



Staff Report

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To: City Council

From: Valerie J. Barone, City Manager

Reviewed by: Andrea Ouse, Director of Community Development

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Subject: **Considering approval of the Five-Year Pavement Expenditure Plan update guide investment in the Citywide Pavement Maintenance and Rehabilitation from FY 21/22 through FY 25/26 to be incorporated into the current Capital Improvement Budget and the next two Two-Year Capital Improvement Program Budgets.**

CEQA: Not a project/exempt pursuant to CEQA Guidelines Section 15060(c)(2), 15378, and/or 15061(b)(3).

Report in Brief

The Five Year Pavement Expenditure Plan that the Council is considering reverses the City's 12 year slide of constantly worsening roadway conditions. In fact, the Plan projects that the City's overall roadway rating will improve by 4 points by the end of its implementation (this is discussed in more detail later in the report). The roadway investment plan will be presented in detail during the Council meeting.

The City of Concord owns and maintains approximately 310 centerline miles of City streets. The City utilizes a Pavement Management Program (PMP) as an asset management tool of the City's street inventory. The program is utilized to make recommendations on how to cost-effectively allocate available resources to maintain the City's streets. To implement this program, staff engaged the services of Pavement Engineering Inc. (PEI), a Consultant firm whose expertise is in pavement management, to refine the program and individual street selections.

Based on the information shared by staff with Council, and the subsequent support and recommendations of both I&F and Measure V Oversight Committees, the Measure V Investment Plan does the following:

- Identifies specific Year 1 projects for funding,
- Establishes funding categories for Years 2-5, and identifies projects which will be folded into Capital Improvement Budgets, and
- Recommends how to invest an annual additional \$8.5M in Measure V revenue.

Staff and the consultant developed the five years of proposed roadway pavement maintenance and rehabilitation projects to be made part of the current and future CIP Budgets and these plans were reviewed in detail by the Infrastructure & Franchise Committee (Obringer/Hoffmeister) and received their support.

The Five Year Pavement Expenditure Plan is comprised of the following multi-pronged approach in utilizing the available funds to address the City's street maintenance needs:

1. Localized pavement repairs (potholes and base failures)
2. Preventive maintenance on collectors and arterial streets
3. Pavement rehabilitation on residential streets
4. Major street repair and reconstruction projects

Recommended Action

Approve the Five-Year Pavement Expenditure Plan (Plan) update with recommendations for investment towards Citywide Pavement Maintenance and Rehabilitation from FY 21/22 through FY 25/26, to be included in the current and subsequent Two-Year Capital Improvement Program Budgets.

Background

The City of Concord (City) owns and maintains approximately 310 centerline miles of City streets. The City utilizes a Pavement Management Program (PMP) known as StreetSaver®, as an asset management tool for cataloging the assessments of pavement conditions, maintenance activities and project pavement deterioration, and repair costs of the City's street inventory. The Metropolitan Transportation Commission (MTC) requires cities and counties to have their PMP certified to be eligible to receive discretionary funds. The program is designed to make recommendations on how to cost-effectively allocate available resources to maintain the City's streets. In other words, how to have the most significant benefit in overall roadway conditions for your investment dollar (the biggest bang for your buck). Street conditions are measured in the PMP using a Pavement Condition Index (PCI) which rates streets with scores between 0 and 100. The overall current three-year average PCI for the City's streets is 59 ("at risk"). The City's PCI has been steadily declining every year for the past 12 years.

The PMP utilizes a cost/benefit calculation to systematically recommend pavement maintenance and rehabilitation utilizing available funds. Street conditions are assessed on a bi-annual basis for collectors and arterials. Residential streets are assessed at least once every 5 years. The most recent assessment was completed in December, 2020. The results of the assessments are input into the PMP and provided to the Metropolitan Transportation Commission (MTC). Reports and maps generated from the PMP are used as starting points for generating Pavement Maintenance and Rehabilitation projects.

To develop a plan for the next five years of investment into the City's roadway system, staff obtained the expertise of Pavement Engineering Inc. (PEI). PEI developed the previous Five Year Pavement Expenditure Plan (Plan) for FY 2018 through 2023, originally reviewed by the Infrastructure & Franchise (I&F) Committee on March 12, 2018 and then presented to the City Council for approval on April 24, 2018. The existing Plan is nearing completion of its third year, but with the recent passage of Measure V and subsequent approval by City Council to leverage those revenues to obtain a substantial upfront investment toward addressing the City's deferred roadway and other infrastructure maintenance, it is necessary to update the Plan.

Using a Critical Point Management approach, PEI reviewed the City's PMP database, mapped candidate streets, subdivided the zones by treatment, and made field observations. Critical Point Management recognizes that pavements require different types of treatments at different times along their life cycle. The intent is to select and schedule the pavement's needed treatment before the pavement deteriorates to a point where the next, more aggressive, and costly treatment is required. The focus is trying to do the right treatment at the right time to the right pavement.

Analysis

This section provides details on the Five-Year Pavement Expenditure Plan (Plan) and how it was developed. The Plan is included as Attachments 4 and 5 to this report and will be presented during the Council meeting.

Over the five-year period of the Plan, FY 2021/22 to FY 2025/26, the City anticipates the availability of approximately \$140 Million in funds for this roadway investment program. Of the \$140 Million, \$30 Million is anticipated from Local Gas Tax, Measure J, Senate Bill 1 (SB1) State Gas Tax Roadway Maintenance and Rehabilitation Account (RMRA), and grants. The remaining \$110 Million investment is anticipated to come from Measure V funds, which include \$5.5M of annual Measure V revenue and roughly \$18M annually in Years 2 through 5 from the \$114M Bond obtained by the City using Measure V to pay the debt service.

Fiscal Year	Other Local and Grant Funds	Measure V Funds	Total*
FY 2021-2022	\$6,000,000	\$18,000,000	\$24,000,000
FY 2022-2023	\$6,000,000	\$23,000,000	\$29,000,000
FY 2023-2024	\$6,000,000	\$23,000,000	\$29,000,000
FY 2024-2025	\$6,000,000	\$23,000,000	\$29,000,000
FY 2025-2026	\$6,000,000	\$23,000,000	\$29,000,000
Total	\$30,000,000	\$110,000,000	\$140,000,000

*NOTE: The total above represents staff's current best estimates.

Depending on the economic climate, the projected income and actuals may vary. Additionally, the City will continue to apply for grants to maintain the current annual budget and exceed it if possible.

The Infrastructure & Franchise Committee prioritized residential pavement maintenance when considering the Measure V – Five Year Investment Plan. In addition, the local funds can be reallocated if the City is successfully awarded any Federal or other available infrastructure funds for qualifying collectors and arterials (potentially from the proposed Federal Jobs Plan being considered or other sources). As applicable, staff will recommend to Council funding of additional residential paving zone streets based on the needs developed and prioritized using the Critical Point Management approach. Therefore, to account for possible changes in funding availability, PEI has developed a preliminary priority list of street pavement maintenance and rehabilitation needs over the five-year Capital Improvement Program (CIP) timeline (See Attachment 2 and 3).

PEI utilized a scientific approach to prioritize the candidate streets, for which they employed the StreetSaver® program. StreetSaver®, as part of its calculation and analysis function, calculates a Weighted Effectiveness Ratio (WER), which is how the program's simulates a Life-Cycle Cost Analysis (LCCA). The LCCA is a recognized tool to determine the most cost-effective treatment option based on technical grounds, and defined by the Federal Highway Administration (FHWA) as:

“...an analysis technique that builds on the well-founded principles of economic analysis to evaluate the over-all-long-term economic efficiency between competing alternative investment options...It attempts to identify the best value (the lowest long-term cost that satisfies the performance objective being sought) for investment expenditures.”

The StreetSaver® program uses the WER to sort the streets it selects for projects. However, the program does not assess the cost benefit of grouping streets by neighborhood to more efficiently bid and construct projects. Grouping residential streets by neighborhoods saves mobilization costs and creates efficiencies. Doing so is a best practice for residential roadway maintenance investment.

To employ the WER for the City of Concord's Pavement Expenditure Plan, PEI looked at each sub-zone and using StreetSaver® to calculate the WER for each street, then computed a Weighted WER (WWER), totaling the pavement area for each sub-zone as well as for each major street. The WWER was tabulated for each sub-zone and major arterial and collector for priority ranking, and is shown for reference as a separate column in each of the tables included as Attachments 2 and 3. Sorting the WWER from highest to lowest for each sub-zone and all major streets then guided PEI to identify the best streets and residential sub-zones to recommend for the potential project list.

A summary and maps of the recommended project streets is attached. (Attachment 4 and 5). Project streets previously identified in the existing Five Year Paving Plan for FY 2018-2023, which remained at an appropriate critical point for treatment, were also included and are identified for reference.

Having identified available funding to be programmed, staff and the consultant developed the five years of proposed roadway pavement maintenance and rehabilitation projects to be made part of the current and future CIP Budgets. This investment information was shared with both the I&F Committee and the Measure V Committee and received support from both.

Residential neighborhoods were defined in the pavement maintenance zones (See Attachment 1). In general, the amount of funding will be equitably distributed between the five pavement maintenance zones in the City for residential streets, based on the recommended street and treatment list. Residential projects will be created specifically for each zone, but may be combined during design and construction to achieve economies of scale. Arterials and collectors (major streets) are considered as a separate group.

Using these guidelines, the Five Year Pavement Expenditure Plan is comprised of the following multi-pronged approach in utilizing the available funds to address the City's street maintenance needs:

1. Allocation of funds towards localized pavement repairs (potholes and base failures)

One of the most prevalent issues related to the deterioration of our streets are potholes and other localized pavement failures. These potholes generate a significant number of complaints, and if they remain unaddressed, the failure areas expand and contribute significantly to the future cost of repair. Allocating additional resources to address these localized areas will help with maintaining the City's pavements with lower cost surface treatments and improve ride-ability on local streets.

Public works staff currently address potholes in four different ways, two of which are temporary and two that are permanent. The first temporary repair involves using cold

mix asphalt. The cold mix asphalt is used to fill the pothole and is manually compacted in order to quickly remove the depression; the repair method is used as a stopgap measure. The second method involves applying a thin layer of new hot mix asphalt on top of the failed surface. This is also a short-term fix but is much longer lasting than the cold mix method (sometimes years versus weeks or months). The third method utilizes the asphalt zipper to grind out the failed asphalt, exposing the failed base beneath. The base is then compacted and repaired and new asphalt is applied and compacted. This method of repairing the asphalt can be compared to full reconstruction. Alternatively, the fourth method is to advertise and select an outside contractor to construct permanent repairs, typically for projects exceeding the scale performed effectively by Public Works crews.

Maintenance will continue to be accomplished through the following two methodologies:

a. In-house treatment of potholes

Public Works asphalt and material budget will remain consistent through the five-year expense period; typically, \$50,000 to \$75,000 a year and includes use of the Zipper by Public Works.

b. Contract larger repair areas and heavy traffic areas for treatment of potholes

As there are many identified repairs that are located in high-traffic areas and require significant traffic control, or that may be too large to efficiently complete with in house staff or with the Zipper, these projects are contracted out. It is recommended that available funds be allocated over the five-year period to cover both the costs of the contract work as well as project and construction management. The amount of funds allocated annually varies and will typically utilize Measure V savings at the direction of Council.

2. Allocation of funds for Pavement Maintenance of Collectors and Arterials that have a Pavement Condition Index (PCI) of between 95 (Excellent) and 75 (Good)

The most cost effective use of funds is to perform routine maintenance to streets that are in good condition. By preventing streets from going down the degradation curve, with treatments such as slurry seals, micro surfacing, and cape seals, the City can avoid costly rehabilitation work. Furthermore, arterials and collectors are the most used streets in the City.

PEI has identified immediate pavement maintenance needs for Collectors and Arterials with funding recommendations to cover both the design costs as well as the construction work and construction management.

3. Allocation of funds for Neighborhood (residential) pavement rehabilitation for streets with a PCI between 65 and 50 (Fair).

As most streets recommended through the PMP are local residential streets and grant funds are never made available for residential streets, it is recommended that available local funds be maximized towards resurfacing residential neighborhood streets. It is recommended in the Plan that between \$9 Million and \$14.5 Million be allocated annually to these local neighborhood streets, totaling more than \$67 Million over the five-year period.

To implement this programmatic approach, staff will immediately initiate design projects, with the goal to implement several projects in each of the five geographic paving zones throughout the course of the five-year expenditure period.

4. Allocation of funds for major street repair and reconstruction projects for roadways with a PCI at or below 30 (Failed).

As stated above, the City's PMP utilizes a cost/benefit calculation to recommend selected streets for maintenance or repair. This calculation is based on the additional cost of deferring maintenance through the calculation period based on available funding. Several streets have deteriorated beyond the point where deferral increases costs significantly and therefore do not trigger a recommendation out of the PMP. However, these are the City's streets in the poorest condition and are frequently heavily traveled. Therefore, staff recommends that sufficient funds be set aside to address streets in this category, including streets like Treat and Monument Boulevards.

It was specifically requested during the I&F Committee meeting that if the City should successfully be awarded Regional, State, or Federal funds (not currently programmed into the CIP) , that the grants be used to replace the local funding. In this way the local funds could be redirected towards additional residential roadway needs.

Council Alternatives

Based on the variety of questions and comments received during the April 28th meeting of the Infrastructure & Franchise Committee, staff identified two alternatives for the City Council to consider regarding the programming of an additional residential subarea for pavement maintenance and reprioritizing one arterial/collector in lieu of two previously included major streets with reduced effectiveness ratios.

Neither of these two alternatives are proposed for funding as a Year 1 project; rather Council direction on these alternatives would be reflected in the Plan and subsequently folded into the next Two-Year CIP Budget presented in June 2022.

Alternative #1: Combine residential subareas, 5-M and 5-H as identified on Attachment 1 (Paving Zones with Neighborhood Subareas), which comprise the Holbrook Heights neighborhood to include the streets affected by the recent CCWD water main replacement project. The two subareas, when combined, have an effectiveness ratio which qualifies the entire Holbrook Heights neighborhood for selection. The required \$4.5M in additional funding is available, as the \$114M in bond revenue exceeds the original estimated projection of \$109M that was programmed within the Plan.

Alternative #2: Replace the identified segments of Kirker Pass Rd (between Clearbrook Drive and the City limit) and Solano Way (between Marsh Drive and Arnold Industrial Way) which were carried over from the existing Five-Year Plan, but for which the effectiveness ratio would no longer qualify amongst major streets for treatment, with a portion of Ayers Rd for rehabilitation utilizing the \$1.3M currently allocated in the Plan.

Financial Impact

The costs associated with implementing the program recommendations will be funded by various funding sources. Local funds utilized including Measure J, Gas Tax, Senate Bill SB1 (SB1) Funds, and Measure V funds. The City will leverage local funds for the local match for grant opportunities such as OBAG, STIP, and Federal grants.

Environmental Determination

Council action on this item is exempt from California Environmental Quality Act (CEQA) review as the approval of a project listing and budget amendment are not activities that constitute a "project" within the meaning of CEQA Guidelines Section 15060(c)(2) and CEQA Guidelines Section 15378, do not commit the City to a definite course of action, and do not constitute discretionary approval of a specific project. If this were determined to be a "project" for CEQA analysis, this activity falls within the "Common Sense" CEQA exemption set forth in CEQA Guidelines Section 15061(b)(3). No unusual circumstances exist and none of the exceptions under CEQA Guidelines Section 15300.2 apply. This determination reflects the City's independent judgment and analysis. Individual projects will undergo CEQA analysis as necessary.

Public Contact

The Agenda was posted.

Attachments

1. Pavement Management Zone and Neighborhood Map
2. Major Streets WWER Priority List
3. Residential Streets WWER Priority List
4. Five Year Plan Summary
5. Five Year Plan Maps
6. Ten Year Citywide Treatment Plan
7. Annual Residential Pavement Investment Summary