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Title: UPDATE ON PUBLIC WORKS' MAINTENANCE ACTIVITIES: CONCRETE, ASPHALT, CRACK AND SLURRY SEAL, GRIND AND OVERLAY, AND TREE MAINTENANCE (CITY COUNCIL)

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Attachments: 1. Sidewalk Removal and Replacement Locations - In House, 2. Concrete Grinding Locations - Contractor, 3. Historical Slurry Seal Maintenance Projects 2016 - 2021, 4. Historical Citywide Grind and Overlay Maintenance Projects 2019-2021, 5. Citywide Slurry Seal Maintenance Program for Next 24 Months, 6. Citywide Tree Trimming Map, 7. Tree Trimming Maintenance Cycles, 8. 12-Month Tree Trimming Plan

Date	Ver.	Action By	Action	Result
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Report to Mayor and City Council

Tuesday, October 19, 2021

Consent

SUBJECT:

UPDATE ON PUBLIC WORKS' MAINTENANCE ACTIVITIES: CONCRETE, ASPHALT, CRACK AND SLURRY SEAL, GRIND AND OVERLAY, AND TREE MAINTENANCE (CITY COUNCIL)

I. SUMMARY

At the request of the City Council, this staff report provides an update on the maintenance activities in Public Works over the next 12-24 months. This report is a comprehensive summary of the ambitious efforts and dedication of Public Works staff to improving the quality of the City's assets, including streets, sidewalks, and trees. It is divided in to the three divisions of the department:

- Right of Way (ROW)
- Engineering
- Landscape and Building Maintenance

II. RECOMMENDATION

1. RECEIVE AND FILE

III. ALTERNATIVES

Take another action the City Council deems appropriate consistent with the requirements of the law.

IV. BACKGROUND

The Department of Public Works is charged with providing the community with a safe, clean, and healthy environment through the design, construction, operation, maintenance, and management of the vital municipal infrastructure system.

There are over 203 centerline miles of roadways of which 49.2 miles are arterials, 5.7 miles are secondary arterials, 18.1 miles are collectors, and 130.1 miles are residential streets in the City of Carson. The 203 centerline miles equates to approximately 45.9 million square feet (s.f.) of roadway surface. Public Works is responsible for the repair and maintenance of these streets. Roads and pavements are one of the City's most valuable assets.

Right of Way Maintenance

The Right of Way Maintenance Division responsibilities include maintaining and repairing potholes in the streets, sidewalks, signs, and striping. They perform their regular maintenance and repair based on the available staff, equipment, and funds budgeted. Recently, there have been numerous requests for repairs from the residents and motorists based on the existing conditions of city streets and sidewalks. In particular, sidewalks have been uplifted. ROW is currently in the process of updating some of its 20+ year old equipment which should increase productivity. Table 1 presents the number and type of requests that have been addressed since the beginning of 2021.

Table 1
ROW Work Completed Since January 2021

Work Orders	In-house Staff	Contractor
Potholes	0	23
Sidewalk Grinding	0	195
Sidewalk Repair & Replacements	365	0
Total	365	228

Work orders are generated based on resident or internal requests, planned activities and/or observations. However, based on the quantity of work orders, and to temporarily

relieve the backlog, contractors have been hired to address the need for immediate repair for sidewalk grinding, and ramping. This has allowed Public Works staff to focus on sidewalk repairs, which includes removal of sidewalk panels and replacement with new concrete. Exhibits 1 and 2 present the planned maintenance activities over the next 12 months. Table 2 presents these scheduled maintenance activities in tabular form. Funding is through general funds.

Table 2
ROW Work to Be Completed October 2021 Through October 2022

Work Orders	In-house Staff	Contractor
Potholes	33	0
Sidewalk Grinding	0	11,300
Sidewalk Repair & Replacements	774	0
Total	807	11,300

Engineering

The City's engineering division is responsible for overseeing, managing, analyzing, planning, designing and constructing major repairs and maintenance of the city's streets and bridges. This requires the engineering division to understand the needs and requirements of the streets and bridges and to determine a schedule for repair and upgrades. The maintenance and repair strategies include appropriate treatment such as filling cracks (crack sealing), surface slurry seals and overlays.

The engineering division participates in numerous local and regional committees and applies for major funding for repairs, upgrades and maintenance. Funding sources include:

- South Bay COG
- State and local earmarks
- Metro/ MTA

Every 3-4 years, an analysis on the level of the pavement is scheduled and a score is provided by street as well as the overall condition. This analysis is called a Pavement Management Program (PMP). The PMP is currently being updated and is expected to be completed by the end of January 2022. This report will be the roadmap for planning which streets are in critical need of repair and will present a preventive maintenance schedule with corresponding costs to improve and maintain the City's overall roadway system network.

Further, the report presents the overall condition of the city-maintained streets, provides the Pavement Condition Index (PCI) of every street and highlights options for improving them. The PCI is a measurement of pavement grade or condition that ranges from 0 to 100 and indicates the structural integrity of the street. It costs much less to maintain streets in good condition than to repair streets that have failed. “Preventive maintenance” is when the City utilizes a surface treatment such as crack sealing when pavement is in good condition, to prevent water seeping in. “Rehabilitation or reconstruction” occurs when the pavement condition deteriorates to lower levels and an overlay and reconstruction have been performed. Residential and collector streets in fair and good conditions with a PCI between 65 and 90 are recommended for a combined crack and slurry sealing.

A newly constructed street will have a PCI of 100, while a failed street will have a PCI of 25 or less. The pavement condition is primarily affected by the local weather conditions, type of vehicles (trucks vs. cars), traffic loads and volumes, construction material of the street, and age. The projects that the City obtains outside funding to cover the costs of improving roadways are as follows:

- Crack seal
- Slurry seal
- Grind and overlay

Crack sealing is the first step in preventing extensive deterioration of the streets and roadways. It is a measure that is often used and placed on streets for years before slurry seal occurs and helps maintain the life of the street. This preventative measure will increase in Carson over the next several years and an update will be given once the PMP is completed. Crack sealing is 75% less expensive than crack and slurry sealing.

In most cases, once it has been determined that slurry sealing is required, the roadway will have its cracks sealed if they have not been already, and then the slurry coat will go on. Based on current funding, slurry sealing is approximately a 11-year cycle program. Currently, the City has an annual budget of approximately \$1,000,000 for crack and slurry sealing of city streets as listed in the City’s FY 21/22 Capital Improvement Program (CIP). This represents 1.5M s.f. and approximately 9% of the streets in Carson.

The PMP, completed in 2017, indicated that there are approximately 16,675,851 s.f. of roadway surface area in the city that needs to be slurry sealed. The current PMP evaluation will determine what the current square footage for crack sealing vs. crack and slurry sealing. Exhibit No. 3 presents recent slurry sealing efforts in Carson since approximately 2016, and Exhibit No. 4 presents recent grind and overlay projects in Carson since 2019. The percentage of streets that are slurry sealed over an 11-year cycle is 35% of the entire roadway system the City owns and maintains. The remaining 65% is either in good condition or has grind and overlay activities. The table below presents the locations and number of miles and s.f. that will be addressed over the next 24 months but may be modified based on the updated PMP results. Exhibit No. 5 and Table 3 presents what is currently scheduled over the next 24 months.

Table 3
Engineering Street Rehabilitation Projects Over Next 24 Months

Activity	Total Centerline Miles - City-wide	Total centerline miles to be treated	Total sf recommended for treatment - citywide	% of All City-wide streets (5-Yr CIP)
Crack sealing	7	7	1,182,720	3.45%
Crack and Slurry sealing	46.6	12.4	16,675,851	6.10%
Grind and Overlay	20.8	11.4	10,562,000	5.6%

There are several additional grants and applications for street improvements that the City is applying for and, if successful, will allow additional miles to be added. Further, if the Federal government successfully passes the infrastructure bill, Carson will be in a good place to request funding for additional street rehabilitation.

The current funding for the Annual Crack and Slurry sealing program is \$1,000,000 and for the Annual Grind and Overlay program is \$1,600,000. The amounts vary each year and are from the following:

- State - California's Gas Tax (SB 1)
- Regional (Metro's Measure M and Measure R).

Due to cost increase on materials and labor, currently, the city will only be able to Crack and Slurry Seal a maximum of 1,500,000 square feet (8.9 miles) per year, and Grind and Overlay only 528,000 square feet (1.25 miles of arterial street) per year. At this pace, the Annual Crack and Slurry Seal and the Grind and Overlay programs will have cycles of approximately 11 years and 20 years, respectively.

Tree Maintenance

The Landscape Maintenance activities are currently focused on trimming existing trees throughout the City. There are currently over 18,000 trees throughout the city and approximately 200 tree species. Over the next few years, there will be a focus to only plant trees that are beneficial to residents and provide cooling and improve air quality.

Trees that the city is responsible for are those in city parks as well as in the city Right of Way. Staff responsibilities include evaluating trees based on their health and well-being as well as making sure that they are not covering lights and signs. In addition to trimming trees, staff who work on tree maintenance assist the Right of Way crews and trim roots that are uplifting sidewalks. These roots are trimmed down using a root grinder and require the input from a certified arborist so that the tree is not damaged and remains healthy.

There is a regular cycle of tree trimming based on tree species and this is presented in Table 4. In general, the tree crews trim trees every 1-5 years based on tree species. In comparison, the City of Los Angeles trims its trees every 7 years. Staff performs their regular maintenance cycle based on the available staff, equipment, and funds budgeted.

Table 4
Tree Trimming Cycle

Tree Cycle	# of Species*	Total Trees*
Every Year	10	1,342
Every 2 Years	8	1,062
Every 3 Years	167	14,699
Every 4 Years	6	154
Every 5 Years	9	1,112
Total	200	18,369

Recently, there have been numerous requests for tree trimming from the residents. The tree crews are currently in the process of evaluating the replacement of some of their 20+ year old equipment which should increase productivity. Table 5 presents the number and type of requests that have been addressed since the beginning of 2021.

Table 5
Number and Type of Tree Maintenance Requests in 2021

Tree Activities	Completed to Date October, 2021- Contractor	Completed to Date October, 2021- In- House
Scheduled Tree Trimming	5,651	824
Tree Planting	960	148
Resident Requests	261	275
Total	6,872	1,247

Based on the quantity of resident requests, and to temporarily relieve the backlog, contractors have been hired to address the need for trimming and planting trees. In some instances, a successful grant (such as the recent grant from Cal Fire) will pay for tree planting. Exhibits 6 through 8 present the planned maintenance activities over the next 12 months and delineate based on type of task. Table 6 presents these scheduled maintenance activities in tabular form. Funding is through general funds.

Table 6
Tree Trimming Activities
October 2021 - October 2022

Month	Trees to be Trimmed by Contractor (12 months)	Trees to Be Trimmed by Carson Staff (12 months)
October 2021	686	58
November 2021	642	54
December 2021	480	60
January 2022	540	39
February 2022	711	68
March 2022	778	60
April 2022	567	46
May 2022	655	66
June 2022	571	71
July 2022	496	59
August 2022	511	70
September 2022	338	78
Total	6,976	729

V. FISCAL IMPACT

None, this staff report is for information only, no funding is requested as part of the report.

VI. EXHIBITS

1. Sidewalk Removal and Replacement Locations - In House (pg. 8)
2. Concrete Grinding Locations - Contractor (pg. 9)
3. Historical Slurry Seal Maintenance Projects 2016-2021 (pg. 10)
4. Historical Citywide Grind and Overlay Maintenance Projects 2019-2021 (pg. 11)
5. Citywide Slurry Seal Maintenance Program for Next 24 Months (pg.12)
6. Citywide Tree Trimming Map (pg. 13)
7. Tree Trimming Maintenance Cycles (pg. 14)
8. 12-month Tree Trimming Plan Oct 2021 - Oct 2022 (pg. 15)

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