



Section	Agenda Item
DEPARTMENT REPORT	9-A

Meeting Date: April 9, 2025

TOWN OF MORAGA

STAFF REPORT

To: Honorable Mayor and Councilmembers

**From: Shawn Knapp, Public Works Director / Town Engineer
Deirdre Castillo, Senior Engineer
Yao Miao, Assistant Engineer**

Subject: Townwide Street Management Program Update

RECOMMENDATION

Review and provide input on the proposed Townwide Street Management Program.

BACKGROUND

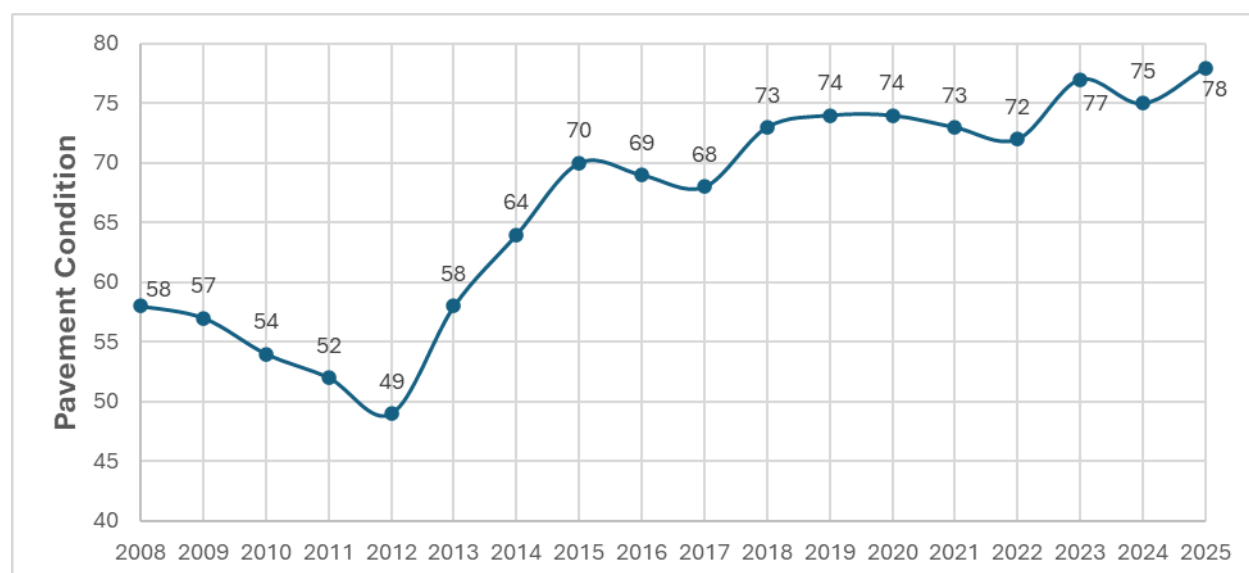
The Town is responsible for the maintenance and repair of 58.6 centerline miles of paved streets. The street network includes 13.8 miles of arterial streets, 15.8 miles of collector streets, 26.3 miles of residential streets, 2.6 miles of bike paths or service roads, and public parking lots. This network is defined as a complete inventory of all streets and other pavement facilities in which the Town has jurisdiction and maintenance responsibilities. To facilitate the management of streets, they are subdivided into management sections identified as street segments, which are homogeneous in geometry, function, and general condition. The network is shown on a Moraga Street Map color-coded for each street by its 2025 Pavement Condition Index (PCI) (Appendix A). The PCI scale is 0 for the worst to 100 for new asphalt overlay or reconstructed street.

In 2012, the Street Rehabilitation Program, prior to the implementation of Measure K sales tax, had a street network Pavement Condition Index (PCI) of 49 or Poor. Moraga's streets were categorized into the following conditions: 6% as Very Poor (0-25 PCI), 51% as Poor (26-50 PCI), 22% as Fair (51-75 PCI), and 21% as Good (76-100 PCI).

In 2013, with the approval of Measure K, a one-cent general-use local sales tax, the Town began to address the Town's most critical needs, including repairing its failing streets and storm drains through the Townwide Street Rehabilitation Management (SRMP). The Measure K sales tax initiative was approved for general purposes by Moraga residents on November 6, 2012, and is set to sunset in 2032.

The Town's management of the SRMP, funded primarily by Measure K, has exceeded the 2012 forecast, which predicted a future PCI of 65 by 2031. A recent 2025 street network analysis places the Town's current PCI at 78, and Moraga's streets are categorized in the following conditions: 0% as Very Poor, 1.6% as Poor, 28.2% as Fair, and 78.2% as Good. The latest monthly StreetSaver® Executive Summary ranks the Town's streets in the 86th percentile of all streets in the San Francisco Bay Area, up from the Town's 75th percentile in 2020 (Appendix B).

A detailed history of the SRMP and the use of the StreetSaver® pavement management software platform is included in Attachment C. Below is a graph showing the historical network PCI from 2008 to 2025:



Street Rehabilitation Cost-Share Policy

Per the recently adopted Street Rehabilitation Cost-Sharing Policy, Ordinance No. 313, the Town will fund sidewalk area repairs when they are part of a Town-led street rehabilitation project using Measure K funds for construction. This policy aims to streamline project implementation, reduce administrative overhead, and improve overall sidewalk and roadway conditions. Key elements of the policy include:

- **Town Responsibility:** The Town will cover the cost of sidewalk area repairs within the public right-of-way when conducted as part of an approved street rehabilitation project.
- **Property Owner Responsibility:** Property owners remain responsible for ongoing maintenance, repairs, and legal liability associated with their sidewalks outside of rehabilitation projects.

- **Safer, More Accessible Streets:** Improved sidewalks and roadways enhance pedestrian safety and ADA accessibility, making it easier for residents of all abilities to navigate their neighborhoods.
- **Higher Property Values:** Well-maintained streets and sidewalks contribute to increased curb appeal and overall property values.
- **Stronger Neighborhood Connectivity:** Upgraded sidewalks and roadways create safer and more connected communities, encouraging walking, biking, and outdoor activities.
- **Less Construction Disruption:** A coordinated approach to street and sidewalk rehabilitation reduces repeated disruptions from multiple smaller projects over time.
- **Long-Term Cost Savings:** Investing in proactive maintenance prevents costlier repairs in the future, ensuring the efficient use of public funds.

Street Management Program Funding

The Town's Street Management Program is primarily funded by Measure K. Other recurring funding sources include Garbage Vehicle Impact Fees, and the SB-1 Gas Tax, formally known as Road Maintenance and Rehabilitation Account (RMRA) funds. To support targeted initiatives and maximize financial resources, one-time and restricted funds are occasionally utilized for specific projects. These include CalRecycle, which promotes the use of recycled rubber materials; MTC OneBayArea, which provides federal and regional transportation grants; CCTA Measure J, which offers "Return-to-Source" and competitive grants; and transportation impact funds, which leverage developer fees to enhance infrastructure.

Sunset of Measure K

Measure K is scheduled to sunset in 2032. As a crucial funding source for the Town's SRMP, ensuring its renewal will be vital for maintaining and improving local roadways beyond 2032. The SRMP strengthens the case for renewal of Measure K through:

- **Demonstrating effective use of local funds:** By incorporating sidewalk area repairs into street projects, the Town maximizes the impact of Measure K funds and delivers tangible improvements to residents.
- **Enhancing public trust:** A transparent, well-managed rehabilitation program that reduces administrative costs and improves street conditions fosters confidence in the Town's fiscal responsibility.

- **Providing visible and lasting improvements:** High-quality road and sidewalk upgrades create noticeable benefits that residents experience daily, reinforcing the value of continued investment in infrastructure.
- **Minimizing long-term maintenance costs:** By addressing sidewalks and streets simultaneously, the Town prevents costly deferred maintenance, ensuring Measure K funds are used efficiently.
- **Encouraging public support:** Positive impacts on safety, property values, and neighborhood appeal can increase voter willingness to renew Measure K beyond 2032.

Street Management Program Update (2020 – 2025)

On April 22, 2020, the Town Council received a detailed Pavement Management Report. At that time, the Town's street network average PCI was 74. This PCI put the Town in the 75th percentile or the top 25% of all 109 cities and counties in the San Francisco Bay Area region.

The Council considered several pavement management recommendations at the time and ultimately approved the Worst First Residential Program (WFRP) for completion over three years of construction. This methodology focused on repairing "poor" and "very poor" residential streets, as only 3.2% of Town streets were in "very poor condition" and 10.9% in "poor" condition in 2020.

The WFRP's last year of construction has been completed, and the contractor is working on punchlist items to finalize the project closeout, which is expected to be completed before June 30, 2025. The Town's average street network PCI has increased from 74 (2020) to 78 (2025), exceeding StreetSaver® software's prediction of a 76 PCI. The improvement of the PCI can be partially attributed to the use of in-house staff for engineering design and construction management, rather than relying on more expensive outside consultants, thereby shifting project savings into funding more actual construction. A detailed update on the Street Management Program from 2020 to 2025 is included in Attachment C.

The attached 2025 Moraga's Network PCI Arterial, Parking Lots and Pathways, and Residential Zones Map (Attachment D) shows significant average PCI improvements to all neighborhood residential and collector streets, with average PCIs ranging from 67 to a high of 92. Public Parking Lots and Pathways have an average PCI of 41, and Arterial streets have an average PCI of 74.

Public Pathways and Parking Lots

By 2020, the Town had received several trip-and-fall claims along the Town's pathways and parking lots. Town Council approved delaying the rehabilitation of the Town's pathways and parking lots in order to complete the WFRP. Some funding was set aside

for stopgap work to fix potholes within pathways and parking lots, aiming to reduce pavement-deficient and trip-and-fall hazard claims. Consideration for funding the rehabilitation of public pathways and parking lots is included in the 2025 SRMP.

DISCUSSION

Funding Storm Drain and Street Slide Repair Projects

Staff recommends that Town Council annually authorize up to \$600,000 of Measure K funds for stand-alone storm drain and street slide repair projects. These stand-alone projects would be separate from street resurfacing projects. For a project list of storm drain and slide repair needs, see Attachment E. The Town has historically used Measure K funds to repair streets and associated storm drainpipes beneath those streets as part of street rehabilitation projects; however, critical storm drain and street slide repairs that are not located within active street resurfacing projects also require funding. Given that Measure K was originally intended to address both streets and storm drains, staff recommends allocating a portion of these funds toward stand-alone storm drain and slide repair projects to protect infrastructure, prevent road failures, and extend the useful life of the Town's assets.

Street Management Program Analysis (2025 – 2045)

There is approximately \$3.64 million in annual funding available for the SRMP, which is comprised of the following funding sources:

SRMP Funding Source	Estimated Funding (in millions)	% of SRMP Funding
Measure K	\$2.38	65%
Gas Tax	0.38	11%
Garbage Vehicle Impact Fees	0.88	24%
Total	\$3.64	100%

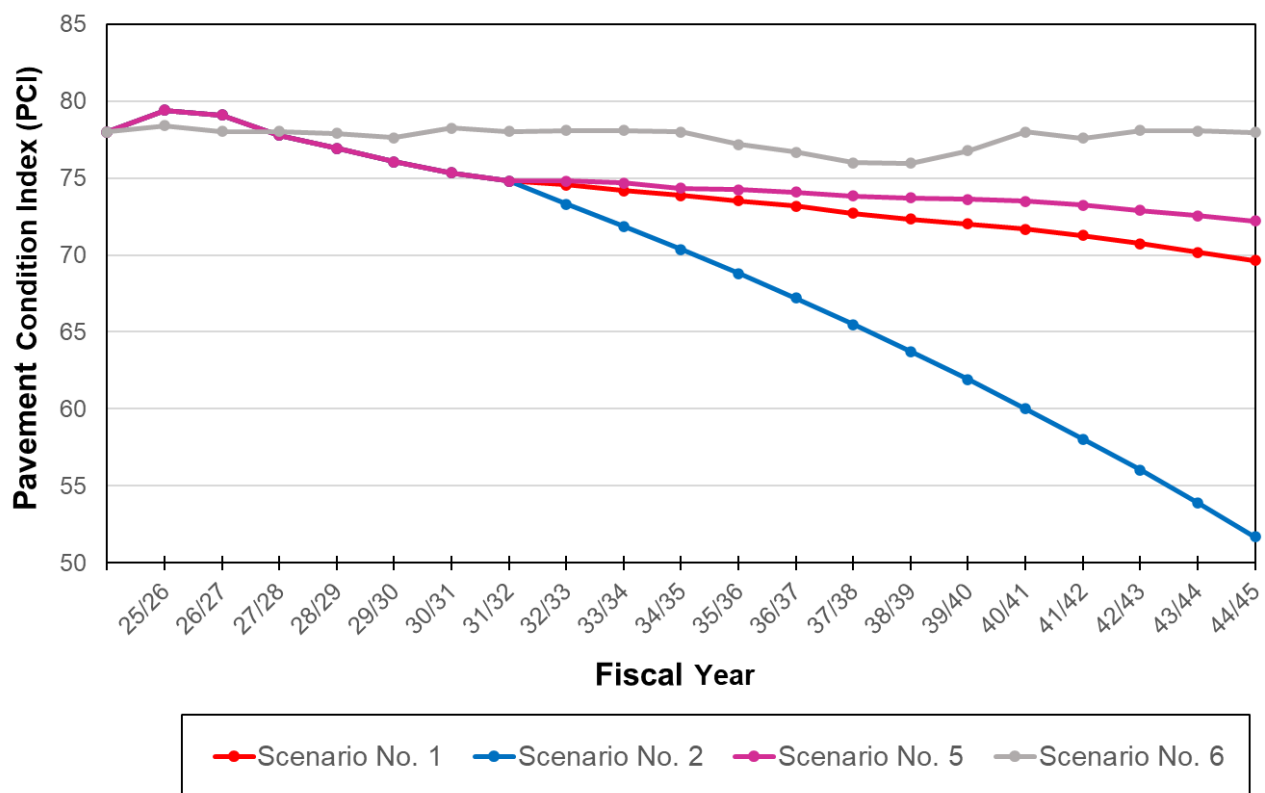
For estimation purposes, Gas Tax funds are expected to increase by approximately 3% annually, while Measure K is estimated to be flat initially and then increase 3% annually. The Town continues to pay \$600,000 annually for debt service on an initial loan that front-loaded street work in the beginning years of Measure K. These debt service payments are scheduled to end in 2032. In contrast, StreetSaver® recommends an annual budget of \$5.97 million to maintain the Town's street network PCI at its current level of 78.

The Town hired NCE through an on-call engineering contract to provide a 20-Year Street Rehabilitation Program budget analysis using the Metropolitan Transportation Commission's (MTC) StreetSaver® pavement management software platform. StreetSaver® is a data-driven tool used to determine the most cost-effective street rehabilitation treatments based on pavement condition, treatment costs, and available budget. It helps cities and towns prioritize street maintenance and rehabilitation projects

by evaluating different pavement treatment options over time. The updated StreetSaver® Decision Tree in the NCE 20-Year Paving Plan incorporates significantly higher street treatment costs compared to prior estimates. The higher treatment impacts have resulted in the increased cost per mile of rehabilitation, meaning fewer streets can be resurfaced with the same budget. The Town needs to prioritize streets strategically, balancing less expensive preventative maintenance with more expensive rehabilitation and full-depth pavement reconstruction projects.

The complete budget analysis and details about the StreetSaver® platform can be found in NCE's 20-Year Street Work Plan Memo (Attachment F). NCE analyzed several custom budget scenarios using the StreetSaver® software, based on varying possible annual street rehabilitation budgets. A table of the eight SRMP budget scenarios analyzed in StreetSaver® to develop the 20-year street work plans is attached (Attachment G). The table lists the annual budget and network PCI for each budget scenario. The following chart shows the network PCI over time for most pertinent Budget Scenarios, No. 1, 2, 5 and 6. A footnote below describes the general scenario parameters within each budget scenario.

Pavement Condition Index Chart for StreetSaver® Funding Scenarios¹



¹ Scenario No. 1: Full budget with Measure K for 20 years and Includes funding for separate Storm Drain projects. Scenario No. 2: Full budget with Measure K for 7 years and Includes funding for separate Storm Drain projects. Scenario No. 5: Full budget with Measure K for 20 years and Includes 7 years funding for separate Storm Drain projects. Scenario No. 6: Maintain Network PCI at 78 with an unlimited annual budget. No funding for separate Storm Drain projects.

These four SRMP budget scenarios were developed based on varying the following budgeting parameters:

- Assuming the 1% Measure K sales tax would continue for 20 years, with renewal by voters before its sunset in 2032.
- Assuming the 1% Measure K sales tax would sunset after 2032, with no Measure K funds available in years 8-20, resulting in a 65% budget loss.
- Providing a \$600,000 cut-out from SRMP funding to fund separate Storm Drain Facility and Roadway Slide Repair projects in years 1-7 or across all 20 years of the StreetSaver® analysis.
- Unlimited annual budgets to maintain the network PCI at 78.

Preferred SRMP Budget Scenario 5 – Balanced Approach with Storm Drain Repair

NCE and Town staff analyzed all eight SRMP budget scenarios throughout the 20-Year Street Rehabilitation Work Plan. Scenario No. 5 uses a balanced approach by combining cost-effective preventive maintenance, pavement overlays, and full-reconstruction street work with a \$600,000 cut-out for Storm Drain and Roadway Slide Repair projects for years 1-7.

Scenario No. 5 prevents the deterioration of the roadway network by proactively fixing underlying drainage and slope stability issues. It demonstrates responsible fiscal planning and infrastructure stewardship, which strengthens the case for voter renewal of Measure K. It also shows direct reinvestment of tax dollars into the most critical infrastructure needs, ensuring continued public support.

As shown in Scenario No. 2, where Measure K is not renewed, losing 65% of the total street rehabilitation budget, this funding loss plummets the network PCI to 52 (including \$600,000 budget cut-out for Storm Drain and Roadway Slide Repairs) by 2044.

Staff recommends that the Town Council adopt Scenario No. 5 of the 20-year Pavement Work Plan, which assumes the renewal of the Measure K sales tax at 1% beyond 2032 and allocates a portion of the funds to the Capital Improvement Program for storm drain and slide repair projects in the first seven years.

Using the Balanced Approach, staff will continue implementing measures to maintain residential streets above a Pavement Condition Index (PCI) of 50 while also improving parking lots, pathways, and the overall PCI of arterial streets. Planned rehabilitation projects, such as the grant-funded Canyon Road and Moraga Road SS4A complete streets project, will contribute to enhancing the network-wide PCI. Additionally, staff will actively pursue grant opportunities for eligible arterial streets to supplement SRMP funding.

Additionally, staff recommends that Town Council be provided with Townwide Street Rehabilitation Program' progress report every two to three years, corresponding with the required filing of the Street Network Pavement Condition Index report with MTC.

Attached is an update on the progress of 2024 – 2025 Town Council Goals and Priorities for street projects (Appendix H).

FISCAL IMPACT

The indirect staff costs associated with preparing this report have been included in the adopted Town budget. Following staff's recommendations for the upcoming budget cycle will help reduce future recurring deferred maintenance costs to the Town.

CEQA COMPLIANCE

Study and design work are categorically exempt from the California Environmental Quality Act ("CEQA") pursuant to 14 CCR § 15306 as preliminary study and other resource evaluation activities that do not result in a serious or major disturbance to an environmental resource and are used strictly for informational gathering purposes. CEQA compliance for the project construction is being conducted by the project team.

ALTERNATIVES

1. Make revisions to staff's recommendations.
2. Do not accept staff's recommendations and provide alternative direction to staff.

NEXT STEPS

The engineering design phase for the 2025 Street Rehabilitation Project is already funded via the adopted FY 2024–25 Capital Improvement Plan Budget. Upon Town Council's approval of the overall work scope, staff will begin working on engineering design and bidding documents for the 2025 Street Rehabilitation Project. Having Town Council set general policies, priorities, and budgeting levels for the Street Rehabilitation Management Program, represents the first step in the Town's Capital Improvement Plan as part of the upcoming FY 2025-26 & FY 2026-27 Biennial Budget process. Staff will seek additional feedback from Town Council on priorities for the Traffic Safety and Asset Replacement programs before presenting a draft of the full Capital Improvement Plan for Town Council feedback and prioritization.

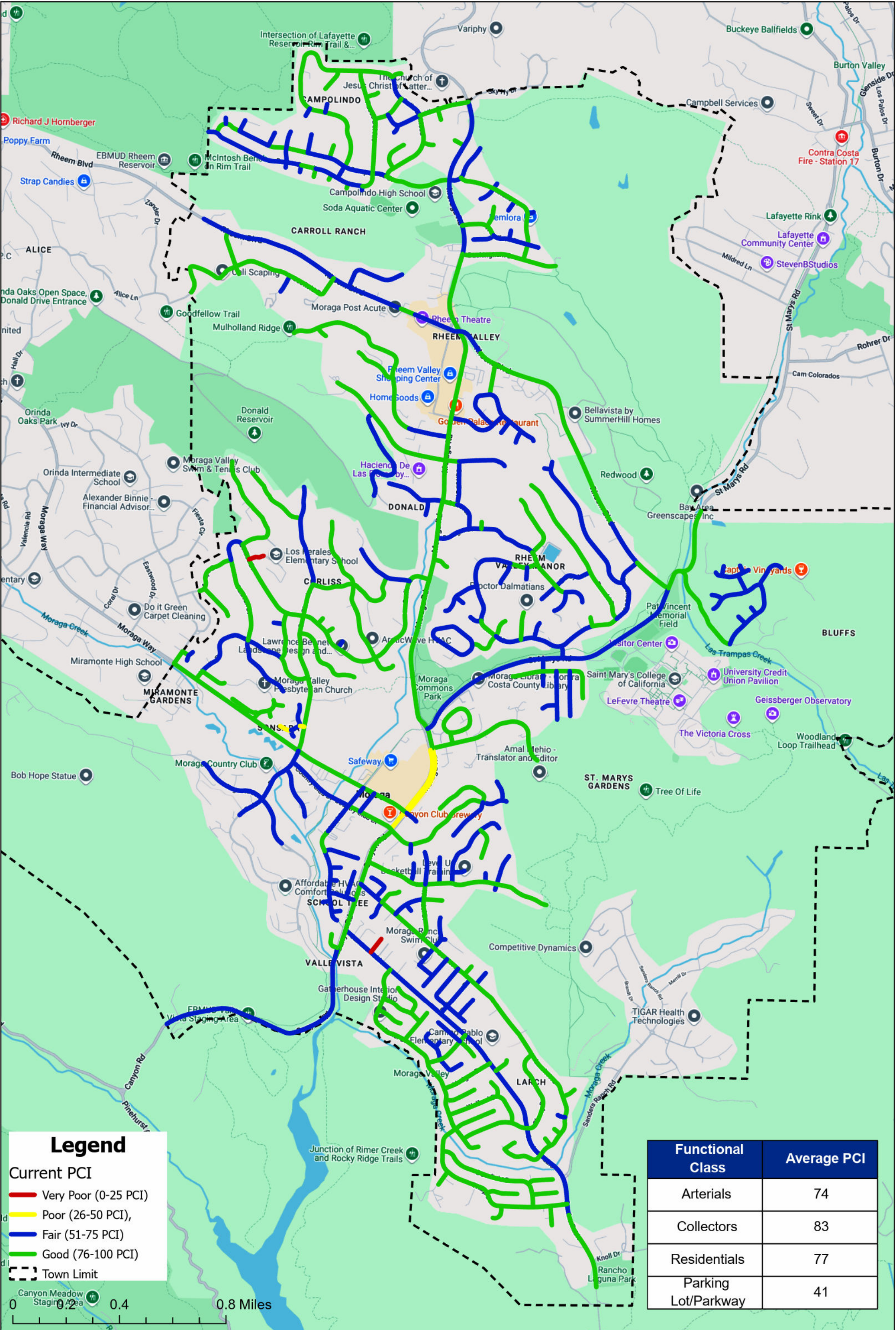
ATTACHMENTS

- A. 2025 Moraga Street Network Color-Coded by Pavement Condition Index Map
- B. StreetSaver® Monthly Executive Summary – Moraga February 2025
- C. Street Rehabilitation Management Program History Memo
- D. 2025 Network PCI Arterial, Parking Lots and Pathways, Residential Zones Map
- E. Storm Drain and Slide Repair Project Needs
- F. NCE's 20-Year Paving Plan StreetSaver Analysis Memo
- G. Street Rehabilitation Management Program Funding Scenarios FY 25 through FY 44
- H. FY 2024 - 2025 Goals and Priority Street Rehabilitation Program Progress Update

ATTACHMENT A

2025 Moraga Street Network Color-Coded by
Pavement Condition Index Map

2025 Moraga Street Network Color-Coded by Pavement Condition Index Map



ATTACHMENT B

StreetSaver® Monthly Executive Summary – Moraga
February 2025

EXECUTIVE SUMMARY

TOWN OF MORAGA, CA

PAVEMENT AREA

0.34

Square Miles

CENTERLINE MILES

56.02

LANE MILES

110.77

SECTIONS

444

*PEER COMPARISON

AS OF: 2/28/2025

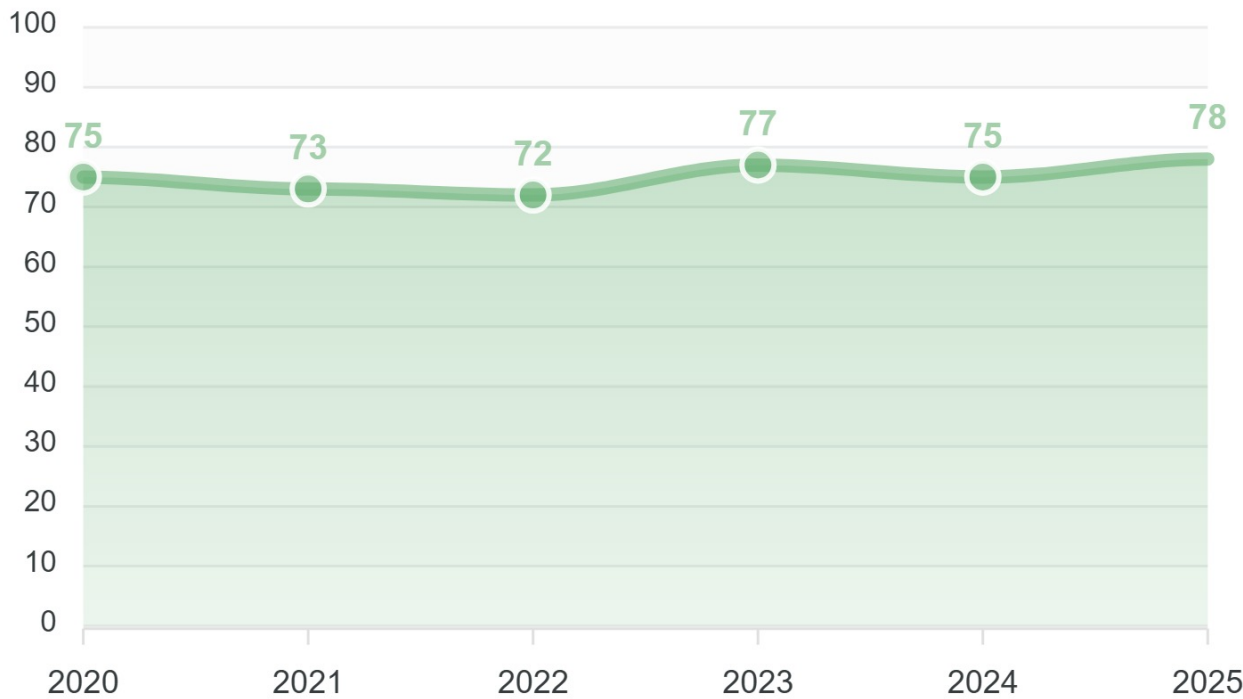
76

Similar size agency PCI

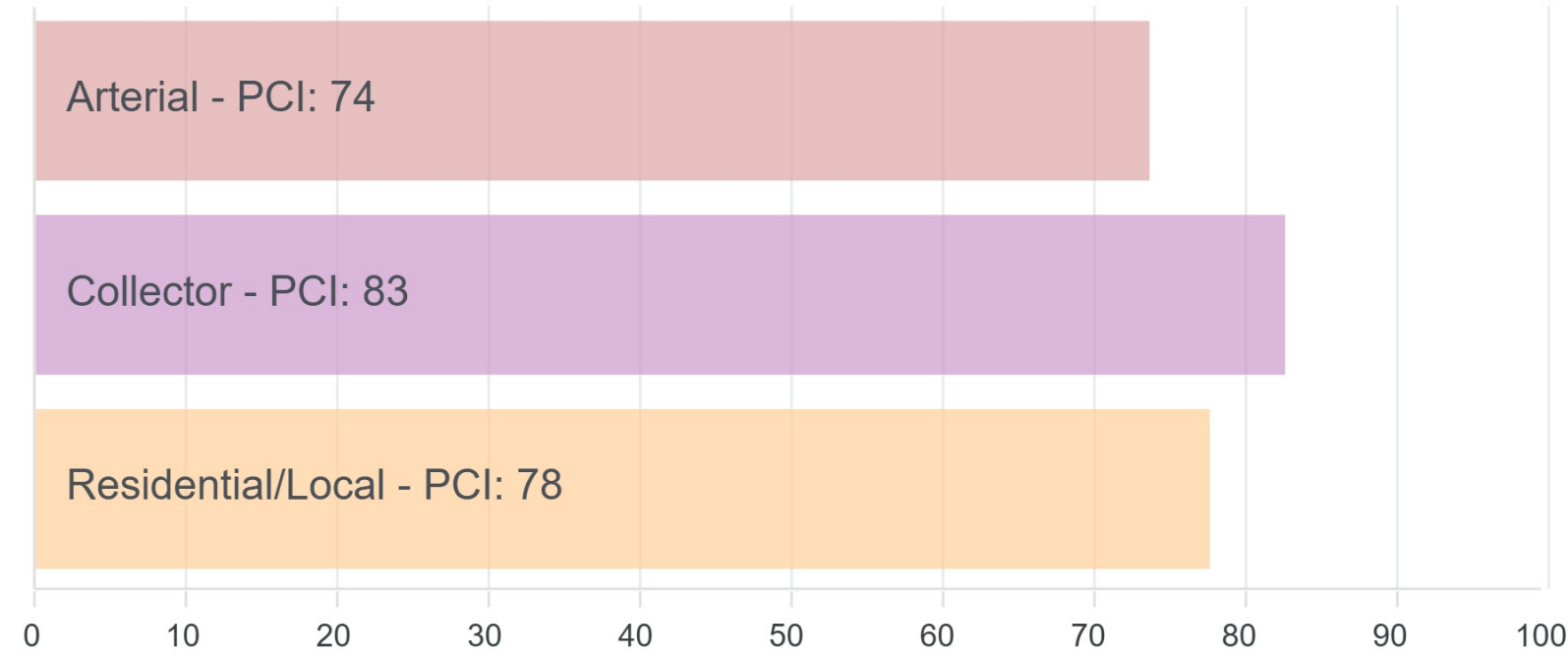
86%

Your percentile rank

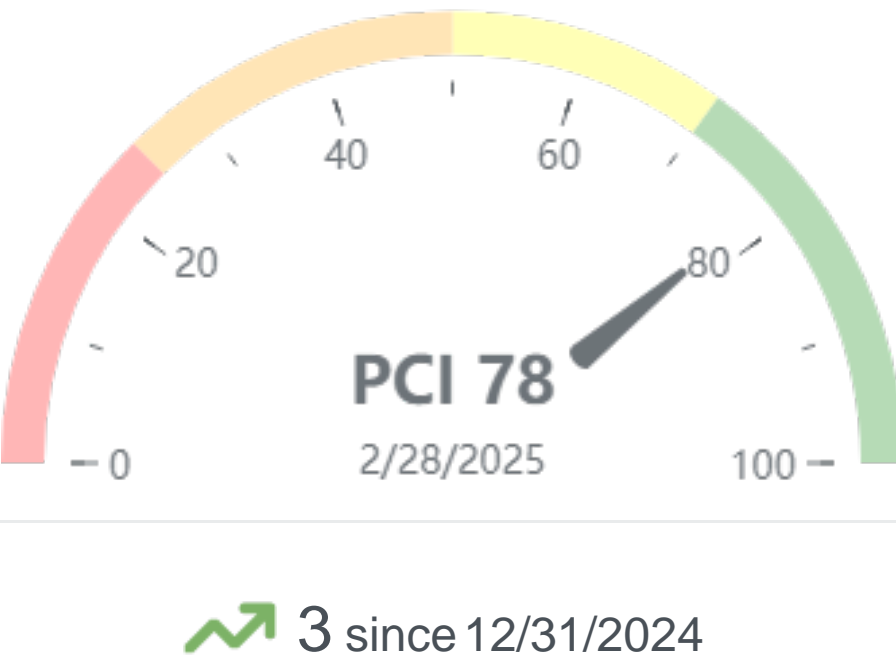
HISTORICAL PAVEMENT CONDITION TRENDS AS OF 2/28/2025



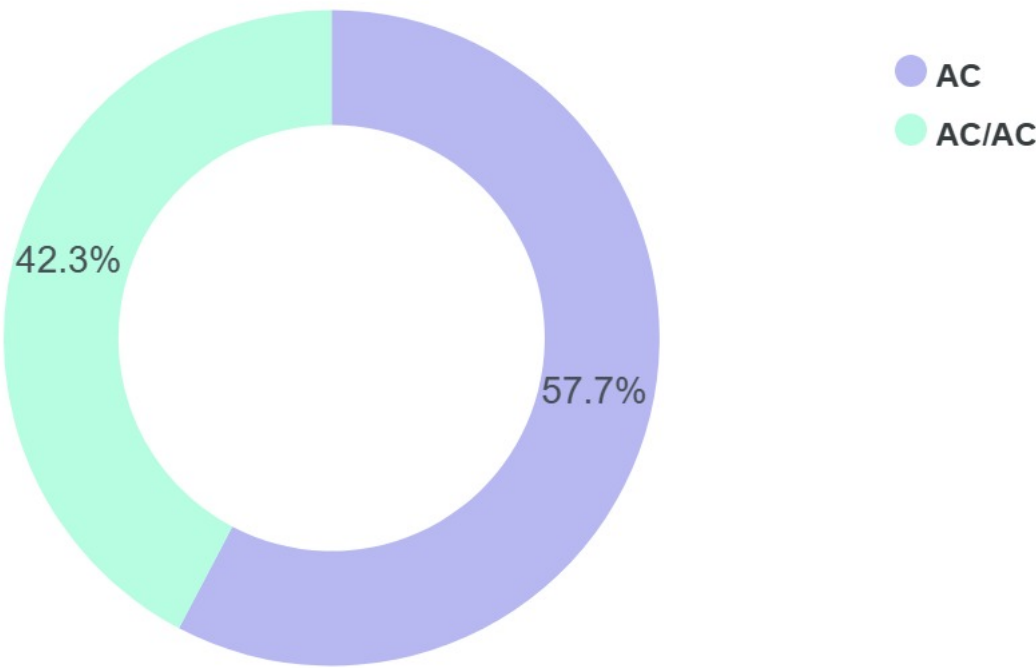
PCI AS OF 2/28/2025 BY: FUNCTIONAL CLASS



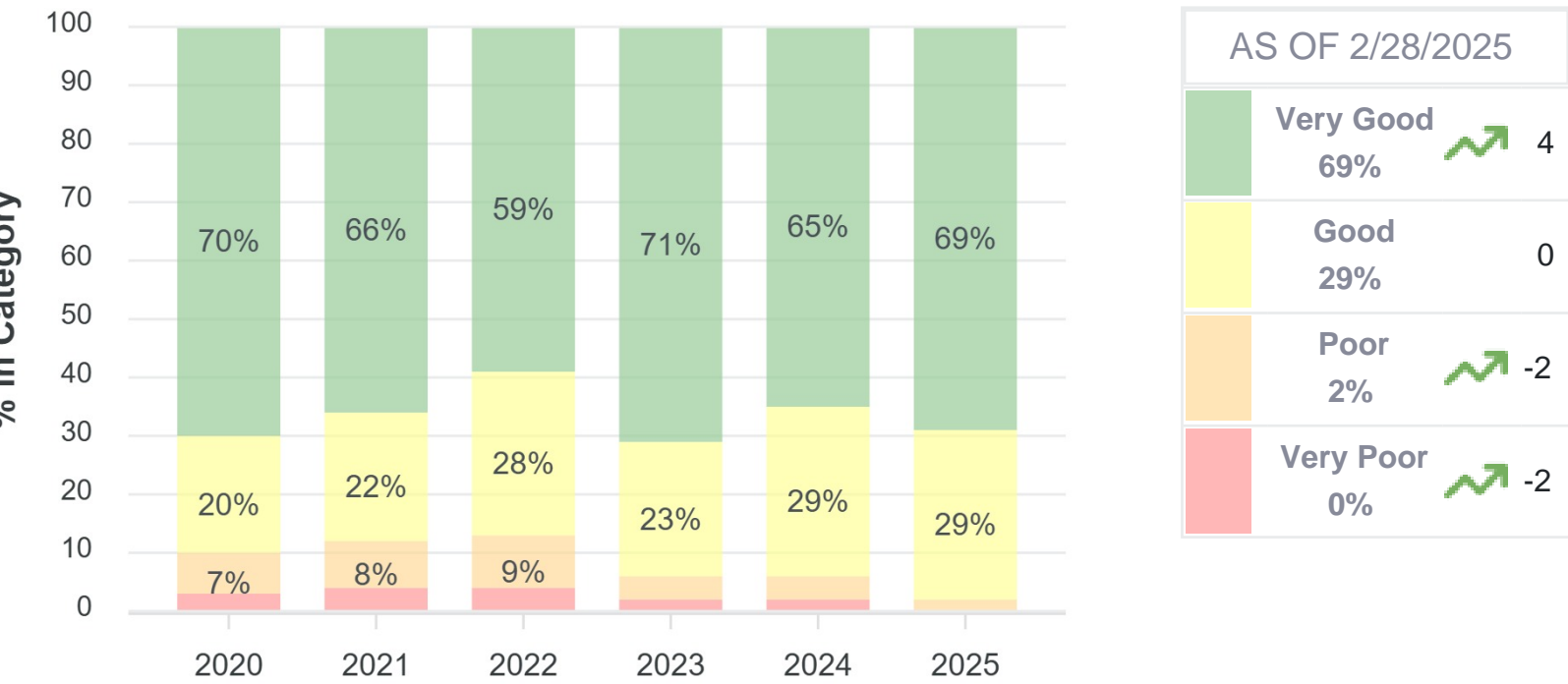
**HISTORICAL PCI



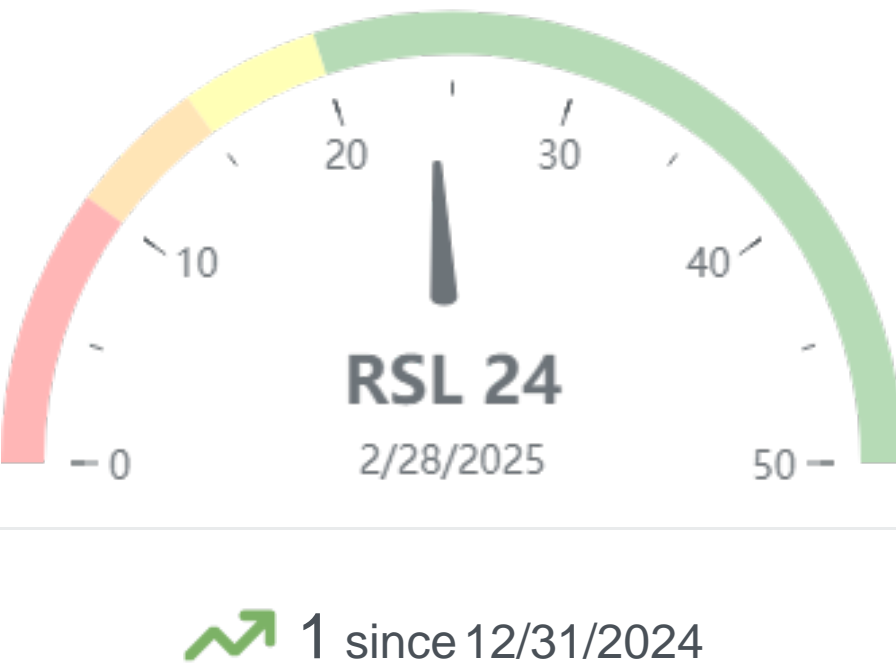
PERCENT OF AREA BY: SURFACE TYPE



HISTORICAL NETWORK CONDITION TRENDS



REMAINING SERVICE LIFE (YEARS)



*Based on the closest peers in your geographic location with a comparable number of Sections.

**For display purposes only, Current PCI graph shows Condition Category colors based on default PCI Breakpoint values of 70, 50 and 25.

Please Note: Historical PCI values are calculated as of 12/31 of the year shown.

ATTACHMENT C

Street Rehabilitation Management Program History
Memo

STREET REHABILITATION MANAGEMENT PROGRAM HISTORY

ASSET MANAGEMENT STRATEGY

Overview

Pavement Management is a set of tools and philosophies designed to manage the maintenance activities of asphalt concrete and concrete pavement. A Pavement Management Program (PMP) is a decision-making tool employed to assess and track existing and historical pavement conditions. It is used to make cost-effective decisions about pavement maintenance and rehabilitation treatments necessary for maintaining a network of roadways in a state of good repair.

The Metropolitan Transportation Commission (MTC) requires cities and counties to maintain a certified PMP in order to be eligible to receive regional transportation discretionary funds. All 109 cities and counties in the San Francisco Bay Area region, including the Town of Moraga, as well as over 300 other public and private organizations nationwide and internationally, use StreetSaver® software. StreetSaver® is a pavement management software platform developed and maintained by the MTC. StreetSaver® helps agencies and organizations make informed and timely decisions on pavement assets, plan maintenance and rehabilitation (M&R) activities, support funding applications and reporting, and schedule repairs in a cost-effective manner.

In addition to technical planning, StreetSaver® plays a critical role in helping agencies secure funding from regional, state, and federal sources. By maintaining a current PMS and regularly updating pavement condition data within StreetSaver®, agencies can meet eligibility criteria for funding programs such as:

- MTC's Pavement Technical Assistance Program (PTAP), which funds pavement condition assessments and updates to local PMS databases.
- SB 1 Road Repair and Accountability Act (RRAA) requires agencies to have a certified, up-to-date pavement management system in order to receive Road Maintenance and Rehabilitation Account (RMRA) funds.
- Federal and State Grant Programs, including the Active Transportation Program (ATP) and State Transportation Improvement Program (STIP), where pavement condition data and M&R strategies are often needed to support complete streets or rehabilitation components.
- Local Sales Tax Measures, such as Measure K in Moraga, where updated PMS data is used to demonstrate accountability and help determine spending priorities.

Having an active StreetSaver® database demonstrates that the agency is strategically managing its roadway network. This increases credibility and transparency, which are often required for audit and reporting purposes tied to funding sources.

Pavement Condition Index

A key element to a PMP is the Pavement Condition Index (PCI). The PCI provides a snapshot of the pavement health of a road. It is measured on a scale of 0 to 100 (where 100 means a newly paved road). Many factors affect a municipality's PCI score. These include pavement age, climate and precipitation, traffic loads, and completed M&R measures.

The PCI is determined through visual inspections, which are typically performed every three years. To facilitate the management of a street network, streets are subdivided into management sections, also known as street segments, which are homogeneous in geometry, function, and general condition. Trained surveyors visually inspect each street segment and measure the current amount of pavement distress in the following categories: alligator cracking (fatigue), block cracking, distortions, longitudinal and transverse cracking, patching and utility cut patching, rutting/depressions, weathering, and raveling. This information is then uploaded into the StreetSaver® database and is used in calculating new street PCIs.

MTC breaks PCIs into the following categories:

I	Good		100
II/III	Fair (non-load)	Fair (load-related)	70
IV	Poor		50
V	Very Poor/Failed		25
			0
Condition Category	Pavement Condition		PCI

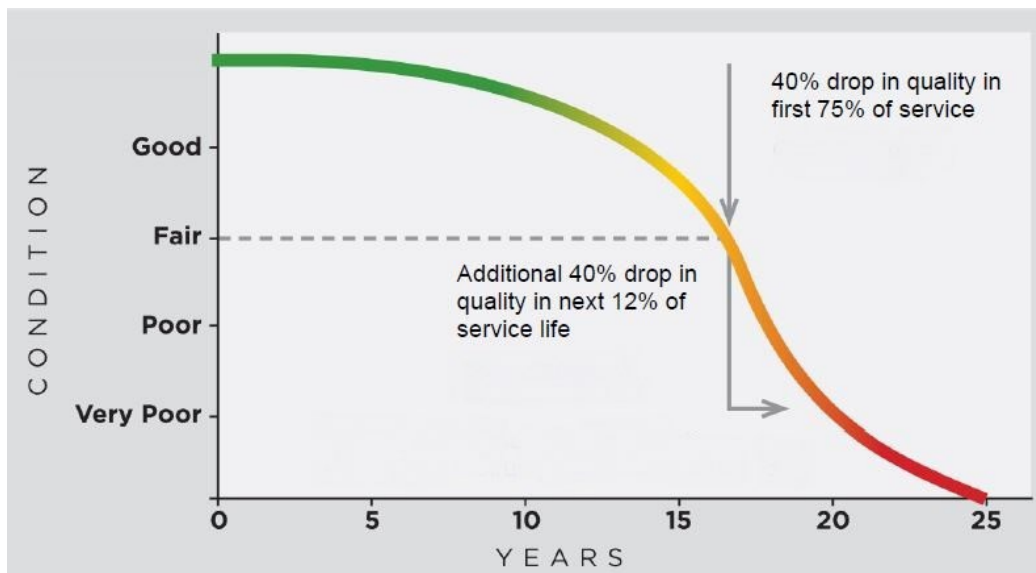
“Fair” condition pavements show some form of distress caused by traffic-load related activity or environmental distress that requires more than a life-extending treatment. At this point, a well-designed pavement will have served at least 75 percent of its life, with the quality of the pavement dropping approximately 40 percent. The pavement may require a slurry seal application or a rubberized cap seal, along with varying degrees of localized pavement repairs.

“Poor” condition pavements are nearing the end of their service life and often exhibit major forms of distress, such as potholes and extensive cracking.

“Failed” condition pavements indicate that the street has failed. These pavements are at the end of their service lives and have major distresses, often indicating the failure of the sub-base or significant deterioration of the asphalt pavement. Streets at this stage require major rehabilitation, typically involving complete reconstruction or full-depth reclamation (FDR).

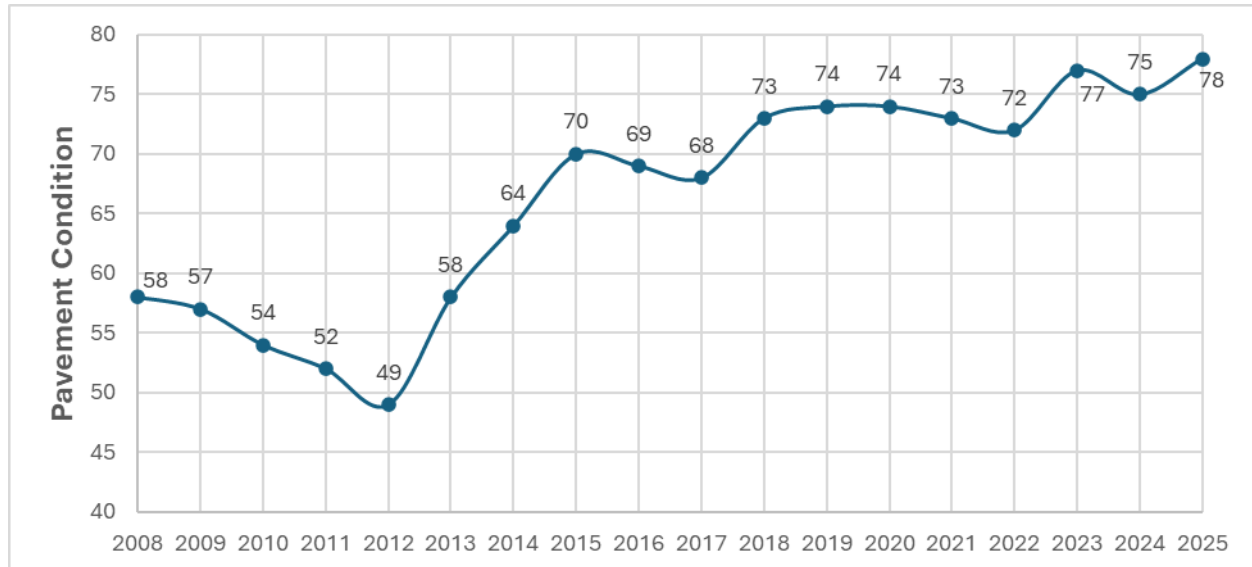
A typical street has a lifecycle of 25 to 30 years and deteriorates by 35% - 40% in its first 10 to 12 years. Generally, paved streets spend about three-quarters of their lifecycle in “Fair” to “Good” condition, where the street shows little sign of deterioration and has a high service level. After this time, the street condition begins to deteriorate at a rapid rate and, if not properly maintained, will quickly reach a point where it will require costly overlays and reconstructions. If treated with a surface seal or other preventive maintenance treatment, the street condition will remain in “Good” condition or better for a longer period. The figure below shows a typical street pavement condition deterioration curve:

Typical Street Pavement Deterioration Curve



Below is a graph showing the Town of Moraga's historical network PCI from 2008 to 2025:

Town of Moraga's Historical Network PCI from 2008 to Present



Overview of StreetSaver®

StreetSaver® serves as the backbone for pavement management programs by providing a centralized, data-driven platform where agencies can:

- Store pavement condition data (PCI scores) from field inspections.
- Track treatment history and maintenance costs across the roadway network.
- Apply custom decision trees that recommend specific treatments based on PCI, traffic volume, and surface type.
- Model different funding scenarios over short- or long-term planning horizons.
- Prioritize streets for maintenance based on need, usage, and available funding.
- Generate reports and maps to represent conditions and substantiate justifications for investment to stakeholders, elected officials, and the public.

StreetSaver® is designed to achieve an optimal network PCI between the high 70's and low 80's, which is in the middle of the "Good" condition category. In other words, the system will recommend maintenance treatments to bring all of the streets in the Town to a "Good" condition, with the majority of the streets falling in the low to mid 80's PCI range. Streets with a PCI in the 80's (as opposed to 70's) will likely remain in the "Good"

condition category for a longer period if relatively inexpensive preventive maintenance treatments (surface seals, crack sealing, etc.) are used. Once the PCI falls below 70, more expensive rehabilitation treatments may be necessary. The reasoning behind this philosophy is that it is better to maintain streets with lower-cost, preventive maintenance treatments, such as slurry seals, chip seals, and crack sealing, thereby extending their life cycle before the street condition deteriorates to a state where it requires more costly rehabilitation and reconstruction.

The StreetSaver® software has some pre-programmed nuances that affect its generated paving recommendations. When determining the expected cost effectiveness ratio for the identified treatment for each street section by year, each street section is ranked from the highest cost-effectiveness ratio to lowest and is selected until the available budget is expended. However, it is generally less costly to repair residential streets, which typically have longer lifespans than arterial streets. This would cause the majority of the available funds to be allocated to residential streets. To counter this problem, the effectiveness ratio must be weighted for usage or a function of traffic, which is identified by the section's functional classification (i.e., arterial, collector, residential, or other) in StreetSaver®.

Role of StreetSaver® in the Town of Moraga's 20-Year Paving Plan

The Town of Moraga's staff uses StreetSaver® to:

- Input and analyze recent PCI data from field surveys.
- Track pavement conditions and identify specific areas in need of maintenance and rehabilitation.
- Apply the Town's customized decision tree, developed in consultation with staff, to select treatments that match the Town's goals for preventive maintenance and cost-effectiveness.
- Assess the adequacy of street revenues required to meet the needs recommended by StreetSaver®.
- Maximize the Town's return on investment from available maintenance and rehabilitation funds.
- Run budget scenarios based on funding availability with and without Measure K and evaluate network impacts under various strategies, such as maintaining a specific PCI or increasing the PCI by 5 points.
- Generate 20-year work plans, cost summaries, and scenario maps for each funding option.

Typical StreetSaver® scenarios employed by the Town of Moraga include:

- "Needs" or "Unconstrained" (zero "deferred" maintenance) – This scenario shows the effects of implementing the ideal investment strategy with an

unlimited budget. Because it is more cost-effective to eliminate the deferred maintenance backlog as quickly as possible, less costly maintenance needs are addressed during the beginning of the 20-year program.

- “Do Nothing” – If no maintenance or rehabilitation is applied over the 20-year program, the condition of the network will drop dramatically. This information is provided during the “Needs” scenario.
- “Maintain Network PCI” – This scenario determines the budget, street segments, and M&R treatments required to maintain the same average pavement condition throughout the 20-year program.
- “Increase Network PCI by 5” – This scenario determines the budget, street segments, and M&R treatments required to improve the average pavement condition index by 5 points throughout the 20-year program.
- Custom Scenarios – Different scenarios are selected based on the sunset of Measure K in 2032, Measure K continuing at the same rate beyond 2032, and if Measure K funds are diverted to the Storm Drain Capital Improvement Program, among others.

StreetSaver® is designed with a more cost-effective “Best-First” and “Balanced Approach.” The Town has followed this balanced approach to achieve significant improvements in network PCI. These outputs help enable the Town to plan effectively, positioning itself for continued funding eligibility and sound long-term investment decisions.

TOWN STREET REHABILITATION HISTORY

Before Measure K (Pre-2012)

In the 2000s, with the California state government withholding funding from local governments, the Lamorinda public agencies of Lafayette, Moraga, and Orinda struggled to find sufficient revenues to keep pace with the costs of failing infrastructure and repairs. In 2015 and 2016, the City of Orinda was ranked as having the 2nd worst streets in the San Francisco Bay Area. Each Lamorinda agency began forming revenue enhancement committees to investigate obtaining additional funding sources.

According to Lamorinda Weekly articles, in February 2009, the Moraga Town Council authorized the formation of the Revenue Enhancement Committee (RECON). It appointed Mayor Dave Trotter and Council Member Mike Metcalf to serve on the 13-member Committee and to recruit a broad cross-section of community volunteers with experience, expertise, and skills in financial and accounting matters, corporate and municipal finance, and public communications. In March 2009, the Moraga Town Council officially approved the Revenue Enhancement Committee to recommend to the Council potential strategies for enhancing existing revenue sources and creating new revenue sources for the General Fund and special-purpose needs.

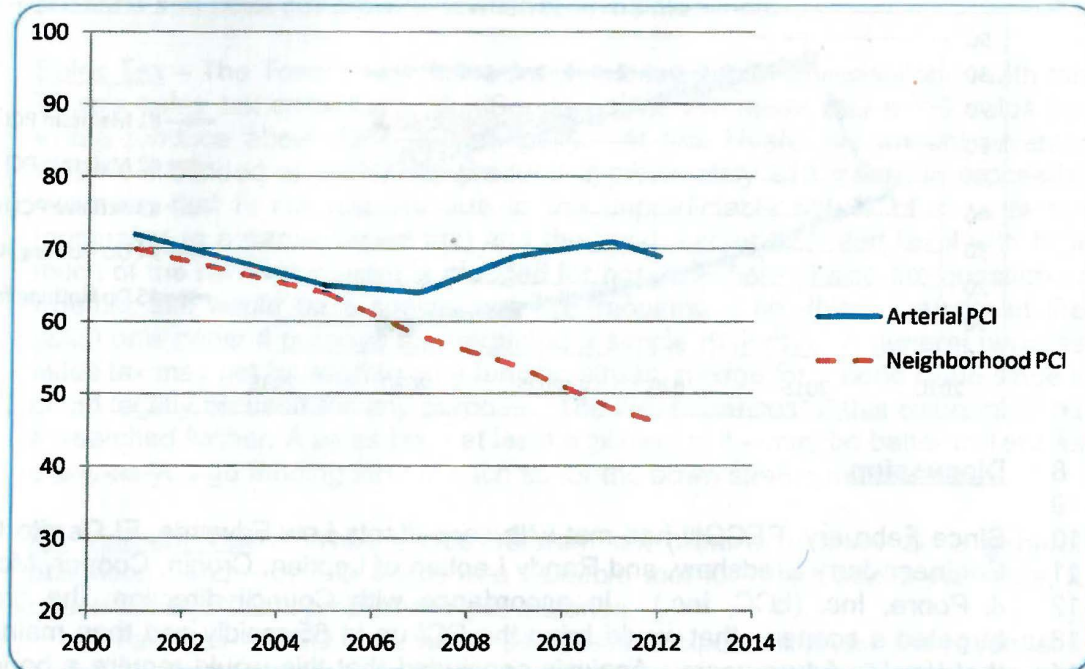
According to a newspaper article in the Lamorinda Weekly, on November 25, 2009, Council Member Mike Metcalf, who has long been a proponent of minimal government, recognized that the Town's frugality is having a negative impact. "Minimal government has become an unfortunate legacy," said Metcalf, who also sits on the RECON committee. "Our infrastructure is falling apart; we are not serving our staff, they leave, and we can't recruit effectively, and the economic environment keeps deteriorating. The leadership of the Council is on the line.

The Moraga deferred street maintenance in 2010 was \$28 million. It was expected to grow to \$43 million by 2014 because once a street reaches a significant deterioration point, it quickly deteriorates exponentially faster, also significantly increasing the cost to repair. According to a 2011 RECON report to the Moraga Town Council, 14% of arterial streets were in poor (26 – 50 PCI) and very poor (0 – 25 PCI) conditions and 50% of the collectors and residential streets were in poor (26 – 50 PCI) and very poor (0 – 25 PCI) conditions. At that time, the state of the Moraga's storm drain remained largely unassessed, but it would soon be approaching its expected lifespan.

Over the next few years, the RECON committee studied various issues related to generating additional revenues, analyzed the Town's street repair needs, and provided extensive public outreach about the underfunded street rehabilitation program. Additionally, the committee polled the public to determine the most suitable revenue measure. The Town Council approved the listing of a 1% general fund sales tax on the ballot, which would sunset in 20 years.

In February 2012, the Town Council received from the RECON committee an update on their work and their request to narrow down options for community discussion and input regarding the following items: construction cost estimates and contingency; and prioritization of available revenue measures. The chart below reflects an improvement of the Town's arterials after 2007 with the use of one-time federal transportation and stimulus grant funding, which were not reappropriated. The PCI for the Town's neighborhood streets were declining due to minimal revenues and a lack of maintenance funds.

Average Pavement Conditions on Moraga Arterials and Other Streets



In July 2012, the Town Council approved the Calling of an Election to Ask the Voters of the Town of Moraga to Approve a 20-Year General Transactions and Use Tax of One Cent.

The Revenue Enhancement Community Outreach to Neighborhoods (RECON) committee continued to engage with the community and share the research and analysis conducted by engineering experts regarding the condition of the Town's roads.

On November 6, 2012 General Election, the Moraga Voters ultimately approved Measure K (Ordinance 238), a One-Cent Local Transaction and Use (Sales) tax that would sunset in 20 years 70.54% Yes to 29.46% No.

Measure K (2012 – 2020)

In 2013, the Town leveraged \$600,000 of Measure K funds to generate \$7.7 million in upfront funds for a three-year intensive pavement program. By utilizing Measure K and additional funding allocations, along with implementing practical "Best-First" and "Balanced" pavement strategies, the Town was able to raise the network's PCI in a relatively short period and gradually begin reducing the number of Poor and Very Poor streets. These efforts significantly increased the Town's PCI from 49 in 2012 to 70 in 2015.

In 2016, the Town implemented the following four new pavement strategies to maximize the remaining unleveraged pay-as-you-go Measure K funding:

- Focus on one type of treatment per year.
- Budget an appropriate percentage of funding for each treatment type.
- Budget non-Measure K funds at or greater than pre-Measure K levels.
- Partner with other agencies to reduce costs.

On March 13, 2019, the Town Council received a detailed 2018 Pavement Management Report. The Council considered a number of pavement management recommendations at that time. The 2018 Pavement Management Report, being the first report that analyzed the success of the program since Measure K was approved in 2012, was very comprehensive. The report discussed the history of the enhanced PMP, which began with the local voter-approved Measure K general-purpose 1-cent sales tax. The report included: an overview of the Town's pavement history and pavement management approach; past and existing PCIs; rehabilitation analysis and recommendations; and budget and funding scenarios.

The 2018 Pavement Management Report showed that the number of streets in Poor and Very Poor condition had been significantly reduced to 15.5% and 2.0%, respectively, of the total network. It projected that a balanced approach with an annual budget of \$2.52 million would maintain a PCI of 73 between 2018 and 2032, and would increase the number of Very Poor streets from 2% in 2018 to 8.6% in 2032. In actuality, the four new pavement strategies along with the new SB1 Gas Tax revenue which the Town started receiving in 2018 and the increases in the Garbage Vehicle Impact Fees (from \$179,000 in Fiscal Year (FY) 2016/17 to \$799,000 in FY 2020/21) resulted in an increase in the Town's PCI to 74 in 2020.

The following table details the Town's PCI separated by road category:

2018 Pavement Condition Percentages by Functional Classes

Condition Class	PCI Range	Arterial	Collector	Residential	Total
Good	71-100	13.6%	22.7%	33.2%	69.5%
Fair	51-70	5.9%	2.1%	5.0%	13.0%
Poor	26-50	7.0%	2.7%	5.8%	15.5%
Very Poor	0-25	0%	1.3%	0.7%	2.0%
Totals		26.5%	28.8%	44.7%	100%

Measure K (2020 – 2025)

On April 22, 2020, the Town Council received a detailed 2020 Pavement Management Report. The report included: an overview of the Town's pavement history and pavement management approach; past and existing PCIs; rehabilitation analysis and recommendations; and budget and funding scenarios. The Town's 2020 PCI of 74 put

the Town in the 75th percentile, or top 25%, of all 109 cities and counties in the San Francisco Bay Area region.

The 2020 Pavement Management Report acknowledged that the “Best-First” and “Balanced” pavement maintenance strategies had been effective in maximizing network PCI; however, it deferred the expense of rehabilitation for Very Poor and Poor residential streets. This would have resulted in an imbalance between some Moraga residents not having their public streets rehabilitated during the 20-year term of MK sales tax. Based on the report, the Council selected the Worst First Residential Program (WFRP) strategy and directed staff to pursue a three-year “Worst First” pavement rehabilitation approach, addressing the Very Poor streets first and, if possible, eliminating all streets in the Very Poor and Poor categories by 2024.

The WFRP was envisioned to take 2 years to develop the engineering plans, coordinate with utility companies, and relocate any conflicting underground utilities, and then an additional 2 years of construction work. Significant increases in construction costs in the San Francisco Bay Area necessitated an increase in project funding and an extra year for the WFRP construction phase. By March 2025, the third construction year, all WFRP construction work will be completed, and the contractor will begin addressing the project's punch list. The current average PCI for the Town's street network has increased to 78 in 2025.

The following tables detail improvements made to the Town's PCI separated by road category:

2020 Pavement Condition Percentages by Functional Classes

Condition Class	PCI Range	Arterial	Collector	Residential	Total
Good	71-100	16.7%	21.3%	36.5%	74.5%
Fair	51-70	5.9%	2.8%	3.2%	11.9%
Poor	26-50	4.4%	3.6%	3.4%	10.4%
Very Poor	0-25	0%	1.5%	1.1%	3.2%
Totals		26.4%	28.9%	44.8%	100%

2025 Pavement Condition Percentages by Functional Classes

Condition Class	PCI Range	Arterial	Collector	Residential	Total
Good	71-100	15.8%	23.5%	30.9%	73.2%
Fair	51-70	9.2%	5.4%	13.6%	28.2%
Poor	26-50	1.5%	0.0%	0.1%	1.6%
Very Poor	0-25	0.0%	0.0%	0.0%	0.0%
Totals		26.5%	28.9%	44.6%	100%

By 2020, the Town had received several trip and fall claims along its pathways and Parking Lots. The Council approved delaying the rehabilitation of the Town's Pathways and Parking Lots, as most available funding was needed for the WFRP. Still, some funding was set aside for stop-gap work fixing potholes within Pathways & Parking Lots to eliminate or severely reduce pavement deficient and tripping hazards claims.

Measure K (Post-2025)

On March 28, 2025, Town Staff received a detailed 20-Year Pavement Work Plan Summary Memo. This comprehensive report provides a brief history of the Enhanced Pavement Management Program, which began with the local voter-approved one-cent sales tax Measure K. The report includes: an overview of the Town's pavement history and pavement management approach; past and existing PCIs; rehabilitation analysis and recommendations; and budget and funding scenarios. Staff worked with NCE, the Town's on-call pavement consultant, to examine eight different scenarios, which are discussed in detail as follows:

Scenario No. 1 – Measure K is renewed at 1% beyond 2032; however, a portion of Measure K funds is diverted to Storm Drain O&M and Capital Improvements. This scenario provides an average annual pavement program budget of \$3.7 million and a 20-year budget of \$ 68.8 million. The network PCI would start at 79 in 2025 and would decrease to 70 in 2045.

Scenario No. 2 – Measure K ends in 2032, and a portion of the remaining funds are diverted to Storm Drain O&M and Capital Improvements. This scenario provides an average annual pavement program budget of \$1.4 million and a 20-year budget of \$26.4 million. The network PCI would start at 79 in 2026 and would decrease to 52 in 2045.

Scenario No. 3 – Measure K is renewed at 1% beyond 2032; however, a portion of Measure K funds is diverted to Storm Drain O&M (but not to Storm Drain Capital Improvements). This scenario provides an average annual pavement program budget of \$4.3 million and a 20-year budget of \$80.2 million. The network PCI would start at 80 in 2026 and would decrease to 73 in 2045.

Scenario No. 4 – Measure K ends in 2032, and a portion of the remaining funds are diverted to Storm Drain O&M (but not to Storm Drain Capital Improvements). This scenario provides an average annual pavement program budget of \$2.0 million and a 20-year budget of \$37.8 million. The network PCI would start at 80 in 2026 and would decrease to 56 in 2045.

Scenario No. 5 – Measure K is renewed at 1% beyond 2032; however, a portion of Measure K funds is diverted to Storm Drain O&M, and Measure K funds are diverted to Storm Drain O&M and Capital Improvements for the first seven years. This scenario provides an average annual pavement program budget of \$4.0 million and a 20-year budget of \$76.0 million. The network PCI would start at 79 in 2026 and would decrease to 72 in 2045.

Scenario No. 6 – This is a task-driven scenario aimed at maintaining the overall network PCI at 78 for the next 20 years. This requires an average annual pavement program budget of \$6.0 million and a 20-year budget of \$ 113.1 million.

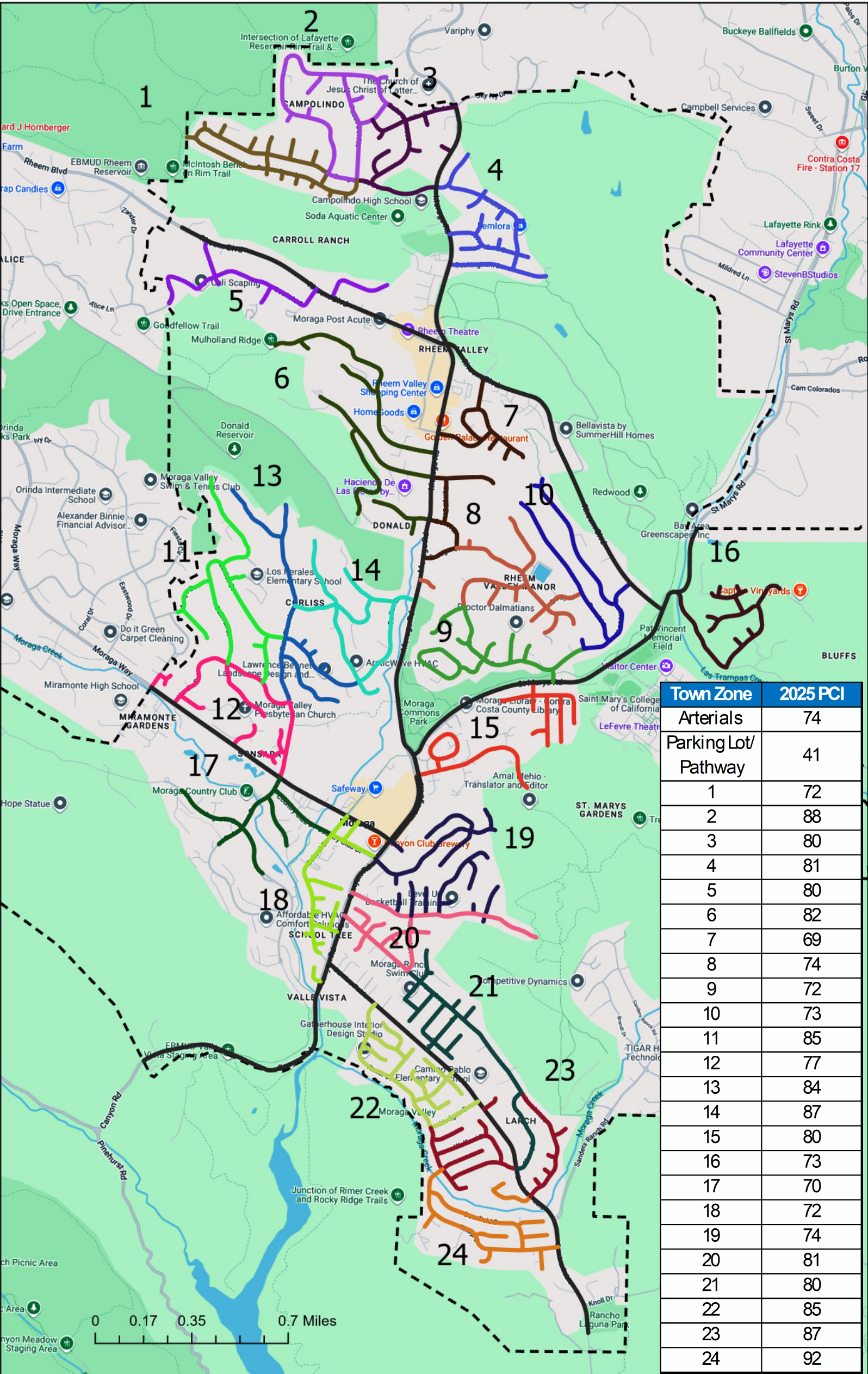
Scenario No. 7 – This is a task-driven scenario designed to increase the overall network PCI by 5 points to 83 at the beginning of the program. This requires an average annual pavement program budget of \$6.4 million and a 20-year budget of \$ 123.9 million. The first year of the program would require an initial budget commitment of \$22.6M. The PCI would initially rise from its current level of 78 in 2025 to 82 in 2026, decrease to 75, and eventually end at 78 in 2045.

Scenario No. 8 – Network “Needs” or “Unconstrained” as recommended by StreetSaver® as the ideal strategy without budget constraints. This scenario requires an average annual pavement program budget of \$7.0 million and a 20-year budget of \$ 135.4 million. The first year of the program would require an initial budget commitment of \$22.6M. The PCI would initially rise from its current level of 78 in 2025 to 82 in 2026, then decrease to 75, and eventually stabilize at 78 by 2045. Scenario No. 8 also provides the “Do Nothing” case where the network PCI would decline to 37 by the year 2044 if no treatments were applied to the Town’s pavement.

ATTACHMENT D

2025 Network PCI Arterial, Parking Lots and Pathways,
Residential Zones Map

Moraga PCIs By Neighborhood



ATTACHMENT E

Storm Drain and Slide Repair Project Needs

STORM DRAIN AND SLIDE REPAIR PROJECT NEEDS

STORM DRAIN REPAIR NEEDS

The following list is derived from several sources including the Basis of Design Report by Harris & Associates for the 2021-2023 Annual Storm Drain Repairs Project and the 2019 Addendum to the Storm Drain Master Plan

Location	Size, Length	Description	Est. Cost
Enhanced O&M Program	various	Additional pipe cleaning, CCTV inspections, repairs based on inspections, and ongoing GIS mapping and asset management. <u>Cost is annual.</u>	\$420,000
Moraga Rd. at Woodford Dr.	42" RCP x 402 ft.	Remove scale buildup and install CIPP liner	\$255,000
Rheem Blvd. at Redwood Ln.	24" CMP x 236 ft.	Install CIPP liner	\$75,000
SE corner of Donald Dr. and Moraga Rd.	12" CMP x 55 ft.	Remove and replace. Requires private property owner participation of \$15,000.	\$69,000
Thune Ave. at Freitas Dr.	30" RCP x 630 ft.	Install CIPP liner	\$295,000
End of Camino Ricardo		Sedimentation basin study	\$20,000
Moraga Rd. across from Dolores Ct.	Proposed 18" PVC x 215 ft.	Install pipe, inlets, and slope stabilization	\$450,000
Ascot Dr. and Moraga Rd.	Proposed 24" RCP x 250 ft.	Install pipe and inlets	\$250,000
Bollinger Cn. at Joseph Dr.	18" RCP x 40 ft. 18" RCP x 44ft. 15" RCP x 55 ft.	Clean and inspect pipes. Repair/replace damaged pipes.	\$85,000
St. Mary's Rd. at Laguna Creek	Proposed 60"x36" RCP x 40 ft.	Culvert replacement	\$385,000
Update hydraulic modeling			\$50,000
Corliss Dr. at Laguna Creek	Existing 144" CMP	Rehabilitate culvert and headwalls	\$1,000,000
Canyon Rd. at Town limit	60" RCP x 40 ft.	Replace pipe, rock slope protection	\$820,000
			\$4,174,000

SLIDE REPAIR NEEDS

Location	Size	Description	Est. Cost
Rheem Blvd. at Chalda Wy.	220 ft. x 50 ft.	Install geogrid reinforced fill or cast-in-drilled-hole stabilization piles, replace sidewalk	\$850,000
Rheem Blvd. west of Scofield Dr.	localized	Remove and replace asphalt, install geogrid	\$60,000
Canyon Rd. south of the bridge	Several localized locations	Full depth base repairs	\$85,000
			\$995,000

ATTACHMENT F

NCE's 20-Year Paving Plan StreetSaver Analysis
Memo



Collaboration. Commitment. Confidence.SM

NCE Project No. 1363.03.55

March 2025

Town of Moraga
Public Works Department
335 Rheem Blvd
Moraga, CA 94509

RE: Draft 20-Year Street Work Plan Summary Memo

Introduction

In 2025, NCE was selected by the Town of Moraga (Town) to develop a street maintenance 20-year workplan. This report summarizes the approach, pavement strategy options, result of the analysis and lists the methodology followed. Overall, a field review was performed for all the streets in the Town to verify pavement condition and proposed treatment options. Additionally, two alternative work plan scenarios were generated to illustrate the impacts of different funding levels.

Network Summary

The Town is responsible for maintaining approximately 56.0 centerline miles of streets (or 444 pavement sections) and 13 parking lot and pathway sections. The network is composed of asphalt concrete (AC) sections and asphalt concrete overlay (AC/AC).

1003 W Cutting Blvd., Suite 110
Richmond, CA 94804
(510) 215-3620

Table 1. Network Summary Statistics

Functional Class	Number of Sections	Centerline Miles	Lane Miles	Network Area (%)	PCI
Arterial	84	13.8	26.6	25.7%	74
Collector	123	15.8	31.4	28.1%	83
Residential	237	26.4	52.8	43.6%	77
Total	444	56.0	110.8	100.0%	78
Parking Lot/Pathway ¹	13	2.6	2.6	2.6%	41

The street network replacement cost is estimated to be approximately \$157.7 million. This can be viewed as the value of the pavement network and is the amount needed to fund a reconstruction of the entire paved network. The replacement cost is calculated by multiplying the total pavement area by the unit cost of reconstruction of the pavement structure. It does not include related infrastructure assets such as sidewalks, signals, markings, signs, or storm drains.

Overview of StreetSaver® and Its Role in the Town's 20-Year Paving Plan

StreetSaver® is a pavement management software platform developed and maintained by the Metropolitan Transportation Commission (MTC). It is widely used by local and regional agencies across California and the U.S. to manage street infrastructure, plan maintenance and rehabilitation (M&R) activities, and support funding applications and reporting.

StreetSaver® serves as the backbone for pavement management programs by providing a centralized, data-driven platform where agencies can:

- Store pavement condition data (PCI scores) from field inspections.
- Track treatment history and maintenance costs across the roadway network.
- Apply custom decision trees that recommend specific treatments based on PCI, traffic volume, and surface type.
- Model different funding scenarios over short- or long-term planning horizons.
- Prioritize streets for maintenance based on need, usage, and available funding.
- Generate reports and maps to communicate conditions and justifications for investment to stakeholders, elected officials, and the public.

¹ Parking lot and Pathway are excluded from the totals.

In addition to technical planning, StreetSaver® plays a critical role in helping agencies secure funding from regional, state, and federal sources. By maintaining a current pavement management system (PMS) and regularly updating PCI data within StreetSaver®, agencies can meet eligibility criteria for funding programs such as:

- MTC's Pavement Technical Assistance Program (PTAP) – which funds pavement condition assessments and updates to local PMS databases.
- SB 1 – Road Repair and Accountability Act – requires agencies to have a certified, up-to-date pavement management system in order to receive Road Maintenance and Rehabilitation Account (RMRA) funds.
- Federal and State Grant Programs, including Active Transportation Program (ATP) and State Transportation Improvement Program (STIP), where pavement condition data and M&R strategies are often needed to support complete streets or rehabilitation components.
- Local Sales Tax Measures, such as Measure K in Moraga, where updated PMS data is used to demonstrate accountability and help define spending priorities.

Having an active StreetSaver® database demonstrates that the agency is strategically managing its roadway network. This increases credibility and transparency, which is often required for audit and reporting purposes tied to funding sources.

For the Town of Moraga's 20-Year Paving Plan, StreetSaver® was used to:

- Input and analyze recent PCI data from field surveys.
- Apply the Town's customized decision tree, developed in consultation with staff, to select treatments that match the Town's goals for preventive maintenance and cost-effectiveness.
- Run budget scenarios based on funding availability with and without Measure K, and evaluate network impacts under various strategies such as maintaining PCI or increasing it by 5 points.
- Generate 20-year work plans, cost summaries, and scenario maps for each funding option.

These outputs help the Town plan effectively while positioning itself for continued funding eligibility and sound long-term investment decisions.

Pavement Condition

Pavement condition is typically quantified using the pavement condition index (PCI), which ranges from 100 (best) to 0 (worst). Pavement condition is affected by the environment, traffic loads and volumes, construction materials, and age. Figure 1 shows examples of streets with varying PCIs in the Town. The PCI information was exported from Town's StreetSaver database.

The PCI scale is divided into four general condition categories. Pavements in "Good" condition have a PCI above 70, pavements in "Fair" condition have a PCI between 50 and 69, pavements in "Poor" condition have a PCI between 25 and 49, and finally pavements in "Failed" condition have a PCI below 25.



Figure 1. Examples of Town Streets with Different PCIs

The current average PCI for the Town's street network is 78. This value is an area-weighted calculation performed in StreetSaver® and is based on the condition surveys performed in 2023 or projected condition from previous updates.

Historical Treatment Summary (2018–2025)

Figure 2 illustrates the Town's historical treated lane miles by treatment types as well as the historical network PCI. The Town has rehabilitated about 13.1 lane miles of streets with overlays and 4.38 lane miles of streets with reconstruction and has applied surface seals on approximately 29.4 lane miles of streets since 2018.

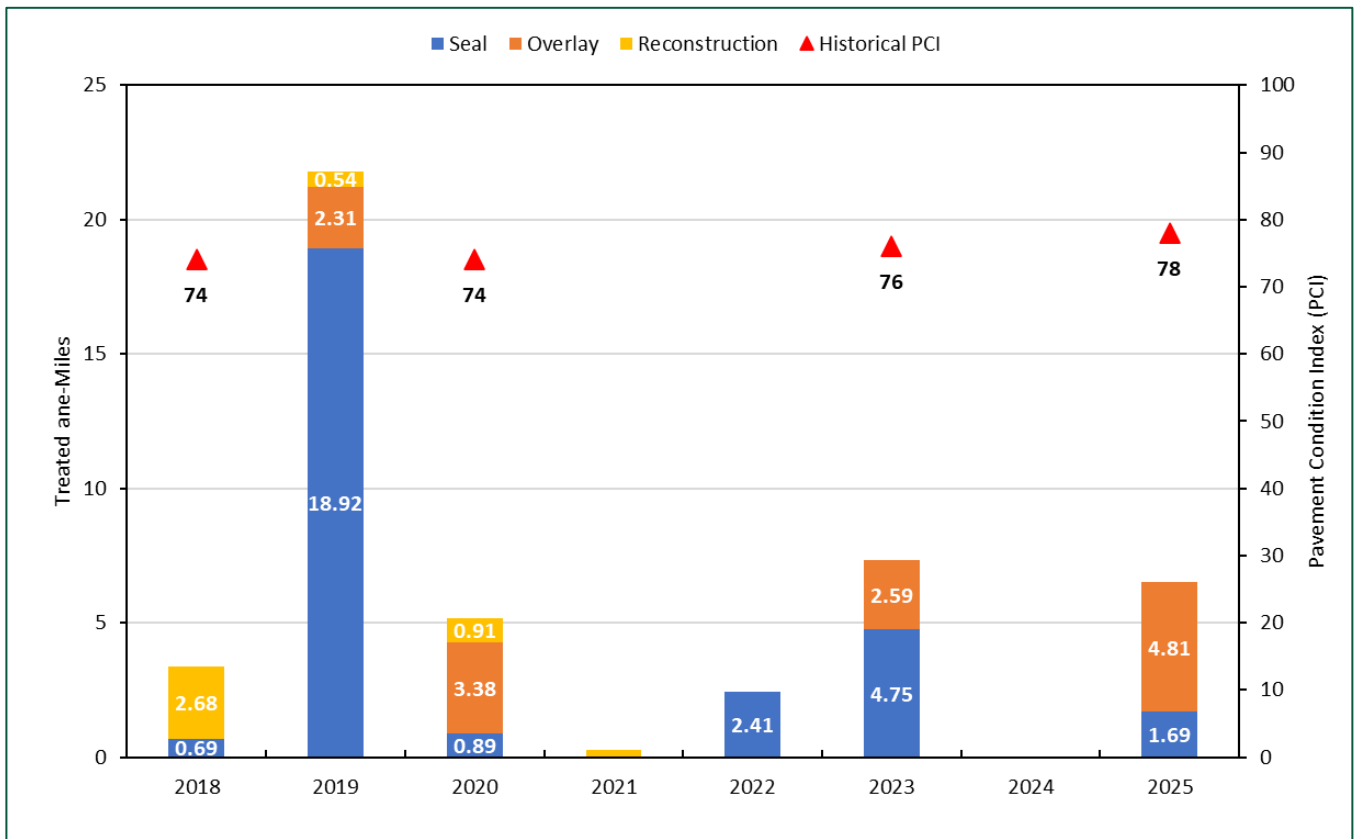


Figure 2. Historical PCI and Treatment History since 2018

Historical Pavement Condition Trends (2020–2025)

Figure 3 presents the Town’s network PCI trends over the past five years. After a modest decline between 2020 (PCI 75) and 2022 (PCI 72), the Town experienced a strong rebound in 2023, reaching a PCI of 77. The PCI slightly dipped in 2024 before rising again to 78 in early 2025. As of February 28, 2025, the Town’s PCI of 78 places it above the peer average PCI of 76, ranking Moraga in the 86th percentile among 109 Bay Area agencies of similar size.

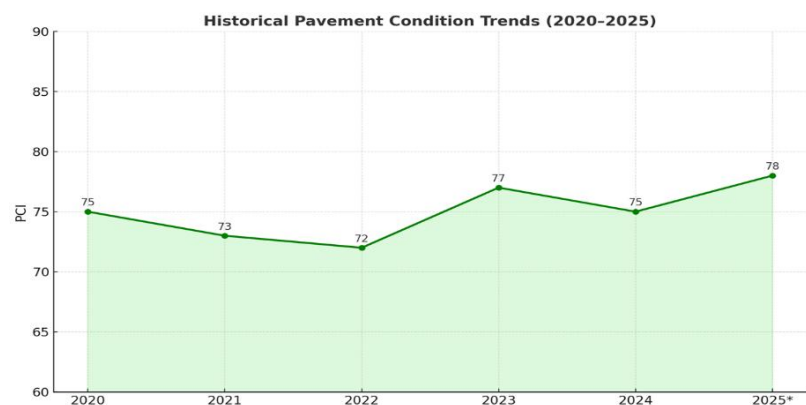


Figure 3. Historical Pavement Condition Trends (2020–2025)

Figure 4 breaks down the current street network PCI by functional classification. The average pavement condition for collectors is the highest with a PCI of 83 followed by residential with an average PCI of 77 and arterials with an average PCI of 74. Table 2 summarizes the street network by condition category and functional classification. Approximately, 70.2 percent of the street network is in “Good” condition with only 1.6 percent of the streets in “Poor” condition. There are no streets in the “Failed” condition category.

- Good (PCI 70-100)
- Fair (PCI 50-69)
- Poor (PCI 25-49)
- Failed (PCI <25)

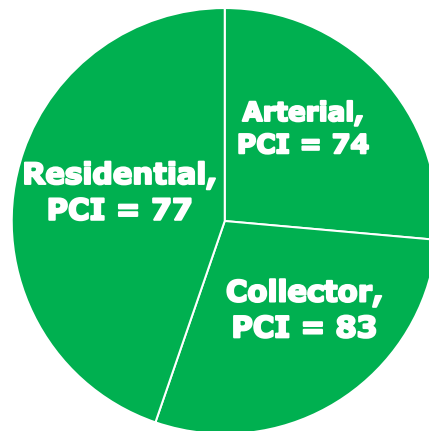


Figure 4. Network Condition Breakdown (Average PCI) by Functional Classification

Table 2. Pavement Condition Breakdown by Functional Classification

Condition Category	PCI Range	Arterials	Collectors	Residentials	Entire Network (%)
		(%)	(%)	(%)	
Good	70-100	15.8	23.5	30.9	73.2
Fair	50-69	9.2	5.4	13.6	28.2
Poor	25-49	1.5	0.0	0.1	1.6
Failed	<25	0.0	0.0	0.0	0.0
Total	-	26.5	28.9	44.6	100.0

Decision Tree Update

As part of the Town of Moraga's 20-Year Paving Plan, NCE met with Town staff and presented a range of Maintenance and Rehabilitation (M&R) options tailored to the Town's roadway conditions and funding outlook. Based on these discussions, the Town's current M&R strategies emphasize cost-effective preventive treatments and are structured to preserve roadway assets over time.

In general, the treatment selection follows this condition-based approach:

- Good condition: Surface seals with crack sealing
- Fair condition: Surface seal (e.g., rubberized cape seal) or a thin mill & overlay
- Poor condition: Mill & overlay with a higher proportion of base repairs
- Failed condition: Full Depth Reclamation (FDR) with HMA overlay or full surface reconstruction

These strategies have been formalized into decision trees (refer to Appendix A), which serve as a critical component of the StreetSaver® software's budget needs analysis and scenario development.

The increases in the treatment costs reflected in the decision tree are based on actual bid costs from the Town and surrounding agencies. These costs include adjustments for inflation and rising construction prices observed in the San Francisco Bay Area market.

Research and industry experience consistently show that maintaining pavement in good condition is significantly more cost-effective than rehabilitating pavement that has deteriorated or failed. As an example, treatments such as crack sealing and slurry seal cost approximately \$19.50/square yard, while a rubberized cape seal may cost \$42.40/square yard, and a 4" FDR may reach \$150.80/square yard. This underscores the value of early action—delaying repairs leads to steep cost increases and limits the extent of roadway improvements possible within a given budget.

Also, a surface seal can be placed on approximately 14 times as many lane miles as those requiring surface reconstruction, reinforcing the importance of prioritizing preventative maintenance treatments whenever possible.

¹ Note: The StreetSaver® “Maintenance and Rehabilitation Decision Tree” divides the “Fair” condition category to separate pavements with primarily non-load-related distresses (e.g., longitudinal cracking) from those with load-related distresses (e.g., fatigue cracking).

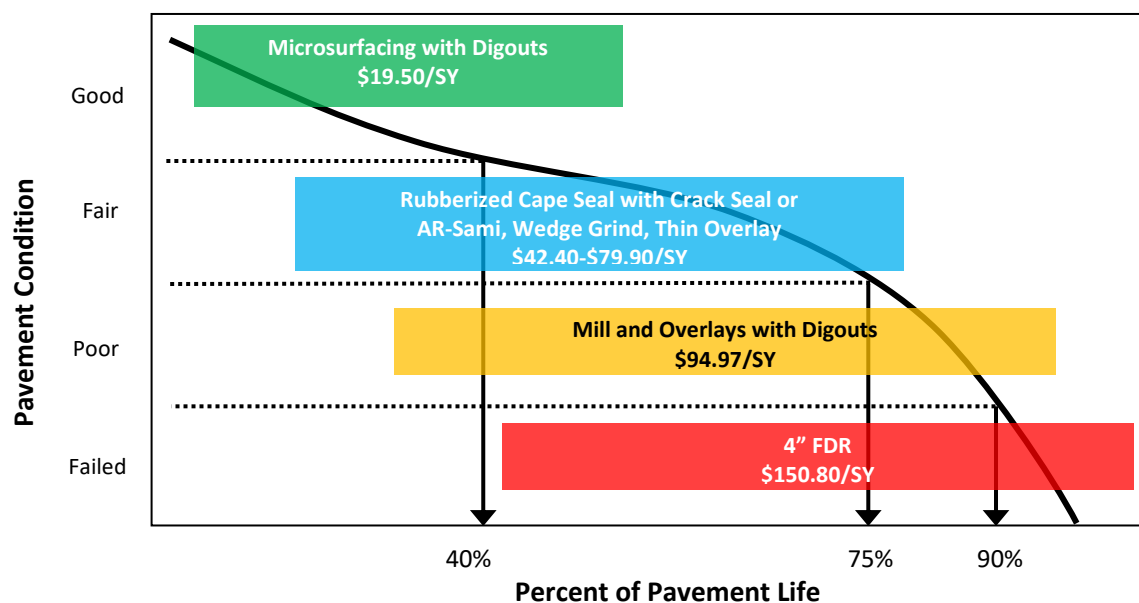


Figure 5. Costs of Maintaining Residential Streets in the Town overtime

Field investigation

Field reviews were conducted to verify pavement condition and pavement strategies for the entire pavement network in the Town. The field investigation was performed in the following steps:

- 1) The condition of the streets was noted as observed through the windshield of a slow-moving vehicle including type and severity of common distresses, such as cracking or patches.
- 2) A brief walking investigation was conducted on streets with multiple types of distresses such as longitudinal and transverse cracking with localized alligator cracking or potholes.
- 3) An estimation of base repairs percentage needed for any potential treatment was recorded based on pavement conditions, especially pumping or localized areas of depression observed in the pavement section.
- 4) The following general rules were followed to select the treatment needed for each pavement section:

- a. Streets with low to medium severity of longitudinal and transverse cracking were assigned a microsurfacing.
- b. Streets with medium to high severity longitudinal and transverse cracking were assigned a rubberized cape seal along with a higher proportion of base repairs to address localized depressions. These streets exhibit frequent longitudinal and transverse cracking that will reflect through a slurry seal application and hence need a rubberized cape seal.
- c. Streets with low and medium severity alligator cracking widespread in the pavement section were selected for a mill and overlay. Alligator cracking typically starts at the bottom of the asphalt layer and needs a structural intervention to rehabilitate the pavement condition.

Recommended Rehabilitation and Maintenance

After considering traditional design and value engineering options, the following rehabilitation and maintenance options were selected:

Microsurfacing

Microsurfacing is a carefully engineered mixture of polymer-modified asphalt emulsion, water, well-graded fine aggregate, mineral filler, and other additives that forms a thick, paste-like consistency when applied. Once placed on the pavement, the polymer-modified emulsion quickly breaks and begins to set, allowing the mixture to cure. Upon curing, the material bonds firmly to the existing pavement, creating a durable and skid-resistant surface. Microsurfacing is used to address more severe surface distresses than slurry seal, including moderate rutting, surface oxidation, and minor cracking. It can be applied on higher-volume roadways due to its quicker cure time and enhanced durability. Microsurfacing improves ride quality, enhances surface friction, seals the pavement against moisture intrusion, slows oxidation, and restores a uniform, dark appearance—ultimately extending the life of the pavement.

Rubberized Cape Seal

Rubberized Cape Seal added advantage of a slurry seal. It is a three-part process that involves the application of a rubberized asphalt emulsion, followed by an application of chip seal aggregate (typically 3/8 inch aggregate size), and then application of slurry seal. Rubberized Cape Seal provides a durable, skid-resistant surface that seals out moisture and protects the underlying pavement structure from further damage.

Rubberized chip seals are typically proposed for the streets with more prevalent longitudinal and transverse cracks and scattered low to medium load-related distresses throughout pavement. Crack sealing is highly recommended before application of chip seal layer to improve the performance of the cape seal.

Mill and Overlay

In mill-and-overlay treatment, a portion of the existing AC surface is removed, base repairs are performed at select locations, and a new AC overlay is placed. Since the existing pavement thickness will have variations throughout the project length, AC layer lift thickness was recorded at all core locations to come up with a mill depth that will leave at least 1.5 inches of the existing surface course intact. This protects the remaining material during milling.

The mill-and-overlay treatment is generally proposed for pavements that exhibit a mix of non-load-related and load-related distresses where high-severity distressed areas with base failure do not exceed approximately 25% of the total section area. This treatment is also appropriate for pavements with a small amount of load-related-

distresses where milling of thin layer of asphalt section, followed by applying a thin AC overlay, will provide adequate structural capacity. Areas of high-severity, load-related distress are usually marked for base repair.

Workplan Summary

As part of the Town of Moraga's 20-Year Paving Plan, NCE used the StreetSaver® pavement management software to generate optimized maintenance and rehabilitation scenarios. These scenarios were developed using the latest condition data, treatment decision trees, and cost assumptions to help guide long-term planning and funding strategies.

StreetSaver's optimization approach incorporates functional class weighting, giving higher priority to arterial and collector streets due to their higher traffic volumes and faster deterioration. Residential streets, which experience lower wear, are assigned lower weights. This ensures that critical roadways are maintained efficiently while still addressing the needs of local streets across the network.

While NCE previously developed 24 preliminary neighborhood groupings to assist with long-term coordination and minimize disruption, these groupings were not used in generating the current scenarios. However, they are expected to play a more significant role in future implementation and planning efforts.

Each scenario assumes a 20-year planning horizon and a 3% annual inflation and interest rate. The five scenarios listed below reflect different combinations of Measure K funding duration and storm drain funding scope (Operations & Maintenance [O&M] and Capital). These scenarios will help the Town evaluate trade-offs between long-term pavement condition, available funding, and community priorities.

A map of the preliminary neighborhood groupings is provided in Appendix B, and detailed outputs for each scenario are included in the following sections.

Scenario #	Scenario Name (for Report)	Description
1	Scenario 1 – MK 20 Years, Full Storm Drain (O&M + Capital)	Measure K for full 20 years; includes full Storm Drain cutout (O&M + Capital) every year.
2	Scenario 2 – MK 7 Years, Full Storm Drain (O&M + Capital)	Measure K only for first 7 years; no MK from year 8–20. Full Storm Drain cutout (O&M + Capital) all years.
3	Scenario 3 – MK 20 Years, Storm Drain O&M Only	Measure K for full 20 years; Storm Drain cutout includes only O&M (no capital).
4	Scenario 4 – MK 7 Years, Storm Drain O&M Only	Measure K for first 7 years only; no MK from year 8–20. Storm Drain cutout includes only O&M.
5	Scenario 5 – MK Split: Full SD Years 1–7, O&M Only Years 8–20	Measure K for full 20 years. First 7 years: full Storm Drain cutout (O&M + Capital); years 8–20: O&M only.

Scenario 1: Measure K Funding for 20 Years with Full Storm Drain Costs Included

This scenario assumes the continued availability of Measure K funds for the full 20-year analysis period, along with an annual cutout of \$600,000 to support both Operations & Maintenance (O&M) and capital needs for the Storm Drain Program. A total pavement budget of approximately \$74.3 million was allocated under this scenario to generate a 20-year prioritized work plan for the Town's street network.

The work plan identifies pavement sections selected for treatment by year and treatment type. These details are included in Appendix C.

Table 3 summarizes the key outputs of this scenario, including annual budget levels and projected average network PCI values. Over the 20-year period, the average PCI is maintained in the 70s, with a gradual decline as funding is stretched across increasing needs. This scenario provides a balanced approach to maintaining network condition while supporting storm drain infrastructure investments

Table 3. Scenario 1 20-Year Workplan Summary

1_MK_20YR_SD_FULL		
Year	Budget	Average Network PCI
25/26	\$2,444,810	79
26/27	\$2,452,784	79
27/28	\$2,535,998	78
28/29	\$2,621,708	77
29/30	\$2,709,989	76
30/31	\$2,800,919	75
31/32	\$2,894,576	75
32/33	\$3,591,044	75
33/34	\$3,690,405	74
34/35	\$3,792,747	74
35/36	\$3,898,159	74
36/37	\$4,006,734	73
37/38	\$4,118,566	73
38/39	\$4,233,753	72
39/40	\$4,352,396	72
40/41	\$4,474,598	72
41/42	\$4,600,466	71
42/43	\$4,730,110	71
43/44	\$4,863,643	70
44/45	\$5,001,182	70

Scenario 2: Measure K for 7 Years Only – Full Storm Drain Deduction All Years

This scenario looks at the impact of receiving Measure K funding only for the first 7 years (FY 25/26 to 31/32), with no Measure K funding from year 8 onward (FY 32/33 to 44/45). Throughout the 20-year period, the pavement budget continues to deduct the full cost of the storm drain program (both Operations & Maintenance and Capital) every year.

As shown in the table, the network PCI starts at 79 and gradually declines due to the reduced funding in the later years. By FY 44/45, the PCI drops to 52. While the program begins with a similar investment level as Scenario 1, the sharp reduction in pavement funding after year 7 limits the Town's ability to maintain overall pavement conditions in the long term. This scenario highlights the importance of sustained funding in order to preserve the street network condition over time.

Table 4. Scenario 2 20-Year Work Plan Summary

2_MK_7YR_SD_FULL		
Year	Budget	Average Network PCI
25/26	\$2,444,810	79
26/27	\$2,452,784	79
27/28	\$2,535,998	78
28/29	\$2,621,708	77
29/30	\$2,709,989	76
30/31	\$2,800,919	75
31/32	\$2,894,576	75
32/33	\$605,913	73
33/34	\$615,720	72
34/35	\$625,822	70
35/36	\$636,226	69
36/37	\$646,943	67
37/38	\$657,982	65
38/39	\$669,351	64
39/40	\$681,061	62
40/41	\$693,123	60
41/42	\$705,547	58
42/43	\$718,343	56
43/44	\$731,524	54
44/45	\$745,099	52

Scenario 3: Measure K 20 Years, Storm Drain O&M Only

This scenario assumes that Measure K funding is available consistently for all 20 years of the planning period. However, unlike Scenario 1, the storm drain contribution is limited to operations and maintenance (O&M) only, without additional capital improvement funding.

As shown in Table 5, the total 20-year budget for this scenario is approximately \$85.8 million. With this investment, the Town is able to maintain the network average PCI in the mid-70s, ending with a PCI of 73 in the final year (2044/45). This scenario demonstrates the positive impact of continuous funding through Measure K, even when storm drain expenditures are limited to essential maintenance.

Overall, this plan offers a steady pavement condition trajectory and reflects a practical funding approach that prioritizes preservation and maintenance of the Town's infrastructure over the long term.

Table 5. Scenario 2 20-Year Work Plan Summary

3_MK_20YR_SD_OM		
Year	Budget	Average Network PCI
25/26	\$3,044,810	80
26/27	\$3,052,784	79
27/28	\$3,135,998	78
28/29	\$3,221,708	77
29/30	\$3,309,989	77
30/31	\$3,400,919	76
31/32	\$3,494,576	76
32/33	\$4,191,044	76
33/34	\$4,290,405	76
34/35	\$4,392,747	75
35/36	\$4,498,159	75
36/37	\$4,606,734	75
37/38	\$4,718,566	75
38/39	\$4,833,753	75
39/40	\$4,952,396	75
40/41	\$5,074,598	74
41/42	\$5,200,466	74
42/43	\$5,330,110	73
43/44	\$5,463,643	73
44/45	\$5,601,182	73

Scenario 4: Measure K for 7 Years, Storm Drain O&M Only

This scenario assumes Measure K funding is available only for the first 7 years, with no additional funding from years 8 to 20. The budget accounts for storm drain operation and maintenance (O&M) costs throughout the 20-year plan, but does not include capital storm drain improvements.

Under this approach, the initial investment leads to a network PCI of 80 in FY 25/26. However, without Measure K funding beyond year 7, the pavement condition begins to decline steadily from year 8 onward. By the end of the analysis period in FY 44/45, the network PCI drops to 56.

This scenario highlights the impact of reducing long-term investment in pavement infrastructure. It suggests that while short-term gains in pavement condition can be achieved, the lack of sustained funding results in a long-term decline in overall network health. Table 6 summarizes the annual budget and projected PCI values for this scenario.

Table 6. Scenario 2 20-Year Work Plan Summary

4_MK_7YR_SD_OM		
Year	Budget	Average Network PCI
25/26	\$3,044,810	80
26/27	\$3,052,784	79
27/28	\$3,135,998	78
28/29	\$3,221,708	77
29/30	\$3,309,989	77
30/31	\$3,400,919	76
31/32	\$3,494,576	76
32/33	\$1,205,913	74
33/34	\$1,215,720	73
34/35	\$1,225,822	72
35/36	\$1,236,226	71
36/37	\$1,246,943	69
37/38	\$1,257,982	68
38/39	\$1,269,351	66
39/40	\$1,281,061	65
40/41	\$1,293,123	63
41/42	\$1,305,547	62
42/43	\$1,318,343	60
43/44	\$1,331,524	58
44/45	\$1,345,099	56

Scenario 5: Measure K Split: Full Storm Drain (Years 1–7), O&M Only (Years 8–20)

In this scenario, Measure K funding is provided over the full 20-year period. However, the allocation for Storm Drain (SD) cutouts shifts midway. For the first seven years, the SD cutouts include both Operations & Maintenance (O&M) and Capital expenses. From years 8 through 20, the budget supports only O&M, with Capital expenses removed.

This hybrid approach helps sustain consistent investment throughout the program while reducing overall long-term costs. The total estimated budget for this scenario is approximately \$81.3 million over the 20-year period. The average PCI remains stable, holding in the low-to-mid 70s in the later years, with a starting PCI of 79 in Year 1 and ending at 72 in Year 20.

This scenario aims to balance early comprehensive investment with moderate long-term spending while still maintaining the overall condition of the street network.

Table 7. Scenario 2 20-Year Work Plan Summary

5_MK_SPLIT_SD_MIX		
Year	Budget	Average Network PCI
25/26	\$2,444,810	79
26/27	\$2,452,784	79
27/28	\$2,535,998	78
28/29	\$2,621,708	77
29/30	\$2,709,989	76
30/31	\$2,800,919	75
31/32	\$2,894,576	75
32/33	\$4,191,044	75
33/34	\$4,290,405	75
34/35	\$4,392,747	74
35/36	\$4,498,159	74
36/37	\$4,606,734	74
37/38	\$4,718,566	74
38/39	\$4,833,753	74
39/40	\$4,952,396	74
40/41	\$5,074,598	73
41/42	\$5,200,466	73
42/43	\$5,330,110	73
43/44	\$5,463,643	73
44/45	\$5,601,182	72

Figure 6 shows the projected PCI over the next 20 years under each of the five funding scenarios. All scenarios start at a PCI of 78 in FY 25/26 and reflect how different combinations of Measure K funding and storm drain costs impact pavement conditions over time.

- **Scenario 1** (Measure K all 20 years, full storm drain): PCI gradually drops to 70.
- **Scenario 2** (Measure K for 7 years, full storm drain): PCI drops sharply to 52.
- **Scenario 3** (Measure K all 20 years, storm drain O&M only): PCI stays highest at 73.
- **Scenario 4** (Measure K for 7 years, storm drain O&M only): PCI drops to 56.
- **Scenario 5** (Measure K full 20 years, storm drain full for 7 years, O&M only for 8–20): PCI ends at 72.

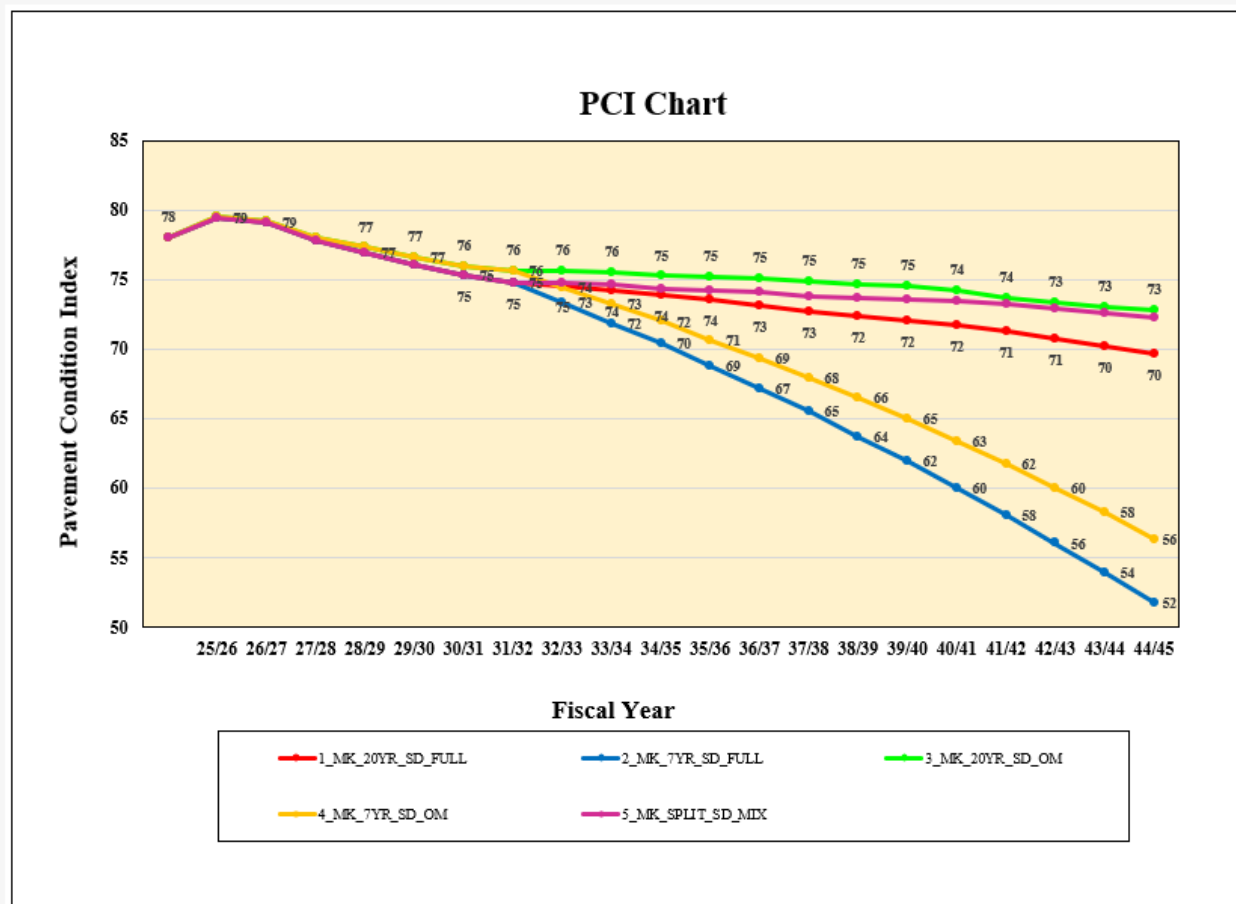


Figure 6: Projected Pavement Condition Index (PCI) for All Scenarios (FY 25/26 – 44/45)

Closure

We trust this letter report provides the necessary information at this time. If you have any further questions, please contact us at (510) 215-3620.

Yours very truly,

Nichols Consulting Engineers, Chtd.

Jakrit Yoojaroen

Staff Engineer I

Vijay Pulijal, PE, PMP

Principal Engineer

Attachments:

Appendix A: Maintenance and Rehabilitation Decision Tree

Appendix B: Neighborhood Map

Appendix B: Scenarios - Summaries/Workplans/Maps 2025-2044

Appendix C: Backup Scenarios – Needs/Maintain PCI/ 5-Pt Increase

Appendix A

Maintenance and Rehabilitation Decision Tree

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Arterial	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	3		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		7	
			Restoration Treatment	DO NOTHING	\$0.00			2
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		7	
				AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	3		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		7	
			Restoration Treatment	DO NOTHING	\$0.00			2
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		7	
				AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	3		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		6	
			Restoration Treatment	DO NOTHING	\$0.00			2
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40			
				AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	3		

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Arterial			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			
	ST	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	9		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Collector	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		7	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		7	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		7	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		7	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90		7	
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		7	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40			
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$94.97			
		V - Very Poor		FDR 4" HMA	\$150.80			
	PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
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Decision Tree: Default

Collector			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			
	ST	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Residential/Local	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		8	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 3" HMA	\$135.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		8	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 3" HMA	\$135.80			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40			
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 3" HMA	\$135.80			
	PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40			
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 3" HMA	\$135.80			
		I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Residential/Local			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			
	ST	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree:	Default							
Other	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		8	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 4" HMA	\$135.80			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40		8	
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 4" HMA	\$135.80			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	4		
			Surface Treatment	MICROSURFACING W/ 3% DIGOUTS	\$19.50		8	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		RUBBERIZED CAPE SEAL WITH CRACK SEAL (5% DO)	\$42.40			
		III - Good, Load Related		AR-SAMI,WEDGE GRIND,1.5"HMA OL (5% DO)	\$79.90			
		IV - Poor		MILL 3" & OVERLAY 3" (15% DIGOUTS)	\$91.97			
		V - Very Poor		FDR 4" HMA	\$135.80			
	PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	9		

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 3/26/2025

Functional Class	Surface	Condition Category	Treatment Type	Treatment	Cost/Sq Yd, except Seal Cracks in LF:	Yrs Between Crack Seals	Yrs Between Surface Seals	# of Surface Seals before Overlay
Decision Tree: Default								
Other			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			
	ST	I - Very Good	Crack Treatment	SEAL CRACKS	\$2.13	9		
			Surface Treatment	DO NOTHING	\$0.00		15	
			Restoration Treatment	DO NOTHING	\$0.00			99
		II - Good, Non-Load Related		DO NOTHING	\$0.00			
		III - Good, Load Related		DO NOTHING	\$0.00			
		IV - Poor		DO NOTHING	\$0.00			
		V - Very Poor		DO NOTHING	\$0.00			

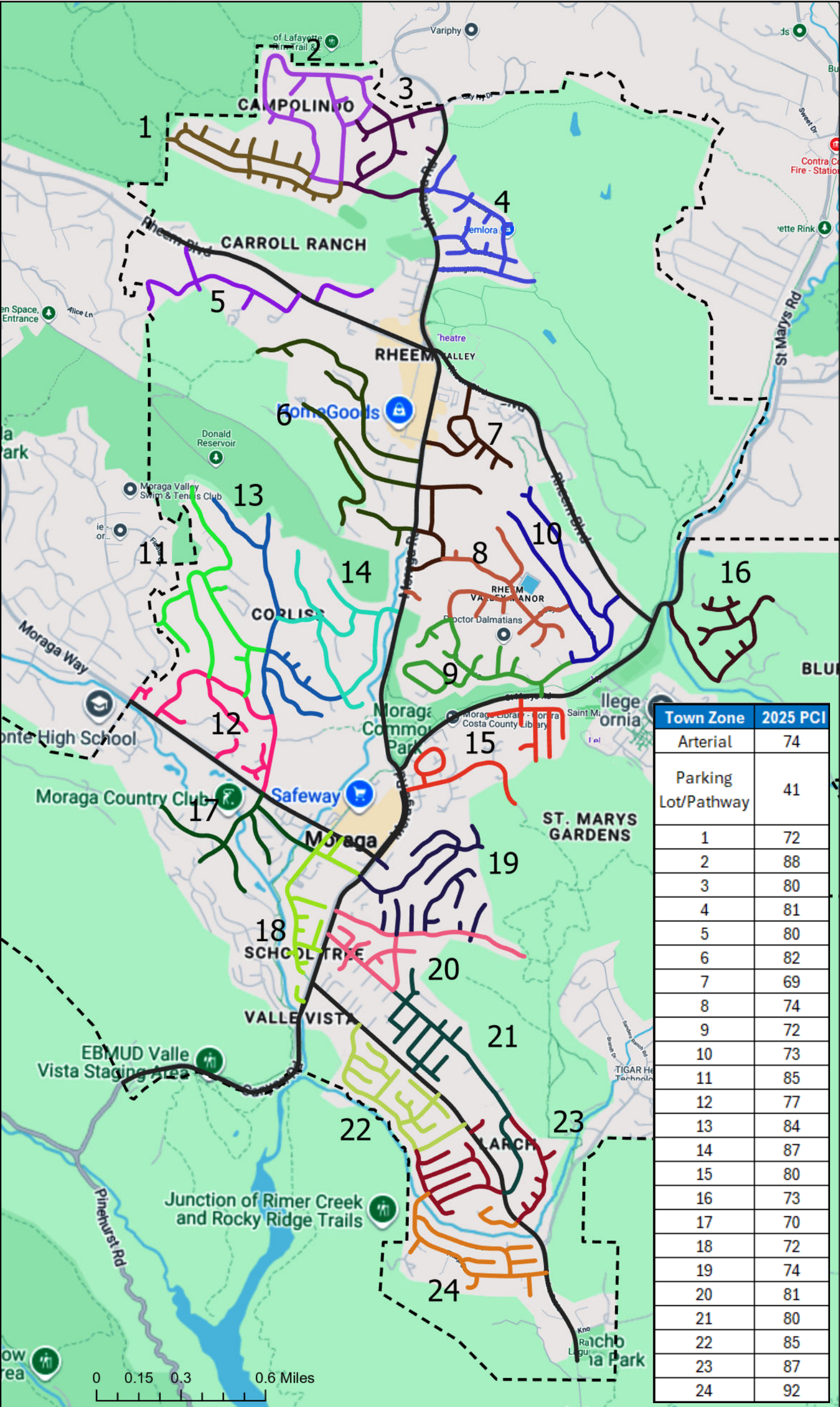
Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Appendix B

Neighborhood Map

Moraga PCIs By Neighborhood



ATTACHMENT G

Street Rehabilitation Management Program Funding
Scenarios FY 25 through FY 44

	Scenario No. 1		Scenario No. 2		Scenario No. 3		Scenario No. 4		Scenario No. 5		Scenario No. 6		Scenario No. 7		Scenario No. 8	
Scenario Descriptions	Full Budget with Measure K for 20 Years and Includes Funding for separate Storm Drain Projects		Full Budget with Measure K for 7 Years and Includes Funding for separate Storm Drain Projects		Full Budget with Measure K for 20 Years and NO Funding for separate Storm Drain Programs		Full Budget with Measure K for 7 Years and NO Funding for separate Storm Drain Programs		Full Budget with Measure K for 20 Years and Includes 7 Years Funding for separate Storm Drain Projects		Maintain Network PCI at 78 with unlimited Annual Budget. No funding for separate Storm Drain Projects		Increase Network PCI by 5 Points with unlimited Annual Budget. No funding for separate Storm Drain Projects		Network Needs with unlimited Annual Budgeting to bring up Nextwork to lower-cost Preventable Maintenance workplan. No Storm Drain Projects	
Year	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI	Budget	Average Network PCI
25/26	\$ 2,444,810	79	\$ 2,444,810	79	\$ 3,044,810	80	\$ 3,044,810	80	\$ 2,444,810	79	\$ -	78	\$ 22,610,532	82	\$ 22,610,532	82
26/27	\$ 2,452,784	79	\$ 2,452,784	79	\$ 3,052,784	79	\$ 3,052,784	79	\$ 2,452,784	79	\$ 5,026,937.9	78	\$ 5,929,700	81	\$ 5,987,270	81
27/28	\$ 2,535,998	78	\$ 2,535,998	78	\$ 3,135,998	78	\$ 3,135,998	78	\$ 2,535,998	78	\$ 11,844,611.8	78	\$ 5,289,790	80	\$ 5,393,003	80
28/29	\$ 2,621,708	77	\$ 2,621,708	77	\$ 3,221,708	77	\$ 3,221,708	77	\$ 2,621,708	77	\$ 8,524,334.9	78	\$ 3,736,869	80	\$ 3,846,770	80
29/30	\$ 2,709,989	76	\$ 2,709,989	76	\$ 3,309,989	77	\$ 3,309,989	77	\$ 2,709,989	76	\$ 4,684,991.1	78	\$ 4,285,576	79	\$ 4,454,446	79
30/31	\$ 2,800,919	75	\$ 2,800,919	75	\$ 3,400,919	76	\$ 3,400,919	76	\$ 2,800,919	75	\$ 5,391,639.6	78	\$ 1,802,757	78	\$ 1,891,986	78
31/32	\$ 2,894,576	75	\$ 2,894,576	75	\$ 3,494,576	76	\$ 3,494,576	76	\$ 2,894,576	75	\$ 4,022,018.1	78	\$ 2,972,503	77	\$ 3,149,916	77
32/33	\$ 3,591,044	75	\$ 605,913	73	\$ 4,191,044	76	\$ 1,205,913	74	\$ 4,191,044	75	\$ 4,698,260.8	78	\$ 6,753,804	77	\$ 7,226,387	77
33/34	\$ 3,690,405	74	\$ 615,720	72	\$ 4,290,405	76	\$ 1,215,720	73	\$ 4,290,405	75	\$ 4,884,315.3	78	\$ 5,008,215	77	\$ 5,410,681	77
34/35	\$ 3,792,747	74	\$ 625,822	70	\$ 4,392,747	75	\$ 1,225,822	72	\$ 4,392,747	74	\$ 10,919,433.8	78	\$ 4,122,175	77	\$ 4,496,674	77
35/36	\$ 3,898,159	74	\$ 636,226	69	\$ 4,498,159	75	\$ 1,236,226	71	\$ 4,498,159	74	\$ 3,469,336.5	77	\$ 3,054,287	76	\$ 3,364,116	76
36/37	\$ 4,006,734	73	\$ 646,943	67	\$ 4,606,734	75	\$ 1,246,943	69	\$ 4,606,734	74	\$ 3,948,436.4	77	\$ 2,345,926	75	\$ 2,608,985	75
37/38	\$ 4,118,566	73	\$ 657,982	65	\$ 4,718,566	75	\$ 1,257,982	68	\$ 4,718,566	74	\$ 3,923,303.7	76	\$ 4,222,589	75	\$ 4,741,679	75
38/39	\$ 4,233,753	72	\$ 669,351	64	\$ 4,833,753	75	\$ 1,269,351	66	\$ 4,833,753	74	\$ 5,170,729.2	76	\$ 5,551,258	75	\$ 6,294,205	75
39/40	\$ 4,352,396	72	\$ 681,061	62	\$ 4,952,396	75	\$ 1,281,061	65	\$ 4,952,396	74	\$ 8,032,843.2	77	\$ 10,373,560	76	\$ 11,876,088	76
40/41	\$ 4,474,598	72	\$ 693,123	60	\$ 5,074,598	74	\$ 1,293,123	63	\$ 5,074,598	73	\$ 9,919,479.4	78	\$ 10,027,248	77	\$ 11,591,069	77
41/42	\$ 4,600,466	71	\$ 705,547	58	\$ 5,200,466	74	\$ 1,305,547	62	\$ 5,200,466	73	\$ 5,201,055.3	78	\$ 6,740,730	77	\$ 7,867,646	77
42/43	\$ 4,730,110	71	\$ 718,343	56	\$ 5,330,110	73	\$ 1,318,343	60	\$ 5,330,110	73	\$ 7,302,031.8	78	\$ 10,188,987	78	\$ 12,007,842	78
43/44	\$ 4,863,643	70	\$ 731,524	54	\$ 5,463,643	73	\$ 1,331,524	58	\$ 5,463,643	73	\$ 6,141,684.3	78	\$ 8,864,288	79	\$ 10,548,092	79
44/45	\$ 5,001,182	70	\$ 745,099	52	\$ 5,601,182	73	\$ 1,345,099	56	\$ 5,601,182	72	\$ 6,355,416.4	78	\$ 4,264,470	78	\$ 5,123,790	78
Budget Average	\$ 3,690,729		\$ 1,359,672		\$ 4,290,729		\$ 1,959,672		\$ 4,080,729		\$ 5,973,043		\$ 6,407,263		\$ 7,024,559	
Budget Totals	\$ 68,813,405		\$ 26,448,339		\$ 80,213,405		\$ 37,848,339		\$ 76,013,405		\$ 113,105,443		\$ 123,880,793		\$ 135,367,387	
PCI Low		70		52		73		56		72		76		75		75
PCI Average		74		68		76		70		75		78		78		78
PCI High		79		79		80		80		79		78		82		82

ATTACHMENT H

FY 2024 - 2025 Goals and Priority Street Rehabilitation
Program Progress Update

Subject: 2024-2025 Goals and Priorities – Public Works Department Update

Overview

This memo provides an update on the Public Works Department's progress in advancing the Town Council's 2024-2025 Goals and Priorities. The department continues to utilize available funding sources—including Measure K, Measure J, Gas Taxes, Garbage Impact Fees, and project-specific grants—to support street rehabilitation, storm drain improvements, and traffic safety projects. Efforts also focus on securing additional grant funding to minimize reliance on the General Fund.

Key Public Works Goals & Progress

The Public Works Department is actively addressing the following Town Council priorities:

1. **Street Rehabilitation:** Completion of the 2023-2025 “Worst Residential Streets First” (WRSF) projects, implementation of the revised cost-sharing policy, and improvement of the Town’s Pavement Condition Index.
 - **Status:** The 2024 Street Rehabilitation Project (CIP 23-401 & 24-401) is substantially complete, with all contract and change order work finalized. Remaining punch list items are scheduled for completion by the end of FY 2024-25.
2. **Storm Drain Improvements:** Execution of the 2023-2025 Storm Drain Capital Improvement Projects and ongoing maintenance.
 - **Status:** Completed \$1.6 million in American Rescue Plan Act (ARPA) funds supported 17 priority storm drain repairs, using approximately 95% of the funds. The remaining funds are set for utilization by the end of FY 2024-25.
3. **Traffic Safety Enhancements:** Implementation of pedestrian and bicycle safety measures, particularly near schools, and addressing congestion.
 - **Status:** Multiple traffic safety projects are in progress across five focus areas:

Traffic Safety Project Updates

1. Pedestrian Improvements

Project	CIP #	Status	Estimated Completion
Corliss Drive Safe Routes to School (Phase 1)	21-404	Partial completion; remaining work requires additional funding	TBD
Townwide Safety Improvements (HSIP Cycle 10 & 11)	21-410, 23-415, 23-416, 23-407	Under construction	Various (See below)
Country Club Drive at Viader Drive	See above	Under construction	June 2025
Campolindo Drive at Calle La Mesa	See above	Under construction	June 2025
St. Mary's Road at multiple intersections	See above	Under construction	Oct. 2025
Moraga Way at multiple intersections	See above	Under construction	June 2025
Moraga Road midblock crossings	See above	Under construction	June 2025
Pedestrian Hybrid Beacon at Moraga Rd/Woodford Dr	See above	In-house design, funded by TDA grant	TBD
HSIP Cycle 12 - Townwide Sign Upgrades	24-407	Design in progress	Construction anticipated 2026/2027

2. Cyclist Improvements

Project	CIP #	Status	Completion
Moraga Road Buffered Bike Lanes	-	Completed	2024

3. Traffic Signal Improvements

Project	CIP #	Status	Completion
ADA Compliant Push Button (Moraga Road & Donald)	-	Awaiting delivery for installation	Oct. 2025
Smart Signals	23-412, 23-413	Design in progress	Construction anticipated 2026

4. Complete Streets Projects

Project	CIP #	Status	Completion
Moraga Road/Canyon Road (St. Mary's Rd to Sanders Dr)	23-411	Grant secured; design in progress	Summer 2026
School Street (St. Mary's Road to Moraga Way)	-	Grant secured for study	Study begins Spring/Summer 2025

5. Traffic Safety Studies

Project	CIP #	Status	Completion
Moraga Road Traffic Safety Study	23-404	Completed	2024

Conclusion

The Public Works Department remains on track to complete the 2024-2025 Goals and Priorities as scheduled. Efforts to improve infrastructure, enhance safety, and secure additional funding continue to support the Town's long-term sustainability and quality of life.