



**CITY OF PACIFICA
COUNCIL AGENDA SUMMARY REPORT**

10/12/2020

SUBJECT:

Report on Street Maintenance Program and Authorization of Program Improvements and Next Steps

RECOMMENDED ACTION:

Accept the 5-year Street Maintenance Program for FY 20/21 to FY 24/25; Authorize the start of design for the FY 20/21 and 21/22 Street Maintenance Programs; Approve an agreement for a Pavement Utility Cut and Vehicle Impact Fee Study between the City of Pacifica and NCE Consultants in the amount of \$75,000 from the Gas Tax Maintenance Fund (Fund 10) with at 15% contingency for a total contract amount not to exceed \$86,250.

STAFF CONTACT:

Lisa Petersen, Director of Public Works
(650) 738-3770
petersenl@ci.pacifica.ca.us

BACKGROUND/DISCUSSION:

The City of Pacifica is responsible for maintaining over 90 centerline miles of street pavement. In order to complete this maintenance, the City identifies a budget every year for annual street maintenance projects as part of the Capital Improvement Program (CIP). Since FY18/19 the City has spent approximately \$3.4M on street maintenance projects. Staff most recently conferred with Council on the overall condition of the City's pavements at the April 22, 2019 Council meeting where staff discussed the City's 2019 Pavement Condition Index Report (also known as the Budget Options Report). Recently, staff has been working with a pavement consultant to develop a new five-year street maintenance program for the City's streets and develop a pavement fee study.

The purposes of this report are to:

- Provide information to the Council regarding the overall Street Pavement Maintenance program
- Describe the StreetSaver software and database
- Summarize again the findings of the 2019 Budget Options Report
- Discuss the updated 5-year street maintenance program
- Request approval to design the City's FY20-21/FY21-22 Pavement Programs
- Request approval for an agreement for a pavement fee study

Street Pavement Maintenance Program

Key elements of industry standards and best management practices for street maintenance programs are as follows:

1. Use the results of the Metropolitan Transportation Commission's (MTC) pavement maintenance software, StreetSaver, to obtain a macro or high-level view of street needs.
2. Follow the industry standard of maintaining streets that are in good condition to keep

- them from dropping into more expensive repair categories.
3. Use the preliminary StreetSaver recommendations, along with other factors, to develop the most reasonable and effective pavement maintenance projects.
 4. Provide yearly funding with a long-term goal of increasing pavement conditions to optimal level.

The Streetsaver program alone is not sufficient in making project level decisions, but is rather one element among several important factors the City uses for consideration of a yearly paving program. Other factors essential in determination of the yearly paving program include:

- Review of street needs with the City’s Maintenance Division
- Engineering determination of the actual street treatments appropriate for the level of street distress
- Determining the risk of a street falling into a costlier repair category
- Identifying upcoming utility, development or CIP projects on a street
- Determining potential cost benefits by selecting streets in proximity to other streets in similar condition

StreetSaver Overview

StreetSaver is a computer-based pavement management system developed by MTC in 1987. Currently all San Francisco Bay area cities and counties use the StreetSaver software to better maintain their roads and the program is the most highly used pavement software program on the West Coast. StreetSaver helps cities and counties understand the overall condition of their pavement infrastructure and their budgetary needs for maintaining their pavement. The program uses an algorithm that includes budget, street condition and pavement treatments (identified in the program’s Decision Tree) to create a list of yearly pavement maintenance projects. These projects represent the most cost-effective use of the pavement budget. Most federal and local grants for pavement rehabilitation projects require applicants to be actively using a pavement management program in order to be eligible for these grants.

The StreetSaver program tracks streets by their associated Pavement Condition Index (PCI), which identifies the condition of the street. At a high level, streets are categorized by condition on a 100 point scale:

Rating	Condition
70-100	Very Good
50-70	Good
25-50	Poor
0-25	Very Poor

Base street conditions are collected through manual visual assessments every two to three years for all streets and the data is utilized to update the StreetSaver database. StreetSaver tracks the score and based on multiple criteria, including traffic levels and current condition, adjusts the condition rating of streets over time and identifies candidate streets for maintenance treatments.

In the winter of 2019, a Budget Options Report (BOR) was prepared by a pavement consultant for the City. This report is completed through MTC’s Pavement Management Technical Assistance Program (PTAP). Each year MTC dedicates funds for the P-TAP program, which

help cities and counties determine the condition of their local street pavement and update their pavement management data base system (Streetsaver). Accurate pavement condition data is important for the budget prioritization process for the City's local street maintenance and rehabilitation program.

The P-TAP grant comes in the form of consultant services. MTC directly hires the consultant to survey the pavement condition of the streets within the grantee's jurisdiction and give the streets a Pavement Condition Index (PCI) rating from 0 to 100. This year, the City applied for and received funding from MTC's latest P-TAP program and staff is currently working with MTC and their consultant on another assessment of City streets that will result in the completion of a new Budget Options Report (BOR) by the spring of 2021.

2019 Budget Options Report

A core use of the StreetSaver program is for budget analysis to determine the impact of funding levels on the overall PCI. Given unlimited funds, the ultimate goal for a city's pavement management program would be to have all streets in the network improved to an optimal PCI and then allocate the necessary annual funding to complete the maintenance treatments that would sustain the streets at or above the optimal PCI level. The optimal PCI assumes that the City has completed all deferred maintenance and the BOR report shows that the City's optimal PCI is an 85.

Because unlimited funds are unlikely, the StreetSaver program also allows the user to input budget scenarios and review the impacts that those scenarios are anticipated to have on the City's PCI and on the resulting increase in deferred maintenance. Additionally, based on the budget scenarios, the StreetSaver program is able to generate a potential list of street sections and treatments that would theoretically optimize the use of the City's constrained pavement maintenance funds. The 2019 report shows the overall PCI of the City's pavements at a 46 (one of the lowest in the Bay Area) and uses this information to develop alternative budget scenarios for the City. Reasons for the City's low PCI include the acquisition of incorrectly constructed County streets when Pacifica was incorporated, and low investment levels due to years of City revenue growth not keeping pace with City expenditure growth.

The 2019 BOR included five budget scenarios, each run for a five-year period. These include the following:

1. Unconstrained (Optimal) - Provides a scenario of implementing an ideal investment strategy with unlimited budget. This would address the bulk of maintenance needs in the five-year period and increase the PCI to 85 at a total cost of \$135M.
2. Current Investment Level (based on proposed CIP for FY18/19 to FY23/24) - Uses the anticipated annual budget for pavement maintenance work for this period of \$4M (\$800k/yr). Over a five-year period, the PCI would drop to 38 and deferred maintenance would increase to \$128M
3. Maintain Current PCI - Determines funding levels needed to maintain the City's PCI in 2019 of 46. Results show that a total of \$17.5M (\$3.5M/yr) would be needed to maintain the PCI over the five years. Under this scenario deferred maintenance grows to \$120M
4. Increase Current PCI to 51 - To increase the PCI to 51, the BOR noted a total of \$29.5M (\$5.9M/yr) would need to be invested in the City's streets over a five-year period. In this scenario, deferred maintenance grows to \$110M.

5. Do Nothing - If no maintenance or rehabilitation is applied over the five-year period, the 2019 BOR shows the City's streets will deteriorate to an overall PCI of 35. Under this scenario deferred maintenance grows to \$130M.

*Link to the 2019 BOR <https://www.cityofpacifica.org/depts/pw/engr/default.asp>

The 2019 report also identifies the City's "Maintenance Decision Tree" that is used in Streetsaver to determine street treatments for streets based on their PCI. The City's current Decision Tree uses a standard maintenance treatment program of placing cost-effective slurry seals and cape seals on streets that are in the "very good" and "good" pavement condition categories and providing expensive milling with thick overlay or reconstruction on street in the "poor" and "very poor" condition categories. Because the majority of the City's streets are in these last two condition categories, a majority of City pavement funds are being used either on slurry seals to keep good pavements from dropping into poor condition categories or on overlays and expensive street treatments that help a very small number of streets in the poorer condition categories.

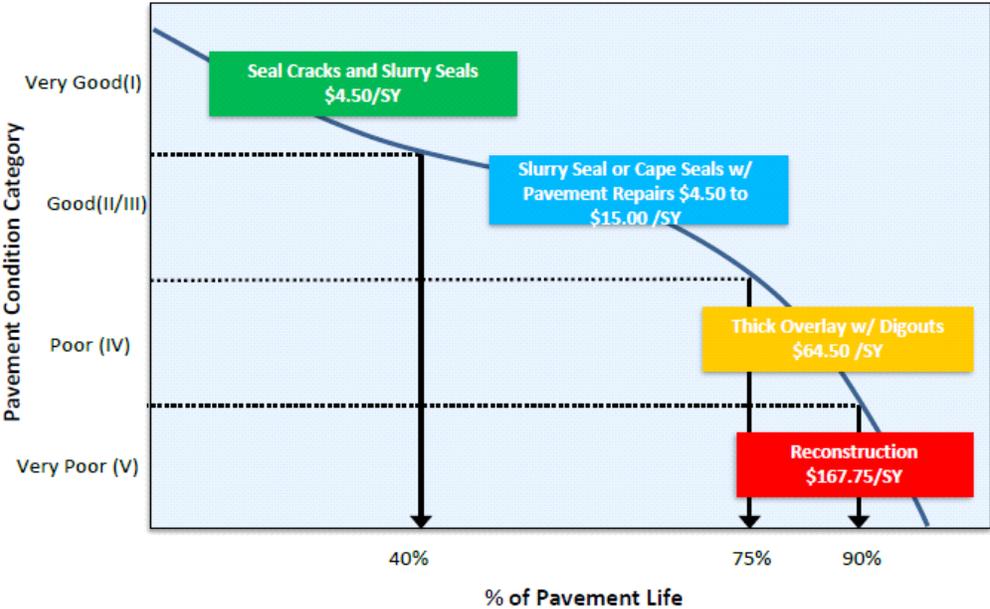
This standard maintenance treatment program of overlaying and reconstructing streets, including residential and collector streets, in the poorer condition categories works well for cities that have the majority of their streets in the higher condition categories and is ultimately the maintenance treatment program that cities strive to achieve. However, use of this standard pavement approach when funding levels are low and the majority of a City's streets are in the poor to very poor condition categories will leave many streets in these lower categories with no treatment. The program's algorithm will use the limited funds on cheaper treatments, such as slurry seals, that can treat more street surface and keep the good pavements in good condition. Until the City can identify more pavement funding sources, the City should look at temporary changes to the Streetsaver Decision Tree to allow a less expensive stopgap treatment approach to the City's pavements in the worse condition categories. Using a stopgap treatment could prevent many of the City's streets in the worse condition categories from complete failure. In an effort to look at a way for the City to include more streets in Pacifica's street program and provide this stopgap approach, staff hired a pavement expert, NCE Consultants, to provide an alternative five-year pavement program that would temporarily change the Decision Tree to address these poorer condition streets.

NCE's 5-year Alternative Pavement Maintenance Program

In reviewing the City's streets, NCE determined the street maintenance treatments used on the City's streets should be changed for the City's next five-year program to allow the City to catch more streets in the poor condition category before these streets fall into reconstructions. This will also provide more time for the City to identify additional street funding sources to address these worse condition streets. The program outlined by NCE is effectively two "bookends". One bookend would hold up pavements currently in good condition and keep them from falling into the poorer condition categories. The other bookend would target appropriate collector and residential streets in the lower condition categories and provide stopgap measures to prevent these streets from falling into reconstructions. The treatments needed for these bookends are slurry seals for streets in good condition and cape seals for suitable collector and residential streets in the poorer condition categories. Arterial streets in the lower condition categories would continue to receive overlay or reconstruction treatments due to their higher traffic volumes.

It Costs Less to Maintain Streets in Good Condition

Slurry seal programs align with the concept of keeping streets in good condition and not letting them fall into a condition that is costlier to repair. One of the main tenets of pavement maintenance developed from years of pavement analysis and pavement maintenance programs is that it costs less to maintain roads that are in good condition than those in worse condition categories and the most cost effective pavement programs keep pavements that are in good condition from dropping into more expensive repair categories. As is shown in the below pavement degradation curve, streets in the better condition categories can quickly drop into the poor condition categories if not maintained. Repairing a street that has dropped from the good condition category into the reconstruction category, will increase a City’s treatment costs by 35 to 40 times what it would have been had the street been treated earlier.



Stopgap Measure to Address Streets in Poor Condition

In addition to keeping good streets in the good condition categories, the updated five-year program would provide a stop gap treatment to prevent many City streets from falling into expensive reconstructions. This stop gap measure would be in the form of a cape seal treatment.

Cape seals are a chip seal covered with a slurry seal. A chip seal is a liquid asphalt layer that is covered with ¼ to ½ crushed rock. This is then covered with a slurry seal (asphalt emulsion mixed with sand) and provides protection to older asphalt pavement surfaces. Cape seals can be used on streets in the poor condition category that meet certain requirements such as a solid base and tightly knit pavement cracking. It can also be used on streets in the very poor condition category with additional pavement repairs, but ride smoothness will not match that of an overlay or reconstruction. Typically, cape seals will provide significant protection to a street surface for a period of seven to ten years. In the updated program, arterial streets and some collector streets in the poorer condition categories would continue to received overlays or be reconstructed due to the heavy traffic loads and the deterioration on these roadways.

Moving forward with the alternate five-year program that incorporates these bookend treatments

allows the City to treat an additional 15 miles of roadway during the five years and save approximately \$28M by using cape seals on streets in the lower condition categories as opposed to overlays and reconstructions. The five-year program will cover 30% of the City's street network. Attachment 1 to this report provides the NCE five-year pavement program plan with the stopgap treatments and associated streets. Staff is requesting the Council accept the report on the five-year pavement maintenance program using these stopgap treatments and authorize staff to move forward with the design of the FY 20/21 and 21/22 program outlined in the five-year plan. To achieve an economy of scale and allow for more pavement maintenance work next year, staff would move forward with design of both the 20/21 and 21/22 projects and construct the projects together when funding is available for both projects, after July 1, 2021. Staff would return to Council for approval of the final project plans and specifications.

Street Pavement Funding and Agreement for Pavement Fee Study

The City's funding for streets since FY18/19 included one-time funding of \$900,000 from the City's General Fund (spent on the FY17/18 Street Maintenance Project), OBAG funding and ongoing SB1 and Measure W (began in FY 19/20) funding with yearly allocations of approximately \$600K and \$440K, respectively. Additionally, rollover Measure A money in Street Construction Fund (Fund 9) of approximately \$350K/year will be available for the next five years for street funding. These limited funding sources will not be sufficient to prevent some of City's streets from deteriorating and requiring expensive maintenance treatments, however, the stopgap treatment will prevent a number of City streets from falling into reconstructions. The City should identify other areas of funding to stabilize the program thereby slowing down and eventually reversing the accumulating deferred pavement maintenance debt that is accruing.

In 2019, the City commissioned a study with Management Partners to assess the City's Public Works organization. Included in the report was a discussion on the need for the City to identify additional sources of funding for pavements to prevent the continued serious deterioration of pavement conditions in Pacifica. The report offered a number of options regarding new pavement maintenance revenues. Some of these included fees that are easier to implement and many cities already have in place such as utility pavement cut fees and vehicle impact fees for construction and refuse/recycling trucks. Some of the proposed revenue generators in the report were more complicated to implement such as facility districts, bond funding and tax increases but would provide a larger revenue stream.

The more complicated and larger revenue generating funding strategies for street maintenance will be components of the Vision 2025 scope of work and evaluated within the context of Pacifica's numerous important financial sustainability issues. A recommended scope of work for the Vision 2025 study is expected to be presented to the City Council at the October 12, 2020 Council meeting. For the easier and more common funding strategies of utility pavement cut and vehicle impact fees, staff has solicited a proposal for a study through a pavement consultant for this analysis.

Following the recommendations from the Management Partner's report, the consultant, NCE Consulting, will provide the technical consulting services to evaluate the impact of utility cuts and construction/refuse/recycling trucks on the City's street network. NCE will develop fees for these impacts to the pavement based on review of the City's street network, traffic loading on City streets, related empirical reports and roadway structural analysis. The fees developed would include recommended fees to be assessed to utility companies for cutting City pavements and recommended fees to be assessed for both construction vehicle impacts to City streets from development projects and refuse/recycling vehicle impacts. Staff is requesting Council approve the NCE agreement for \$75,000 with a 15% contingency for a not to exceed amount of \$86,250. Staff would return to Council for review of these developed fees once the study is reviewed and completed in the winter of 2021.

ALTERNATIVE ACTION:

Council may choose not to authorize design of the upcoming Pavement Maintenance Program projects or approve the pavement cut and vehicle impact fee study. However, this will result in continued deterioration of the City’s pavement network and restrict opportunities to review new pavement funding sources.

RELATION TO CITY COUNCIL GOALS AND WORK PLAN:

Approval of these actions is consistent with the following Council adopted Goals:

- Stewardship of City Infrastructure: includes repairing/replacing outdated city facilities such as city hall, the libraries, fire stations, etc., improving streets, and responding to sea level rise.

Approval of these actions will improve the City street network.

FISCAL IMPACT:

On January 21, 2020, the City executed a Master Agreement with NCE and issued Task Order No. 1 in the amount of \$22,500 to prepare an updated 5-year pavement maintenance plan. Task Order No. 2 is to prepare the pavement utility cut and vehicle impact fee study, as described in the report. City staff recommends including a 15% contingency to the Task Order for any additional work, such as field work. The use of the contingency will be reviewed and approved by City staff. The proposed project budget is as follows:

Project Budget

Task Order No. 2 - Pavement Utility Cut & Vehicle Impact Fee Study	\$ 75,000.00
Contingency (15%)	<u>\$ 11,250.00</u>
Total Project Cost	\$ 86,250.00

The City Manager also recommends approving a budget authority for this Task Order in the amount of \$86,250. The Gas Tax Maintenance Fund (Fund 10) contains unexpended funds to pay for Task Order No. 2. The following table shows the Project Funding:

Project Funding

Fund 10: Gas Tax Maintenance Fund - Consultant Services	\$197,500.00
Total Funding	\$197,500.00

ORIGINATED BY:

Public Works

ATTACHMENT LIST:

- Attachment 1 - City of Pacifica - 5-Year Work Plan with Maps (PDF)
- Attachment 2 - Task Order No. 2 between NCE and City of Pacifica (PDF)