AGENDA REPORT SUMMARY

Meeting Date: January 23, 2024

Subject Pavement Management Program Update – 2023 Pavement Condition Index

Prepared by: Iqbal Rai, Junior Engineer
Reviewed by: Aida Fairman, Public Works Director
Approved by: Gabriel Engeland, City Manager

Attachment(s):
Attachment 1 - Resolution
Attachment 2 – 2023 Citywide Map of PCI Condition by Street
Attachment 3 – Pavement Management Program Budget Options Report (P-TAP 23)

Initiated by:
City Council – Capital Improvement Plan Projects.

- Annual Street Resurfacing (TS-01001)
- Annual Street Slurry Seal (TS-01004)

Previous Council Consideration:

- March 10, 2020, City Council

Fiscal Impact:
There is no fiscal impact with the creation of this report. The City Council adopted a Strategic Priority-Assets goal of achieving a PCI of 76 by 2027. The City Council direction will require the spending of a minimum of $12.5M over 5 years to achieve a directed PCI goal of 76.

Environmental Review:
Not applicable

Summary:
The update of the City's PMP Report has been completed. The PMP Report was developed by Metropolitan Transportation Commission (MTC), and its sub-consultant, Capitol Asset & Pavement Services, Inc. CAPS' 2023 PMP Report stated that as of September 30, 2022, the City's overall Pavement Condition Index (PCI) is 74. The PCI is a numerical index between 0 and 100 which is used to indicate the general condition of a pavement, with 100 representing the best possible condition and 0 representing the worst possible condition. The PCI rating of 74 places the City's Street network condition in the upper position of the "Very Good" category.

The PMP Report states that the City's current roadway maintenance backlog is $9.8 million. If no maintenance is applied over the next five years, roads already distressed will continue to deteriorate, and the network PCI will drop to 68. The maintenance backlog will increase to $12.2 million at the end of the five-year period (2027) in this scenario. To achieve the City Council's Strategic Priority-Assets goal of a PCI of 76 by 2027, an average annual budget of $2.5 million is needed.

Staff Recommendation:
Staff recommends the City continue to manage PCI in a manner consistent with the City Council's Strategic Priority-Assets goal of achieving a PCI of 76 by 2027.

Purpose
Provide an update to the City Council on the state of the citywide street network pavement condition as of January 2023.

Background
The City of Los Altos has 111 centerline miles (227 lane miles) of streets/roadways network to maintain. The process of planning the maintenance and repair of this network of streets/roadways to improve the pavement condition over the entire network is known as Pavement Management. It includes the many aspects and tasks needed to maintain a quality pavement inventory, including maintaining a pavement inspection database and ensuring that the overall condition of the road network can be sustained at desired quality levels.

The Pavement Management Program (PMP) is a planning tool used to help staff with pavement management decisions. PMP Software programs model future pavement deterioration due to traffic and weather and recommend maintenance and repairs to the road's pavement based on the type and age of the pavement and various measures of existing pavement quality.

The City utilizes the Metropolitan Transportation Commission's (MTC) PMP Software known as StreetSaver. MTC developed StreetSaver to help the Bay Area cities and counties assess the condition of their pavement. StreetSaver has grown to become the industry standard for assessing pavement condition on the West Coast and was instrumental in providing data that led to the passage of California SB 1 Road Repair and Accountability Act in 2017.

As part of a contract with MTC, the City utilizes StreetSaver biennially to survey its street network and appraise the pavement condition. The actual street surveys and technical support were provided by MTC's sub-consultant, Capital Asset & Pavement Services, Inc.(CAPS)

To date, MTC and Capital Asset & Pavement Services completed work that included the following: roadway evaluation and documentation, field survey, analysis of current pavement conditions, development and implementation of a quality monitoring plan, data entry, and generation of a pavement condition and budget analysis report. In late December

2023, several City staff attended training that will enable staff to update the StreetSaver software as conditions change between now and the next PMP Report update in 2025.

Discussion/Analysis

The PMP Report is attached for information and reference. In summary, the report states that as of January 2023, the City's overall PCI is 74. The PCI is a numerical index between 0 and 100 which is used to indicate the general condition of a pavement, with 100 representing the best possible condition, and 0 representing the worst possible condition. The PCI rating of 74 places the City's Street network condition in the upper position of the "Very Good" category. This PCI was calculated based on the recent Preventive Maintenance (PM) and Rehabilitation and Reconstruction (R&R) activities and inspection data. The PCI calculation also factors in pavement deterioration curves where no recent PM and R&R, and/or inspection data are entered. In this case, the calculation date is important, as it provides the base to calculate the "current" PCI. The PCI ranges and their respective meanings from the StreetSaver Software are as follows:

Category:	Very Poor	Poor	Good	Very Good
PCI Range:	0 - 25	26 - 50	51 - 70	71 +

The report shows a breakdown of the PCI points by street functional classifications. The table below shows a summary of the breakdown:

Functional Class	Centerline Miles	Weighted Average PCI	Condition
Arterial	5.03	81	Very Good
Collector	14.61	79	Very Good
Residential/Local	91.75	73	Good
Total/Average	**111.39**	**74**	**Good**

Pavement condition will be degraded by 1-3 PCI points every year without any PM and R&R activities. It is important to apply PM and R&R to maintain or raise the PCI and not fall into "Poor" condition that requires major rehabilitation work with higher construction costs. Attachment "A" shows the 2023 PCI Condition of the City on a map view.

Based on the principle that it costs less to maintain roads in good condition than bad, the MTC's PMP strives to develop a maintenance strategy that will first improve the overall condition of the network and then sustain it at that level.

The PMP Report's more thorough treatments to improve road condition, such a

dig-out repairs overlaid with PM treatments, pavement overlays, full-depth road-section reclamation, cold-in-place recycling, etc.

The following Criteria were used in identifying the recommended budget scenarios:

- PCI value: Maintain network average PCI at the current value or higher.
- Cost-effectiveness: Allocate more funds to arterial/collector roads than residential roads with appropriate PM ratio
- Affordability: Provide a realistic expenditure plan that can stabilize deferred maintenance or minimize increase.

The StreetSaver Software calculates various budget scenarios based on a set of assumptions. Budget scenarios were calculated assuming an inflation rate of 3%, and an interest rate of 2%. The PMP Report analyzed five budget scenarios that yield PCIs ranging from 61 to 82, as follows.

Table - Scenario Summary

Scenario Name	5 Year Budget	2027 PCI *(change)*	2027 Deferred Maintenance	2027 % Good	2027 % Very Poor
1 – Unconstrained	$28.1 million	81 *(+7)*	$0	87.9%	0.0%
2 – Current Investment	$12.5 million	76 *(+2)*	$12.2 million	68.7%	0.9%
3 – Maintain Current PCI (74)	$9.0 million	74 *(0)*	$16.0 million	65.6%	0.9%
4 – Increase PCI 5 points (to 79)	$20.0 million	79 *(+5)*	$4.8 million	79.5%	0.9%
5 – Current Funding Adjusted for Inflation	$13.3 million	76 *(+2)*	$11.5 million	69.3%	0.9%

Scenario 1 - Unconstrained Needs (zero deferred maintenance)

This scenario shows the effects of implementing the ideal investment strategy (as recommended by
the MTC PMP needs module). Because it is more cost-effective to eliminate the deferred maintenance backlog as quickly as possible, raising the overall average network PCI to 81. The PCI
maintains at an optimal level throughout the five years, reaching 81 by 2027. By 2027,
87.9% of the network improves into the 'Very Good' condition category, a significant increase. from the current level of 65.1 % in 'Very Good' conditions. These results are shown in Table 1.

Table 1. Summary of Results from Scenario 1 — Unconstrained Needs

	2023	2024	2025	2026	2027	Total
Budget Total	$12,291,349	$4,060,689	$3,411,211	$5,345,272	$2,959,579	**$28,068,100**
Rehabilitation budget	$10,048,838	$2,589,206	$3,006,286	$4,062,250	$2,375,403	**$22,081,983**
Preventative Maintenance budget	$2,242,510	$1,471,482	$404,923	$1,283,021	$584,175	**$5,986,112**
Deferred Maintenance	$0	$0	$0	$0	$0	—
PCI	81	81	80	82	81	

Scenario 2 - Current Investment Level

This scenario shows the effects of the City's current planned budget for street maintenance of $12.5 million over five years. Under this scenario, the overall network PCI increases by two points, reaching a PCI of 76 in 2027. The deferred maintenance backlog increases by $2.4 million over the
five years, from $9.8 million currently, to $12.2 million in 2027. The percentage of the street network in 'Very Good' condition increases, from 65.1% currently, to 68.7% in 2027. The percentage of the street network in 'Poor' to 'Very Poor' condition decreases from 7.7% currently, to 5.9% in 2027. Results are illustrated in Table 2.

Table 2. Summary of Results from Scenario 2 — Current Investment Level

	2023	2024	2025	2026	2027	Total
Budget Total	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	**$12,500,000**
Rehabilitation budget	$1,499,920	$1,492,989	$1,499,450	$1,491,210	$1,496,805	**$7,480,374**
Preventative Maintenance budget	$999,970	$1,006,197	$999,907	$1,007,359	$1,002,653	**$5,016,086**
Deferred Maintenance	$9,791,458	$10,785,503	$10,976,889	$12,850,999	$12,150,945	---
PCI	77	76	76	76	76	

Scenario 3 -Maintain Current PCI (74)

This scenario analyzes the funding level that would be required to maintain the overall network PCI at the current level of 74 over the next five years. A total of $9.0 million over five years would be required to achieve this goal. At this funding level the deferred maintenance backlog increases by $5.5 million, reaching $16.0 million in 2027. The percentage of the street network in the 'Very Good' condition category increases slightly, to 65.6% in 2027, from the current level of 65.1%. The percentage of the street network in 'Poor' to 'Very Poor' condition increases from the current level of 7.7%, to 8.4% in 2027. These results are illustrated in Table 3.

Table 3. Summary of Results, Scenario 3 — Maintain Current PCI (74)

	2023	2024	2025	2026	2027	Total
Budget Total	$1,800,000	$1,800,000	$1,800,000	$1,800,000	$1,800,000	**$9,000,000**
Rehabilitation budget	$1,075,988	$1,073,203	$1,079,024	$1,075,156	$1,077,892	**$5,381,264**
Preventative Maintenance budget	$723,783	$726,723	$719,487	$724,276	$719,788	**$3,614,056**
Deferred Maintenance	$10,491,576	$12,205,885	$13,140,730	$15,928,949	$16,011,281	---
PCI	76	76	75	75	74	

Scenario 4 - Increase PCI 5 points {to 79)

This scenario analyzes the funding level that would be required to increase the overall network PCI by 5 points, to 79, over the next five years. An annual investment level of $4.0 million, for a total of $20.0 million over five years, would be needed to achieve this goal. At this funding level the deferred maintenance backlog decreases by $3.5 million, reaching $4.8 million in 2027. The percentage of the street network in the 'Very Good' condition category increases to 79.5% in 2027, from the current level of 65.1 %. The percentage of the street network in 'Poor' to 'Very Poor' condition decreases from the current level of 7.7%, to 2.2% in 2027. These results are illustrated in Table 4.

Table 4. Summary of Results, Scenario 4 — Increase PCI 5 points (to 79)

	2023	2024	2025	2026	2027	Total
Budget Total	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000	**$20,000,000**
Rehabilitation budget	$2,799,436	$2,798,053	$2,795,246	$2,796,041	$2,837,821	**$14,026,597**
Preventative Maintenance budget	$1,198,833	$1,201,375	$1,201,875	$1,201,732	$1,155,465	**$5,959,279**
Deferred Maintenance	$8,293,079	$7,741,931	$6,377,136	$6,953,096	$4,816,308	---
PCI	78	78	78	79	79	

Scenario 5 - Current Funding Adjusted for Inflation

A first-year budget of $2.5 million with a 3% annual increase inflation adjustment, for a five year total of $13.3 million, was evaluated to determine the effects of continuing pavement maintenance at the current planned budget level including the additional amount to combat inflation. The overall network PCI should increase by two points, to 76 through 2027. The deferred maintenance backlog increases by $2.4 million over the five years, from $9.8 million currently, to $12.2 million in 2027. The percentage of street networks in 'Very Good' condition increases, from 65.1 % currently, to 69.3% in 2027. The percentage of the street network in 'Poor' to 'Very Poor' condition decreases from 7.7% currently, to 5.4% in 2027. Results are illustrated in Table 5.

Table 5. Summary of Results from Scenario 5 — Current Funding Adjusted for Inflation

	2023	2024	2025	2026	2027	Total
Budget Total	**$2,500,000**	**$2,575,000**	$2,652,250	$2,731,818	$2,813,772	**$13,272,840**
Rehabilitation budget	$1,499,920	$1,542,207	$1,583,024	$1,634,811	$1,677,076	**$7,937,037**
Preventative Maintenance budget	$938,362	$1,014,021	$1,047,971	$1,072,327	$1,108,845	**$5,181,527**
Deferred Maintenance	$9,853,066	$10,791,917	$10,851,858	$12,512,996	$11,516,763	---
PCI	77	76	76	76	76	

Staff's goal is to maintain the current PCI of 74 for FY 23-24 and increase it in future years, as feasible.

Staff Recommendation:
Staff recommends the City continue to manage PCI in a manner consistent with the City Council's Strategic Priority-Assets goal of achieving a PCI of 76 by 2027.