$629,000	\$6,501,000

¹ The City was awarded a \$310,000 SACOG grant for this project but later did a funding swap, switching the Federal funds into the Third Street project (CIP 8164) with local funds from 8164.

² Project is still active so final Contract amount is not yet available.

In addition to the street paving above, a segment of the Community Park asphalt bike path was replaced with Portland Cement Concrete (PCC) in the 2015 project. The cost for that path is \$210,000.

There are two other paving projects to note:

1. When PG&E performed major gas line work on Olive Drive last year, east of Richards Boulevard, and on Claremont Drive, west of L Street, as required by the City, they paved these street segments, at no cost to the City.
2. The current Surface Water Transmission Pipe Project (CIP 8224) is paving back the lane of the street or bike lane in which the pipe trench is installed. Over the life of the pipe project, this will result in approximately seven miles of lanes being repaved, although not the entire street widths.

Proposed 2016 Pavement Project

As noted in Table 3, the PCI goals for arterials and collectors have been met for the next few years but the goals for local streets and bike paths have not. Additionally, during the construction season of 2016, two projects are anticipated to be in construction that will resurface Mace Boulevard (an arterial, CIP 8257), from Montgomery Avenue to Chiles Road; and L Street (a collector, CIP 8256), from Fifth Street to Covell Boulevard. Both of these projects will receive significant funds from SACOG grants (roughly \$3.3 million for both projects).

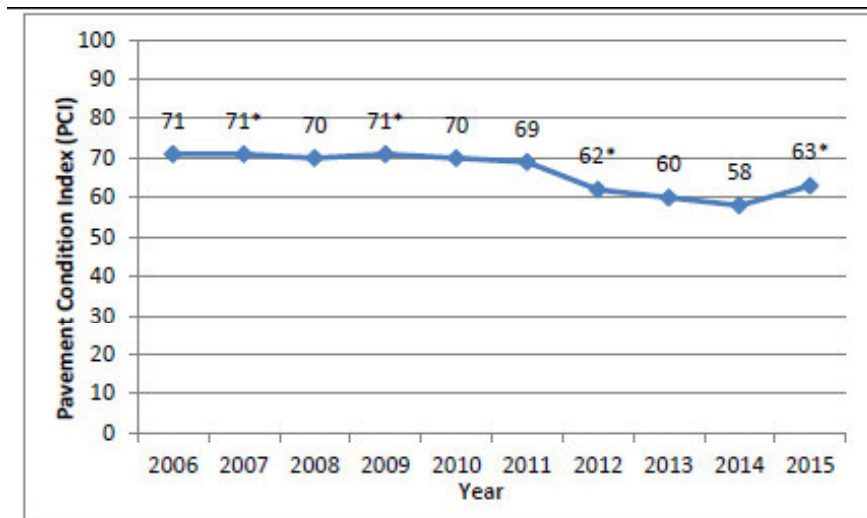
Due to the fact that currently the target PCIs for arterials and collectors have been reached and the fact that two arterial and collector streets are being resurfaced in 2016 with SACOG grants, it is staff's recommendation that the 2016 Pavement Project focus on local streets rather than arterials and collectors.

The Council also adopted a goal that each year a pavement project should have a bike path resurfacing component of at least 15% of the total construction contract. As noted above, the

2015 Pavement Project did not meet that goal. It is recommended that a larger bike path component be included in the 2016 Pavement Project.

Staff has received complaints on several streets due to their poor condition (e.g., the east end of Olive Drive) and recommends focusing on these streets in the 2016 Pavement Project. With the exception of east Olive Drive which requires full reconstruction, all of these streets are local streets requiring preventative maintenance treatments. Staff will return to Council in March to present the final list of local streets and bike paths recommended for the 2016 Pavement Project.

The approximately \$4M Council directed investment is making a meaningful difference in the City's ability to more pro-actively address pavement management. Substantial pavement rehabilitation projects have been accomplished with these funds. However, to approach a truly sustainable pavement management system will require investment of \$10M annually.



* PCI vales are from field condition surveys

Figure 2: Historical Network PCI from 2006 to 2015 (Streets)

Attachment

A. Draft Pavement Management Report