Final Report

2021/2022 Pavement Management Program Update

City of Blue Lake

December 2022

NCE

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Executive Summary

The Humboldt County Association of Governments (HCAOG) is a Joint Powers Agency composed of the seven incorporated cities (Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, Trinidad), and the County of Humboldt. It is the designated Regional Transportation Planning Agency (RTPA) as well as the Service Authority for Freeway Emergencies (SAFE). As a part of this process, in 2021, HCAOG acquired the services of an engineering consultant, Nichols Consulting Engineers, Chtd. (NCE), to provide professional and technical services preparing pavement management program (PMP) updates for the county and the cities under HCOAG.

This report summarizes the results of the 2021/2022 update for the City of Blue Lake (City) and its purpose is to help educate policy makers about the current condition of the pavement network and the impact of various funding scenarios on future network condition.

The City's pavement network consists of 7.1 centerline miles of streets, which represents a substantial investment of approximately $12.3 million. In 2022, NCE collected pavement condition data using the Metropolitan Transportation Commission's (MTC) modified ASTM survey procedures. The survey data were entered into the StreetSaver® database, which the City uses as a PMP decision-support tool.

Overall, the City's pavement network is currently in "Fair" condition with an average pavement condition index (PCI) of 55. Approximately 19.7 percent of the network is in "Good" condition while 42 percent is in "Poor" or "Failed" condition.

The budget needs analysis indicated that the City needs to spend $6.3 million over the next ten years to bring the street network to a condition that can be maintained with on-going preventive maintenance in the most cost-effective way. Three alternative budget scenarios were performed to illustrate the impacts of different funding levels. The following table lists each scenario with its corresponding ten-year budget, the PCI and deferred maintenance at the end of the analysis period.

Scenario	Description	10-Year Budget ($M)	2032 PCI	2032 Deferred Maintenance ($M)
1	Existing Funding ($56K/year)	0.56	35	9.4
2	Maintain PCI at 55	3.7	55	5.3
3	Improve PCI to 70	6.0	70	2.0

NCE recommends that at a minimum the City pursue Scenario 3, which will improve the existing network PCI to 70 throughout the next decade. This scenario will increase

the portion of the network in "Good" condition and reduce the deferred maintenance by half. It will require $6.0 million over the next ten years.

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1 Introduction and Background

In 2021, the Humboldt County Association of Governments (HCAOG) solicited interest among its member agencies in participating in a collaborative region-wide pavement management program (PMP) update. The last region wide PMP update was performed in 2017.

The engineering consultant acquired to provide professional and technical services for the PMP updates in the Humboldt region was Nichols Consulting Engineers, Chtd. (NCE). The eight participating member agencies included the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, Trinidad, and the County of Humboldt.

In general, PMPs are "designed to provide objective information and useful data for analysis so that… managers can make more consistent, cost effective, and defensible decisions related to the preservation of a pavement network.[1]"

The goals of the 2021/2022 update were to:

- Update the existing pavement network inventory to include new streets,

- Perform pavement condition surveys,

- Update historical maintenance records (e.g. previously resurfaced pavements),

- Update the maintenance and rehabilitation decision tree and associated costs,

- Perform budgetary analyses and determine funding needs, and

- Prepare a final PMP report documenting the results of the update.

To update the City's PMP, NCE performed walking condition surveys using the Metropolitan Transportation Commission's (MTC) modified[2] ASTM D6433[3] survey procedures. Walking surveys were performed by one or two-person crews to record all pavement distresses on all residential/local roads. The surveys did not include non-pavement issues such as traffic, safety and road hazards, geometric issues, shoulders, sidewalks, curb and gutters, drainage issues, or immediate maintenance needs. All survey data were entered into the City's StreetSaver® database, and pavement condition index (PCI) calculations were performed. NCE then met with agency staff and reviewed and updated the City's decision tree including maintenance

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[1] AASHTO "Guidelines for Pavement Management Systems". American Association of State Highway and Transportation Officials, Washington, DC, July 1990.

[2] PCI Distress Identification Manuals (AC 4th Edition, PCC 3rd Edition), Metropolitan Transportation Commission, San Francisco, CA March 2016.

[3] ASTM D6433-18 Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys, ASTM International, West Conshohocken, PA, 2018, www.astm.org.

and rehabilitation (M&R) strategies and treatment unit costs. A budget needs analysis was then performed, and three budget scenarios were analyzed for the street network.

This report answers the following questions for the City of Blue Lake (City):

- What does the City's pavement network include?

- What is the current condition of the pavement network?

- What are the City's current M&R strategies?

- How much finding is required to perform all needed M&R treatments over the next ten years?

- What effect with the City's existing funding have on the network condition and overall deferred maintenance?

- What effect will other funding levels have on the network condition and deferred maintenance?

2   Network Summary

The City is responsible for maintaining approximately 7.1 centerline miles of streets (or 74 pavement sections). The network is composed of entirely asphalt concrete (AC) pavements. Table 1 summarizes the street network by functional classification.

Table 1. Network Summary Statistics

Functional Class	Number of Sections	Centerline Miles	Lane Miles	Network Area (%)
Collectors	3	0.7	1.3	10.0
Residential	71	6.4	12.9	90.0
Total	**74**	**7.1**	**14.2**	**100**

The street network replacement cost is estimated to be approximately $12.3 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. This is approximately 38% higher than estimate provided in 2017 PMP update. The replacement cost is calculated by multiplying the total pavement area by the unit cost of reconstruction of the pavement structure. The unit cost of reconstruction has increased by an average of more than 50% for all functional classes since the last update due to changes in treatment strategies and increased material costs. As a result, the replacement cost has increased overall. It does not include related infrastructure assets such as sidewalks, signals, markings, signs, or storm drains.

3   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.

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 Streets with Different PCIs

A list of all sections in the network along with their attributes, including the PCI at the time of last inspection, is provided in Appendix A. For convenience, two versions are provided – one sorted alphabetically by street name and the other sorted by descending PCI.

3.1   CITY'S PAVEMENT CONDITION INDEX

The current average PCI for the City's network is 55. This value is an area-weighted calculation performed in StreetSaver® and is based on the condition survey performed in 2022.

Figure 2 illustrates the City's historical network PCI at the years of inspection. The pavement condition decreased from the 2009 inspection. However, the city has maintained the pavement condition in the mid and low 50s since the last inspection in 20016.
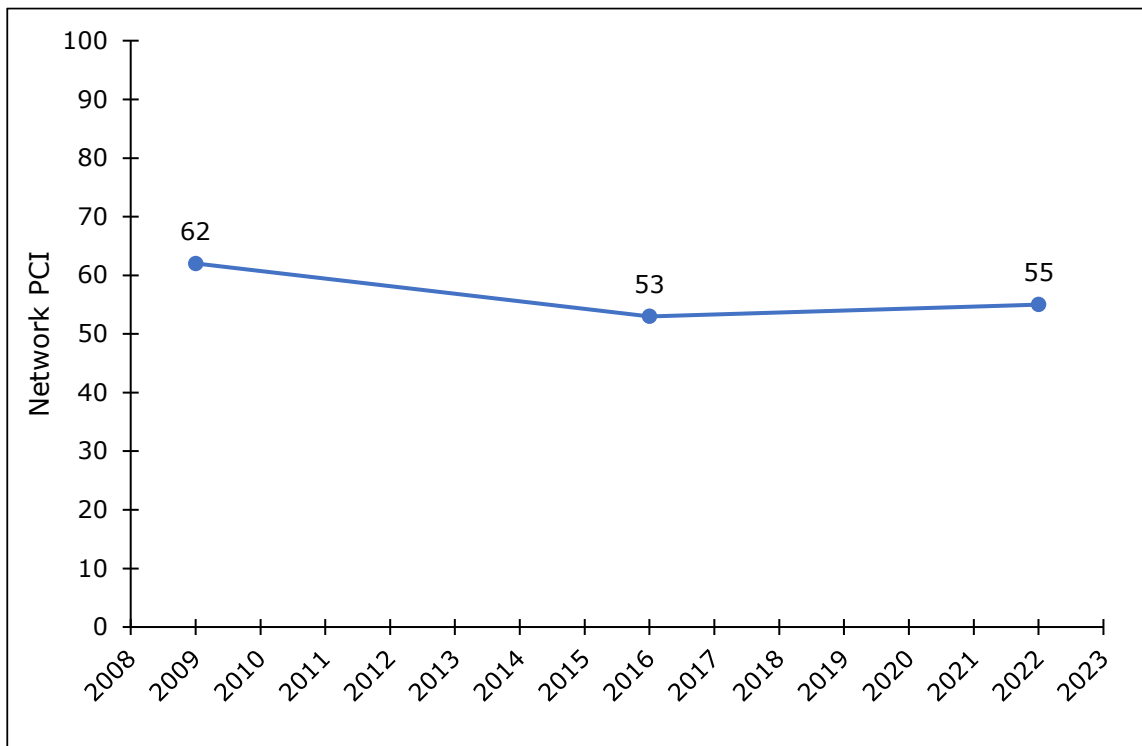
Figure 2. Historical Network PCI since 2010

3.2   CITY'S NETWORK CONDITION BREAKDOWN

Figure 3 breaks down the current street network PCI by functional classification. Note from the figure that the City only has collectors and residential roads. The PCI of City's collectors is higher than the residentials with an average PCI of 67 and 53, respectively. Table 2 summarizes the street network by condition category and functional classification. Approximately, 58 percent of the network is under "Good" to "Fair" condition.

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

Collectors, PCI 67

Residentials, PCI 53
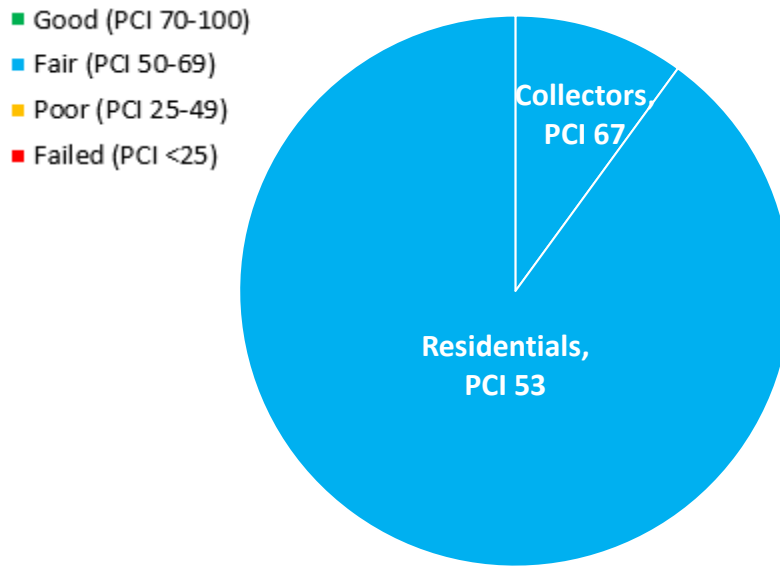
Figure 3. Network Condition Breakdown by Functional Classification

Table 2. Pavement Condition Breakdown by Functional Class

Condition Category	PCI Range	Collectors (%)	Residentials (%)	Entire Network (%)
Good	70-100	5.6	14.1	19.7
Fair	50-69	4.4	33.9	38.3
Poor	25-49	0.0	37.9	37.9
Failed	<25	0.0	4.1	4.1
Total	-	10.0	90.0	100.0

3.3   PCI COMPARISON WITH NEIGHBORING AGENCIES

Figure 4 shows the City's average network PCI compared to other HCAOG agencies as well as the statewide average PCI from the 2020 California Statewide Local Streets and Roads Needs Assessment[4]. As illustrated, the City's average network PCI is in

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[4] "California Statewide Local Streets and Roads Needs Assessment 2020 Update". Nichols Consulting Engineers, Chtd., CA, 2021.

lower group compared toother HCAOG agencies and is 11 points below the 2020 statewide average.
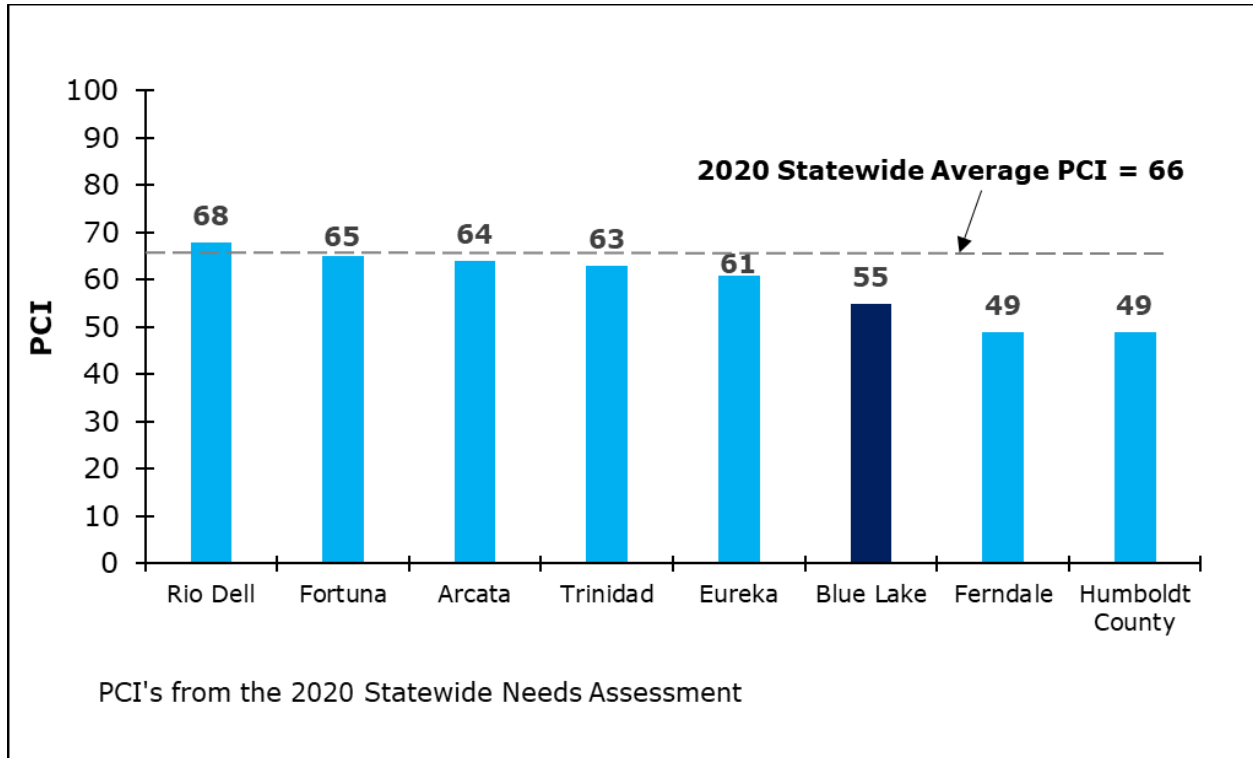
Figure 4. Comparison of Network PCI to Other HCAOG Agencies

4   Maintenance and Rehabilitation Strategies

The City's current M&R strategies include cost-effective preventive treatments. In general, slurry seals will be applied to pavements in "Good" condition; pavements in "Fair" condition will receive a slurry seal or a hot mix asphalt (HMA) overlay; pavements in "Poor" condition will receive thin HMA overlay with digouts; finally, pavements in "Failed" condition will receive thick HMA overlay with digouts. The City's M&R strategies are formalized into a decision tree[5] (presented in Appendix B), which is instrumental in performing the budget needs analysis and budget scenarios. Note that pavement strategies were modified based on City's comments in this update.

Experience and research have shown that it costs much less to maintain pavement in good condition than to repair pavement that has already failed. The costs associated to each treatment type for residential streets are shown in Figure 5. By allowing pavements to deteriorate, streets that once cost $5.25/square yard (SY) to seal may soon cost $58.75/SY to do a thin overlay, or $77.75 for a thick overlay. In other words, delaying repairs can significantly increase M&R costs. Note that a slurry seal can be placed on approximately 15 times as many lane miles as those requiring thick overlays.
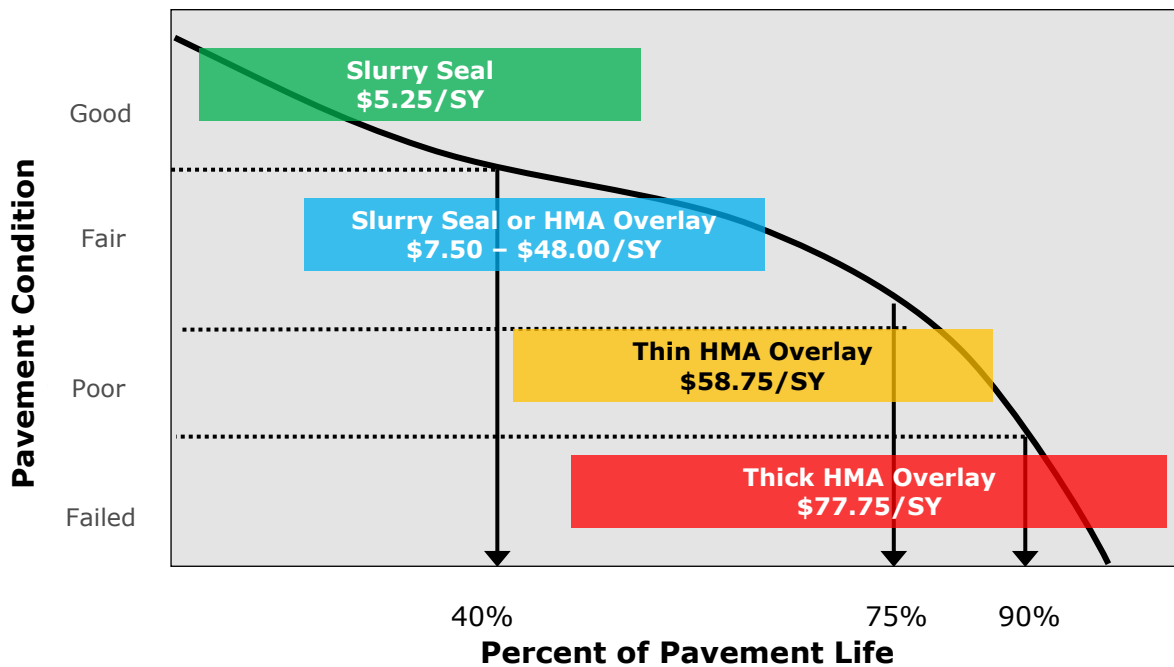
Figure 5. Costs of Maintaining Pavements Over Time for Residential Roads

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[5] 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).

5   Budget Analyses

Based on the principle that it costs less to maintain streets in good condition than it does to repair those that have failed, cost-effective PMPs employ strategies that eliminate the deferred maintenance[6] and then maintain the network with on-going preventive maintenance. Such strategies bring the network condition to an optimal PCI that can be maintained over time.

The first step in developing such a cost-effective strategy is to determine the total maintenance budget needs of the network. The next step is to conduct alternative budget scenario analyses. In consultation with the City, three funding scenarios were selected for analysis and performed using StreetSaver®:

- **Scenario 1: Existing Budget** – This scenario assumes the City will spend approximately $56,000 per year on pavement M&R for the next ten years.
- **Scenario 2: Maintain PCI** – This scenario aims to maintain the existing network PCI at 55 over the next ten years.
- **Scenario 3: Improve PCI** – This aims to improve the network PCI to 70 over the next ten years.

The budget needs analysis and budget scenarios are presented in the following subsections. The detailed results of the budget needs analysis are provided in Appendix C. The detailed results of the budget scenarios are provided in Appendix D. Additionally, maps illustrating the current pavement condition and the projected 2032 pavement condition for each scenario are provided in Appendix E.

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[6] Deferred maintenance is M&R not performed due to insufficient funding.

5.1   Bᴜᴅɢᴇᴛ Nᴇᴇᴅs Aɴᴀʟʏsɪs

The total budget needs for the network represents the cost associated with performing M&R treatments at the optimal time – optimal meaning the PCI is maximized and the cost is minimized – over the analysis period. This was done by performing a budget needs analysis in StreetSaver® with an inflation rate of four percent for an analysis period of ten years.

The results of the budget needs analysis are presented in Table 3. The total budget needs for the City for the next ten years is estimated to be $6.3 million. Of the total budget needs, approximately $0.7 million (11.3 percent) is devoted to preventive maintenance, while the rest is allocated for more costly rehabilitation and reconstruction treatments.

Table 3. Summary Results for Budget Needs Analysis

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Budget Needs ($M)	4.1	0.0	0.1	0.0	0.0	0.4	0.0	0.5	0.7	0.5	6.3
Treated PCI	88	84	82	80	78	79	77	77	81	83	NA
Untreated PCI	54	51	49	46	44	41	38	36	33	30	NA

If the City follows this ideal, cost-effective strategy, the average network PCI will immediately increase as a large amount of deferred maintenance is addressed in the first year, and then stabilize between high 70s and low-80s. This type of budget, that addresses all the deferred maintenance in the first year, is known as front-loaded. Alternatively, if no maintenance is performed over the next ten years, the network PCI will drop to 30 by 2032.

5.2   SCENARIO 1: EXISTING FUNDING ($0.56M/10 YEARS)

This scenario assumes the City will have $56,000 per year for pavement M&R for the next ten years. As shown in Table 4 and Figure 6, the network PCI will decrease to 35 and the deferred maintenance will increase to $9.4 million by 2032. Additionally, 44.6 percent of the network will be in "Failed" condition with only 21.6 percent of the network in "Good" condition. A list of sections selected for treatment are provided in Appendix F.

Table 4. Summary Results for Scenario 1

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Budget ($K)	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	56.0	560
Deferred Maintenance ($M)	4.1	4.9	5.2	6.3	6.7	7.3	7.9	8.3	8.7	9.4	NA
Treated PCI	54	52	51	48	46	44	41	39	37	35	NA
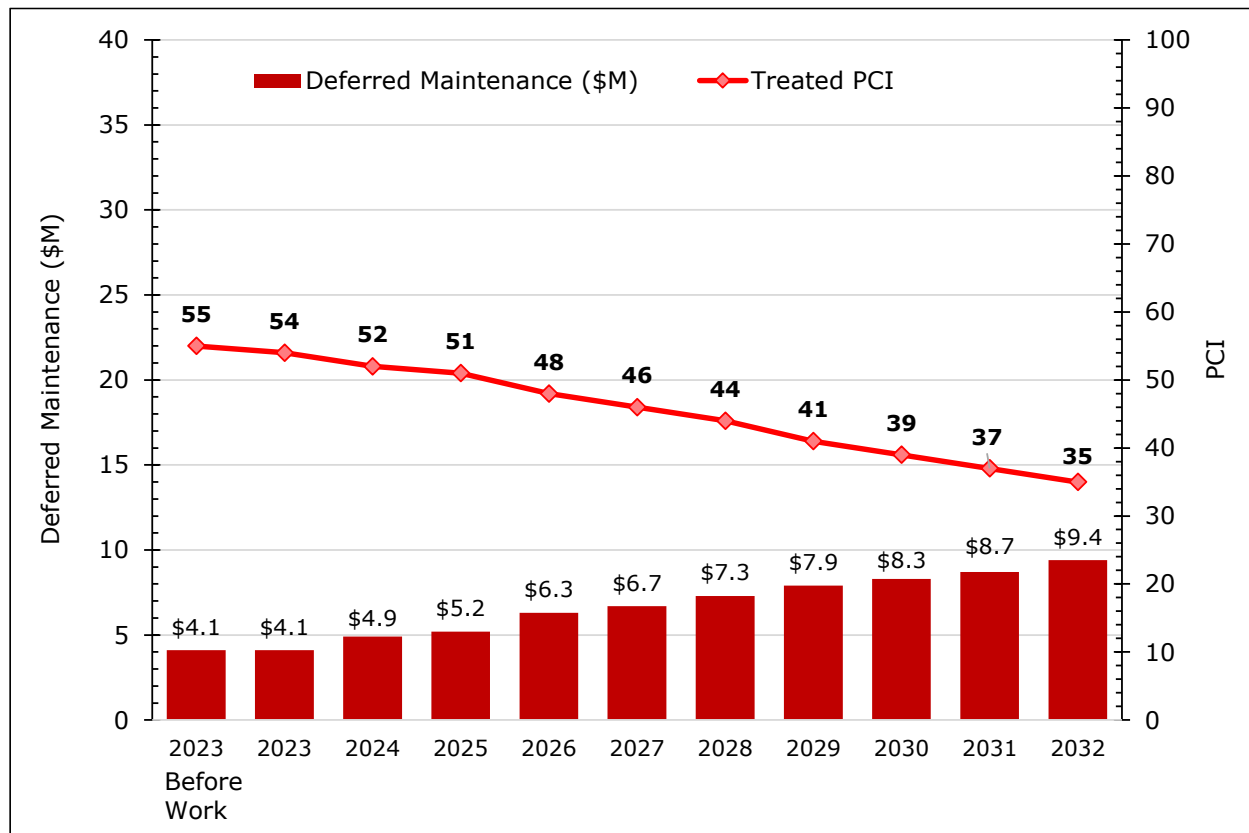
Figure 6. PCI vs Deferred Maintenance for Scenario 1

5.3   SCENARIO 2: MAINTAIN PCI AT 55 ($3.7M/10 YEARS)

This scenario aims to maintain the existing network PCI at 55 over the analysis period. As shown in Table 5 and Figure 7, the financial commitment required to accomplish this goal is $3.7 million over ten years. This will result in 57.8 percent of the network being in "Good" condition with 30.7 percent in "Failed" condition. The deferred maintenance will increase to $5.3 million by 2032.

Table 5. Summary Results for Scenario 2

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Budget ($M)	0.13	0.46	0.35	0.40	0.37	0.36	0.41	0.54	0.44	0.30	3.7
Deferred Maintenance ($M)	4.0	4.5	4.5	4.9	4.9	5.1	5.1	5.3	5.2	5.3	NA
Treated PCI	55	56	56	56	55	55	55	55	55	55	NA
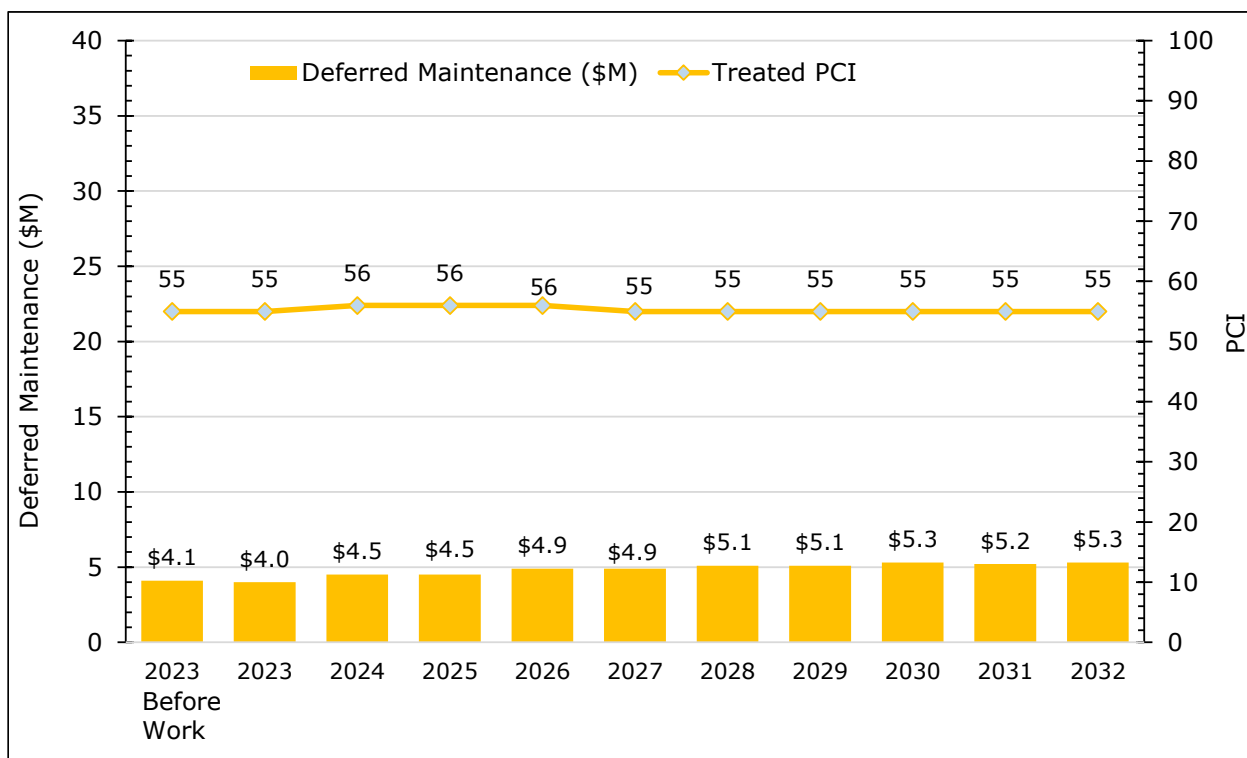
Figure 7. PCI vs Deferred Maintenance for Scenario 2

5.4 SCENARIO 3: IMPROVE PCI TO 70 ($6.0M/10 YEARS)

This scenario aims to improve the network PCI to 70 by 2032. As shown in Table 6 and Figure 8, the financial commitment required for this goal is $6.0 million over ten years. This will result in 79.0 percent of the network being "Good" condition with approximately 17.5 percent in "Failed" condition. The deferred maintenance will be half by 2032.

Table 6. Summary Results for Scenario 3

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Total
Budget ($M)	0.28	0.48	0.78	0.60	0.70	0.60	0.60	0.70	0.60	0.70	6.0
Deferred Maintenance ($M)	3.8	4.3	3.9	4.1	3.7	4.0	3.0	3.0	3.0	2.0	NA
Treated PCI	56	57	60	61	63	63	64	65	67	70	NA
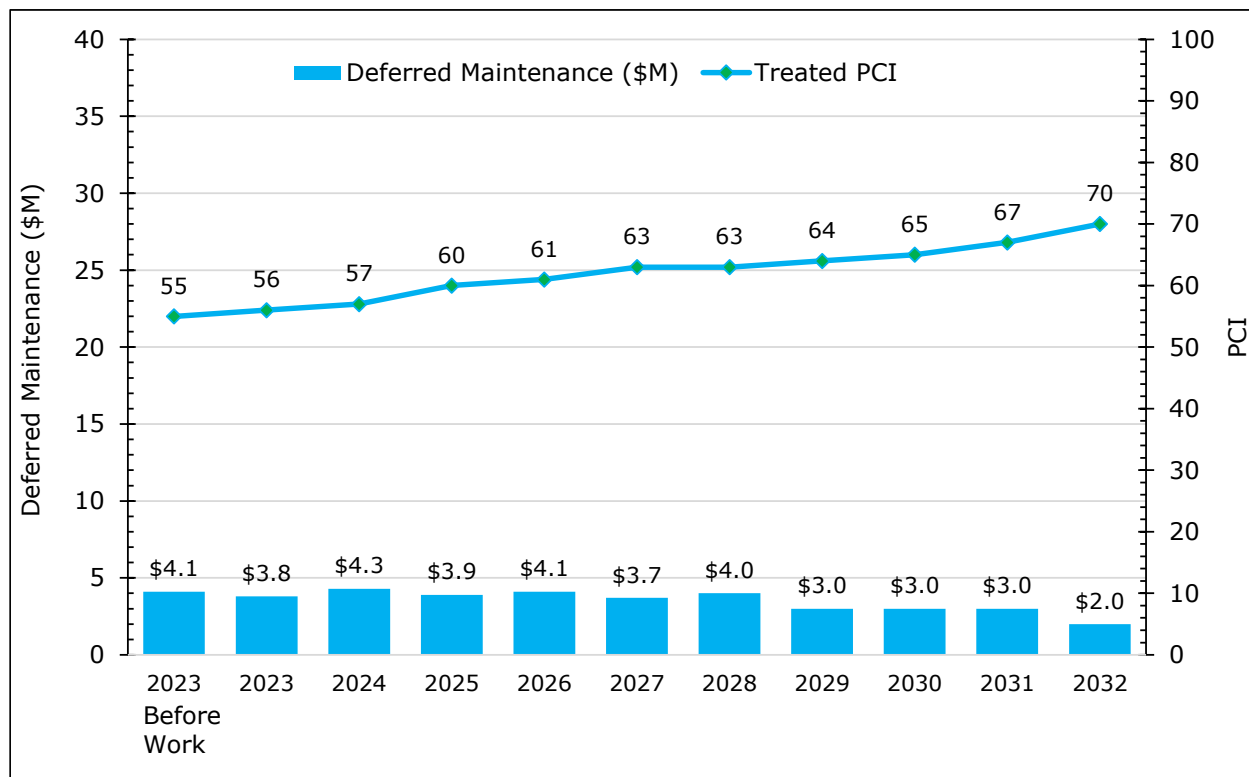
Figure 8. PCI vs Deferred Maintenance for Scenario 3

5.5   SCENARIO COMPARISONS

Figure 9 graphically compares the annual changes in PCI for each of the three scenarios. As previously noted, the average network PCI will decrease to 35 in Scenario 1, be maintained at 55 in Scenario 2, and increase to 70 in Scenario 3.
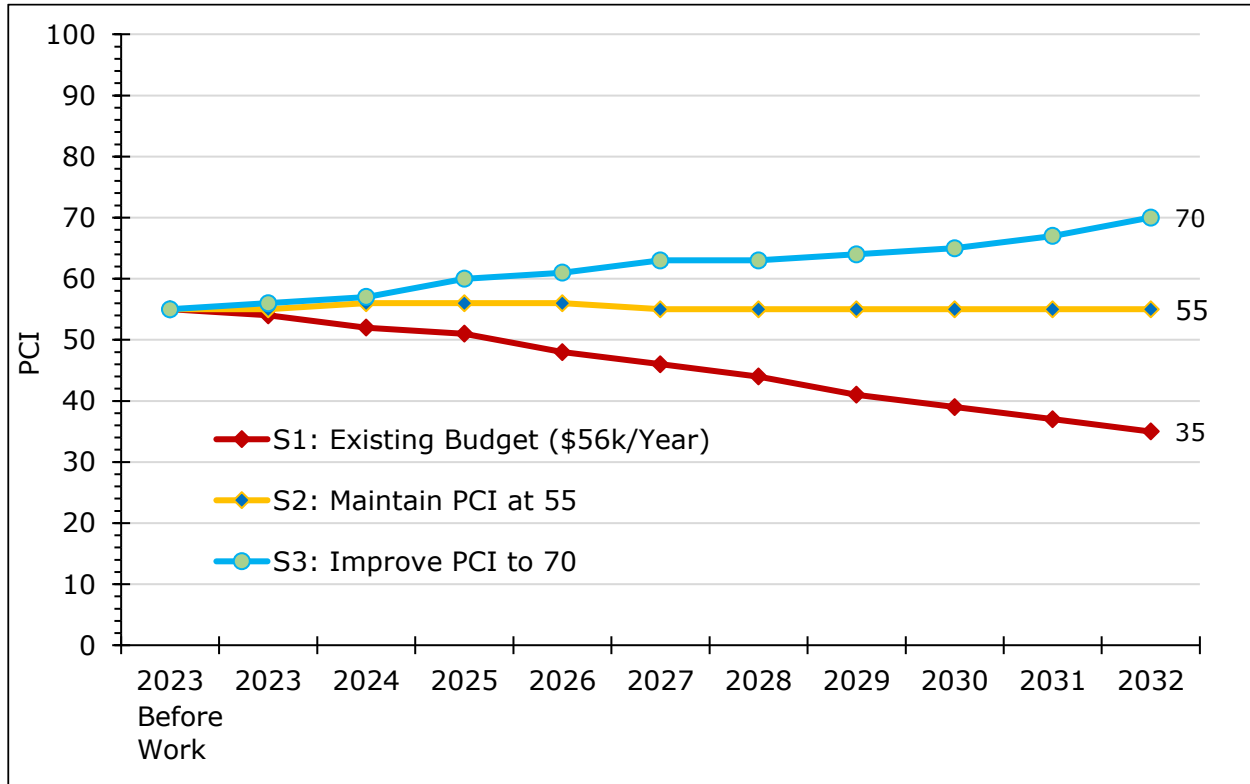
Figure 9. Comparison of Annual PCI by Scenario

Figure 10 illustrates the changes in deferred maintenance over time for each scenario. For Scenario 1, the deferred maintenance will increase to $9.4 million. In Scenario 2 it will increase to $5.3 million. Finally, in Scenario 3 it will decrease to $2.0 million by 2032.
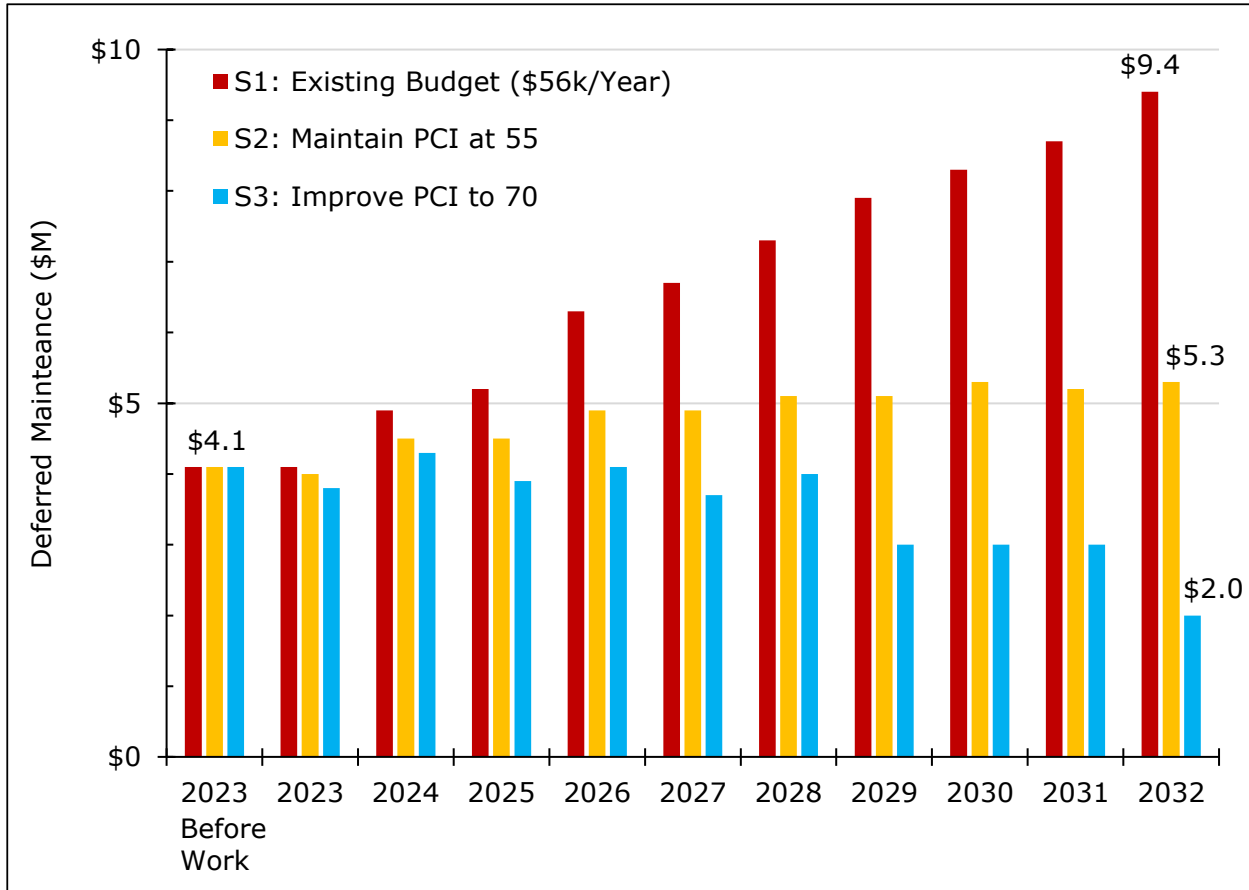
Figure 10. Comparison of Annual Deferred Maintenance by Scenario

Figure 11 illustrates the percent change in pavement condition for each scenario. As noted earlier, currently 19.7 percent of the network is in "Good" condition with 4.1 percent in "Failed" condition. For Scenario 1, the portion of the network in "Good" condition will marginally increase to approximately 21.6 percent of the network, while the portion in "Failed" condition will increase to 44.6 percent of the network. For Scenarios 2, 57.8 percent of the network will be in "Good" condition and about one-third of network will be in "Failed" condition. For Scenario 3, more than three-quarters of the network will be in "Good" condition and the pavements under "Fail condition will drop to 17.5 percent.
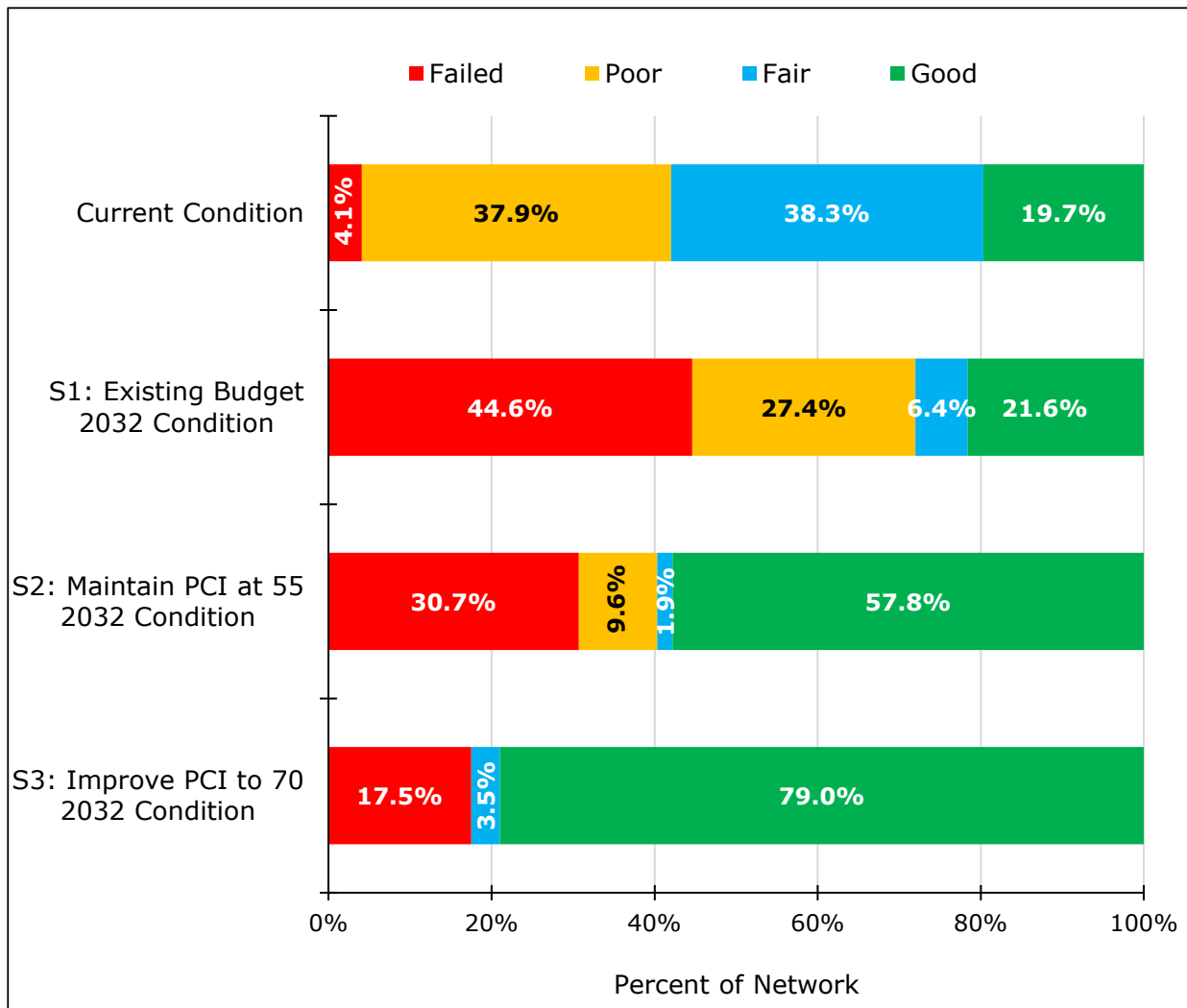
Figure 11. Comparison of Pavement Condition Breakdown by Scenario

6   Conclusion and Recommendations

In summary, the City of Blue Lake has a substantial investment of $12.3 million in the pavement network. Overall, the City's streets are in "Fair" condition with a 2022 average network PCI of 55. Approximately 19.7 percent of the street network is in "Good" condition and 42.0 percent is in "Poor" or "Failed" condition.

The analyses indicate that the City needs to spend approximately $6.3 million on maintenance and rehabilitation over the next ten years to optimally repair all pavement sections, thus bringing the network into a condition that can be maintained with on-going preventive maintenance. In the long run, this strategy will save the City money by preventing future pavement deterioration to levels requiring rehabilitation or reconstruction.

Based on the data collected and the scenarios analyzed and presented in this report, NCE offers the following recommendations.

1. **Funding** - The primary goal of PMPs should be to offer users a safe and functional pavement network without unduly increasing the maintenance burden in the future. With that in mind, the minimum recommended scenario for the City is Scenario 3, which requires approximately $6.0 million over the next ten years. This budget allocation will gradually increase the overall network PCI to 70, increase the portion of the network in "Good" condition, and decrease by half the deferred maintenance.

   To address the gap between the City's existing funding and the recommended scenario, NCE recommends the City pursue additional funding sources. Potential sources include:

Federal Funding Sources

   - o Bipartisan Infrastructure Investment and Jobs Act (IIJA)
   - o Regional Surface Transportation Program (RSTP)
   - o Surface Transportation Program (STP)
   - o Congestion Mitigation and Air Quality Improvement Program (CMAQ)
   - o Community Development Block Grants (CDBG)
   - o Highway Safety Improvement Program (HSIP)
   - o Federal Emergency Management Agency (FEMA)

State Funding Sources

   - o Active Transportation Program (ATP), which now includes the Bicycle Transportation Account (BTA) and Safe Routes to Schools (SR2S)
   - o State Transportation Improvement Program (STIP)
   - o AB 2766 (vehicle surcharge)
   - o Vehicle License Fees (VLF)
   - o CalRecycle grants

- o State Water Resource Control Board
- o Transportation Development Act (TDA)
- o Traffic Safety Fund
- o Transportation Uniform Mitigation Fee (TUMF)

Local/Regional Funding Sources

- o Development impact fees
- o General funds
- o Various assessment districts (lighting, maintenance, flood control, community facilities)
- o Traffic impact fees
- o Utilities (e.g., stormwater, water, wastewater enterprise funds)
- o Parcel/property taxes
- o Vehicle registration fees
- o Vehicle code fines

2. **Pavement Management Strategies –** A small portion of the City's streets are currently in "Good" condition (19.7 percent), it is important to maintain that condition to the extent possible. Preservation occurs when streets with PCIs higher than 70 receive treatments such as surface seals (slurry, chip, microsurfacing, etc.). Seals are relatively inexpensive treatments that prevent moisture ingress and thus preserve the integrity of the underlying base material. The City needs to take also care of the pavements in "Fair" condition, and NCE recommends that the City balance preventive maintenance with rehabilitation and reconstruction projects to preserve pavements in "Good" condition, improve pavements in "Fair" and "Poor" condition, and avoid increasing the deferred maintenance.

3. **Reinspection Strategies –** In order to make appropriate management decisions based on current data, NCE recommends that the City perform condition inspections on arterials and collectors every 2 years and on residentials at least every 4 to 5 years. Additionally, since StreetSaver® and other prediction models do not yet take into account the effect of specialized materials such as asphalt-binders with rubber or polymers, the actual performance of city pavements may not be fully captured in the analysis models. For this additional reason, NCE recommends regular pavement condition surveys to ensure model accuracy and relevance.

4. **M&R Decision Tree –** NCE recommends that the City annually review and update the M&R treatment strategies and associated unit costs to reflect current construction techniques and changing costs. This will ensure that the results for the budget analyses are reliable and as accurate as possible.

Appendix A

SECTION DESCRIPTION INVENTORY

Appendix B

MAINTENANCE AND REHABILITATION DECISION TREE

Appendix C

BUDGET NEED ANALYSIS RESULTS

Appendix D

BUDGET SCENARIO RESULTS

Appendix E

PAVEMENT CONDITION MAPS

Appendix F

SECTIONS SELECTED FOR TREATMENT – SCENARIO 1

Appendix A

Section Description Inventory Report

This report lists a variety of section description information for each of the City's pavement sections. It lists the street and section identifiers, limits, number of lanes, functional class, surface type, length, width, area, Inspected PCI, and PCI date.

All of the City's pavement sections are included in the report. Two versions of the report are provided. The first is sorted alphabetically by Street Name and Section ID and the second report is sorted by descending PCI. The field descriptions in this report are listed below:

COLUMN	DESCRIPTION
Street ID	Street Identification - A code up to ten characters/digits to identify the street. Generally, the street name is truncated to six characters. The Street ID should be unique for each street.
Section ID	Section Identification - A code up to ten characters/digits to identify the section number. The Section ID must be unique for each section of one street.
Street Name	Street Name - The name of the street as indicated by street signs in the field.
Begin Location	Beginning limit of the section.
End Location	Ending limit of the section.
# of Lanes	Number of travel lanes.
Functional Class (FC)	Functional Classification: L (Residential/Local), RMaC (Rural Major Collector)
Length (ft)	Length of the section in feet.
Width (ft)	Average width of the section in feet.
Area (sf)	Area of section in square feet.
Surface Type (ST)	Surface Type: A = Asphalt Concrete
PCI Date	The last inspection date or treatment date.
PCI	Average PCI for the section. The value is based on the last inspection.

Section Description Inventory – Sorted by Street Name

Street ID	Section ID	Street Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	PCI Date	PCI
B-1STAVE	010	1ST AVEUNE	GREENWOOD RD	G STREET	2	Residential/Local	AC	222	36	7,992	6/10/2022	55
B-1STAVE	020	1ST AVEUNE	G ST	H ST	2	Residential/Local	AC	300	44	13,200	6/13/2022	59
B-1STAVE	030	1ST AVEUNE	H ST	I ST	2	Residential/Local	AC	289	44	12,716	6/13/2022	27
B-1STAVE	040	1ST AVEUNE	I ST	RAILROAD AVE	2	Residential/Local	AC	296	26	7,696	6/13/2022	41
B-2NDAVE	010	2ND AVENUE	BROAD ST	G ST	2	Residential/Local	AC	286	34	9,724	6/10/2022	74
B-2NDAVE	020	2ND AVENUE	H STREET	I STREET	2	Residential/Local	AC	286	36	10,296	6/13/2022	33
B-2NDAVE	030	2ND AVENUE	I STREET	J STREET	2	Residential/Local	AC	287	22	6,314	6/13/2022	25
B-2NDAVE	040	2ND AVENUE	J STREET	EAST END	2	Residential/Local	AC	258	20	5,160	6/13/2022	25
B-3RDAVE	010	3RD AVENUE	H STREET	I STREET	2	Residential/Local	AC	279	34	9,486	6/13/2022	37
B-3RDAVE	020	3RD AVENUE	I STREET	J STREET	2	Residential/Local	AC	289	51	14,739	6/13/2022	44
B-3RDAVE	030	3RD AVENUE	J STREET	K STREET	2	Residential/Local	AC	371	29	10,759	6/13/2022	31
B-3RDAVE	040	3RD AVENUE	K STREET	RAILROAD AVENUE	2	Residential/Local	AC	137	40	5,480	6/13/2022	84
B-4THAVE	010	4TH AVENUE	H ST	K ST	2	Residential/Local	AC	938	32	30,016	6/13/2022	78
B-5THAVE	010	5TH AVENUE	I ST	K ST	2	Residential/Local	AC	642	29	18,618	6/13/2022	62
B-ACACDR	010	ACACIA DRIVE	S END	ACACIA DR	2	Residential/Local	AC	148	36	5,328	6/10/2022	83
B-ACACDR	020	ACACIA DRIVE	ACACIA DR	PARK AVE	2	Residential/Local	AC	185	34	6,290	6/10/2022	18
B-ACACDR	030	ACACIA DRIVE	PARK AVE	BLUE LAKE BLVD	2	Residential/Local	AC	857	36	30,852	6/10/2022	40
B-ACACDR	040	ACACIA DRIVE	ACACIA DR	E CDS	2	Residential/Local	AC	160	28	4,480	6/10/2022	23
B-AST	010	A STREET	GREENWOOD AVE	HARTMAN ST	2	Residential/Local	AC	1,040	22	22,880	6/10/2022	48
B-BLBLVD	010	BLUE LAKE BOULEVARD	ACACIA DR	371FT N/O RAILROAD AVE	2	Rural Major Collector	AC	1,598	30	47,940	6/10/2022	78
B-BLBLVD	020	BLUE LAKE BOULEVARD	783 E/O GREENWOOD DR	HARTMAN ST	2	Rural Major Collector	AC	503	30	15,090	6/10/2022	80
B-BLKAVE	010	BLUE LAKE AVE	GELY ST	E END	2	Residential/Local	AC	211	22	4,642	6/13/2022	55
B-BROAST	010	BROAD STREET	2ND AVE	B ST	2	Residential/Local	AC	503	36	18,108	6/10/2022	47
B-BROAST	020	BROAD STREET	B ST	C ST	2	Residential/Local	AC	272	22	5,984	6/10/2022	24
B-BRODLN	010	BRODERICK LANE	CHARTIN RD	RAILROAD AVE	2	Residential/Local	AC	506	24	12,144	6/13/2022	60
B-BST	010	B STREET	GREENWOOD AVE	BROAD ST	2	Residential/Local	AC	608	26	15,808	6/10/2022	87
B-BST	020	B STREET	BROAD ST	E END	2	Residential/Local	AC	345	26	8,970	6/10/2022	59
B-CHARRD	010	CHARTIN ROAD	S END	CHARTIN RD	2	Residential/Local	AC	186	40	7,440	6/13/2022	74
B-CHARRD	020	CHARTIN ROAD	CHARTIN RD	RANCHERIA RD	2	Residential/Local	AC	674	22	14,828	6/13/2022	84
B-CHARRD	030	CHARTIN ROAD	RANCHERIA RD	BRODRERIC LN	2	Residential/Local	AC	1,082	28	30,296	6/13/2022	57
B-CHARRD	040	CHARTIN ROAD	BRODERICK LN	E END	2	Residential/Local	AC	681	34	23,154	6/13/2022	68
B-CST	010	C STREET	GREENWOOD AVE	BROAD ST	2	Residential/Local	AC	609	16	9,744	6/10/2022	27
B-EST	010	E STREET	RAILROAD AVE	I ST	2	Residential/Local	AC	319	22	7,018	6/10/2022	82
B-EVERST	010	EVERGREEN STREET	K ST	ACACIA DR	2	Residential/Local	AC	570	38	21,660	6/10/2022	40
B-FST	010	F STREET	RAILROAD AVE	2ND AVE	2	Residential/Local	AC	593	25	14,825	6/10/2022	41
B-GELYST	010	GELY STREET	CHARTIN RD	S RAILROAD AVE	2	Residential/Local	AC	302	20	6,040	6/13/2022	56
B-GRWDRD	010	GREENWOOD ROAD	RAILROAD AVE	BLUE LAKE BLVD	2	Rural Major Collector	AC	1,330	37	49,210	6/13/2022	54
B-GST	010	G STREET	S RAILROAD AVE	RAILROAD AVE	2	Residential/Local	AC	83	48	3,984	6/13/2022	40
B-GST	020	G STREET	RAILROAD AVE	2ND AVE	2	Residential/Local	AC	599	46	27,554	6/10/2022	57
B-GST	030	G STREET	2ND AVE	A ST	2	Residential/Local	AC	443	32	14,176	6/10/2022	40
B-HARTST	010	HARTMAN STREET	A ST	BLUE LAKE BLVD	2	Residential/Local	AC	558	22	12,276	6/10/2022	52
B-HATCRD	010	HATCHERY ROAD	S RAILROAD AVE	BLUE LAKE BLVD	2	Residential/Local	AC	296	40	11,840	6/13/2022	49
B-HATCRD	020	HATCHERY ROAD	S CITY LIMIT	S RAILROAD AVE	2	Residential/Local	AC	849	37	31,413	6/13/2022	53
B-HST	010	H STREET	RAILROAD AVE	1ST AVE	2	Residential/Local	AC	213	39	8,307	6/13/2022	57
B-HST	020	H STREET	1ST AVE	2ND AVE	2	Residential/Local	AC	307	43	13,201	6/13/2022	46
B-HST	030	H STREET	2ND AVE	3RD AVE	2	Residential/Local	AC	306	36	11,016	6/13/2022	66
B-HST	040	H STREET	3 AVE	4TH AVE	2	Residential/Local	AC	290	15	4,350	6/13/2022	85
B-IST	010	I STREET	1ST AVE	4TH AVE	2	Residential/Local	AC	891	48	42,768	6/13/2022	49
B-IST	020	I STREET	4TH AVE	BLUE LAKE BLVD	2	Residential/Local	AC	512	20	10,240	6/13/2022	53
B-JST	010	J STREET	2ND AVE	BLUE LAKE BLVD	2	Residential/Local	AC	1,274	20	25,480	6/13/2022	34

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Street ID	Section ID	Street Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	PCI Date	PCI
B-KST	010	K STREET	3RD AVE	4TH AVE	2	Residential/Local	AC	296	20	5,920	6/13/2022	87
B-KST	020	K STREET	4TH AVE	5TH AVE	2	Residential/Local	AC	315	41	12,915	6/13/2022	51
B-KST	030	K STREET	5TH AVE	EVERGREEN ST	2	Residential/Local	AC	142	20	2,840	6/13/2022	53
B-LEEVCT	010	LEEVERLEN COURT	RAYMAR AVE	E CDS	2	Residential/Local	AC	202	37	7,474	6/13/2022	57
B-MONWAY	010	MONDA WAY	TAYLOR WAY	N CDS	2	Residential/Local	AC	284	36	10,224	6/10/2022	82
B-PARAVE	010	PARK AVENNUE	ACACIA DR	ACACIA DR	2	Residential/Local	AC	872	34	29,648	6/10/2022	28
B-PIEAVE	010	PIERSALL AVENUE	W END	REDWOOD AVE	2	Residential/Local	AC	196	17	3,332	6/13/2022	37
B-RANCLN	010	RANCHERIA LANE	W CITY LIMIT	CHARTIN RD	2	Residential/Local	AC	299	40	11,960	6/13/2022	80
B-RAYAVE	010	RAYMAR AVENUE	RAILROAD AVE	EVERGREEN ST	2	Residential/Local	AC	490	37	18,130	6/13/2022	38
B-RAYAVE	020	RAYMAR AVENUE	EVERGREEN ST	BLUE LAKE BLVD	2	Residential/Local	AC	404	37	14,948	6/13/2022	40
B-ROUSCT	010	ROUSS COURT	RAYMAR AVENUE	EAST CDS	2	Residential/Local	AC	224	37	8,288	6/13/2022	69
B-RRDAVE	010	RAILROAD AVENUE	GREENWOOD AVE	G ST	2	Residential/Local	AC	617	37	22,829	6/13/2022	90
B-RRDAVE	020	RAILROAD AVENUE	G ST	H ST	2	Residential/Local	AC	314	31	9,734	6/13/2022	58
B-RRDAVE	030	RAILROAD AVENUE	H ST	1ST AVE	2	Residential/Local	AC	645	24	15,480	6/13/2022	34
B-RRDAVE	040	RAILROAD AVENUE	1ST AVE	400FT E/O 1ST AVE	2	Residential/Local	AC	421	24	10,104	6/13/2022	39
B-RRDAVE	050	RAILROAD AVENUE	400FT E/O 1ST AVE	E CITY LIMIT	2	Residential/Local	AC	970	28	27,160	6/13/2022	69
B-RWDAVE	010	REDWOOD AVENUE	PIERSALL AVE	S CDS	2	Residential/Local	AC	449	22	9,878	6/13/2022	44
B-RWDAVE	020	REDWOOD AVENUE	RAILROAD AVE	PIERSALL AVE	2	Residential/Local	AC	383	19	7,277	6/13/2022	47
B-SHAMLN	010	SHAMROCK LANE	EAST END	RAILROAD AVE	2	Residential/Local	AC	292	24	7,008	6/13/2022	48
B-SRRAVE	010	SOUTH RAILROAD AVENUE	CHARTIN RD	G ST	2	Residential/Local	AC	2,390	20	47,800	6/13/2022	54
B-SRRAVE	020	SOUTH RAILROAD AVENUE	G ST	HATCHERY RD	2	Residential/Local	AC	200	34	6,800	6/13/2022	76
B-TAYWAY	010	TAYLOR WAY	WEST END	MONDA WAY	2	Residential/Local	AC	747	37	27,639	6/10/2022	69
B-TAYWAY	020	TAYLOR WAY	MONDA WAY	HATCHERY RD	2	Residential/Local	AC	651	36	23,436	6/10/2022	68
B-WAHLST	010	WAHL STREET	1ST AVENUE	C STREET	1	Residential/Local	AC	863	21	18,123	6/10/2022	23

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Section Description Inventory – Sorted by Descending PCI

Street ID	Section ID	Street Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	PCI Date	PCI
B-RRDAVE	010	RAILROAD AVENUE	GREENWOOD AVE	G ST	2	Residential/Local	AC	617	37	22,829	6/13/2022	90
B-BST	010	B STREET	GREENWOOD AVE	BROAD ST	2	Residential/Local	AC	608	26	15,808	6/10/2022	87
B-KST	010	K STREET	3RD AVE	4TH AVE	2	Residential/Local	AC	296	20	5,920	6/13/2022	87
B-HST	040	H STREET	3 AVE	4TH AVE	2	Residential/Local	AC	290	15	4,350	6/13/2022	85
B-3RDAVE	040	3RD AVENUE	K STREET	RAILROAD AVENUE	2	Residential/Local	AC	137	40	5,480	6/13/2022	84
B-CHARRD	020	CHARTIN ROAD	CHARTIN RD	RANCHERIA RD	2	Residential/Local	AC	674	22	14,828	6/13/2022	84
B-ACACDR	010	ACACIA DRIVE	S END	ACACIA DR	2	Residential/Local	AC	148	36	5,328	6/13/2022	83
B-EST	010	E STREET	RAILROAD AVE	I ST	2	Residential/Local	AC	319	22	7,018	6/10/2022	82
B-MONWAY	010	MONDA WAY	TAYLOR WAY	N CDS	2	Residential/Local	AC	284	36	10,224	6/10/2022	82
B-BLBLVD	020	BLUE LAKE BOULEVARD	783 E/O GREENWOOD DR	HARTMAN ST	2	Rural Major Collector	AC	503	30	15,090	6/10/2022	80
B-RANCLN	010	RANCHERIA LANE	W CITY LIMIT	CHARTIN RD	2	Residential/Local	AC	299	40	11,960	6/13/2022	80
B-4THAVE	010	4TH AVENUE	H ST	K ST	2	Residential/Local	AC	938	32	30,016	6/13/2022	78
B-BLBLVD	010	BLUE LAKE BOULEVARD	ACACIA DR	371FT N/O RAILROAD AVE	2	Rural Major Collector	AC	1,598	30	47,940	6/10/2022	78
B-SRRAVE	020	SOUTH RAILROAD AVENUE	G ST	HATCHERY RD	2	Residential/Local	AC	200	34	6,800	6/13/2022	76
B-2NDAVE	010	2ND AVENUE	BROAD ST	G ST	2	Residential/Local	AC	286	34	9,724	6/13/2022	74
B-CHARRD	010	CHARTIN ROAD	S END	CHARTIN RD	2	Residential/Local	AC	186	40	7,440	6/13/2022	74
B-ROUSCT	010	ROUSS COURT	RAYMAR AVENUE	EAST CDS	2	Residential/Local	AC	224	37	8,288	6/13/2022	69
B-RRDAVE	050	RAILROAD AVENUE	400FT E/O 1ST AVE	E CITY LIMIT	2	Residential/Local	AC	970	28	27,160	6/13/2022	69
B-TAYWAY	010	TAYLOR WAY	WEST END	MONDA WAY	2	Residential/Local	AC	747	37	27,639	6/10/2022	69
B-CHARRD	040	CHARTIN ROAD	BRODERICK LN	E END	2	Residential/Local	AC	681	34	23,154	6/13/2022	68
B-TAYWAY	020	TAYLOR WAY	MONDA WAY	HATCHERY RD	2	Residential/Local	AC	651	36	23,436	6/10/2022	68
B-HST	030	H STREET	2ND AVE	3RD AVE	2	Residential/Local	AC	306	36	11,016	6/13/2022	66
B-5THAVE	010	5TH AVENUE	I ST	K ST	2	Residential/Local	AC	642	29	18,618	6/13/2022	62
B-BRODLN	010	BRODERICK LANE	CHARTIN RD	RAILROAD AVE	2	Residential/Local	AC	506	24	12,144	6/13/2022	60
B-1STAVE	020	1ST AVEUNE	G ST	H ST	2	Residential/Local	AC	300	44	13,200	6/13/2022	59
B-BST	020	B STREET	BROAD ST	E END	2	Residential/Local	AC	345	26	8,970	6/10/2022	59
B-RRDAVE	020	RAILROAD AVENUE	G ST	H ST	2	Residential/Local	AC	314	31	9,734	6/13/2022	58
B-CHARRD	030	CHARTIN ROAD	RANCHERIA RD	BRODRERIC LN	2	Residential/Local	AC	1,082	28	30,296	6/13/2022	57
B-GST	020	G STREET	RAILROAD AVE	2ND AVE	2	Residential/Local	AC	599	46	27,554	6/10/2022	57
B-HST	010	H STREET	RAILROAD AVE	1ST AVE	2	Residential/Local	AC	213	39	8,307	6/13/2022	57
B-LEEVCT	010	LEEVERLEN COURT	RAYMAR AVE	E CDS	2	Residential/Local	AC	202	37	7,474	6/13/2022	57
B-GELYST	010	GELY STREET	CHARTIN RD	S RAILROAD AVE	2	Residential/Local	AC	302	20	6,040	6/13/2022	56
B-1STAVE	010	1ST AVEUNE	GREENWOOD RD	G STREET	2	Residential/Local	AC	222	36	7,992	6/10/2022	55
B-BLKAVE	010	BLUE LAKE AVE	GELY ST	E END	2	Residential/Local	AC	211	22	4,642	6/13/2022	55
B-GRWDRD	010	GREENWOOD ROAD	RAILROAD AVE	BLUE LAKE BLVD	2	Rural Major Collector	AC	1,330	37	49,210	6/13/2022	54
B-SRRAVE	010	SOUTH RAILROAD AVENUE	CHARTIN RD	G ST	2	Residential/Local	AC	2,390	20	47,800	6/13/2022	54
B-HATCRD	020	HATCHERY ROAD	S CITY LIMIT	S RAILROAD AVE	2	Residential/Local	AC	849	37	31,413	6/13/2022	53
B-IST	020	I STREET	4TH AVE	BLUE LAKE BLVD	2	Residential/Local	AC	512	20	10,240	6/13/2022	53
B-KST	030	K STREET	5TH AVE	EVERGREEN ST	2	Residential/Local	AC	142	20	2,840	6/13/2022	53
B-HARTST	010	HARTMAN STREET	A ST	BLUE LAKE BLVD	2	Residential/Local	AC	558	22	12,276	6/10/2022	52
B-KST	020	K STREET	4TH AVE	5TH AVE	2	Residential/Local	AC	315	41	12,915	6/13/2022	51
B-HATCRD	010	HATCHERY ROAD	S RAILROAD AVE	BLUE LAKE BLVD	2	Residential/Local	AC	296	40	11,840	6/13/2022	49
B-IST	010	I STREET	1ST AVE	4TH AVE	2	Residential/Local	AC	891	48	42,768	6/13/2022	49
B-AST	010	A STREET	GREENWOOD AVE	HARTMAN ST	2	Residential/Local	AC	1,040	22	22,880	6/10/2022	48
B-SHAMLN	010	SHAMROCK LANE	EAST END	RAILROAD AVE	2	Residential/Local	AC	292	24	7,008	6/13/2022	48
B-BROAST	010	BROAD STREET	2ND AVE	B ST	2	Residential/Local	AC	503	36	18,108	6/10/2022	47
B-RWDAVE	020	REDWOOD AVENUE	RAILROAD AVE	PIERSALL AVE	2	Residential/Local	AC	383	19	7,277	6/13/2022	47
B-HST	020	H STREET	1ST AVE	2ND AVE	2	Residential/Local	AC	307	43	13,201	6/13/2022	46
B-3RDAVE	020	3RD AVENUE	I STREET	J STREET	2	Residential/Local	AC	289	51	14,739	6/13/2022	44
B-RWDAVE	010	REDWOOD AVENUE	PIERSALL AVE	S CDS	2	Residential/Local	AC	449	22	9,878	6/13/2022	44

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Street ID	Section ID	Street Name	Begin Location	End Location	No. of Lanes	Functional Class	Surface Type	Length (ft)	Width (ft)	Area (sf)	PCI Date	PCI
B-1STAVE	040	1ST AVEUNE	I ST	RAILROAD AVE	2	Residential/Local	AC	296	26	7,696	6/13/2022	41
B-FST	010	F STREET	RAILROAD AVE	2ND AVE	2	Residential/Local	AC	593	25	14,825	6/10/2022	41
B-ACACDR	030	ACACIA DRIVE	PARK AVE	BLUE LAKE BLVD	2	Residential/Local	AC	857	36	30,852	6/10/2022	40
B-EVERST	010	EVERGREEN STREET	K ST	ACACIA DR	2	Residential/Local	AC	570	38	21,660	6/10/2022	40
B-GST	010	G STREET	S RAILROAD AVE	RAILROAD AVE	2	Residential/Local	AC	83	48	3,984	6/13/2022	40
B-GST	030	G STREET	2ND AVE	A ST	2	Residential/Local	AC	443	32	14,176	6/10/2022	40
B-RAYAVE	020	RAYMAR AVENUE	EVERGREEN ST	BLUE LAKE BLVD	2	Residential/Local	AC	404	37	14,948	6/13/2022	40
B-RRDAVE	040	RAILROAD AVENUE	1ST AVE	400FT E/O 1ST AVE	2	Residential/Local	AC	421	24	10,104	6/13/2022	39
B-RAYAVE	010	RAYMAR AVENUE	RAILROAD AVE	EVERGREEN ST	2	Residential/Local	AC	490	37	18,130	6/13/2022	38
B-3RDAVE	010	3RD AVENUE	H STREET	I STREET	2	Residential/Local	AC	279	34	9,486	6/13/2022	37
B-PIEAVE	010	PIERSALL AVENUE	W END	REDWOOD AVE	2	Residential/Local	AC	196	17	3,332	6/13/2022	37
B-JST	010	J STREET	2ND AVE	BLUE LAKE BLVD	2	Residential/Local	AC	1,274	20	25,480	6/13/2022	34
B-RRDAVE	030	RAILROAD AVENUE	H ST	1ST AVE	2	Residential/Local	AC	645	24	15,480	6/13/2022	34
B-2NDAVE	020	2ND AVENUE	H STREET	I STREET	2	Residential/Local	AC	286	36	10,296	6/13/2022	33
B-3RDAVE	030	3RD AVENUE	J STREET	K STREET	2	Residential/Local	AC	371	29	10,759	6/13/2022	31
B-PARAVE	010	PARK AVENNUE	ACACIA DR	ACACIA DR	2	Residential/Local	AC	872	34	29,648	6/10/2022	28
B-1STAVE	030	1ST AVEUNE	H ST	I ST	2	Residential/Local	AC	289	44	12,716	6/13/2022	27
B-CST	010	C STREET	GREENWOOD AVE	BROAD ST	2	Residential/Local	AC	609	16	9,744	6/10/2022	27
B-2NDAVE	030	2ND AVENUE	I STREET	J STREET	2	Residential/Local	AC	287	22	6,314	6/13/2022	25
B-2NDAVE	040	2ND AVENUE	J STREET	EAST END	2	Residential/Local	AC	258	20	5,160	6/13/2022	25
B-BROAST	020	BROAD STREET	B ST	C ST	2	Residential/Local	AC	272	22	5,984	6/10/2022	24
B-ACACDR	040	ACACIA DRIVE	ACACIA DR	E CDS	2	Residential/Local	AC	160	28	4,480	6/10/2022	23
B-WAHLST	010	WAHL STREET	1ST AVENUE	C STREET	1	Residential/Local	AC	863	21	18,123	6/10/2022	23
B-ACACDR	020	ACACIA DRIVE	ACACIA DR	PARK AVE	2	Residential/Local	AC	185	34	6,290	6/10/2022	18

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Appendix B

MAINTENANCE AND REHABILITATION DECISION TREE

Maintenance and Rehabilitation (M&R) Decision Tree

This report presents the current maintenance and rehabilitation decision tree that exists in the database. The decision tree forms the basis for all of the budgetary computations included in this report. ***Changes to the decision tree will make the results in the budget reports invalid.*** All pavement treatment unit costs relevant to the road types in the database were updated.

The decision tree lists the treatments and costs selected for preventive maintenance and rehabilitation activities. Each line represents a specific combination of functional classification and surface type.

The preventive maintenance portion of the report is identified as Condition Category I – Very Good. All preventive maintenance treatment listings are assigned only to sections in Condition Category I where the PCI ≥ 70. Sections with PCI values less than 70 are assigned to treatments listed in Categories II through V.

In the preventive maintenance category (PCI ≥ 70), a time sequence is used to identify the appropriate treatment and cost. Each preventive maintenance treatment description consists of three parts: 1) a CRACK treatment, 2) a SURFACE treatment, and 3) a RESTORATION treatment. These three parts allow the user to specify one of three different preventive maintenance treatments depending on the prior maintenance history of the section.

1. The CRACK treatment part can be used to specify the most frequent type of preventive maintenance activity planned (typically crack seals).
2. The SURFACE treatment part can be used to specify more extensive and less frequent preventive maintenance activities, such as chip seals or slurry seals. For example, a crack seal can be specified on a 3-year cycle with a slurry seal specified after 5 years.
3. The RESTORATION part can be used to specify a surface restoration treatment (such as an overlay) to be performed after a specified number of surface treatments. For example, after a certain number of successive slurry seals, an overlay can be specified instead of another slurry seal.

Rehabilitation treatments are assigned to sections in Condition Categories II through V (PCI less than 70). Each line is defined by a specific combination of functional classification, surface type, and condition category.

COLUMN	DESCRIPTION
Functional Class	Functional Classification identifying the branch
Surface	Surface Type identifying the branch number.
Condition Category	Condition Category (I through V).
Treatment Type	First Row (Crack Treatment) indicates localized treatment (e.g. crack sealing). Second Row (Surface Treatment) indicates surface treatment (e.g. slurry sealing). Third Row (Restoration Treatment) indicates surface restoration (e.g. overlay).
Treatment	Name of treatments from the "Treatment Descriptions" report.
Yrs. Between Crack Seals	First Row - number of years between successive treatment applications specified in the first row (i.e. CRACK treatment).

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COLUMN	DESCRIPTION
Yrs. Between Surface Seals	Second Row - number of years between successive treatment applications specified in the second row (i.e. SURFACE treatment).
Number of Sequential Seals	Number of times that the treatment application in the second row (i.e. SURFACE treatment) will be performed prior to performing the treatment application in the third row.

Note that the treatments assigned to each section should not be blindly followed in preparing a road maintenance program. Engineering judgment and project level analysis should be applied to ensure that the treatment is appropriate and cost effective for the section.

Functional Class	Surface	Condition	Treatment Type	Treatment	Cost			
Collector	AC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	SLURRY SEAL	$5.50		7	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$8.25		7	
		III - Good, Load Related		1.5" AC OVERLAY W/ DIGOUTS	$55.50			
		IV - Poor		2" AC OVERLAY W/ DIGOUTS	$66.50			
		V - Very Poor		3"AC OVERLAY W/ DIGOUTS	$91.75			
	AC/AC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	SLURRY SEAL	$5.50		7	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$8.25		7	
		III - Good, Load Related		1.5" AC OVERLAY W/ DIGOUTS	$55.50			
		IV - Poor		2" AC OVERLAY W/ DIGOUTS	$66.50			
		V - Very Poor		3"AC OVERLAY W/ DIGOUTS	$91.75			
	AC/PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	4		
			Surface Treatment	SLURRY SEAL	$2.50		7	
			Restoration Treatment	DO NOTHING	$0.00			3
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$4.00			
		III - Good, Load Related		SLURRY SEAL W/ DIGOUTS	$6.00			
		IV - Poor		2" AC OVERLAY W/ DIGOUTS	$40.00			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	$57.00			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	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		THICK AC OVERLAY(2.5 INCHES)	$1.92			
		V - Very Poor		THIN AC OVERLAY(1.5 INCHES)	$7.47			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Residential/Local	AC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	SLURRY SEAL	$5.25		8	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$7.50		8	
		III - Good, Load Related		1.5" AC OVERLAY W/ DIGOUTS	$49.00			
		IV - Poor		2" AC OVERLAY W/ DIGOUTS	$58.75			
		V - Very Poor		3"AC OVERLAY W/ DIGOUTS	$77.75			
	AC/AC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	9		
			Surface Treatment	SLURRY SEAL	$5.25		8	
			Restoration Treatment	DO NOTHING	$0.00			99
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$7.50		8	
		III - Good, Load Related		1.5" AC OVERLAY W/ DIGOUTS	$49.00			
		IV - Poor		2" AC OVERLAY W/ DIGOUTS	$58.75			
		V - Very Poor		3"AC OVERLAY W/ DIGOUTS	$77.75			
	AC/PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	4		
			Surface Treatment	SLURRY SEAL	$2.50		8	
			Restoration Treatment	DO NOTHING	$0.00			3
		II - Good, Non-Load Related		SLURRY SEAL W/ DIGOUTS	$4.00			
		III - Good, Load Related		SLURRY SEAL W/ DIGOUTS	$5.00			
		IV - Poor		SURFACE TREATMENT (CAPE OR SLURRY)	$10.00			
		V - Very Poor		2" AC OVERLAY W/ DIGOUTS	$40.00			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	$0.00	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		THICK AC OVERLAY(2.5 INCHES)	$1.92			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	$7.27			

Appendix C

BUDGET NEED ANALYSIS RESULTS

Budget Needs Reports

The purpose of this section is to answer the question: ***If the City had all the money in the world, what sections should be fixed and how much will it cost?*** Based on the Maintenance & Rehabilitation (M&R) decision tree and the PCIs of the sections, the program will then select a maintenance or rehabilitation action and compute the total costs over the analysis period. The Budget Needs represents the "ideal world" funding levels, while the Budget Scenario reports in the next section represent the most "cost effective" prioritization possible for the actual funding levels.

A budget needs analysis has been performed. The summary results from the analysis are provided. An interest rate of 4% and an inflation factor of 4% were used to project the costs for the analysis period. This report shows the total ten-year budget that would be required to meet the City's standards as exemplified in the M&R decision tree.

Budget Needs reports included in this appendix are listed below:

> ➢   Projected PCI/Cost Summary
> ➢   Preventive Maintenance Treatment/Cost Summary
> ➢   Rehabilitation Treatment/Cost Summary

Needs - Projected PCI/Cost Summary

This report summarizes and projects the network PCI over the ten-year analysis period, both with and without treatments applied. It also reports the associated costs, which are based on the treatment unit costs presented in the M&R decision tree.

COLUMN	DESCRIPTION
Year	Year in the analysis period.
PCI Treated	Projected network average PCI with all needed treatments applied.
PCI Untreated	Projected network average PCI without any treatments applied.
PM Cost	Total preventive maintenance treatment cost.
Rehab Cost	Total rehabilitation treatment cost.
Cost	The budget required for each year in the analysis period to meet the City's standard as shown on the M&R decision tree.
Total Cost	Total budget required over a ten-year period.

Needs - Projected PCI/Cost Summary

| | Interest: 4.00% | | Inflation: 4.00% | | Printed: 9/15/2022 |

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2023	88	54	$120,517	$3,988,405	$4,108,922
2024	84	51	$0	$0	$0
2025	82	49	$0	$52,578	$52,578
2026	80	46	$0	$0	$0
2027	78	44	$0	$0	$0
2028	79	41	$0	$442,384	$442,384
2029	77	38	$0	$0	$0
2030	77	36	$12,136	$494,482	$506,618
2031	81	33	$112,221	$630,822	$743,043
2032	83	30	$473,062	$0	$473,062

		% PM	PM Total Cost	Rehab Total Cost	Total Cost
		11.35%	$717,936	$5,608,671	$6,326,607

Needs - Preventive Maintenance Treatment/Cost Summary

This report summarizes each preventive maintenance treatment type, quantity of pavement affected, and total costs over the analysis period. It also summarizes the total quantities and costs over the next ten years.

COLUMN	DESCRIPTION
Treatment	Type of preventive maintenance treatments needed.
Year	Year in the analysis period (i.e. 2023, 2024, 2025, etc.).
Area Treated	Quantities in linear feet (Seal Cracks) or square yard (Slurry Seal).
Cost	Maintenance treatment cost.

Needs - Preventive Maintenance
Treatment/Cost Summary

Interest: 4.00%   Inflation: 4.00%   Printed:
9/15/2022

Treatment	Year	Area Treated		Cost
SLURRY SEAL	2023	22,621.22	sq. yd.	$120,517
	2030	1,676.67	sq. yd.	$12,136
	2031	15,617.89	sq. yd.	$112,221
	2032	63,305.78	sq. yd.	$473,062
	Total	103,221.56		$717,936
	Total Quantity	103,221.56		$717,936

Needs - Rehabilitation Treatment/Cost Summary

This report summarizes each rehabilitation treatment type, quantity of pavement affected, and total costs over the analysis period. It also summarizes the total quantities and costs over the next ten years.

COLUMN	DESCRIPTION
Treatment	Type of rehabilitation treatments needed.
Year	Year in the analysis period (i.e. 2023, 2024, 2025, etc.).
Area Treated	Quantities in square yard.
Cost	Rehabilitation treatment cost.

Needs - Rehabilitation
Treatment/Cost Summary

Interest: 4.00%   Inflation: 4.00%   Printed: 9/15/2022

Treatment	Year	Area Treated	Cost
1.5" AC OVERLAY W/ DIGOUTS	2023	11,052.33 sq.yd.	$541,566
	2025	826.67 sq.yd.	$43,813
	2030	5,326.67 sq.yd.	$389,029
	Total	17,205.67 sq.yd.	$974,408
2" AC OVERLAY W/ DIGOUTS	2023	47,103.33 sq.yd.	$2,767,331
	2028	5,467.78 sq.yd.	$442,384
	2030	1,364 sq.yd.	$105,453
	2031	4,628.11 sq.yd.	$372,117
	Total	58,563.22 sq.yd.	$3,687,285
3"AC OVERLAY W/ DIGOUTS	2023	5,150.11 sq.yd.	$400,424
	Total	5,150.11 sq.yd.	$400,424
SLURRY SEAL W/ DIGOUTS	2023	36,663.56 sq.yd.	$279,084
	2025	1,080.44 sq.yd.	$8,765
	2031	25,203.67 sq.yd.	$258,705
	Total	62,947.67 sq.yd.	$546,554
		Total Cost	$5,608,671

Appendix D

BUDGET SCENARIO RESULTS

Scenario 1: Existing Budget

Cost Summary Report
Network Condition Summary Report

Scenarios - Cost Summary

Interest: 4.00%　　　　Inflation: 4.00%　　　　Printed: 9/20/2022

Scenario: Blue Lake Existing Budget $56k

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred		Stop Gap
2023	15%	$56,000	II	$38,720	Non-Project	$16,296	$0	$4,053,880	Funded	$0
			III	$0	Project	$0			Unmet	$18,970
			IV	$0						
			V	$0						
			Total	$38,720						
			Project	$0						
2024	15%	$56,000	II	$40,378	Non-Project	$14,838	$0	$4,929,042	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$0						
			V	$0						
			Total	$40,378						
			Project	$0						
2025	15%	$56,000	II	$8,765	Non-Project	$25,389	$0	$5,243,106	Funded	$0
			III	$0	Project	$0			Unmet	$116
			IV	$20,052						
			V	$0						
			Total	$28,816						
			Project	$0						
2026	15%	$56,000	II	$0	Non-Project	$16,469	$0	$6,333,914	Funded	$0
			III	$0	Project	$0			Unmet	$779
			IV	$34,086						
			V	$0						
			Total	$34,086						
			Project	$0						
2027	2%	$56,000	II	$0	Non-Project	$0	$1,120	$6,714,132	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$46,125						
			V	$0						
			Total	$46,125						
			Project	$0						
2028	2%	$56,000	II	$0	Non-Project	$0	$1,120	$7,309,983	Funded	$0
			III	$49,283	Project	$0			Unmet	$43,521
			IV	$0						
			V	$0						
			Total	$49,283						
			Project	$0						
2029	15%	$56,000	II	$0	Non-Project	$11,668	$0	$7,916,164	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$0						
			V	$43,549						
			Total	$43,549						
			Project	$0						
2030	15%	$56,000	II	$0	Non-Project	$12,135	$0	$8,263,320	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$0						
			V	$37,879						
			Total	$37,879						
			Project	$0						

Scenarios Criteria:

Criteria: Area ID = B - Blue Lake

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred		Stop Gap
2031	15%	$56,000	II	$40,428	Non-Project	$9,682	$0	$8,717,899	Funded	$0
			III	$0					Unmet	$1,165
			IV	$0	Project	$0				
			V	$0						
			Total	$40,428						
			Project	$0						
2032	15%	$56,000	II	$27,463	Non-Project	$20,307	$0	$9,431,699	Funded	$0
			III	$0					Unmet	$482
			IV	$0	Project	$0				
			V	$0						
			Total	$27,463						
			Project	$0						

Summary

Functional Class	Rehabilitation	Prev. Maint.	Funded Stop Gap	Unmet Stop Gap
Collector	$0	$21,357	$0	$3,768
Residential/Local	$386,727	$105,428	$0	$61,265
Grand Total:	$386,727	$126,785	$0	$65,033

Scenarios - Network Condition Summary

Interest: 4%   Inflation: 4%   Printed: 9/20/2022

Scenario: Blue Lake Existing Budget $56k

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2023	$56,000	15%	2027	$56,000	2%	2031	$56,000	15%
2024	$56,000	15%	2028	$56,000	2%	2032	$56,000	15%
2025	$56,000	15%	2029	$56,000	15%			
2026	$56,000	15%	2030	$56,000	15%			

Projected Network Average PCI by Year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2023	54	54	0.45	0.89
2024	51	52	0.40	0.79
2025	49	51	0.31	0.62
2026	46	48	0.28	0.56
2027	44	46	0.06	0.11
2028	41	44	0.04	0.11
2029	38	41	0.13	0.26
2030	36	39	0.13	0.26
2031	33	37	0.29	0.58
2032	30	35	0.27	0.54

Percent Network Area by Functional Class and Condition Category

Condition in base year 2023, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	14.1%	0.0%	19.7%
II / III	0.0%	4.4%	33.9%	0.0%	38.3%
IV	0.0%	0.0%	37.8%	0.0%	37.8%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2023 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	18.2%	0.0%	23.8%
II / III	0.0%	4.4%	29.8%	0.0%	34.2%
IV	0.0%	0.0%	37.8%	0.0%	37.8%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2032 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	1.3%	20.3%	0.0%	21.6%
II / III	0.0%	0.0%	6.4%	0.0%	6.4%
IV	0.0%	4.3%	23.1%	0.0%	27.4%
V	0.0%	4.4%	40.2%	0.0%	44.6%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Scenario 2: Maintain PCI

Cost Summary Report
Network Condition Summary Report

Scenarios - Cost Summary

Interest: 4.00% Inflation: 4.00% Printed: 9/22/2022

Scenario: Blue Lake Maintain PCI 55

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred		Stop Gap
2023	76%	$125,000	II	$29,540	Non-Project	$94,521	$479	$3,984,835	Funded	$0
			III	$0					Unmet	$19,129
			IV	$0	Project	$0				
			V	$0						
			Total	$29,540						
			Project	$0						
2024	4%	$455,000	II	$49,925	Non-Project	$13,182	$5,018	$4,471,194	Funded	$0
			III	$0					Unmet	$0
			IV	$378,152	Project	$0				
			V	$0						
			Total	$428,077						
			Project	$0						
2025	2%	$350,000	II	$8,765	Non-Project	$0	$7,000	$4,480,028	Funded	$0
			III	$0					Unmet	$116
			IV	$332,356	Project	$0				
			V	$0						
			Total	$341,121						
			Project	$0						
2026	0%	$400,000	II	$0	Non-Project	$0	$0	$4,902,048	Funded	$0
			III	$0					Unmet	$0
			IV	$389,230	Project	$0				
			V	$0						
			Total	$389,230						
			Project	$0						
2027	0%	$370,000	II	$0	Non-Project	$0	$0	$4,902,703	Funded	$0
			III	$176,039					Unmet	$0
			IV	$192,373	Project	$0				
			V	$0						
			Total	$368,412						
			Project	$0						
2028	1%	$355,000	II	$0	Non-Project	$0	$3,550	$5,125,557	Funded	$0
			III	$0					Unmet	$37,492
			IV	$349,823	Project	$0				
			V	$0						
			Total	$349,823						
			Project	$0						
2029	1%	$410,000	II	$0	Non-Project	$0	$4,100	$5,127,541	Funded	$0
			III	$51,254					Unmet	$0
			IV	$346,091	Project	$0				
			V	$0						
			Total	$397,344						
			Project	$0						
2030	3%	$540,000	II	$0	Non-Project	$12,135	$1,365	$5,266,485	Funded	$0
			III	$389,029					Unmet	$0
			IV	$83,616	Project	$0				
			V	$50,929						
			Total	$523,575						
			Project	$0						

Scenarios Criteria:

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred		Stop Gap
2031	11%	$435,000	II	$40,428	Non-Project	$56,133	$0	$5,241,127	Funded	$0
			III	$0					Unmet	$0
			IV	$274,819	Project	$0				
			V	$61,006						
			Total	$376,253						
			Project	$0						
2032	6%	$300,000	II	$55,260	Non-Project	$39,237	$0	$5,306,049	Funded	$0
			III	$0					Unmet	$226
			IV	$0	Project	$0				
			V	$205,340						
			Total	$260,600						
			Project	$0						

Summary

Functional Class	Rehabilitation	Prev. Maint.	Funded Stop Gap	Unmet Stop Gap
Collector	$767,181	$91,810	$0	$711
Residential/Local	$2,696,794	$123,398	$0	$56,253
Grand Total:	$3,463,975	$215,208	$0	$56,964

Scenarios - Network Condition Summary

Interest: 4%   Inflation: 4%   Printed: 9/22/2022

Scenario: Blue Lake Maintain PCI 55

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2023	$125,000	76%	2027	$370,000	0%	2031	$435,000	11%
2024	$455,000	4%	2028	$355,000	1%	2032	$300,000	6%
2025	$350,000	2%	2029	$410,000	1%			
2026	$400,000	0%	2030	$540,000	2.5%			

Projected Network Average PCI by Year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2023	54	55	1.25	2.49
2024	51	56	0.73	1.47
2025	49	56	0.36	0.72
2026	46	56	0.27	0.53
2027	44	55	0.31	0.61
2028	41	55	0.24	0.49
2029	38	55	0.25	0.53
2030	36	55	0.49	0.98
2031	33	55	0.84	1.68
2032	30	55	0.61	1.23

Percent Network Area by Functional Class and Condition Category

Condition in base year 2023, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	14.1%	0.0%	19.7%
II / III	0.0%	4.4%	33.9%	0.0%	38.3%
IV	0.0%	0.0%	37.8%	0.0%	37.8%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2023 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	17.2%	0.0%	22.9%
II / III	0.0%	4.4%	30.8%	0.0%	35.2%
IV	0.0%	0.0%	37.8%	0.0%	37.8%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2032 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	10.0%	47.8%	0.0%	57.8%
II / III	0.0%	0.0%	1.9%	0.0%	1.9%
IV	0.0%	0.0%	9.6%	0.0%	9.6%
V	0.0%	0.0%	30.7%	0.0%	30.7%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Scenario 3: Improve PCI to 70

Cost Summary Report
Network Condition Summary Report

Scenarios - Cost Summary

Interest: 4.00%   Inflation: 4.00%   Printed: 9/22/2022

Scenario: Blue Lake Improve PCI 70

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred	Stop Gap	
2023	43%	$280,000	II	$93,060	Non-Project	$120,512	$0	$3,830,842	Funded	$0
			III	$0	Project	$0			Unmet	$17,808
			IV	$64,481						
			V	$0						
			Total	$157,541						
			Project	$0						
2024	1%	$480,000	II	$0	Non-Project	$0	$4,800	$4,284,528	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$467,772						
			V	$0						
			Total	$467,772						
			Project	$0						
2025	1%	$780,000	II	$8,765	Non-Project	$0	$7,800	$3,874,194	Funded	$0
			III	$0	Project	$0			Unmet	$116
			IV	$744,058						
			V	$0						
			Total	$752,822						
			Project	$0						
2026	1%	$600,000	II	$0	Non-Project	$0	$6,000	$4,082,424	Funded	$0
			III	$0	Project	$0			Unmet	$0
			IV	$578,786						
			V	$0						
			Total	$578,786						
			Project	$0						
2027	1%	$700,000	II	$0	Non-Project	$0	$7,000	$3,736,809	Funded	$0
			III	$176,039	Project	$0			Unmet	$0
			IV	$472,185						
			V	$33,674						
			Total	$681,898						
			Project	$0						
2028	1%	$600,000	II	$0	Non-Project	$0	$6,000	$3,678,069	Funded	$0
			III	$0	Project	$0			Unmet	$32,125
			IV	$584,780						
			V	$0						
			Total	$584,780						
			Project	$0						
2029	1%	$600,000	II	$0	Non-Project	$0	$6,000	$3,331,275	Funded	$0
			III	$51,254	Project	$0			Unmet	$0
			IV	$363,824						
			V	$138,998						
			Total	$554,076						
			Project	$0						
2030	2%	$700,000	II	$0	Non-Project	$12,135	$0	$3,229,157	Funded	$0
			III	$389,029	Project	$0			Unmet	$0
			IV	$0						
			V	$276,315						
			Total	$665,344						
			Project	$0						

Scenarios Criteria:

Criteria: Area ID = B - Blue Lake

MTC StreetSaver

Year	PM	Budget	Rehabilitation		Preventative Maintenance		Surplus PM	Deferred		Stop Gap
2031	15%	$600,000	II	$106,126	Non-Project	$93,425	$0	$3,039,119	Funded	$0
			III	$0					Unmet	$368
			IV	$0	Project	$0				
			V	$400,383						
			Total	$506,509						
			Project	$0						
2032	2%	$700,000	II	$0	Non-Project	$30,265	$0	$2,476,060	Funded	$0
			III	$0					Unmet	$0
			IV	$0	Project	$0				
			V	$662,561						
			Total	$662,561						
			Project	$0						

Summary

Functional Class	Rehabilitation	Prev. Maint.	Funded Stop Gap	Unmet Stop Gap
Collector	$767,181	$91,810	$0	$711
Residential/Local	$4,844,908	$164,527	$0	$49,706
Grand Total:	$5,612,089	$256,337	$0	$50,417

Scenarios Criteria:

Criteria: Area ID = B - Blue Lake

MTC StreetSaver

Scenarios - Network Condition Summary

Interest: 4%   Inflation: 4%   Printed: 9/22/2022

Scenario: Blue Lake Improve PCI 70

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2023	$280,000	43%	2027	$700,000	1%	2031	$600,000	15%
2024	$480,000	1%	2028	$600,000	1%	2032	$700,000	1.5%
2025	$780,000	1%	2029	$600,000	1%			
2026	$600,000	1%	2030	$700,000	1.5%			

Projected Network Average PCI by Year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2023	54	56	2.05	4.10
2024	51	57	0.31	0.62
2025	49	60	0.82	1.64
2026	46	61	0.37	0.74
2027	44	63	0.73	1.46
2028	41	63	0.40	0.79
2029	38	64	0.37	0.77
2030	36	65	0.56	1.12
2031	33	67	1.39	2.78
2032	30	70	0.58	1.17

Percent Network Area by Functional Class and Condition Category

Condition in base year 2023, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	14.1%	0.0%	19.7%
II / III	0.0%	4.4%	33.9%	0.0%	38.3%
IV	0.0%	0.0%	37.8%	0.0%	37.8%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2023 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	5.6%	24.9%	0.0%	30.5%
II / III	0.0%	4.4%	24.0%	0.0%	28.4%
IV	0.0%	0.0%	37.0%	0.0%	37.0%
V	0.0%	0.0%	4.1%	0.0%	4.1%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Condition in year 2032 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	0.0%	10.0%	69.0%	0.0%	79.0%
II / III	0.0%	0.0%	3.5%	0.0%	3.5%
V	0.0%	0.0%	17.5%	0.0%	17.5%
Total	0.0%	10.0%	90.0%	0.0%	100.0%

Appendix E

PAVEMENT CONDITION MAPS

Current Network Condition - 2022

Current PCI Condition

Printed: 9/22/2022

HCAOG

Feature Legend

- Category I - Very Good
- Category II - Good (Non-Load)
- Category III - Good (Load)
- Category IV - Poor
- Category V - Very Poor

Scenario 1: Existing Budget
Projected Street Network Condition - 2032

Scenario PCI Condition

Blue Lake Existing Budget $56k - 2032 Project Period - Total Rehab for 2032: $662,561 - Printed: 9/22/2022

Feature Legend

- 🟩 Category I - Very Good
- 🟦 Category II - Good (Non-Load)
- 🟨 Category III - Good (Load)
- 🟧 Category IV - Poor
- 🟥 Category V - Very Poor
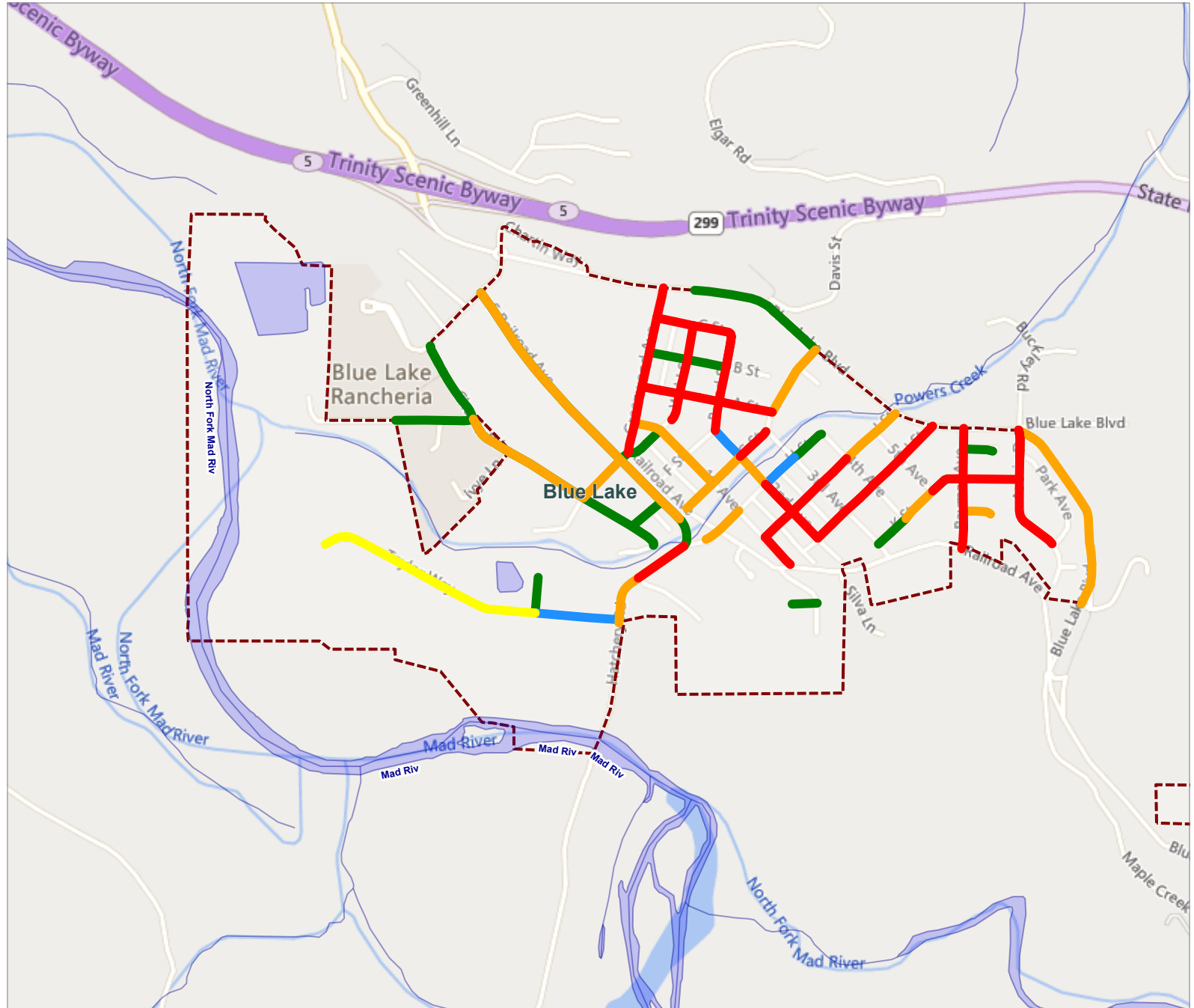
Scenario 2: Maintain PCI
Projected Street Network Condition - 2032

Scenario PCI Condition

Blue Lake Maintain PCI 55 - 2032 Project Period - Total Rehab for 2032: $260,600 - Printed: 9/22/2022

HCAOG

Feature Legend

- Category I - Very Good
- Category II - Good (Non-Load)
- Category IV - Poor
- Category V - Very Poor

Scenario 3: Improve PCI to 70
Projected Street Network Condition - 2032

Scenario PCI Condition

Blue Lake Improve PCI 70 - 2032 Project Period - Total Rehab for 2032: $260,600 - Printed: 9/22/2022
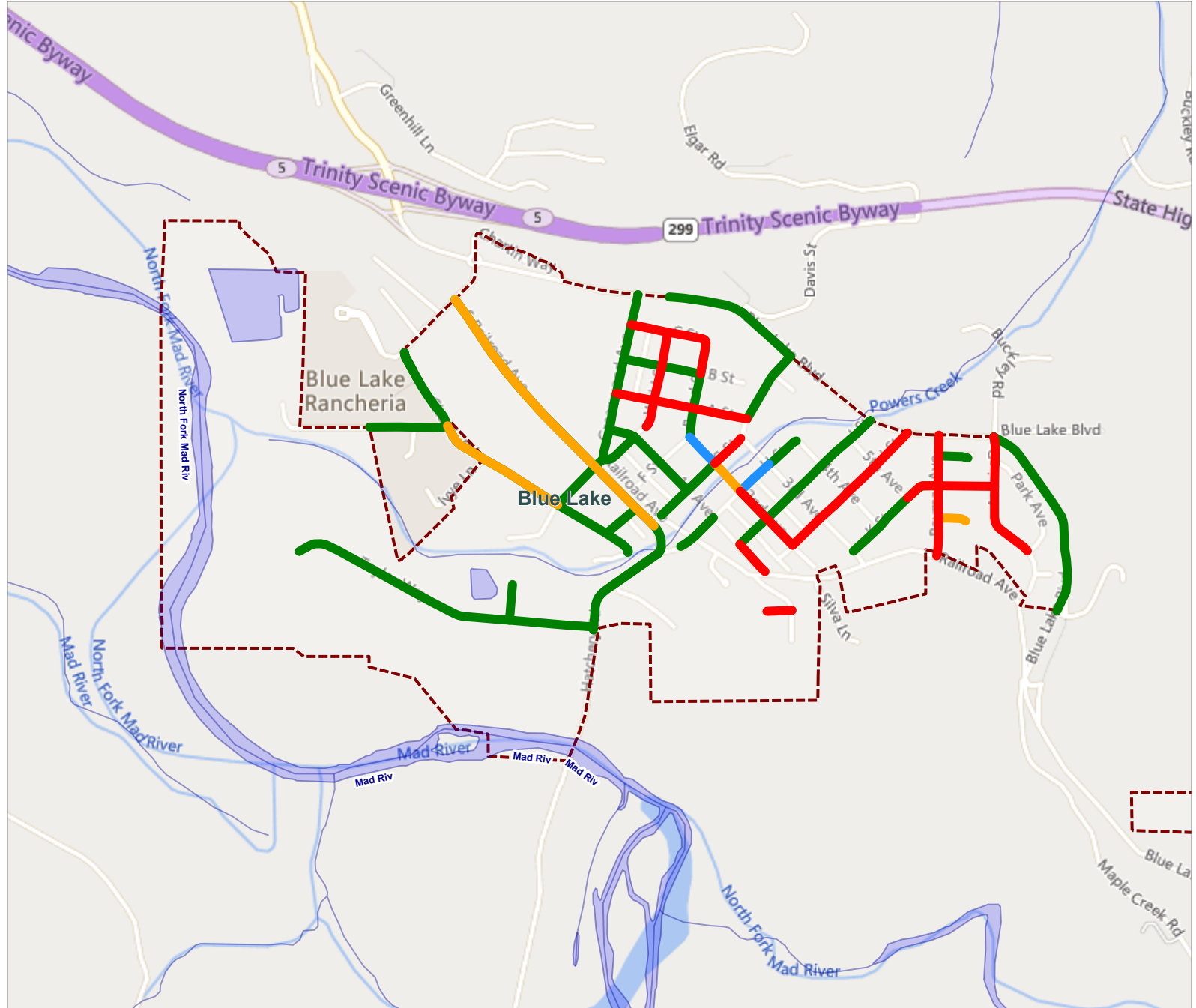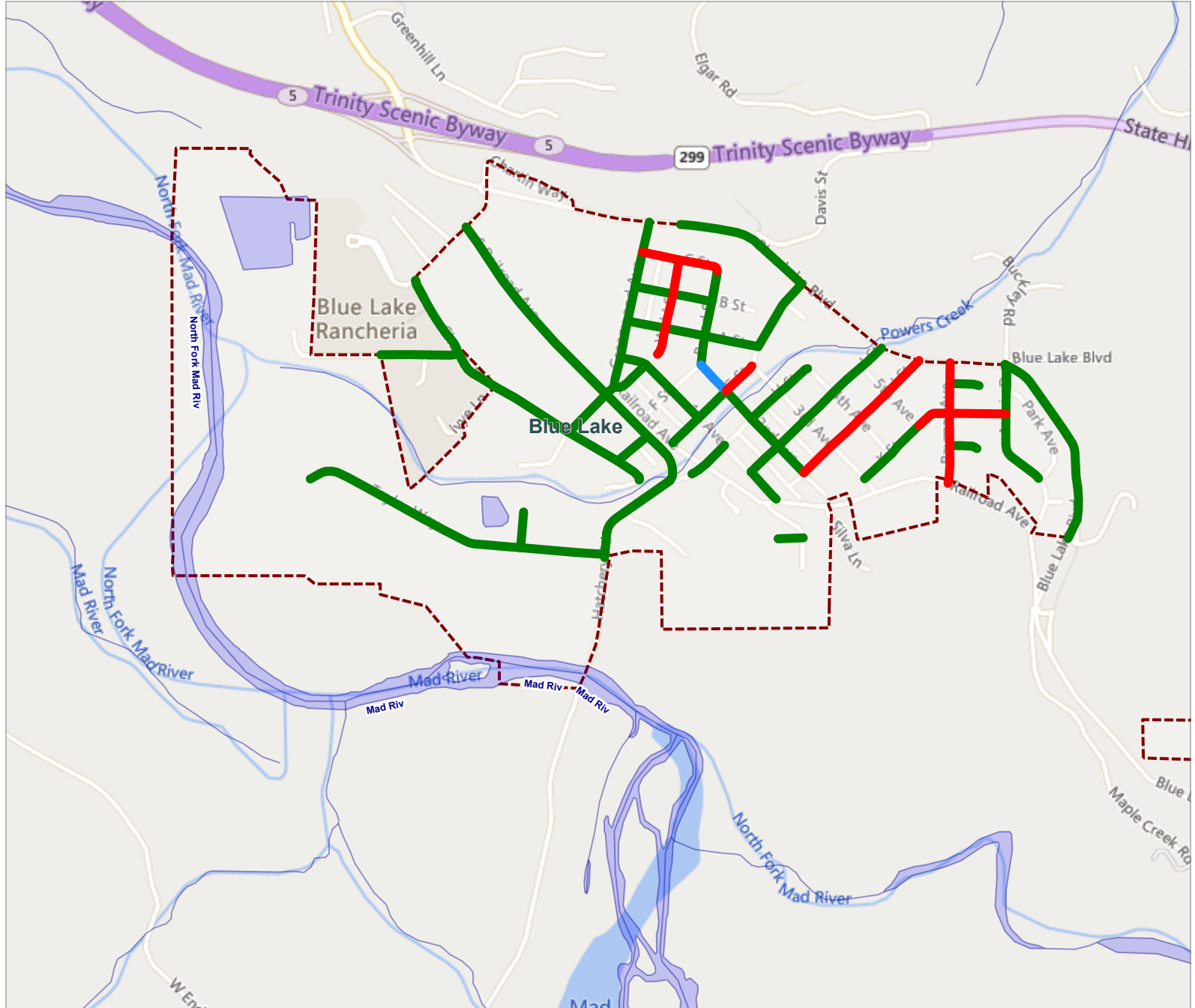
HCAOG

Feature Legend
- ■ Category I - Very Good
- ■ Category II - Good (Non-Load)
- ■ Category V - Very Poor

Appendix F

SECTIONS SELECTED FOR TREATMENT – SCENARIO 1

Scenarios - Sections Selected for Treatment

Interest: 4.00%   Inflation: 4.00%   Printed: 9/22/2022

Scenario: Blue Lake Existing Budget $56k

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2023	$56,000	15%	2027	$56,000	2%	2031	$56,000	15%
2024	$56,000	15%	2028	$56,000	2%	2032	$56,000	15%
2025	$56,000	15%	2029	$56,000	15%			
2026	$56,000	15%	2030	$56,000	15%			

Year: 2023

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	PCI After	Cost	Rating	Treatment
H STREET	2ND AVE	3RD AVE	B-HST	030	306	36	11,016	R	AC	B - Blue Lake	66	65	75	$9,180	12,494	SLURRY SEAL W/ DIGOUTS
ROUSS COURT	RAYMAR AVENUE	EAST CDS	B-ROUSCT	010	224	37	8,288	R	AC	B - Blue Lake	69	68	77	$6,907	12,689	SLURRY SEAL W/ DIGOUTS
RAILROAD AVENUE	400FT E/O 1ST AVE	E CITY LIMIT	B-RRDAVE	050	970	28	27,160	R	AC	B - Blue Lake	69	68	77	$22,633	12,689	SLURRY SEAL W/ DIGOUTS
												Treatment Total		$38,720		
ACACIA DRIVE	S END	ACACIA DR	B-ACACDR	010	148	36	5,328	R	AC	B - Blue Lake	83	82	89	$3,108	15,552	SLURRY SEAL
BLUE LAKE BOULEVARD	783 E/O GREENWOOD DR	HARTMAN ST	B-BLBLVD	020	503	30	15,090	RMaC	AC	B - Blue Lake	79	79	87	$9,222	19,924	SLURRY SEAL
SOUTH RAILROAD AVENUE	G ST	HATCHERY RD	B-SRRAVE	020	200	34	6,800	R	AC	B - Blue Lake	76	75	84	$3,967	18,122	SLURRY SEAL
												Treatment Total		$16,296		
						Year 2023 Area Total	73,682				Year 2023 Total			$55,016		

Year: 2024

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	PCI After	Cost	Rating	Treatment
CHARTIN ROAD	BRODERICK LN	E END	B-CHARRD	040	681	34	23,154	R	AC	B - Blue Lake	68	65	75	$20,067	12,016	SLURRY SEAL W/ DIGOUTS
TAYLOR WAY	MONDA WAY	HATCHERY RD	B-TAYWAY	020	651	36	23,436	R	AC	B - Blue Lake	68	65	75	$20,311	12,016	SLURRY SEAL W/ DIGOUTS
												Treatment Total		$40,378		
3RD AVENUE	K STREET	RAILROAD AVENUE	B-3RDAVE	040	137	40	5,480	R	AC	B - Blue Lake	84	82	89	$3,325	15,325	SLURRY SEAL
E STREET	RAILROAD AVE	I ST	B-EST	010	319	22	7,018	R	AC	B - Blue Lake	82	80	87	$4,258	16,304	SLURRY SEAL
RANCHERIA LANE	W CITY LIMIT	CHARTIN RD	B-RANCLN	010	299	40	11,960	R	AC	B - Blue Lake	80	78	86	$7,256	16,951	SLURRY SEAL
												Treatment Total		$14,838		
						Year 2024 Area Total	71,048				Year 2024 Total			$55,216		

Criteria: Area ID = B - Blue Lake   Scenarios Criteria: Area ID = B - Blue Lake

Scenarios - Sections Selected for Treatment

Interest: 4.00%   Inflation: 4.00%   Printed: 9/22/2022

Scenario: Blue Lake Existing Budget $56k

Year: 2025

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	PCI After	Cost	Rating	Treatment
K STREET	5TH AVE	EVERGREEN ST	B-KST	030	142	20	2,840	R	AC	B - Blue Lake	52	47	100	$20,052	5,967	2" AC OVERLAY W/ DIGOUTS
												Treatment Total		$20,052		
2ND AVENUE	BROAD ST	G ST	B-2NDAVE	010	286	34	9,724	R	AC	B - Blue Lake	74	70	79	$8,765	11,803	SLURRY SEAL W/ DIGOUTS
												Treatment Total		$8,765		
4TH AVENUE	H ST	K ST	B-4THAVE	010	938	32	30,016	R	AC	B - Blue Lake	78	74	82	$18,938	16,843	SLURRY SEAL
MONDA WAY	TAYLOR WAY	N CDS	B-MONWAY	010	284	36	10,224	R	AC	B - Blue Lake	82	78	86	$6,451	16,187	SLURRY SEAL
												Treatment Total		$25,389		

Year 2025 Area Total   52,804   Year 2025 Total $54,205

Year: 2026

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	PCI After	Cost	Rating	Treatment
BLUE LAKE AVE	GELY ST	E END	B-BLKAVE	010	211	22	4,642	R	AC	B - Blue Lake	54	47	100	$34,086	5,742	2" AC OVERLAY W/ DIGOUTS
												Treatment Total		$34,086		
CHARTIN ROAD	CHARTIN RD	RANCHERIA RD	B-CHARRD	020	674	22	14,828	R	AC	B - Blue Lake	84	78	86	$9,730	15,446	SLURRY SEAL
H STREET	3 AVE	4TH AVE	B-HST	040	290	15	4,350	R	AC	B - Blue Lake	85	79	87	$2,854	15,132	SLURRY SEAL
K STREET	3RD AVE	4TH AVE	B-KST	010	296	20	5,920	R	AC	B - Blue Lake	87	81	89	$3,885	14,322	SLURRY SEAL
												Treatment Total		$16,469		

Year 2026 Area Total   29,740   Year 2026 Total $50,554

Year: 2027

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	PCI After	Cost	Rating	Treatment
GELY STREET	CHARTIN RD	S RAILROAD AVE	B-GELYST	010	302	20	6,040	R	AC	B - Blue Lake	55	46	100	$46,125	5,567	2" AC OVERLAY W/ DIGOUTS
												Treatment Total		$46,125		

Year 2027 Area Total   6,040   Year 2027 Total $46,125

Criteria: Area ID = B - Blue Lake   Scenarios Criteria: Area ID = B - Blue Lake

Scenarios - Sections Selected for Treatment

Interest: 4.00%   Inflation: 4.00%   Printed: 9/22/2022

Scenario: Blue Lake Existing Budget $56k

Year: 2028

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
CHARTIN ROAD	S END	CHARTIN RD	B-CHARRD	010	186	40	7,440	R	AC	B - Blue Lake	74	65	100	$49,283	5,133	1.5" AC OVERLAY W/ DIGOUTS
												Treatment Total		$49,283		

Year 2028 Area Total 7,440   Year 2028 Total $49,283

Year: 2029

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
G STREET	S RAILROAD AVE	RAILROAD AVE	B-GST	010	83	48	3,984	R	AC	B - Blue Lake	39	21	100	$43,549	4,132	3"AC OVERLAY W/ DIGOUTS
												Treatment Total		$43,549		
B STREET	GREENWOOD AVE	BROAD ST	B-BST	010	608	26	15,808	R	AC	B - Blue Lake	87	77	85	$11,668	14,128	SLURRY SEAL
												Treatment Total		$11,668		

Year 2029 Area Total 19,792   Year 2029 Total $55,217

Year: 2030

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
PIERSALL AVENUE	W END	REDWOOD AVE	B-PIEAVE	010	196	17	3,332	R	AC	B - Blue Lake	36	14	100	$37,879	3,973	3"AC OVERLAY W/ DIGOUTS
												Treatment Total		$37,879		
BLUE LAKE BOULEVARD	783 E/O GREENWOOD DR	HARTMAN ST	B-BLBLVD	020	503	30	15,090	RMaC	AC	B - Blue Lake	79	71	80	$12,135	13,814	SLURRY SEAL
												Treatment Total		$12,135		

Year 2030 Area Total 18,422   Year 2030 Total $50,014

Year: 2031

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	Treatment PCI Before	Treatment PCI After	Cost	Rating	Treatment
ROUSS COURT	RAYMAR AVENUE	EAST CDS	B-ROUSCT	010	224	37	8,288	R	AC	B - Blue Lake	69	64	74	$9,452	9,067	SLURRY SEAL W/ DIGOUTS
RAILROAD AVENUE	400FT E/O 1ST AVE	E CITY LIMIT	B-RRDAVE	050	970	28	27,160	R	AC	B - Blue Lake	69	64	74	$30,975	9,067	SLURRY SEAL W/ DIGOUTS

Criteria: Area ID = B - Blue Lake   Scenarios Criteria: Area ID = B - Blue Lake

Scenarios - Sections Selected for Treatment

Interest: 4.00%   Inflation: 4.00%   Printed: 9/22/2022

Scenario: Blue Lake Existing Budget $56k

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	PCI Before	PCI After	Cost	Rating	Treatment
												Treatment Total		$40,428		
ACACIA DRIVE	S END	ACACIA DR	B-ACACDR	010	148	36	5,328	R	AC	B - Blue Lake	83	76	85	$4,254	13,077	SLURRY SEAL
SOUTH RAILROAD AVENUE	G ST	HATCHERY RD	B-SRRAVE	020	200	34	6,800	R	AC	B - Blue Lake	76	71	80	$5,429	13,336	SLURRY SEAL
												Treatment Total		$9,682		
				Year 2031 Area Total			47,576			Year 2031 Total				$50,110		

Year: 2032

Road Name	Begin Location	End Location	Street ID	Section ID	Length	Width	Area	FC	Surface Type	Area ID	Current PCI	PCI Before	PCI After	Cost	Rating	Treatment
CHARTIN ROAD	BRODERICK LN	E END	B-CHARRD	040	681	34	23,154	R	AC	B - Blue Lake	68	61	72	$27,463	8,580	SLURRY SEAL W/ DIGOUTS
												Treatment Total		$27,463		
3RD AVENUE	K STREET	RAILROAD AVENUE	B-3RDAVE	040	137	40	5,480	R	AC	B - Blue Lake	84	76	84	$4,550	12,623	SLURRY SEAL
E STREET	RAILROAD AVE	I ST	B-EST	010	319	22	7,018	R	AC	B - Blue Lake	82	75	83	$5,827	12,754	SLURRY SEAL
RANCHERIA LANE	W CITY LIMIT	CHARTIN RD	B-RANCLN	010	299	40	11,960	R	AC	B - Blue Lake	80	73	82	$9,930	12,831	SLURRY SEAL
												Treatment Total		$20,307		
				Year 2032 Area Total			47,612			Year 2032 Total				$47,769		
				Grand Total Section Area:			374,156			Grand Total				$513,509		

Criteria: Area ID = B - Blue Lake   Scenarios Criteria: Area ID = B - Blue Lake