



2021 Pavement Management Program Update Report

Prepared for:



City of
Lincoln CALIFORNIA

INFRASTRUCTURE CONSULTING GROUP

1825 Dahlia Dr.
Cumming, GA 30040
Tel: 678.762.2187

[Email: info@infrastructureconsultinggroup.com](mailto:info@infrastructureconsultinggroup.com)
www.infrastructureconsultinggroup.com

August 26, 2021



TABLE OF CONTENTS

1	INTRODUCTION	1
	1.1 Background	1
	1.2 Pavement Management Overview	1
	1.3 Project Objectives	2
	1.4 Project Approach.....	2
2	PAVEMENT MANAGEMENT SYSTEM OVERVIEW	3
	2.1 Objective	3
	2.2 StreetSaver PMS Overview	3
	2.3 Updating the City’s Inventory and StreetSaver PMS.....	3
3	PAVEMENT CONDITION INSPECTION	4
	3.1 Objective	4
	3.2 PCI Procedure	4
	3.3 Existing Pavement Conditions and Field Observations	5
4	BUDGET ANALYSIS.....	7
5	SUMMARY AND RECOMMENDATIONS.....	10
	5.1 Summary	10
	5.2 Recommendations.....	10
	5.2.1 Perform Regular Pavement Condition Inspections.....	10
	5.2.2 Implement Preventive Maintenance Programs for all Pavements.....	10
6	APPENDIX A-PCI MAP	
7	APPENDIX B-DECISION TREE	
8	APPENDIX C-BUDGET NEEDS	
9	APPENDIX D-SCENARIO-INCREASE PCI BY 5 POINTS	
10	APPENDIX E-SCENARIO-KEEP CURRENT FUNDING LEVEL (1.5M/YEAR)	
11	APPENDIX F-SCENARIO-MAINTAIN CURRENT PCI	
12	APPENDIX F-SECTIONS SELECTED FOR TREATMENT (CURRENT FUNDING)	

1 INTRODUCTION

1.1 Background

Infrastructure Consulting Group. (ICG), at the request of the City of Lincoln (City), performed pavement condition survey on the roadway network of the City. The City is located in Placer County, California, part of the Sacramento metropolitan area. For this contract, ICG inspected the City’s roadway network approximately 320 centerline miles of roadway. The majority of the City’s pavement inventory is asphalt concrete (AC).

1.2 Pavement Management Overview

Pavement management is a systematic approach to forecasting pavement M&R requirements and then optimizing and prioritizing available M&R funding. As shown in Figure 1, the primary objective of pavement management is to preserve pavements in good condition rather than wait for them to fail and then reconstruct them.

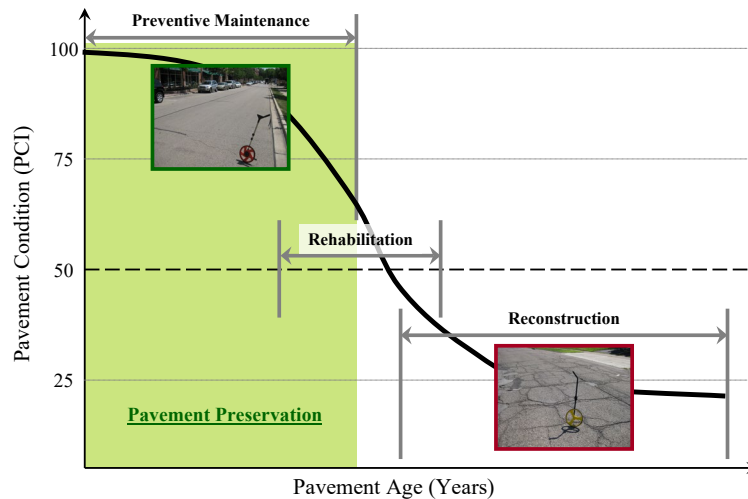


Figure 1: Pavement preservation.

When the appropriate preventive M&R treatments (e.g., crack sealing, seal coats, etc.) are applied at the correct times during the pavement service life, these relatively inexpensive preventive M&R treatments can significantly extend the service life of the pavement, as shown in Figure 2.

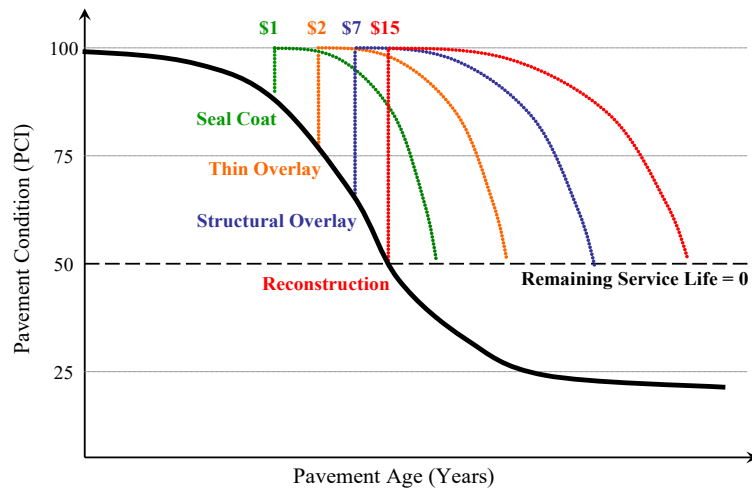


Figure 2: Increasing price and decreasing relative benefit of M&R as a function of pavement condition. (Note: Illustrative prices only)

As pavement management concepts have gained traction, computer-based pavement management systems (PMS) have been developed to assist agencies in optimally managing their pavements. PMS currently rely on a comprehensive pavement inventory, regular pavement condition assessments, pavement performance modeling, and sophisticated analysis tools that forecast future pavement condition and estimate future M&R needs.

1.3 Project Objectives

The primary objective of this project is to determine the state of streets pavement condition in the form of Pavement Condition Index (PCI) so that the City can objectively assess the condition of its roadway pavements, better optimize and prioritize the expenditure of its existing M&R funding, and effectively identify and justify its future roadway pavement M&R funding needs. The ICG's scope for this phase is to perform pavement inspection and report pavement condition for each section, perform budget analysis and provide a summary report of the findings.

1.4 Project Approach

In order to successfully accomplish the objectives of this project, ICG performed the following tasks:

1. Pavement Condition Index (PCI) inspection – *Performed a network-level PCI inspection of the City's roadway pavements*
2. PMS database update – *Update the StreetSaver PMS database for the City's roadway pavement network*
3. Generate and update the City's Geographical Information System (GIS) shapefile – *A color coded map showing each evaluated street's PCI value for the City's roadway pavement network.*
4. *Perform different budget scenarios and provide a summary report*

These tasks and their outcomes are described in the following sections.

2 PAVEMENT MANAGEMENT SYSTEM OVERVIEW

2.1 Objective

The objective of this task was to update the PMS database and perform pavement condition inspections for the City streets. The intent is for the City to use the system to better manage its roadway pavement network. The City is currently using the StreetSaver software to manage its roadway pavement network.



2.2 StreetSaver PMS Overview

The StreetSaver PMS helps agencies determine when, where, and what level of pavement M&R is required and approximately how much it will cost. The system provides a suite of pavement management software tools that assist agencies in: (1) developing and organizing their pavement inventory; (2) assessing the current condition of their pavements; (3) predict future pavement condition using deterioration curves; (4) reporting on past and future pavement performance; (5) developing scenarios for M&R based on either budget or condition requirements; and (6) planning M&R projects. The primary StreetSaver modules include:

- Pavement Sections
- GIS Toolbox
- Table Maintenance
- Inspections
- Budgeting
- Asset Management
- System Administration
- Utilities

The combination of all the above modules gives StreetSaver the capability to help engineers manage streets within their network. StreetSaver based PMS helps engineers, roads superintendents, public works or roads commissioners to answer the following questions:

- What does my road network consist of?
- What is the condition of my road network
- Which streets do I need to repair next year or the following year?
- When should I time repairs?
- How much money will I need to perform these repairs?
- How can I prioritize streets for repairs?

2.3 Updating the City's Inventory and StreetSaver PMS

ICG reviewed the City's Street GIS shapefile and compared it to the existing inventory in the StreetSaver program. The streets that were missing in the StreetSaver database were added to ensure a complete match between the shapefile and the StreetSaver program. Few additional street sections were created in the City's GIS shapefile before they were added to the StreetSaver database. Each pavement section typically represents a single "block" of pavement (i.e., intersection to intersection). Pavement sections may be thought of as "homogenous" areas of pavement to which Major M&R (e.g., resurfacing and reconstruction) would be applied. The final StreetSaver database contained approximately 2,500 pavement sections. All

data attributes that were to be included for each pavement section in the StreetSaver database, such as surface type, from/to locations (when available) were extracted from the original shapefile that was provided by the City.

3 PAVEMENT CONDITION INSPECTION

3.1 Objective

The objective of the pavement condition inspection was to assess the existing condition of the roadway pavements managed by the City. This was accomplished by performing a semi-automated network-level pavement condition inspection based on the PCI method. Both the pavement condition inspection procedure and general findings of the inspection are discussed in this chapter.

3.2 PCI Procedure

The pavement condition survey was performed following the PCI procedure described in the modified ASTM D 6433 (MTC PCI Distress Identification Manuals (AC 4th Ed./PCC 3rd Ed. March 2016).). The PCI procedure is an objective and repeatable method for determining existing pavement condition. A PCI value provides an indication of the structural integrity and operational condition of a pavement section. The PCI procedure consists of a routine visual inspection, during which pavement distress types, severity levels, and quantities are identified and recorded. These data are then inputted into the PCI algorithm to calculate a PCI value. PCI values range from 0 to 100, as shown in Figure 3.

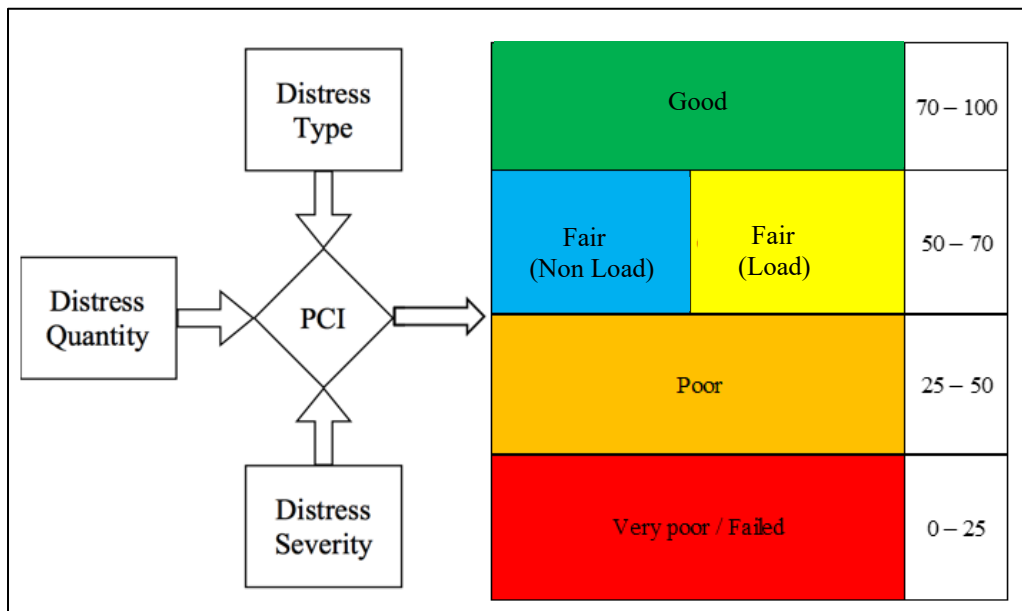


Figure 3: PCI Inputs and the City’s Condition Assessment Scale

If properly designed and constructed, a new pavement begins its service life with a PCI of 100. Due to the effects of loading and aging, a pavement deteriorates over time. For each combination of distress type, severity level, and quantity observed, points are deducted from 100, and its PCI decreases. When multiple distresses are present, the deduct values are modified such that the impact of multiple distresses is somewhat lessened. Due to the complexity of the PCI algorithm, PCI values are typically computed using a pavement management software package, such as StreetSaver.

During a PCI inspection according to the modified ASTM D 6433, eight (8) distress types are identified and evaluated for asphalt pavements and seven (7) distress types for concrete pavements, as shown in Table 1 and Table 2.

Table 1: Asphalt Pavement Distress Types

Code	Distress
01	Alligator Cracking
02	Block Cracking
03	Distortions
04	Long. & Trans. Cracking
05	Patch & Util. Cut Patch
06	Rutting/Depression
07	Raveling
08	Weathering

Table 2: Concrete Pavement Distress Types

Code	Distress
01	Corner Break
02	Divided Slab
03	Faulting
04	Linear Cracking
05	Patching and Utility Cuts
06	Scaling/Map Cracking/Crazing
07	Spalling

3.3 Existing Pavement Conditions and Field Observations

The City’s roadway network consists of approximately 320 centerline miles. The collected pavement inspection data were used to calculate a PCI value for each pavement section. Table 3 shows the PCI condition assessment criteria used to analyze the pavement network.

Table 3: City’s Pavement Condition Categories

Category	Condition Assessment		PCI Range
I	Good		70 – 100
II (Blue) III (Yellow)	Fair (Non-load)	Fair (Load Related)	50 – 70
IV	Poor		25 – 50
V	Very poor / Failed		0 – 25

At the time of inspection that was conducted by ICG in March 2021, the City’s pavements were found to be overall in “**Good**” condition, with an average PCI of **76**. Note that most of poor to failed pavement condition were observed in residential neighborhood near downtown. The overall remaining life for the

entire network was **22 years**. The condition distribution of the City’s pavements at the time of inspection is shown in Figure 8.

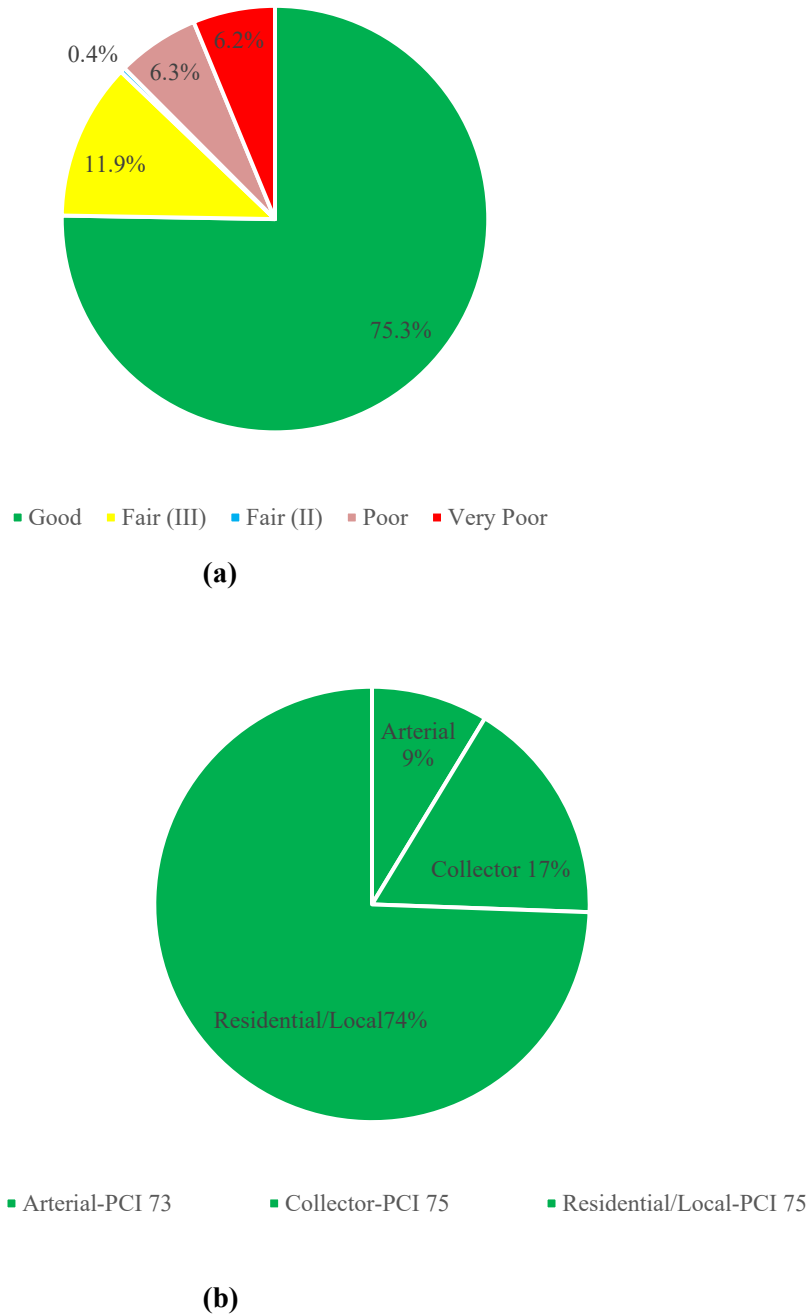


Figure 4: Overall Pavement Condition Distribution by area – (a) category classification, (b) functional classification

The causes of pavement deterioration may be divided into the following three general categories: (1) Load Related, (2) Climate/Durability Related, and (3) Other. Table 4 shows the primary causes of pavement deterioration observed throughout the City’s pavement network.

Table 4: Categorization of Observed Pavement Distresses

Distress Category	Example Distresses	Percentage of Observed Distresses
Load Related	Asphalt pavement distresses such as rutting and alligator cracking.	41%
Climate/ Durability Related	Asphalt pavement distresses such as longitudinal and transverse cracking, weathering, and block cracking.	58%
Other	Asphalt pavement distresses such as patching	1%

The deterioration observed on the City’s pavements was caused primarily by a mixture of climate- and load-related distresses. The pavement condition for all of the City’s streets can be viewed in the using this link below: <https://arcg.is/1aH5fS>.

4 BUDGET ANALYSIS

The objectives of a pavement M&R budget include maintaining satisfactory overall pavement conditions and reducing the deferred maintenance overtime. Doing so will eventually ensure that all pavements in the City are in good condition and are therefore being managed as cost effectively as possible through preventive maintenance and less costly and less frequent rehabilitation projects. By not addressing the maintenance needs, the quality of the road network will inevitably decline. In order to correct these deficiencies, a cost-effective funding and maintenance strategy must be implemented.

The first step in developing a cost-effective M&R strategy is to determine the maintenance "needs" of the pavement network. Using the StreetSaver® budget needs module with an inflation rate of 3%, the maintenance needs over the next 10 years were estimated at approximately \$108.2 million for the entire network. If the City follows the strategy recommended by the program, the average network PCI will be in the range of 84 to 91 over 10 years. If, however, no maintenance is applied over the next 10 years, already distressed streets will continue to deteriorate, and the network PCI will drop to 57 by 2030. The results of the budget needs analysis are summarized in Table 5 below.

Table 5 Summary Results from 10 Years Needs Analysis

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
PCI Treated	91	89	87	86	85	85	84	86	86	85	-
PCI Untreated	76	73	71	69	67	65	63	61	59	57	-
Needs (\$Millions)	66.5	5.4	3.0	1.4	2.2	3.1	0.3	17.0	7.1	2.2	108.2

Out of \$108.2 Million maintenance needs shown, approximately 38% goes into preventive maintenance, while the other 62% goes into rehabilitation and reconstruction. A such high amount is earmarked into preventive maintenance due to the fact that 75.3% of the pavement area is in very good condition; and this will require preventive maintenance to stay in very good condition.

The following 10-year M&R budget analyses were performed on the City’s inspected pavement sections.

- Effect of \$1.5 Annual Budget (current funding): Based on the City’s annual funding of \$1.5 million per year for the next 10 years, the overall PCI will drop to 62; however, the deferred maintenance is predicted to increase to \$104 million from current 66.5 million. Annual PCI and budget summary are presented in Table 6.

Table 6 Summary Results from 10 Years Currently Budget Analysis

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
PCI Treated	76	74	72	71	69	68	66	65	63	62	-
PCI Untreated	76	73	71	69	67	65	63	61	59	57	-
Needs (\$Millions)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	18.0

- Required Annual Budget to Maintain Current PCI: This scenario aims to ensure that the overall pavement network PCI does not drop below 76 over the next 10 years. The deferred maintenance will decrease from \$66.5 million to \$56.7 million by 2030. Annual PCI and budget summary are presented in Table 7.

Table 7 Summary Results from 10 Years Maintain Current PCI Analysis

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
PCI Treated	76	76	76	76	76	76	76	76	76	76	-
PCI Untreated	76	73	71	69	67	65	63	61	59	57	-
Needs (\$Millions)	0.8	7.7	9.7	10.2	7.3	7.7	7.8	7.0	5.9	5.9	70.0

- Required Annual Budget to Increase Current PCI by 5 points: This scenario aims to ensure that the overall pavement network PCI does not drop below 81 over the next 10 years. The deferred maintenance will decrease from \$66.5 million to \$32.4 million by 2030. Annual PCI and budget summary are presented in Table 8.

Table 8 Summary Results from 10 Years Increase PCI by 5 points Analyses

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
PCI Treated	81	81	81	81	81	81	81	81	81	81	-
PCI Untreated	76	73	71	69	67	65	63	61	59	57	-
Needs (\$Millions)	23.2	11.3	9.0	7.3	5.8	6.4	6.6	6.0	5.7	6.3	87.6

Note: The term “deferred maintenance” consists of pavement maintenance that is needed but cannot be performed due to lack of funding. The deferred maintenance for the City is currently \$66.5 million. Shrinking budgets have forced many cities and counties to defer much needed pavement maintenance. By deferring maintenance, the frequency of citizens’ complaints about the condition of the network increases and the cost to repair these streets rises as well.

The annual PCI and budget comparisons are shown in Figure 10 and Figure 11. Overall, higher PCI is achieved from needs analysis. The needs analysis will eliminate all differed maintenance by year 2030.

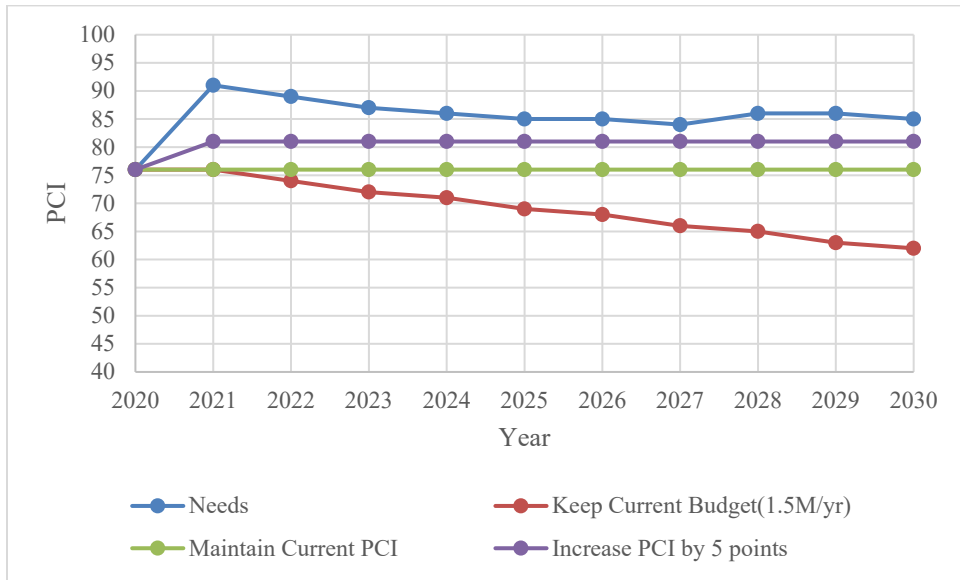


Figure 5: PCI Comparison

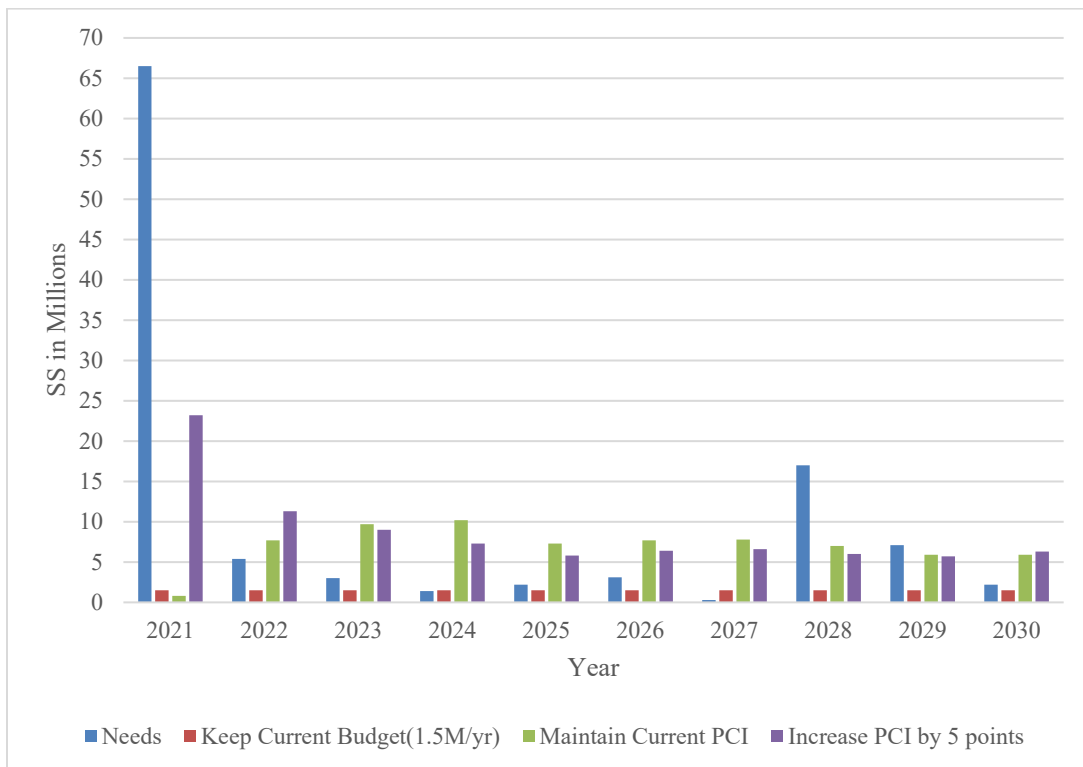


Figure 6: Annual Budget Comparison

5 SUMMARY AND RECOMMENDATIONS

5.1 Summary

The overall pavement condition of the City streets is 76 with a remaining life of 21 years. About 75% of the City's pavements were found to be in category I (very good). While some of the City's pavements exhibited minimal distress and appear to be performing well. Some of the roads are slurry sealed; and the application of slurry can make it hard to capture some of the existing distresses, especially if the inspection is conducted right after its application.

5.2 Recommendations

5.2.1 Perform Regular Pavement Condition Inspections

In an effort to capitalize on this PCI inspection effort and better track the condition of its pavements, it is recommended that the City continue to perform PCI surveys on a two to three year cycle. Doing so will enable the City to:

1. Better track the deterioration of its pavements,
2. Develop pavement deterioration trends to better predict future pavement conditions, and
3. Assess the effectiveness of its pavement preservation and Major M&R activities.

While many of the City's pavement sections are currently in very good condition, the future M&R needs will increase as the City's pavements deteriorate over time. It is necessary that this deterioration be proactively and systematically monitored.

5.2.2 Implement Preventive Maintenance Programs for all Pavements

Based on in-the-field observations, it is evident that the City would benefit from a preventive maintenance program. While Major M&R for some of the City's pavement sections is necessary, the City should consider preserving its vast inventory of relatively newer pavements through the application of preventive maintenance activities, such as crack sealing, localized patching, and surface seal applications. Doing so will extend the life of its pavement inventory and will reduce the rate of deterioration of its pavement network. Note that preventive maintenance does not correct issues related to pavement structure failure. It was observed that crack sealing is applied to sections with fatigue cracking. Sealing the areas with fatigue failure does not solve the problem. The appropriate corrective measures should be considered for sections that exhibit fatigue cracking.

It is therefore recommended that the City develop a proactive, ongoing routine maintenance inspection and repair cycle for its pavements. For example, the City's pavements may be divided into four zones, and City maintenance staff could inspect each zone annually to identify routine maintenance needs. Following the inspection, maintenance activities may then be scheduled and executed in a timely fashion.

It is recommended that a project level structural evaluation of the streets that are selected for major rehabilitation and/or reconstruction is conducted. The project level structural evaluation will involve using a Falling Weight Deflectometer (FWD) coupled with pavement layer thicknesses and types, traffic information and a design period to determine the most cost-effective alternative.








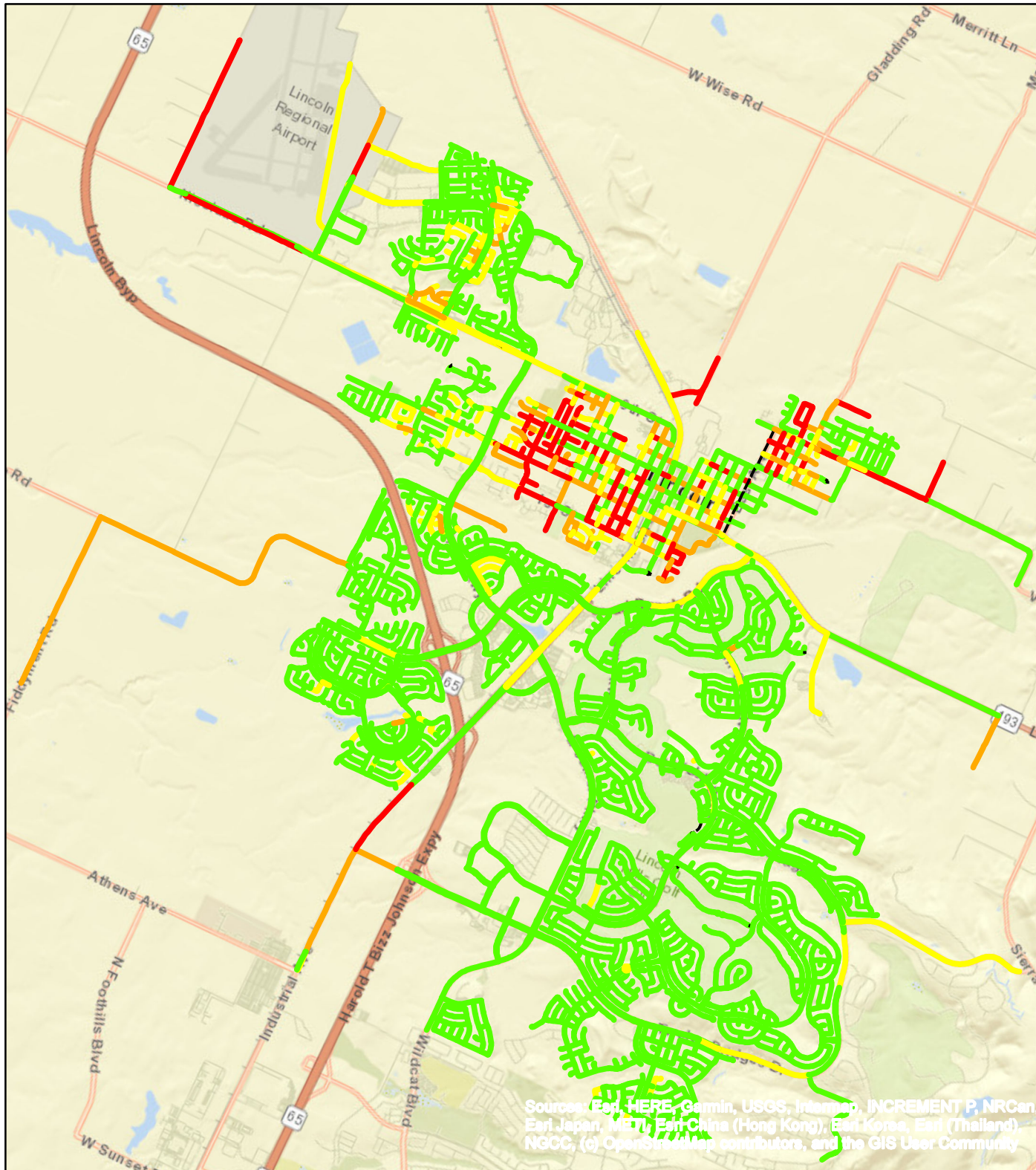
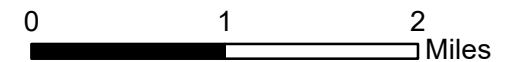
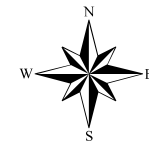
6 APPENDIX A-PCI MAP



Pavement Section PCI

PCI

-  Very Poor < 25
-  25 <= Poor < 50
-  50 <= Fair < 70
-  70 <= Good <= 100
-  Not Inspected



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community





7 APPENDIX B-DECISION TREE

Decision Tree

Printed: 8/31/2021

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
Arterial	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	3		
			Surface Treatment	MICROSURFACING	\$5.00		7	
			Restoration Treatment	DO NOTHING	\$0.00			2
		II - Good, Non-Load Related		2" HMA OVERLAY	\$27.00			
		III - Good, Load Related		2" HMA OVERLAY	\$43.00			
		IV - Poor		3" HMA OVERLAY	\$62.00			
		V - Very Poor		4" HMA WITH 12" FDR	\$70.00			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	3		
			Surface Treatment	MICROSURFACING	\$5.00		7	
			Restoration Treatment	DO NOTHING	\$0.00			2
		II - Good, Non-Load Related		2" HMA OVERLAY	\$27.00			
		III - Good, Load Related		2" HMA OVERLAY	\$43.00			
		IV - Poor		3" HMA OVERLAY	\$62.00			
		V - Very Poor		4" HMA WITH 12" FDR	\$70.00			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$0.60	3		
			Surface Treatment	SINGLE CHIP SEAL	\$0.74		6	
			Restoration Treatment	MILL AND THICK OVERLAY	\$7.23			2
		II - Good, Non-Load Related		DOUBLE CHIP SEAL	\$1.52			
		III - Good, Load Related		HEATER SCARIFY & OVERLAY	\$5.95			
		IV - Poor		HEATER SCARIFY & OVERLAY	\$6.14			
		V - Very Poor		RECONSTRUCT SURFACE (AC)	\$14.00			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	3		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		DO NOTHING	\$1.11			
		III - Good, Load Related		DO NOTHING	\$1.51			
		IV - Poor		THICK AC OVERLAY(2.5 INCHES)	\$1.92			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	\$14.00			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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
Arterial	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		SINGLE CHIP SEAL	\$1.11			
		III - Good, Load Related		SINGLE CHIP SEAL	\$1.51			
		IV - Poor		SINGLE CHIP SEAL	\$1.92			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.67			

- Functional Class and Surface combination not used
- Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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	
Collector	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4			
			Surface Treatment	MICROSURFACING	\$5.00		7		
			Restoration Treatment	DO NOTHING	\$0.00				3
			II - Good, Non-Load Related	CAPE SEAL	\$11.00		7		
			III - Good, Load Related	2" HMA OVERLAY	\$39.00				
		IV - Poor		3" HMA OVERLAY	\$56.00				
		V - Very Poor		4" HMA WITH 12" FDR	\$67.00				
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4			
			Surface Treatment	MICROSURFACING	\$5.00		7		
			Restoration Treatment	DO NOTHING	\$0.00				3
			II - Good, Non-Load Related	CAPE SEAL	\$11.00		7		
			III - Good, Load Related	2" HMA OVERLAY	\$39.00				
		IV - Poor		3" HMA OVERLAY	\$56.00				
		V - Very Poor		4" HMA WITH 12" FDR	\$67.00				
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$0.60	4			
			Surface Treatment	SINGLE CHIP SEAL	\$0.74		7		
			Restoration Treatment	MILL AND THIN OVERLAY	\$5.04				3
			II - Good, Non-Load Related	DOUBLE CHIP SEAL	\$1.52				
			III - Good, Load Related	HEATER SCARIFY & OVERLAY	\$5.95				
		IV - Poor		HEATER SCARIFY & OVERLAY	\$6.14				
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	\$11.38				
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9			
			Surface Treatment	DO NOTHING	\$0.00		99		
			Restoration Treatment	DO NOTHING	\$0.00				100
			II - Good, Non-Load Related	DO NOTHING	\$1.11				
			III - Good, Load Related	DO NOTHING	\$1.51				
		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

Decision Tree

Printed: 8/31/2021

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
Collector	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		SINGLE CHIP SEAL	\$1.11			
		III - Good, Load Related		SINGLE CHIP SEAL	\$1.51			
		IV - Poor		SINGLE CHIP SEAL	\$1.92			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.47			

- Functional Class and Surface combination not used
- Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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
Residential/Local	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4		
			Surface Treatment	SLURRY SEAL	\$4.00		7	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		CAPE SEAL	\$11.00		7	
		III - Good, Load Related		2" HMA OVERLAY	\$33.00			
		IV - Poor		3" HMA OVERLAY	\$48.00			
		V - Very Poor		3" HMA OVERLAY	\$51.00			
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4		
			Surface Treatment	SLURRY SEAL	\$4.00		7	
			Restoration Treatment	DO NOTHING	\$0.00			3
		II - Good, Non-Load Related		CAPE SEAL	\$11.00		7	
		III - Good, Load Related		2" HMA OVERLAY	\$33.00			
		IV - Poor		3" HMA OVERLAY	\$48.00			
		V - Very Poor		3" HMA OVERLAY	\$51.00			
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$0.60	4		
			Surface Treatment	SINGLE CHIP SEAL	\$0.74		8	
			Restoration Treatment	MILL AND THIN OVERLAY	\$5.04			3
		II - Good, Non-Load Related		DOUBLE CHIP SEAL	\$1.52			
		III - Good, Load Related		HEATER SCARIFY & OVERLAY	\$5.95			
		IV - Poor		HEATER SCARIFY & OVERLAY	\$6.14			
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	\$8.25			
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	4		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		DO NOTHING	\$1.11			
		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			

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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
Residential/Local	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		SINGLE CHIP SEAL	\$1.11			
		III - Good, Load Related		SINGLE CHIP SEAL	\$1.51			
		IV - Poor		SINGLE CHIP SEAL	\$1.92			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.27			

- Functional Class and Surface combination not used
- Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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	
Other	AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4			
			Surface Treatment	SLURRY SEAL	\$4.00		7		
			Restoration Treatment	DO NOTHING	\$0.00				3
				CAPE SEAL	\$11.00		7		
				2" HMA OVERLAY	\$33.00				
		II - Good, Non-Load Related		CAPE SEAL	\$11.00		7		
		III - Good, Load Related		2" HMA OVERLAY	\$33.00				
		IV - Poor		3" HMA OVERLAY	\$48.00				
		V - Very Poor		3" HMA OVERLAY	\$51.00				
	AC/AC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.00	4			
			Surface Treatment	SLURRY SEAL	\$4.00		7		
			Restoration Treatment	DO NOTHING	\$0.00				3
				CAPE SEAL	\$11.00		7		
				2" HMA OVERLAY	\$33.00				
		II - Good, Non-Load Related		CAPE SEAL	\$11.00		7		
		III - Good, Load Related		2" HMA OVERLAY	\$33.00				
		IV - Poor		3" HMA OVERLAY	\$48.00				
		V - Very Poor		3" HMA OVERLAY	\$51.00				
	AC/PCC	I - Very Good	Crack Treatment	SEAL CRACKS	\$1.60	4			
			Surface Treatment	SINGLE CHIP SEAL	\$1.74		8		
			Restoration Treatment	MILL AND THIN OVERLAY	\$5.04				3
				DOUBLE CHIP SEAL	\$1.52				
				HEATER SCARIFY & OVERLAY	\$5.95				
		II - Good, Non-Load Related		DOUBLE CHIP SEAL	\$1.52				
		III - Good, Load Related		HEATER SCARIFY & OVERLAY	\$5.95				
		IV - Poor		HEATER SCARIFY & OVERLAY	\$6.14				
		V - Very Poor		RECONSTRUCT STRUCTURE (AC)	\$8.75				
	PCC	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9			
			Surface Treatment	DO NOTHING	\$0.00		99		
			Restoration Treatment	DO NOTHING	\$0.00				100
				DO NOTHING	\$1.11				
				DO NOTHING	\$1.51				
		II - Good, Non-Load Related		DO NOTHING	\$1.11				
		III - Good, Load Related		DO NOTHING	\$1.51				
		IV - Poor		THICK AC OVERLAY(2.5 INCHES)	\$1.92				
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.27				

Functional Class and Surface combination not used

Selected Treatment is not a Surface Seal

Decision Tree

Printed: 8/31/2021

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
Other	ST	I - Very Good	Crack Treatment	DO NOTHING	\$0.00	9		
			Surface Treatment	DO NOTHING	\$0.00		99	
			Restoration Treatment	DO NOTHING	\$0.00			100
		II - Good, Non-Load Related		SINGLE CHIP SEAL	\$1.11			
		III - Good, Load Related		SINGLE CHIP SEAL	\$1.51			
		IV - Poor		SINGLE CHIP SEAL	\$1.92			
		V - Very Poor		THICK AC OVERLAY(2.5 INCHES)	\$7.27			

- Functional Class and Surface combination not used
- Selected Treatment is not a Surface Seal



8 APPENDIX C-BUDGET NEEDS

Needs - Projected PCI/Cost Summary

Inflation Rate = 3.00 % Printed: 8/31/2021

Year	PCI Treated	PCI Untreated	PM Cost	Rehab Cost	Cost
2021	91	75	\$8,175,807	\$58,350,916	\$66,526,723
2022	89	73	\$2,188,296	\$3,178,477	\$5,366,773
2023	87	71	\$990,615	\$1,987,041	\$2,977,656
2024	86	69	\$1,350,261	\$0	\$1,350,261
2025	85	67	\$2,177,059	\$0	\$2,177,059
2026	85	65	\$3,138,779	\$0	\$3,138,779
2027	84	63	\$152,074	\$123,036	\$275,110
2028	86	61	\$13,767,887	\$3,282,618	\$17,050,505
2029	86	59	\$6,749,895	\$356,421	\$7,106,316
2030	85	57	\$1,934,232	\$247,453	\$2,181,685
		% PM	PM Total Cost	Rehab Total Cost	Total Cost
		37.56%	\$40,624,905	\$67,525,962	\$108,150,867

Needs - Preventive Maintenance Treatment/Cost Summary

Inflation Rate = 3.00 % Printed: 8/31/2021

Treatment	Year	Area Treated	Cost
MICROSURFACING	2021	676,046.78 sq. yd.	\$3,380,276
	2022	147,328.89 sq. yd.	\$758,755
	2023	85,346.78 sq. yd.	\$452,730
	2024	25,660.22 sq. yd.	\$140,202
	2025	5,335.56 sq. yd.	\$30,028
	2028	1,188,479.11 sq. yd.	\$7,308,501
	2029	182,539.78 sq. yd.	\$1,156,199
	2030	115,768.67 sq. yd.	\$755,273
	Total		2,426,505.78
SEAL CRACKS	2024	7,209.09 sq. yd.	\$7,906
	2025	46,861.28 sq. yd.	\$53,161
	2026	12,325.38 sq. yd.	\$14,417
	2027	30,138.08 sq. yd.	\$36,213
	2028	8,108.97 sq. yd.	\$10,066
	2029	10,853.39 sq. yd.	\$13,884
	2030	13,854.13 sq. yd.	\$18,274
	Total		129,350.31
SLURRY SEAL	2021	1,198,822.56 sq. yd.	\$4,795,531
	2022	346,955.67 sq. yd.	\$1,429,541
	2023	126,742.78 sq. yd.	\$537,885
	2024	275,016.56 sq. yd.	\$1,202,153
	2025	465,062 sq. yd.	\$2,093,870
	2026	673,734.67 sq. yd.	\$3,124,362
	2027	24,256.67 sq. yd.	\$115,861
	2028	1,310,901.44 sq. yd.	\$6,449,320
	2029	1,101,141.44 sq. yd.	\$5,579,812
	2030	222,381.33 sq. yd.	\$1,160,685
Total		5,745,015.11	\$26,489,020
Total Quantity		8,300,871.2	\$40,624,905

Needs - Rehabilitation Treatment/Cost Summary

Inflation Rate = 3.00 % Printed: 8/31/2021

Treatment	Year	Area Treated	Cost
2" HMA OVERLAY	2021	567,218.44 sq.yd.	\$18,822,694
	2022	64,311.22 sq.yd.	\$2,303,317
	2023	33,746.33 sq.yd.	\$1,009,330
	Total	665,276 sq.yd.	\$22,135,341
3" HMA OVERLAY	2021	657,095.22 sq.yd.	\$33,295,194
	2027	1,840 sq.yd.	\$123,036
	2028	10,348 sq.yd.	\$700,461
	Total	669,283.22 sq.yd.	\$34,118,691
4" HMA WITH 12" FDR	2021	51,290.44 sq.yd.	\$3,465,071
	Total	51,290.44 sq.yd.	\$3,465,071
CAPE SEAL	2021	251,629.44 sq.yd.	\$2,767,957
	2022	77,241.11 sq.yd.	\$875,160
	2023	83,779.11 sq.yd.	\$977,711
	2028	190,863.56 sq.yd.	\$2,582,157
	2029	25,578.11 sq.yd.	\$356,421
	2030	17,240.89 sq.yd.	\$247,453
	Total	646,332.22 sq.yd.	\$7,806,859
Total Cost			\$67,525,962



9 APPENDIX D-SCENARIO-INCREASE PCI BY 5 POINTS

Target-Driven Scenarios - Cost Summary

Interest: 0%

Inflation: 3%

Printed: 8/31/2021

Scenario: Increase PCI by 5 points

Objective: Minimum Network Average PCI		Target: Overall 81				
Year	Rehabilitation	Preventive Maintenance	Total Cost	Deferred		
2021	II	\$2,975,268	Non-Project	\$7,886,861	\$23,204,437	\$39,068,376
	III	\$7,774,710				
	IV	\$4,161,025	Project	\$0		
	V	\$406,573				
	Total	\$15,317,576				
	Project	\$0				
2022	II	\$672,211	Non-Project	\$2,049,260	\$11,278,593	\$35,192,327
	III	\$2,531,387				
	IV	\$2,407,823	Project	\$0		
	V	\$3,617,912				
	Total	\$9,229,333				
	Project	\$0				
2023	II	\$865,978	Non-Project	\$990,615	\$8,950,792	\$31,016,939
	III	\$375,518				
	IV	\$1,859,907	Project	\$0		
	V	\$4,858,774				
	Total	\$7,960,177				
	Project	\$0				
2024	II	\$0	Non-Project	\$1,349,328	\$7,285,003	\$27,362,214
	III	\$119,880				
	IV	\$1,132,829	Project	\$0		
	V	\$4,682,966				
	Total	\$5,935,675				
	Project	\$0				
2025	II	\$0	Non-Project	\$2,171,807	\$5,767,879	\$25,796,510
	III	\$0				
	IV	\$1,132,888	Project	\$0		
	V	\$2,463,184				
	Total	\$3,596,072				
	Project	\$0				
2026	II	\$0	Non-Project	\$3,136,571	\$6,388,262	\$24,547,384
	III	\$0				
	IV	\$1,445,305	Project	\$0		
	V	\$1,806,386				
	Total	\$3,251,691				
	Project	\$0				

Year	Rehabilitation		Preventive Maintenance		Total Cost	Deferred
2027	II	\$0	Non-Project	\$137,755	\$6,623,752	\$21,007,933
	III	\$0	Project	\$0		
	IV	\$2,311,935				
	V	\$4,174,062				
	Total	\$6,485,997				
	Project	\$0				
2028	II	\$0	Non-Project	\$6,018,798	\$6,018,798	\$29,419,450
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$0				
	Project	\$0				
2029	II	\$0	Non-Project	\$5,697,775	\$5,697,775	\$31,993,942
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$0				
	Project	\$0				
2030	II	\$0	Non-Project	\$6,133,542	\$6,382,274	\$32,412,182
	III	\$248,732	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$248,732				
	Project	\$0				

Functional Class	Rehabilitation	Prev. Maint.	Summary
Arterial	\$7,966,638	\$4,284,478	
Collector	\$3,209,820	\$7,194,261	
Residential/Local	\$40,848,795	\$24,093,573	
Total:	\$52,025,253	\$35,572,312	Grand Total: \$87,597,565

Scenarios - Network Condition Summary

Interest: 0%

Inflation: 3%

Printed: 8/31/2021

Scenario: Increase PCI by 5 Points

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2021	\$23,204,437	\$7,886,861	2025	\$5,767,879	\$2,171,807	2029	\$5,697,775	\$5,697,775
2022	\$11,278,593	\$2,049,260	2026	\$6,388,262	\$3,136,571	2030	\$6,382,274	\$6,133,542
2023	\$8,950,792	\$990,615	2027	\$6,623,752	\$137,755			
2024	\$7,285,003	\$1,349,328	2028	\$6,018,798	\$6,018,798			

Projected Network Average PCI by Year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2021	76	81	125.29	252.01
2022	73	81	38.36	77.63
2023	71	81	23.02	46.04
2024	69	81	42.35	84.97
2025	67	81	130.98	263.39
2026	65	81	75.05	151.16
2027	63	81	47.96	95.93
2028	61	81	88.29	178.28
2029	59	81	101.69	204.30
2030	57	81	101.59	205.16

Percent Network Area by Functional Class and Condition Category

Condition in base year 2021, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	5.4%	12.3%	57.5%	0.0%	75.2%
II / III	2.8%	2.7%	6.9%	0.0%	12.3%
IV	0.4%	1.2%	4.8%	0.0%	6.4%
V	0.2%	0.7%	5.2%	0.0%	6.1%
Total	8.7%	16.9%	74.4%	0.0%	100.0%

Condition in year 2021 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	8.5%	13.1%	61.4%	0.0%	83.0%
II / III	0.1%	1.8%	4.2%	0.0%	6.1%
IV	0.0%	1.2%	3.7%	0.0%	5.0%
V	0.2%	0.7%	5.1%	0.0%	6.0%
Total	8.7%	16.9%	74.4%	0.0%	100.0%

Condition in year 2030 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	8.5%	11.4%	70.6%	0.0%	90.5%
II / III	0.0%	1.4%	1.3%	0.0%	2.8%
IV	0.0%	1.4%	1.7%	0.0%	3.0%
V	0.2%	2.7%	0.8%	0.0%	3.7%
Total	8.7%	16.9%	74.4%	0.0%	100.0%



**10 APPENDIX E-SCENARIO-KEEP CURRENT FUNDING LEVEL
(1.5M/YEAR)**

Scenarios - Cost Summary

Interest: 0.00%

Inflation: 3.00%

Printed: 8/31/2021

Scenario: City Current Budget-1.5M/year_VM

Year	PM	Budget	Rehabilitation	Preventative Maintenance	Surplus PM	Deferred	Stop Gap			
2021	38%	\$1,500,000	II	\$886,028	Non-Project	\$570,471	\$0	\$60,772,754	Funded	\$0
			III	\$43,296					Unmet	\$422,943
			IV	\$0						
			V	\$0						
			Total Project	\$929,324						
2022	38%	\$1,500,000	II	\$839,499	Non-Project	\$569,719	\$281	\$67,327,077	Funded	\$0
			III	\$90,044					Unmet	\$18,219
			IV	\$0						
			V	\$0						
			Total Project	\$929,543						
2023	38%	\$1,500,000	II	\$929,023	Non-Project	\$570,294	\$0	\$71,567,146	Funded	\$0
			III	\$0					Unmet	\$13,884
			IV	\$0						
			V	\$0						
			Total Project	\$929,023						
2024	38%	\$1,500,000	II	\$926,493	Non-Project	\$573,421	\$0	\$77,529,739	Funded	\$0
			III	\$0					Unmet	\$17,908
			IV	\$0						
			V	\$0						
			Total Project	\$926,493						
2025	38%	\$1,500,000	II	\$688,992	Non-Project	\$569,399	\$601	\$84,066,338	Funded	\$0
			III	\$240,929					Unmet	\$19,390
			IV	\$0						
			V	\$0						
			Total Project	\$929,921						
2026	38%	\$1,500,000	II	\$363,322	Non-Project	\$575,556	\$0	\$91,655,197	Funded	\$0
			III	\$560,980					Unmet	\$640,834
			IV	\$0						
			V	\$0						
			Total Project	\$924,302						
2027	38%	\$1,500,000	II	\$15,324	Non-Project	\$576,747	\$0	\$97,810,223	Funded	\$0
			III	\$907,735					Unmet	\$39,495
			IV	\$0						
			V	\$0						
			Total Project	\$923,059						
2028	38%	\$1,500,000	II	\$13,709	Non-Project	\$570,291	\$0	\$104,570,396	Funded	\$0
			III	\$915,869					Unmet	\$38,220
			IV	\$0						
			V	\$0						
			Total Project	\$929,578						

Scenarios Criteria:

Criteria:

Year	PM	Budget	Rehabilitation		Preventative Maintenance	Surplus PM	Deferred	Stop Gap		
2029	38%	\$1,500,000	II	\$15,651	Non-Project	\$570,159	\$0	\$113,560,628	Funded	\$0
			III	\$914,194					Unmet	\$49,500
			IV	\$0	Project	\$0				
			V	\$0						
			Total Project	\$929,845						
2030	38%	\$1,500,000	II	\$13,077	Non-Project	\$570,012	\$0	\$123,106,496	Funded	\$0
			III	\$812,957					Unmet	\$66,521
			IV	\$73,652	Project	\$0				
			V	\$29,989						
			Total Project	\$929,675						

Summary

Functional Class	Rehabilitation	Prev. Maint.	Funded Stop Gap	Unmet Stop Gap
Arterial	\$4,547,889	\$1,217,333	\$0	\$66,522
Collector	\$1,248,900	\$0	\$0	\$285,883
Residential/Local	\$3,483,974	\$4,498,736	\$0	\$974,508
Grand Total:	\$9,280,763	\$5,716,069	\$0	\$1,326,913

Scenarios - Network Condition Summary

Interest: 0%

Inflation: 3%

Printed: 8/31/2021

Scenario: City Current Budget-1.5M/year_VM

Year	Budget	PM	Year	Budget	PM	Year	Budget	PM
2021	\$1,500,000	38%	2025	\$1,500,000	38%	2029	\$1,500,000	38%
2022	\$1,500,000	38%	2026	\$1,500,000	38%	2030	\$1,500,000	38%
2023	\$1,500,000	38%	2027	\$1,500,000	38%			
2024	\$1,500,000	38%	2028	\$1,500,000	38%			

Projected Network Average PCI by Year

Year	Never Treated	With Selected Treatment	Treated Centerline Miles	Treated Lane Miles
2021	76	76	10.71	21.93
2022	73	74	9.76	19.53
2023	71	72	8.05	16.09
2024	69	71	9.22	18.43
2025	67	69	17.74	36.00
2026	65	68	22.35	44.70
2027	63	66	21.24	42.49
2028	61	65	14.62	29.75
2029	59	63	18.09	36.37
2030	57	62	20.03	40.06

Percent Network Area by Functional Class and Condition Category

Condition in base year 2021, prior to applying treatments.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	5.4%	12.3%	57.5%	0.0%	75.2%
II / III	2.8%	2.7%	6.9%	0.0%	12.3%
IV	0.4%	1.2%	4.8%	0.0%	6.4%
V	0.2%	0.7%	5.2%	0.0%	6.1%
Total	8.7%	16.9%	74.4%	0.0%	100.0%

Condition in year 2021 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	6.0%	12.3%	57.5%	0.0%	75.8%
II / III	2.2%	2.7%	6.8%	0.0%	11.7%
IV	0.4%	1.2%	4.8%	0.0%	6.4%
V	0.2%	0.7%	5.2%	0.0%	6.1%
Total	8.7%	16.9%	74.4%	0.0%	100.0%

Condition in year 2030 after schedulable treatments applied.

Condition	Arterial	Collector	Res/Loc	Other	Total
I	6.7%	4.2%	44.6%	0.0%	55.5%
II / III	0.0%	6.8%	14.7%	0.0%	21.5%
IV	1.4%	3.2%	5.1%	0.0%	9.7%
V	0.6%	2.7%	9.9%	0.0%	13.3%
Total	8.7%	16.9%	74.4%	0.0%	100.0%



12 APPENDIX F-SCENARIO-MAINTAIN CURRENT PCI

Target-Driven Scenarios - Cost Summary

Interest: 0%

Inflation: 3%

Printed: 8/31/2021

Scenario: Keep Current PCI

Objective: Minimum Network Average PCI		Target: Overall 76				
Year	Rehabilitation	Preventive Maintenance	Total Cost	Deferred		
2021	II	\$0	Non-Project	\$818,631	\$818,631	\$61,453,935
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$0				
	Project	\$0				
2022	II	\$288,670	Non-Project	\$7,384,207	\$7,672,877	\$61,855,410
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$288,670				
	Project	\$0				
2023	II	\$3,190,571	Non-Project	\$2,994,394	\$9,730,715	\$57,700,011
	III	\$2,983,586	Project	\$0		
	IV	\$562,164				
	V	\$0				
	Total	\$6,736,321				
	Project	\$0				
2024	II	\$601,875	Non-Project	\$1,342,355	\$10,204,483	\$51,919,364
	III	\$3,182,750	Project	\$0		
	IV	\$4,058,842				
	V	\$1,018,661				
	Total	\$8,862,128				
	Project	\$0				
2025	II	\$0	Non-Project	\$2,135,527	\$7,276,425	\$49,653,384
	III	\$0	Project	\$0		
	IV	\$1,132,888				
	V	\$4,008,010				
	Total	\$5,140,898				
	Project	\$0				
2026	II	\$0	Non-Project	\$3,171,075	\$7,702,375	\$49,535,410
	III	\$0	Project	\$0		
	IV	\$4,531,300				
	V	\$0				
	Total	\$4,531,300				
	Project	\$0				

Year	Rehabilitation	Preventive Maintenance	Total Cost	Deferred		
2027	II	\$0	Non-Project	\$133,409	\$7,839,094	\$46,589,853
	III	\$0	Project	\$0		
	IV	\$4,526,871				
	V	\$3,178,814				
	Total	\$7,705,685				
	Project	\$0				
2028	II	\$0	Non-Project	\$1,025,363	\$6,976,466	\$44,239,643
	III	\$0	Project	\$0		
	IV	\$1,177,405				
	V	\$4,773,698				
	Total	\$5,951,103				
	Project	\$0				
2029	II	\$0	Non-Project	\$5,891,824	\$5,891,824	\$53,176,232
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$0				
	Project	\$0				
2030	II	\$0	Non-Project	\$5,897,200	\$5,897,200	\$56,728,268
	III	\$0	Project	\$0		
	IV	\$0				
	V	\$0				
	Total	\$0				
	Project	\$0				

Functional Class	Rehabilitation	Prev. Maint.	Summary
Arterial	\$9,730,540	\$3,859,645	
Collector	\$1,727,343	\$4,930,743	
Residential/Local	\$27,758,222	\$22,003,597	
Total:	\$39,216,105	\$30,793,985	Grand Total: \$70,010,090