

NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE the quality of life in Northeast Ohio



2020



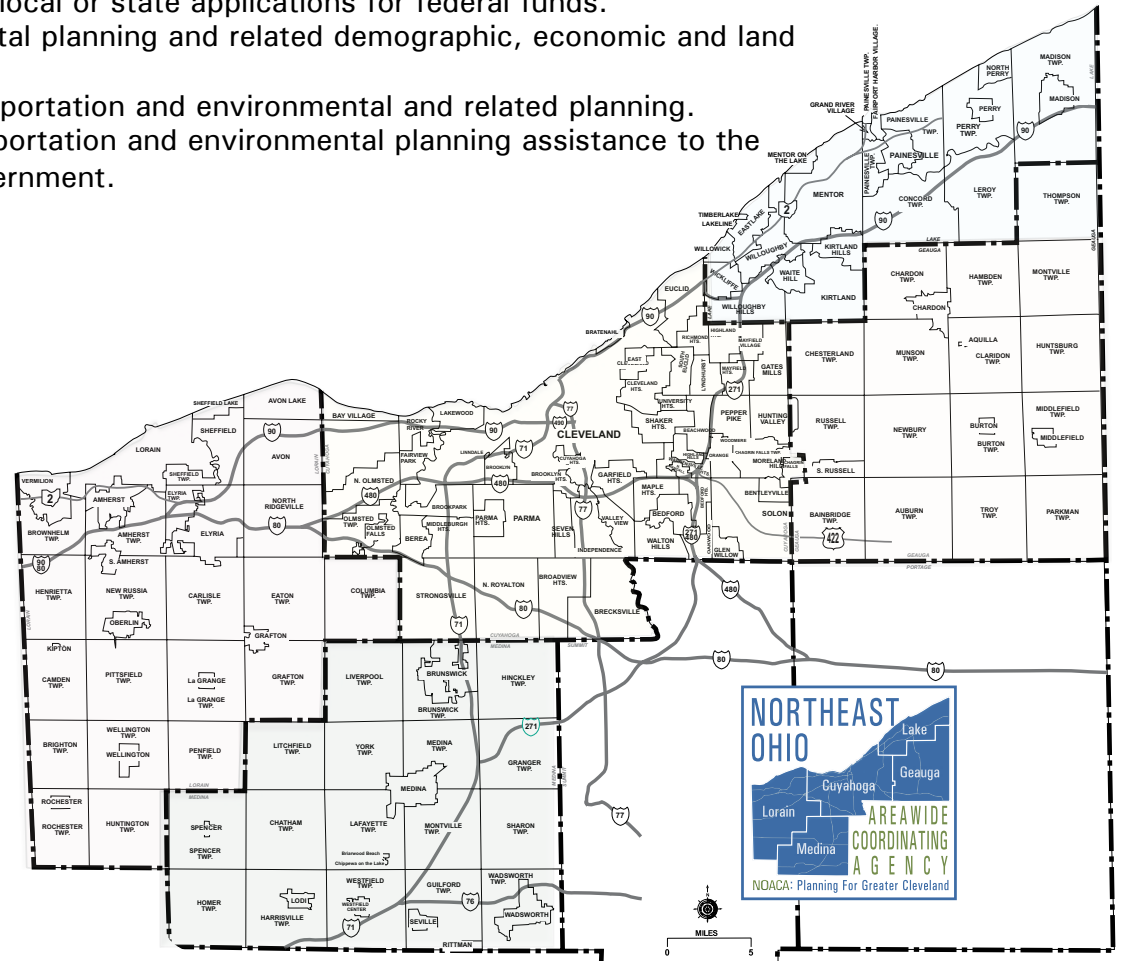
CITY OF LORAIN

The **Northeast Ohio Areawide Coordinating Agency (NOACA)** is a public organization serving the counties of and municipalities and townships within Cuyahoga, Geauga, Lake, Lorain and Medina (covering an area with 2.1 million people). NOACA is the agency designated or recognized to perform the following functions:

- Serve as the Metropolitan Planning Organization (MPO), with responsibility for comprehensive, cooperative and continuous planning for highways, public transit, and bikeways, as defined in the current transportation law.
- Perform continuous water quality, transportation-related air quality and other environmental planning functions.
- Administer the area clearinghouse function, which includes providing local government with the opportunity to review a wide variety of local or state applications for federal funds.
- Conduct transportation and environmental planning and related demographic, economic and land use research.
- Serve as an information center for transportation and environmental and related planning.
- As directed by the Board, provide transportation and environmental planning assistance to the 172 units of local, general purpose government.

The NOACA Board of Directors is composed of 46 local public officials. The Board convenes quarterly to provide a forum for members to present, discuss and develop solutions to local and areawide issues and make recommendations regarding implementation strategies. As the area clearinghouse for the region, the Board makes comments and recommendations on applications for state and federal grants, with the purpose of enhancing the region's social, physical, environmental and land use/transportation fabric. NOACA invites you to take part in its planning process. Feel free to participate, to ask questions and to learn more about areawide planning.

For more information, call (216) 241-2414 or visit <http://www.noaca.org>



2020 NOACA BOARD OF DIRECTORS

BOARD OFFICERS

President: Timothy C. Lennon,
Commissioner, Geauga County

First Vice President: Matt Lundy,
Commissioner, Lorain County

Second Vice President: John R. Hamercheck,
Commissioner, Lake County

Secretary: William F. Hutson,
Commissioner, Medina County

Assistant Secretary: John D. Hunter,
Mayor, Village of Sheffield

Assistant Secretary: Annette M. Blackwell,
Mayor, City of Maple Heights

Treasurer: Armond Budish,
County Executive, Cuyahoga County

Assistant Treasurer: Andrew Conrad, P.E., P.S.,
Medina County Engineer

Assistant Treasurer: Kirsten Holzheimer Gail,
Mayor, City of Euclid

Immediate Past President: Valarie J. McCall, Chief of
Communications, Government & International Affairs,
City of Cleveland

BOARD MEMBERS

CUYAHOGA COUNTY

Samuel J. Alai,
Mayor, City of Broadview Heights

Larry Antoskiewicz,
Mayor, City of North Royalton

Annette M. Blackwell,
Mayor, City of Maple Heights

Pamela Bobst,
Mayor, City of Rocky River

Michael Dylan Brennan,
Mayor, City of University Heights

Tanisha R. Briley,
City Manager, Cleveland Heights

Armond Budish,
County Executive

Timothy J. DeGeeter,
Mayor, City of Parma

Michael W. Dever, MPA
Public Works Director

Kirsten Holzheimer Gail,
Mayor, City of Euclid

Michael D. Gammella,
Mayor, City of Brook Park

Meghan George,
Mayor, City of Lakewood

Patrick W. Hewitt, AICP, Interim
Executive Director, Cuyahoga County
Planning Commission

Dale Miller,
County Councilman

David H. Roche,
Mayor, City of Richmond Heights

CITY OF CLEVELAND

Phyllis Cleveland
City Councilwoman

Freddy L. Collier, Jr.,
Director, City Planning Commission

Blaine A. Griffin,
City Councilman

Frank G. Jackson,
Mayor, City of Cleveland

Valarie J. McCall,
Chief of Government & International
Affairs

Matthew L. Spronz, P.E., PMP,
Capital Projects Director

Matt Zone,
City Councilman

GEAUGA COUNTY

James W. Dvorak,
County Commissioner

Timothy C. Lennon,
County Commissioner

Ralph Spidalieri,
County Commissioner

LAKE COUNTY

Ben Capelle,
General Manager, Laketran

Jerry C. Cirino,
County Commissioner

James R. Gills, P.E., P.S.,
County Engineer

John R. Hamercheck,
County Commissioner

Ron Young,
County Commissioner

LORAIN COUNTY

Jack Bradley, Mayor, City of Lorain

Kenneth P. Carney, Sr., P.E., P.S.,
County Engineer

Dick Heidecker,
Trustee, Columbia Township

John D. Hunter,
Mayor, Village of Sheffield

Lori Kokoski,
County Commissioner

Matt Lundy,
County Commissioner

Frank Whitfield
Mayor, City of Elyria

MEDINA COUNTY

Jeff Brandon,
Trustee, Montville Township

Andrew H. Conrad, P.E., P.S.,
County Engineer

William F. Hutson,
County Commissioner

Robert Patrick,
Public Service Director, City of Wadsworth

REGIONAL AND STATE

Greater Cleveland Regional
Transit Authority (GCRTA)
Dennis Clough,
Board President

Northeast Ohio Regional Sewer
District (NEORSB)
Kyle Dreyfuss-Wells, Chief Executive Officer

Cleveland-Cuyahoga County Port Authority
William D. Friedman, President/CEO

Ohio Department of Transportation (ODOT)
John Picuri, P.E., Deputy Director, District 12

Ex Officio Members:

Ferzan M. Ahmed, P.E.
Executive Director,

Ohio Turnpike and Infrastructure Commission

Kurt Princic, Chief, Northeast District Office,
Ohio Environmental Protection Agency (OEPA)

NOACA DIRECTORS

Grace Gallucci,
Executive Director

Billie Geyer,
Comptroller

Randy Lane,
Director of Programming

Ali Makarachi, Ph.D,
Director of Transportation Planning and
Engineering

Joseph MacDonald, Ph.D,
Director of Strategic and
Environmental Planning

Susanna Merlone, EMBA,
Director of Administrative Services

Danielle Render
Director of External Engagement and
Public Affairs

Kathy Sarli,
Associate Director of Operations and
Chief Operating Officer

Jonathan Giblin,
Associate Director of Compliance

TABLE OF CONTENTS

1. Executive Summary	2
2. Background	3
3. Definitions for Pavement Maintenance Terminology.....	5
4. PART I: 2020 Pavement Condition.....	10
5. PART II: 2020 Current Backlog.....	18
6. PART III: Maintenance & Rehabilitation (M&R) Program.....	19
7. PART IV: Comparative Analysis.....	22
8. Appendix	26

MAPS

1: City of Lorain Location in the NOACA Region	4
2: 2020 City of Lorain Pavement Condition	12

FIGURES

1: Components of Pavement Preservation.....	5
2: A General Schematic for Timing of Pavement Preservation Components	6
3: 2020 Lorain Pavement Network Condition Chart by Lane-Miles.....	11
4: The PCR Acceptable Level and “Need Year” Relation	19
5: A Typical Decision Tree Applied for Pavement Maintenance	21
6: Average PCR Comparison by the Constraint Scenarios and by Year.....	24

TABLES

1: Selected Pavement Treatments and their Planning Level Costs	8
2: 2020 Lorain Pavement Network Condition	10
3: 2020 City of Lorain Pavement Condition Listing.....	13
4: Performance Comparison of the Constraint Scenarios.....	23

APPENDIX

The “2020 Current Backlog” Pavement Treatment List.....	26
The “Maintain 15% Deficiency” Pavement Treatment List.....	27
The “Maintain an Average Network PCR of 80” Pavement Treatment List	30
The “M&R” Program Pavement Treatment List	33
The “Maintain Lowest Standard PCR” Pavement Treatment List	38

EXECUTIVE SUMMARY

The current Ohio Department of Transportation (ODOT) pavement database has 3,659 segment records for the Northeast Ohio Areawide Coordinating Agency (NOACA) region. The NOACA region has a total of 3,344 centerline miles of roadways including freeways and federal-aid highways which is equivalent to 8,240 lane-miles. The 2020 all road types network average Pavement Condition Rating (PCR) is about 75.

In the City of Lorain there are 50.55 centerline miles of federal-aid roads, which are equivalent to 140.42 lane-miles within the city boundary that include U.S. Route 6 (US 6), State Route 611 (SR 611), State Route 58 (SR 58), and State Route 57 (SR 57). The current ODOT pavement database has 76 segment records for the City of Lorain roadway system. Each record comprises of several fields of various information and measures such as street name, length (miles), lane-miles length, number of lanes, function class, PCR, etc.

According to the PCR measure, about 66 percent of the pavement lane-miles are currently in the “Good” to “Very Good” condition. About seven percent of the lane-miles are in the “Very Poor” to “Poor” status and demand some kind of immediate maintenance and/or rehabilitation treatments.

This pavement study includes four parts:

- Part I: The 2020 Pavement Network Condition
- Part II: The 2020 Backlog
- Part III: The Maintenance and Rehabilitation (M&R) Program
- Part IV: The Comparative Analysis

Considering the five-year study period of 2020 - 2024, this pavement study focuses on the required preventive maintenance treatments and some rehabilitation techniques rather than reconstruction.

Part I of this study analyzes the 2020 pavement network condition and tabulates the important information of all the 76 road segments in the City of Lorain.

In Part II, the Backlog is defined as the cost of pavement rehabilitation of all roads within one year (2020) and bringing the average network PCR to 80. Backlog is a “snapshot” or relative measure of outstanding rehabilitation work.

Part III introduces the optimal preventive maintenance and rehabilitation strategy for each segment and its recommended implementation year based on the NOACA maintenance decision tree.

Finally, Part IV compares the Backlog and the “M&R” program with the NOACA transportation asset management strategies. All these strategies were compared regarding their costs, the average network PCR and percent of the lane-miles below the acceptable level.

BACKGROUND

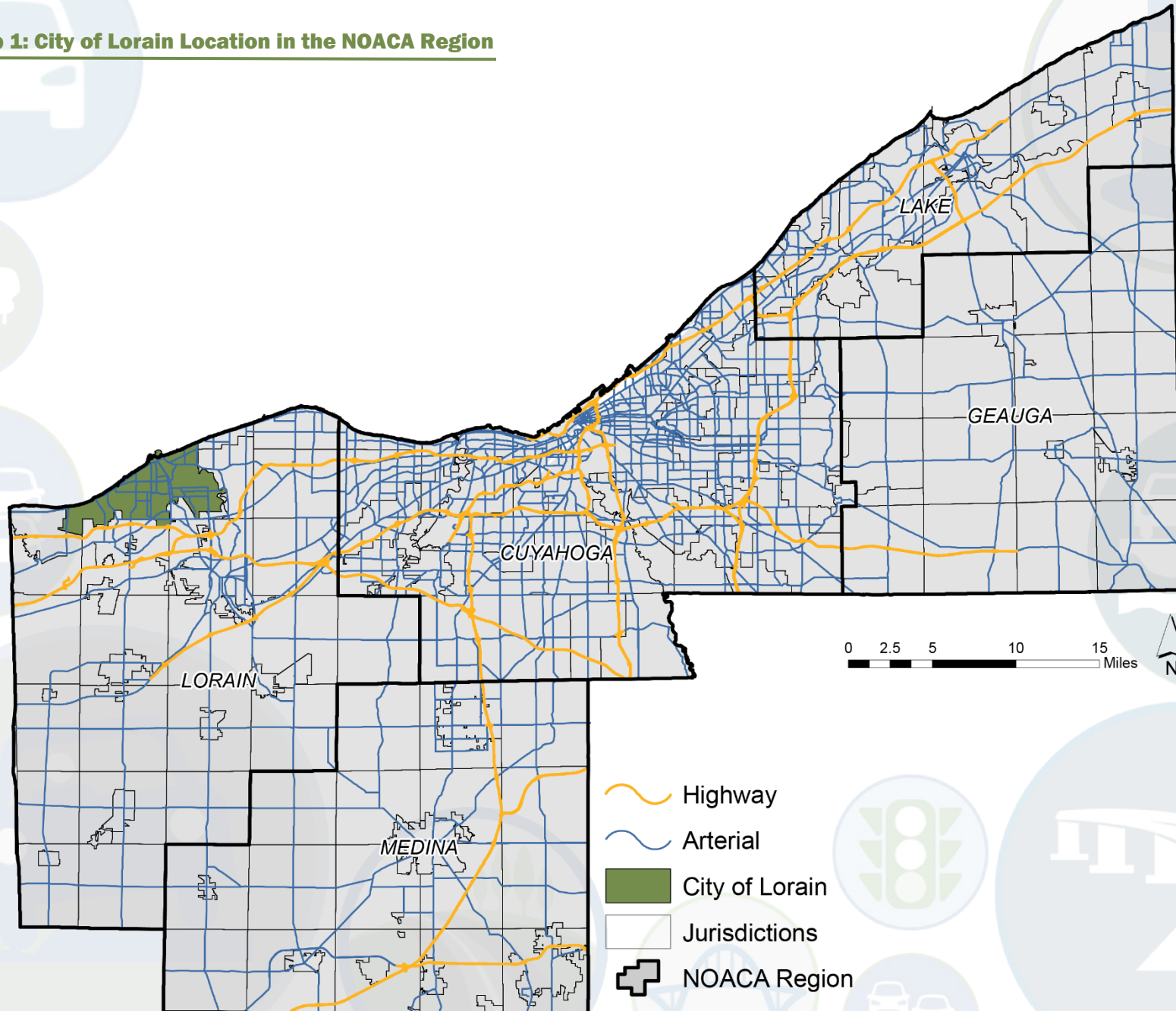
The City of Lorain is located in on Lake Erie at the mouth of the Black River, approximately 30 miles west of Cleveland. The city was the former home to the American Ship Building Company Lorain Yard, Ford Motor Company Lorain Assembly Plant, and United States Steel Corporation's sprawling steel mill on the city's south side.

According to 2020 Northeast Ohio Areawide Coordinating Agency (NOACA) estimates, the population of city is 60,755 and there are 24,036 households. The 2020 estimated employment number is 20,837.

The City of Lorain includes U.S. Route 6 (US 6), State Route 2 (SR 2), State Route 611 (SR 611), State Route 58 (SR 58), and State Route 57 (SR 57). Cleveland-Hopkins International Airport is the nearest airport.

Map 1 illustrates the City of Lorain location in the NOACA region.

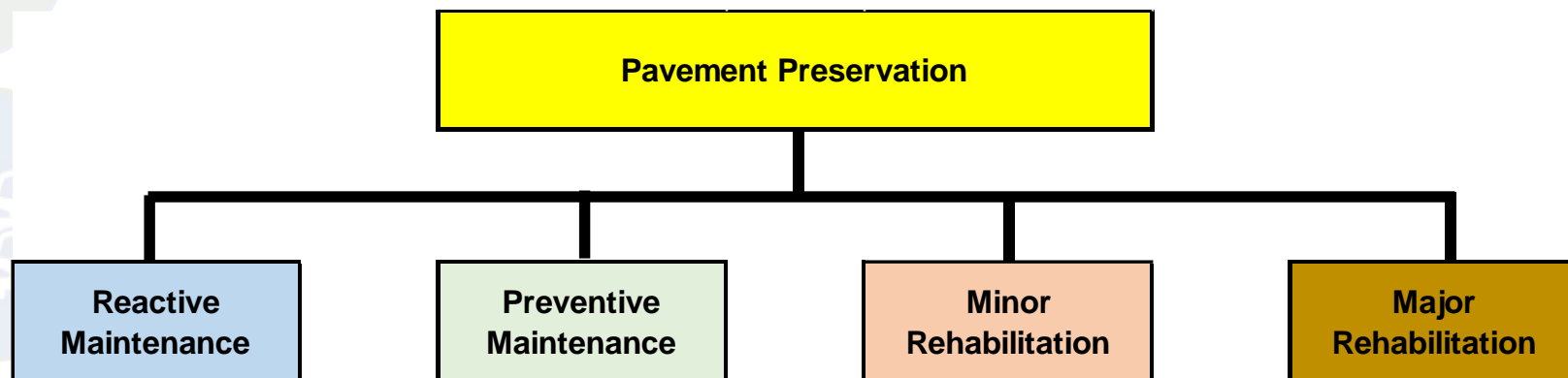
Map 1: City of Lorain Location in the NOACA Region



DEFINITIONS FOR PAVEMENT MAINTENANCE TERMINOLOGY

Pavement Preservation is "a program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations. A pavement preservation program consists primarily of four components: Reactive Maintenance, Preventive Maintenance, Minor Rehabilitation, and Major Rehabilitation/ Reconstruction as shown in Figure 1.

Figure 1: Components of Pavement Preservation



Reactive Maintenance is also known as routine or corrective maintenance consists of work that is performed to respond to specific conditions and deficiencies on pavements that are distressed and possibly unsafe. These activities are not planned in advance and seldom improve the pavement system performance in a long term.

Preventive Maintenance is considered as cost effective treatments to an existing roadway system and its appurtenances that preserves the system, delays future deterioration, and maintains or improves the functionality condition of the system without increasing structural capacity.

Pavement Rehabilitation is defined as resurfacing, restoration, and rehabilitation (3R) work consisting of structural enhancements that extend the service life of an existing pavement and/or improve its structural capacity. Rehabilitation techniques include restoration treatments and/or structural overlays. This may include partial recycling of the existing pavement, placement of additional surface materials, and/or other work necessary to return an existing pavement to a condition of structural or functional adequacy.

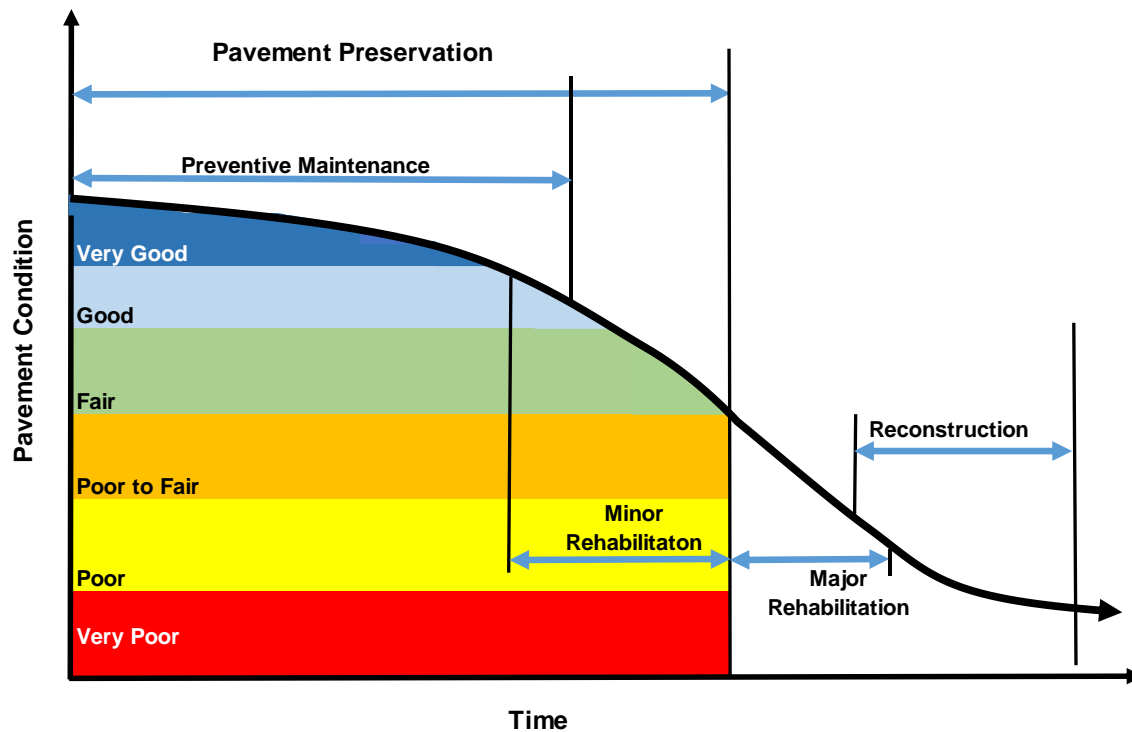
Minor Rehabilitation consists of non-structural enhancements made to the existing pavement sections to eliminate age-related, top-down surface cracking that develop in flexible pavements due to environmental exposure. Because of the non-structural nature of minor rehabilitation techniques, these types of rehabilitation techniques are placed in the category of pavement preservation.

Major Rehabilitation consists of structural enhancements that both extend the service life of an existing pavement and/or improve its load-carrying capability.

Pavement Reconstruction is defined as the replacement or reestablishment of the original pavement structural capacity by the placement of the equivalent or increased pavement structure. Reconstruction may utilize either new or recycle materials for the reconstruction of the complete pavement structure.

Figure 2 illustrates a general schematic for the timing of the pavement preservation Components.

Figure 2: A General Schematic for Timing of Pavement Preservation Components



Selected Pavement Treatments

Chip Seals is a two-step process which includes first an application of asphalt emulsion and then a layer of crushed rock to an existing asphalt pavement surface. A chip seal gets its name from the “chips” or small crushed rock placed on the surface.

Microsurfacing is similar to slurry seal. It consists of the application of a mixture of water, asphalt emulsion, aggregate (very small crushed rock), and chemical additives to an existing asphalt concrete pavement surface. Polymer is commonly added to the asphalt emulsion to provide better mixture properties. The major difference between slurry seal and microsurfacing is in how they “break” or harden. Slurry relies on evaporation of the water in the asphalt emulsion. The asphalt emulsion used in microsurfacing contains chemical additives which allow it to break without relying on the sun or heat for evaporation to occur. Thus, microsurfacing is an application that hardens quicker than slurry seals and can be used when conditions would not allow slurry seal to be successfully placed. Streets that have a lot of shade and streets that have a lot of traffic are good candidates for microsurfacing.

Thin Overlays (1” – 1½” of asphalt) and ultra thin overlays (less than 1”) offer an economical resurfacing, preservation and renewal paving solution for roads requiring safety and smoothness improvements. Thin asphalt overlays not only provide a new pavement surface for a fraction of the cost of rebuilding a roadway, but they are the only preventive maintenance technique that adds structural value while helping to extend a pavement’s service life.

Patching is the process of filling potholes or excavated areas in the asphalt pavement. Quick repair of potholes or other pavement disintegration helps control further deterioration and expensive repair of the pavement.

Pavement Milling consists of removing the existing surface layer with a milling machine and then transporting the material to a storage facility. New asphalt plant mix, often containing some recycled asphalt pavement (RAP), is installed to replace the milled out material. Milling can also remove distresses from the surface, providing a better driving experience and/or longer roadway life.

Full-Depth Reclamation is an in-place recycling method for reconstruction of existing flexible pavements using the existing pavement section material as the base for the new roadway-wearing surface. This process can include adding chemicals to the base layer in order to increase its strength capacity. The treatment of the base layer and recycled asphalt provides a stronger foundation for present and future traffic. This process effectively produces a cost-effective solution that maximizes limited budgets.

Joint Sealing is to minimize infiltration of surface water and in compressible material into the joint system. Sealants can also reduce dowel bar corrosion potential by reducing entrance of de-icing chemicals.

Load Transfer Retrofit involves the installation of dowel bars into existing concrete pavement to provide load transfer across transverse cracks or joints. Dowel bars are short steel bars that provide a mechanical connection between slabs without restricting horizontal joint movement. They increase load transfer efficiency by allowing the leave slab to assume some of the load before the load is actually over it. This reduces joint deflection and stress in the approach and leave slabs.

Partial-Depth Repairs are defined as the removal and replacement of small areas of deteriorated (or spalled) concrete, typically in joints or cracks. The depth of deterioration can vary from a few millimeters to the full depth of the pavement.

Full-Depth Repair is a concrete pavement restoration (CPR) technique that can be used to restore the structural integrity and ride ability to concrete pavements having certain types of distresses. It involves making lane-width, full-depth saw cuts to remove the deteriorated concrete down to the base, repairing the disturbed base, installing load-transfer devices, and refilling the excavated area with new concrete. It is an effective, permanent treatment to repair pavement distresses particularly those that occur at or near joints and cracks. By removing and replacing isolated areas of deterioration, full-depth repairs may delay or stop further deterioration and restore the pavement close to its original condition. The distresses that can be addressed using full-depth repairs include transverse cracking, corner breaks, longitudinal cracking, deteriorated joints, D-Cracking, blowups, and punch outs.

Table 1 illustrates the typical planning level costs of the above selected treatments.

Table 1: Selected Pavement Treatments and their Planning Level Costs

Treatments for Asphalt Pavements	Typical Cost per SQ FT (2020\$)	Estimated Cost per 12- FT Lane-Mile (2020\$)	Preservation Component
Crack Sealing, Rejuvenators, Chip Sealing	0.09	5,700	Preventive Maintenance
Microsurfacing, Slurry Seal	0.26	16,500	
Partial Depth Patching, Chip & Seal / Micro-Surface with Partial Depth Patch, Full Depth Patching	0.43	27,200	
Thin Hot Mix Asphalt Overlays without Milling	0.54	34,200	
Pavement Milling	0.78	49,400	Minor Rehabilitation
Full-Depth Reclamation	1.77	112,100	Major Rehabilitation

Table 1: Selected Pavement Treatments and their Planning Level Costs (Continued)

Treatments for Concrete Pavements	Typical Cost per SQ FT (2020\$)	Estimated Cost per 12- FT Lane-Mile (2020\$)	Preservation Component
Cleaning and Sealing of Joint and Cracks	0.11	7,000	Preventive Maintenance
Load Transfer Retrofit	0.40	25,300	
Partial Depth Repair	1.50	95,000	Minor Rehabilitation
Full-Depth Repair	2.07	131,100	Major Rehabilitation

Maintaining the roadways in a state of good repair is essential and experience has shown that, over time it is less expensive to invest in preventive maintenance and/or rehabilitation in an ongoing basis rather than in a high cost reconstruction of pavement that has deteriorated to a poor condition.

This pavement preservation study analyzes the current status of the Lorain pavement network condition and considers the five-year study period of 2020-2024. It mainly focuses on the required roadway pavement preventive maintenance treatments and some rehabilitation techniques rather than reconstruction. The current Ohio Department of Transportation (ODOT) pavement database was used as the input data and RoadMatrix software was utilized as the NOACA Pavement Management platform.

This report includes the following four parts:

- I. The 2020 status of the Lorain pavement network condition,
- II. The 2020 “Backlog” treatment list,
- III. The optimal preventive maintenance and rehabilitation strategies, and
- IV. The comparative analysis.

PART I: 2020 PAVEMENT CONDITION

In order to provide an accurate assessment of the current status and further pavement analyses, the pavement network is required to be divided into homogeneous discrete sections in terms of surface distress, traffic volumes, pavement structure, etc. The current ODOT pavement database has 76 segment records for the City of Lorain roadway system. Each record comprises of several fields of various information and measures such as street name, length (miles), lane-miles length, number of lanes, function class, Pavement Condition Rating (PCR), etc.

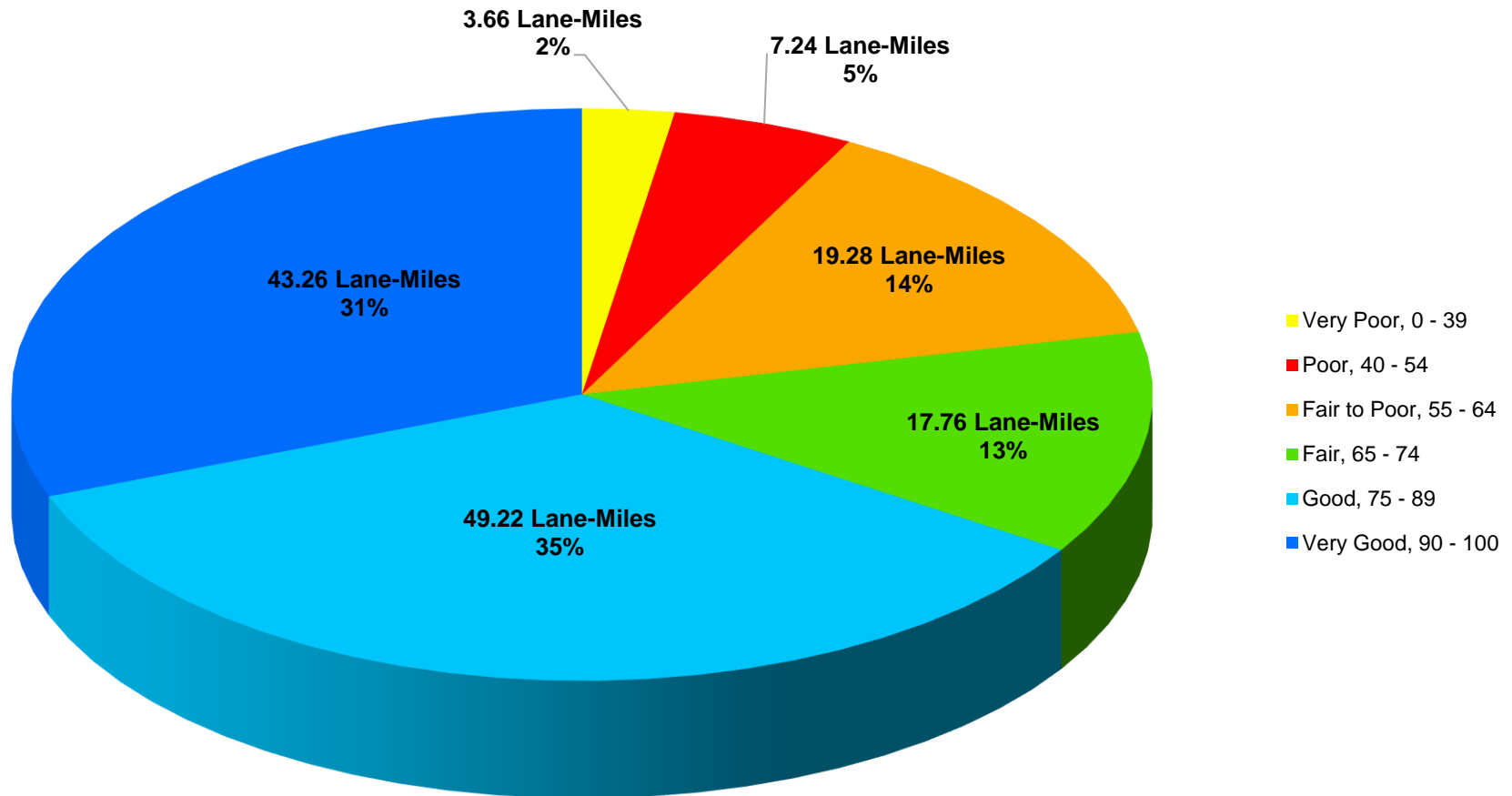
Based on the utilized ODOT database, there are 50.55 centerline miles of federal-aid eligible roads which are equivalent to 140.42 lane-miles in the City of Lorain. The total area of roadway is 10,272,876 Sq. Ft.

The PCR measure is a qualitative description of the structural state of the pavement. The PCR values span a spectrum of descriptive narrative ranging from “Very Good” to “Very Poor”. Each roadway segment is scored from 0 to 100 with 0 representing completely distressed pavement and 100 indicating perfect pavement condition. The lane-miles weighted average of the City of Lorain segments PCRs is about 78. Table 2 and Figure 3 summarize the 2020 Lorain pavement network condition by percentages of roadway lane-miles length.

Table 2: 2020 Lorain Pavement Network Condition

Pavement Condition	PCR Range	Lane-Miles	Percent of Lane-Miles
Very Poor	0 - 39	3.66	2%
Poor	40 - 54	7.24	5%
Fair to Poor	55 - 64	19.28	14%
Fair	65 - 74	17.76	13%
Good	75 - 89	49.22	35%
Very Good	90 - 100	43.26	31%

Figure 3: 2020 Lorain Pavement Network Condition Chart by Lane-Miles



As indicated, about 66 percent of the pavement lane-miles are currently in the “Good” to “Very Good” condition and the lane-miles weighted average PCR also represents a “Good” condition. About seven percent of the lane-miles are in the “Very Poor” to “Poor” status and demand some kind of immediate maintenance and rehabilitation treatments.

Map 2 illustrates the 2020 Lorain roadway pavement condition for each segment record and Table 3 tabulates the 2020 Lorain pavement condition listing.

Map 2: 2020 City of Lorain Pavement Condition



Table 3: 2020 City of Lorain Pavement Condition Listing

ROAD NAME	FROM	TO	FUNC CLASS	LANE-MILES	PCR
BAUMHART RD	LORAIN SCL	W ERIE AVE (US-6)	PRINCIPAL ARTERIAL-OTHER	2.84	96
BAUMHART RD	W ERIE AVE (US-6)	LORAIN SCL	PRINCIPAL ARTERIAL-OTHER	2.84	97
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	PRINCIPAL ARTERIAL-OTHER	3.12	64
COLORADO AVE	ERIE ST (US-6)	GEORGIA AVE	PRINCIPAL ARTERIAL-OTHER	1.12	86
COLORADO AVE	GEORGIA AVE	HENDRICKS DR (SR-611)/KANSAS AVE	PRINCIPAL ARTERIAL-OTHER	0.66	87
COOPER-FOSTER PARK RD	AMHERST ECL	OBERLIN AVE	MINOR ARTERIAL	0.08	55
COOPER-FOSTER PARK RD	NORTH RIDGE RD	BROADWAY AVE	MINOR ARTERIAL	2.18	77
COOPER-FOSTER PARK RD	OAK POINT RD	LORAIN ECL	MINOR ARTERIAL	0.42	83
COOPER-FOSTER PARK RD	OBERLIN AVE	NORTH RIDGE RD	MINOR ARTERIAL	0.52	84
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	MAJOR COLLECTOR	0.98	27
E 31ST ST	TACOMA AVE	LORAIN ECL	MAJOR COLLECTOR	0.84	71
E 36TH ST	0.09 MI W OF ELYRIA AVE	ELYRIA AVE	MAJOR COLLECTOR	0.18	43
E 36TH ST	DALLAS AVE	DUNTON RD	MAJOR COLLECTOR	0.50	77
E 36TH ST	DUNTON RD	PLANT ST	MAJOR COLLECTOR	0.76	61
E 36TH ST	ELYRIA AVE	DALLAS AVE	MAJOR COLLECTOR	0.82	76
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	MAJOR COLLECTOR	2.20	37
ELYRIA AVE	E 23RD ST	HENDERSON DR (SR-611)	MINOR ARTERIAL	0.26	95
ELYRIA AVE	E 36TH ST	E 23RD ST	MINOR ARTERIAL	1.76	94
ELYRIA AVE	E 39TH ST	E 36TH ST	MINOR ARTERIAL	0.46	92

Table 3: 2020 City of Lorain Pavement Condition Listing (Continued)

ROAD NAME	FROM	TO	FUNC CLASS	LANE-MILES	PCR
FALBO AVE	0.03 MI N OF TOWER BLVD	MEISTER RD/ W 33RD ST	MAJOR COLLECTOR	0.36	93
FALBO AVE	TOWER BLVD	W 36TH ST	MAJOR COLLECTOR	0.08	97
HIGHLAND PARK BLVD	OBERLIN AVE	WASHINGTON AVE	MAJOR COLLECTOR	0.64	97
KANSAS AVE	COLORADO AVE (SR-611)	F ST	MAJOR COLLECTOR	1.36	75
KANSAS AVE	F ST	ERIE AVE (US-6)	MAJOR COLLECTOR	1.44	71
KOLBE RD	BEAVERCREST DR	ERIE AVE (US-6)	MINOR ARTERIAL	1.08	47
KOLBE RD	Longbrook Rd	BEAVERCREST DR	MINOR ARTERIAL	0.86	73
Longbrook Rd	YORKTOWN RD	KOLBE RD	MAJOR COLLECTOR	0.68	59
MAIN ST	AMHERST NCL	Longbrook Dr	MINOR ARTERIAL	0.36	80
MEISTER RD	WASHINGTON AVE	FALBO AVE	MAJOR COLLECTOR	0.54	97
MIDDLE RIDGE RD	OLD WEST RIDGE RD (N OF SR-2 RAMPS)	COOPER FOSTER PARK	PRINCIPAL ARTERIAL-OTHER	1.40	67
NORTH RIDGE RD	E OF S PEARL ST	GLADYS AVE	MINOR ARTERIAL	0.92	67
OAK POINT RD	AMHERST NCL	YORKTOWN RD	MAJOR COLLECTOR	1.38	78
OAK POINT RD	COOPER FOSTER PARK RD	AMHERST NCL	MAJOR COLLECTOR	0.16	85
OAK POINT RD	YORKTOWN RD	US-6 (ERIE AVE)	MAJOR COLLECTOR	1.94	66
OBERLIN AVE	COOPER FOSTER PARK RD	MEISTER RD	MINOR ARTERIAL	6.44	82
OBERLIN AVE	MEISTER RD	ERIE AVE (US-6)	MINOR ARTERIAL	3.48	75
PEARL AVE	E 36TH ST	E 28TH ST (SR-57)	MAJOR COLLECTOR	1.08	75
PEARL AVE	NORTH RIDGE RD	E 36TH ST	MAJOR COLLECTOR	2.76	76

Table 3: 2020 City of Lorain Pavement Condition Listing (Continued)

ROAD NAME	FROM	TO	FUNC CLASS	LANE-MILES	PCR
SR 57	BROADWAY AVE	FULTON RD	MINOR ARTERIAL	2.44	93
SR 57	E 14TH ST	E 9TH ST	PRINCIPAL ARTERIAL-OTHER	1.24	72
SR 57	E 36TH ST	E 28TH ST (SR-57)	MINOR ARTERIAL	2.08	84
SR 57	E 36TH ST	ELYRIA NCL	MINOR ARTERIAL	2.04	84
SR 57	E 9TH ST	US-6 (ERIE AVE)	PRINCIPAL ARTERIAL-OTHER	1.96	94
SR 57	ELYRIA NCL	E 36TH ST	MINOR ARTERIAL	2.04	86
SR 57	FULTON RD	GROVE AVE (SR-57)	MINOR ARTERIAL	6.88	87
SR 57	SR-57 (E 28TH ST)	E 14TH ST	PRINCIPAL ARTERIAL-OTHER	4.00	88
SR 58	COOPER FOSTER PARK RD	SR-611	MINOR ARTERIAL	9.36	57
SR 58	SR-611	W ERIE AVE (US-6)	MINOR ARTERIAL	1.14	68
SR 611	ASHLAND AVE	HAMILTON AVE	PRINCIPAL ARTERIAL-OTHER	0.96	58
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	PRINCIPAL ARTERIAL-OTHER	1.96	64
SR 611	DIDRICKSON DR	LEAVITT RD (SR-58)	MINOR ARTERIAL	3.36	70
SR 611	ELYRIA AVE	BRIDGE OVER BLACK RIVER	PRINCIPAL ARTERIAL-OTHER	1.28	46
SR 611	HAMILTON AVE	ELYRIA AVE	PRINCIPAL ARTERIAL-OTHER	1.90	58
SR 611	HENDERSON DR	LORAIN ECL	PRINCIPAL ARTERIAL-OTHER	2.76	79
SR 611	LEAVITT RD (SR-58)	ASHLAND AVE	PRINCIPAL ARTERIAL-OTHER	2.84	70

Table 3: 2020 City of Lorain Pavement Condition Listing (Continued)

ROAD NAME	FROM	TO	FUNC CLASS	LANE-MILES	PCR
SR 611	W 21ST ST	W ERIE AVE (US-6)	MINOR ARTERIAL	0.88	96
SR 611	W ERIE AVE (US-6)	DIDRICKSON DR	MINOR ARTERIAL	1.20	65
TACOMA AVE	E 31ST ST	E 28TH ST	MAJOR COLLECTOR	0.46	64
TOWER BLVD	FALBO AVE	OBERLIN AVE	MAJOR COLLECTOR	1.24	85
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	MAJOR COLLECTOR	1.94	47
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	MAJOR COLLECTOR	1.94	44
TOWER BLVD	OBERLIN AVE	FALBO AVE	MAJOR COLLECTOR	1.24	83
US 6	ARKANSAS AVE	E OF ROOT RD	PRINCIPAL ARTERIAL-OTHER	4.92	91
US 6	BROADWAY (SR-57)	ARKANSAS AVE	PRINCIPAL ARTERIAL-OTHER	1.08	91
US 6	LEAVITT RD (SR-58)	SR-57 (BROADWAY)	PRINCIPAL ARTERIAL-OTHER	5.76	91
US 6	PUEBLO DR	LEAVITT RD (SR-58)	PRINCIPAL ARTERIAL-OTHER	4.28	94
US 6	VERMILION ECL	W OF US-6/SR-611	PRINCIPAL ARTERIAL-OTHER	12.16	95
W 33RD ST	FALBO AVE	LEXINGTON AVE	MAJOR COLLECTOR	0.64	87
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	MAJOR COLLECTOR	0.44	50
W 36TH ST	FALBO AVE	DAYTON AVE	MAJOR COLLECTOR	0.48	35
W 36TH ST	LEXINGTON AVE	BROADWAY AVE	MAJOR COLLECTOR	0.48	87
WASHINGTON AVE	0.04 MI N OF HIGHLAND PARK BLVD	N CENTRAL DR	MAJOR COLLECTOR	0.14	71
WASHINGTON AVE	HIGHLAND PARK BLVD	0.04 MI N OF HIGHLAND PARK BLVD	MAJOR COLLECTOR	0.08	75
WASHINGTON AVE	N CENTRAL DR	W 22ND ST	MAJOR COLLECTOR	0.44	68

Table 3: 2020 City of Lorain Pavement Condition Listing (Continued)

ROAD NAME	FROM	TO	FUNC CLASS	LANE-MILES	PCR
WASHINGTON AVE	W 13TH ST	ERIE AVE (US-6)	MAJOR COLLECTOR	1.46	83
WASHINGTON AVE	W 22ND ST	W 13TH ST	MAJOR COLLECTOR	1.04	85
YORKTOWN RD	OAK POINT RD	Longbrook Rd	MAJOR COLLECTOR	0.56	43

PART II: 2020 CURRENT BACKLOG

The Backlog is defined as the cost of pavement rehabilitation of all roads within the current year (2020) and bringing the average network PCR to 80. Backlog is a “snapshot” or relative measure of outstanding rehabilitation work. The Backlog not only represents how far behind the pavement network is in terms of its present physical condition, but also its cost value serves as a benchmark to measure the impact of various funding strategies. Additionally, the current Backlog offers a basis for comparison to future and/or past year’s Backlogs.

The Backlog strategy does not utilize any reconstruction treatment, but instead considers pavement preventive maintenance and rehabilitation treatments. This strategy achieves the average network PCR 80, and also maintains all the pavement conditions above the minimum acceptable level. In this study, the minimum acceptable PCR for the arterial roadway function class is 55 and for the major and minor collector is 50.

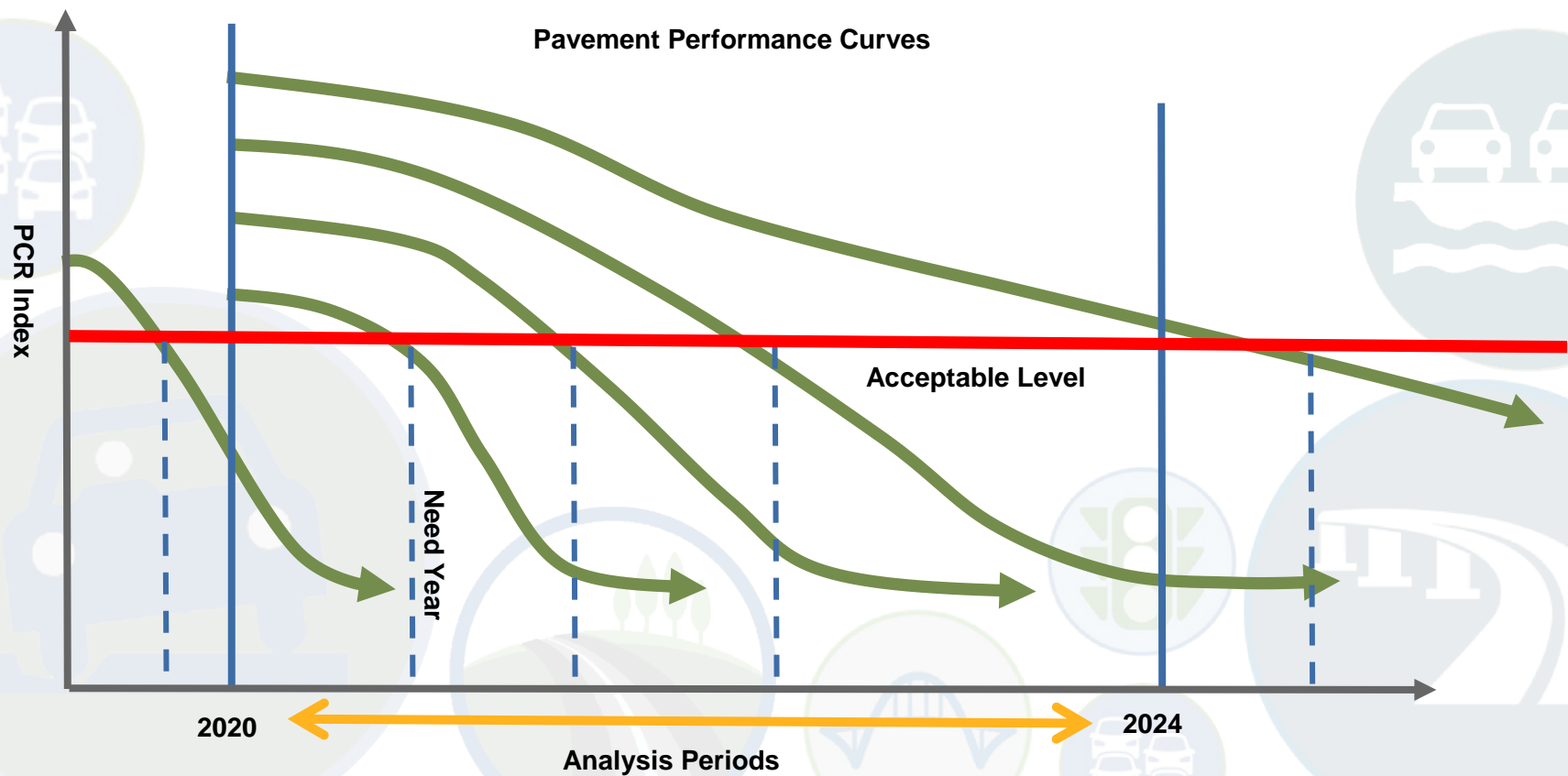
The Appendix includes all the recommended Backlog pavement treatments. As illustrated, the 2020 Backlog treatment list includes segments which their 2020 PCRs are below the minimum acceptable level and are recommended with various rehabilitation treatments. There are 12 segments in the 2020 Backlog list with the total of 21.02 lane-miles. The 2020 Backlog cost of the recommended treatments is over two million dollars.

PART III: MAINTENANCE & REHABILITATION (M&R) PROGRAM

In order to estimate the preventive maintenance and rehabilitation requirements of a pavement network over a period of time, the first step is to determine the “Need Year” or when a pavement segment requires rehabilitation. The “Need Year” of a pavement is defined as the year in which the pavement condition falls below a critical level. Pavement condition of a road segment deteriorates under traffic, climate, etc. and consequently its PCR value is reduced. Without any treatments and depending on the deteriorating factors, pavements perform differently and Figure 4 depicts the typical acceptable level and “Need Year” relation for several road segments. As shown, the definition of the acceptable level is a critical factor in determining the “Need Year” for any road segment.

In this study, the critical level is set by the minimum acceptable PCR. As mentioned earlier, In the NOACA region, the minimum acceptable PCR for the arterial roadway function class is 55 and for the major and minor collector is 50.

Figure 4: The PCR Acceptable Level and “Need Year” Relation



The second step is to determine any feasible preventive maintenance and/or rehabilitation strategies based on a decision tree approach. The “M&R” program determines the optimal preventive maintenance and rehabilitation strategy for each segment and its recommended implementation year based on the considered decision tree. The Appendix includes all the “M&R” treatments for the identified segments with the implementation year in the period of 2020 to 2024 and the “M&R” program cost includes all the deferred maintenance cost. Figure 5 shows a snapshot of a typical decision tree applied for maintenance of flexible pavements along major collectors.

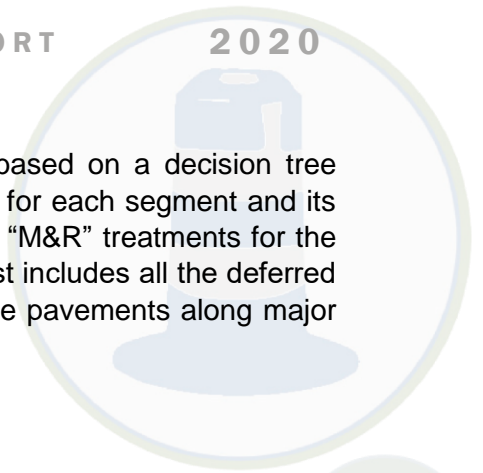
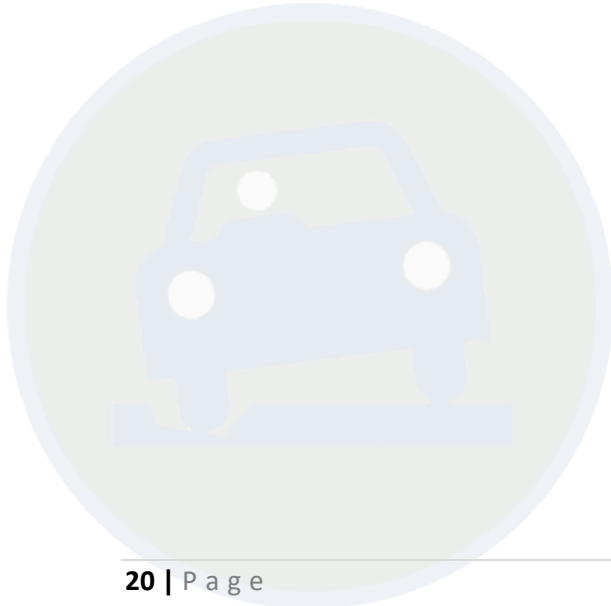
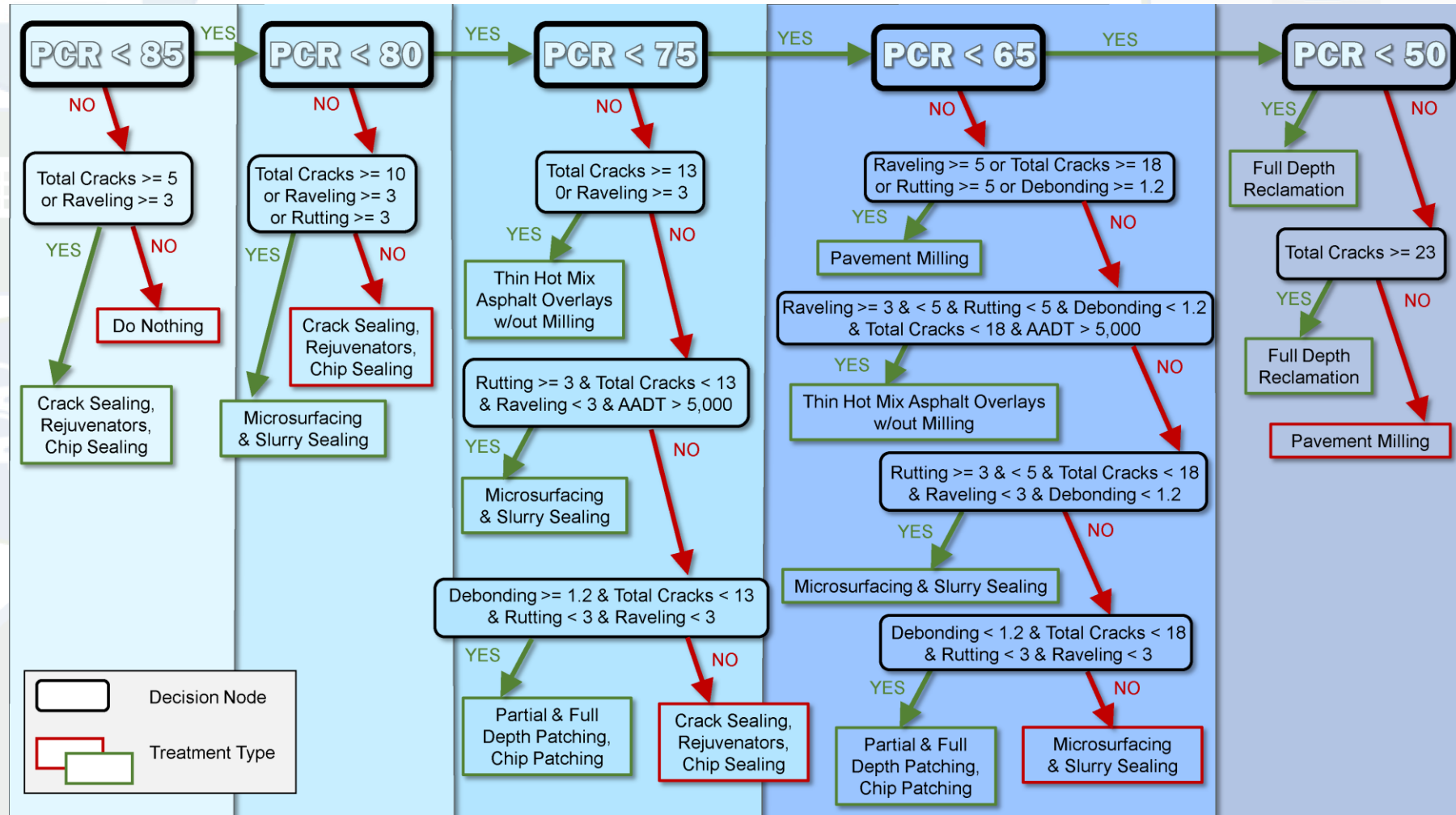


Figure 5: A Typical Decision Tree Applied for Pavement Maintenance



PART IV: COMPARATIVE ANALYSIS

The current NOACA transportation asset management policy includes two strategies

- Maintain 15% Deficiency: this strategy attempts to maintain the total lane-miles with PCR below the acceptable level no more than 15 percent.
- Maintain an Average Network PCR of 80: applies a set of maintenance treatments in order to keep the roadway network average PCR more than, or equal to 80 over the study period.

This section compares the discussed Backlog and the “M&R” program treatments with the NOACA transportation asset management strategies.

In addition to the above strategies, this comparative analysis considers another scenario as the minimum benchmark. The “Maintain Lowest Standard PCR” treatment strategy is based on the minimum PCR thresholds of 55 for arterials and 50 for collectors and a set of annual budget constraints. The annual budget constraints are calculated in three steps: First, the segments with the “M&R” recommended implementation in each specific analysis year are selected. Second, a subset of the selected segments which their “Need Years” are in the analysis period are identified. It should be noted that the selected segments with the “Need Year” beyond the analysis period are excluded from the budget constraint calculation. Third, the “M&R” treatment costs for the identified segments in the second step, are added together to provide an annual budget constraint for this scenario.

As discussed, all the above scenarios apply a decision tree approach to determine technically feasible maintenance and rehabilitation strategies for each segment requiring rehabilitation during the five-year period.

Table 4 summarizes the comparison results of all the above scenarios over the five-year period for the City of Lorain. In this table, the “5-Year Total Required Dollars” column shows the accumulation of the annual costs over five years calculated based on inflation-adjusted dollars for each strategy. Also, the network average PCR is the lane-miles weighted average.

Table 4: Performance Comparison of the Constraint Scenarios

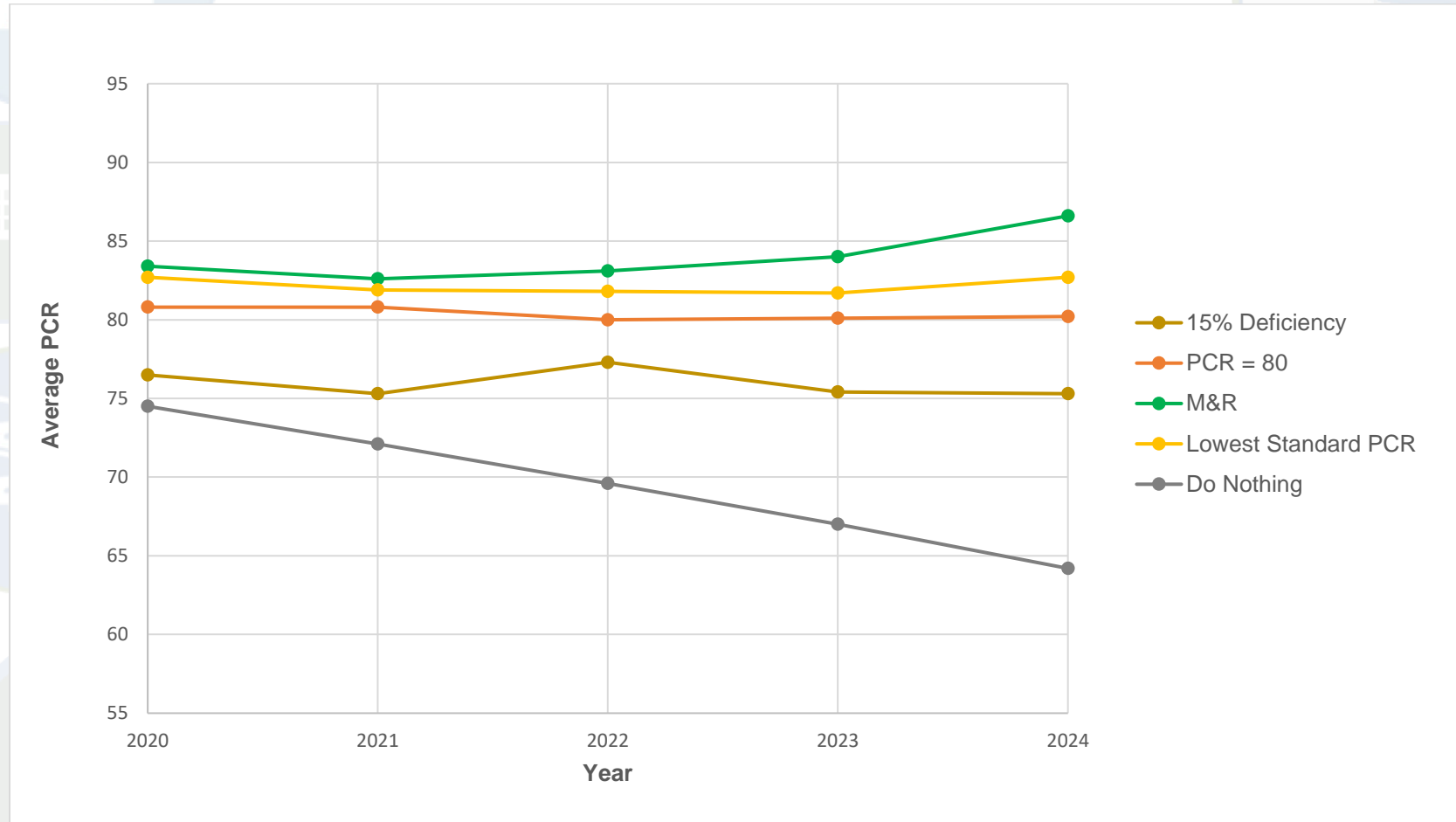
Maintenance Strategy	Strategy Group	5-Year Total Required Dollars	Network Average PCR	Network PCR at the End of the 5-Year Period	Percent of Pavement below the Minimum PCR
2020 Current Backlog	2020 Backlog	2,373,127	80.8	-	2%
Maintain 15% Deficiency	NOACA Transportation Asset Management Targets	3,876,336	76.0	75.3	14.1%
Maintain an Average Network PCR of 80		5,406,401	80.4	80.2	0%
M&R Program	Scenarios	7,554,474	83.9	86.6	0%
Maintain Lowest Standard PCR		5,820,092	82.2	82.7	0%

Note: The Backlog required budget is for the year of 2020 only.

The Appendix lists all the treatments with their implementation years in the period of 2020 to 2024 for the above maintenance strategies.

Figure 6 illustrates the annual network average PCR for the discussed maintenance and rehabilitation strategies. It should be noted that the Backlog scenario has only one value of 80.8 for 2020.

Figure 6: Average PCR Comparison by the Constraint Scenarios and by Year



As expected, the treatments of the “M&R” program maintain the pavement network condition with the highest network average PCR of 84. This strategy requires a budget of about 7.6 million dollars during the analysis period.

The “Maintain an Average Network PCR of 80” and the “Maintain Lowest Standard PCR” scenarios provide almost the same level of pavement condition with a budget of over five million dollars. Their network average PCR values are several points less than that of the “M&R” program at the end of the five-year period.

The “Maintain 15% Deficiency” scenario requires the lowest budget of nearly four million dollars and maintains the network pavement condition at an acceptable level. Also, as the scenario name indicates, there will be 14 percent of pavements below the minimum acceptable PCR level.

It should be noted that the Backlog cost as the benchmark is approximately 31 percent of the “M&R” program budget. However, its network average PCR is about six points less than that of the “M&R” program, and two percent of pavements will be below the minimum acceptable PCR at the end of the analysis period.

APPENDIX

The 2020 Current Backlog

Pavement Treatment List

ROAD NAME	FROM	TO	RECOMMENDATION TREATMENT	LANE-MILES	TREATMENT COST
COOPER-FOSTER PARK RD	AMHERST ECL	OBERLIN AVE	PARTIAL DEPTH REPAIR	0.08	9,504
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	100,900
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	205,603
KOLBE RD	BEAVERCREST DR	ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.08	95,886
Longbrook Rd	YORKTOWN RD	KOLBE RD	FULL DEPTH RECLAMATION (FDR)	0.68	63,550
SR 58	COOPER FOSTER PARK RD	SR-611	FULL DEPTH RECLAMATION (FDR)	9.36	1,224,647
SR 611	ELYRIA AVE	BRIDGE OVER BLACK RIVER	FULL DEPTH RECLAMATION (FDR)	1.28	125,605
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	PARTIAL DEPTH REPAIR	1.94	199,743
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	PARTIAL DEPTH REPAIR	1.94	199,743
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	PARTIAL DEPTH REPAIR	0.44	45,303
W 36TH ST	FALBO AVE	DAYTON AVE	PARTIAL DEPTH REPAIR	0.48	49,420
YORKTOWN RD	OAK POINT RD	Longbrook Rd	PARTIAL DEPTH REPAIR	0.56	53,223
REQUIRED BACKLOG BUDGET (2020\$)					\$2,373,127

The Maintain 15% Deficiency

Pavement Treatment List

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
ELYRIA AVE	E 39TH ST	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.46	2,405	2020
KOLBE RD	Longbrook Rd	Beavercrest Dr	PAVEMENT MILLING	0.86	35,418	2020
OAK POINT RD	COOPER FOSTER PARK RD	AMHERST NCL	CLEANING & SEALING OF JOINT AND CRACKS	0.16	1,208	2020
SR 57	E 36TH ST	ELYRIA NCL	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.04	11,633	2020
SR 57	ELYRIA NCL	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.04	11,633	2020
SR 611	ASHLAND AVE	HAMILTON AVE	FULL DEPTH RECLAMATION (FDR)	0.96	107,662	2020
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	PAVEMENT MILLING	1.96	84,756	2020
SR 611	HAMILTON AVE	ELYRIA AVE	FULL DEPTH RECLAMATION (FDR)	1.90	310,741	2020
SR 611	HENDERSON DR	LORAIN ECL	PARTIAL DEPTH REPAIR	2.76	404,396	2020
W 33RD ST	FALBO AVE	LEXINGTON AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.64	4,832	2020
W 36TH ST	LEXINGTON AVE	BROADWAY AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.48	2,965	2020
THE 2020 REQUIRED BUDGET FOR THE "MAINTAIN 15% DEFICIENCY" STRATEGY					\$977,649	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	FULL DEPTH RECLAMATION (FDR)	3.12	374,319	2021
MAIN ST	AMHERST NCL	Longbrook Dr	PARTIAL & FULL DEPTH PATCHING, CHIP PATCHING	0.36	9,234	2021
THE 2021 REQUIRED BUDGET FOR THE "MAINTAIN 15% DEFICIENCY" STRATEGY					\$383,553	

The Maintain 15% Deficiency

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2022\$)	YEAR
COLORADO AVE	ERIE ST (US-6)	GEORGIA AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	1.12	9,543	2022
COLORADO AVE	GEORGIA AVE	HENDRICKS DR (SR-611)/KANSAS AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.66	6,285	2022
KANSAS AVE	COLORADO AVE (SR-611)	F ST	PARTIAL DEPTH REPAIR	1.36	107,927	2022
MIDDLE RIDGE RD	OLD WEST RIDGE RD (N OF SR-2 RAMPS)	COOPER FOSTER PARK	FULL DEPTH RECLAMATION (FDR)	1.40	179,399	2022
NORTH RIDGE RD	E OF S PEARL ST	GLADYS AVE	FULL DEPTH RECLAMATION (FDR)	0.92	122,426	2022
SR 57	E 36TH ST	E 28TH ST (SR-57)	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.08	16,680	2022
SR 58	COOPER FOSTER PARK RD	SR-611	FULL DEPTH RECLAMATION (FDR)	9.36	1,291,671	2022
THE 2022 REQUIRED BUDGET FOR THE "MAINTAIN 15% DEFICIENCY" STRATEGY					\$1,733,931	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	CRACK SEALING, REJUVENATORS, CHIP SEALING	3.12	20,617	2024
ELYRIA AVE	E 39TH ST	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.46	2,675	2024
KOLBE RD	LONGBROOK RD	BEAVERCREST DR	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.86	4,546	2024
MAIN ST	AMHERST NCL	LONGBROOK DR	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.36	2,093	2024
OAK POINT RD	COOPER FOSTER PARK RD	AMHERST NCL	CLEANING & SEALING OF JOINT AND CRACKS	0.16	1,344	2024
SR 57	BROADWAY AVE	FULTON RD	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.44	15,478	2024

The Maintain 15% Deficiency

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
SR 57	E 36TH ST	ELYRIA NCL	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.04	12,941	2024
SR 57	ELYRIA NCL	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.04	12,941	2024
SR 58	SR-611	W ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.14	189,633	2024
SR 611	ASHLAND AVE	HAMILTON AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.96	6,090	2024
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	THIN HOT MIX ASPHALT OVERLAYS WITHOUT MILLING	1.96	65,276	2024
SR 611	HAMILTON AVE	ELYRIA AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	1.90	17,577	2024
SR 611	LEAVITT RD (SR-58)	ASHLAND AVE	FULL DEPTH RECLAMATION (FDR)	2.84	369,077	2024
US 6	ARKANSAS AVE	E OF ROOT RD	CRACK SEALING, REJUVENATORS, CHIP SEALING	4.92	46,816	2024
US 6	BROADWAY (SR-57)	ARKANSAS AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	1.08	5,424	2024
W 33RD ST	FALBO AVE	LEXINGTON AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.64	5,376	2024
W 36TH ST	LEXINGTON AVE	BROADWAY AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.48	3,299	2024
THE 2024 REQUIRED BUDGET FOR THE "MAINTAIN 15% DEFICIENCY" STRATEGY					\$781,203	

Note: The "Maintain 15% Deficiency" strategy does not have any pavement maintenance treatments with the recommended implementation year of 2023.

The Maintain an Average Network PCR of 80

Pavement Treatment List

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
COOPER-FOSTER PARK RD	AMHERST ECL	OBERLIN AVE	PARTIAL DEPTH REPAIR	0.08	9,504	2020
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	100,900	2020
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	205,603	2020
KOLBE RD	BEAVERCREST DR	ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.08	95,886	2020
Longbrook Rd	YORKTOWN RD	KOLBE RD	FULL DEPTH RECLAMATION (FDR)	0.68	63,550	2020
SR 58	COOPER FOSTER PARK RD	SR-611	FULL DEPTH RECLAMATION (FDR)	9.36	1,224,647	2020
SR 611	ELYRIA AVE	BRIDGE OVER BLACK RIVER	FULL DEPTH RECLAMATION (FDR)	1.28	125,605	2020
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	PARTIAL DEPTH REPAIR	1.94	199,743	2020
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	PARTIAL DEPTH REPAIR	1.94	199,743	2020
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	PARTIAL DEPTH REPAIR	0.44	45,303	2020
W 36TH ST	FALBO AVE	DAYTON AVE	PARTIAL DEPTH REPAIR	0.48	49,420	2020
YORKTOWN RD	OAK POINT RD	Longbrook Rd	PARTIAL DEPTH REPAIR	0.56	53,223	2020
THE 2020 REQUIRED BUDGET FOR THE "MAINTAIN AN AVERAGE NETWORK PCR OF 80" STRATEGY					\$2,373,127	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	FULL DEPTH RECLAMATION (FDR)	3.12	374,319	2021
E 36TH ST	DUNTON RD	PLANT ST	FULL DEPTH RECLAMATION (FDR)	0.76	72,944	2021

The Maintain an Average Network PCR of 80

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
SR 611	ASHLAND AVE	HAMILTON AVE	FULL DEPTH RECLAMATION (FDR)	0.96	110,569	2021
SR 611	HAMILTON AVE	ELYRIA AVE	FULL DEPTH RECLAMATION (FDR)	1.90	319,131	2021
THE 2021 REQUIRED BUDGET FOR THE "MAINTAIN AN AVERAGE NETWORK PCR OF 80" STRATEGY					\$876,963	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2022\$)	YEAR
MIDDLE RIDGE RD	OLD WEST RIDGE RD (N OF SR-2 RAMPS)	COOPER FOSTER PARK	FULL DEPTH RECLAMATION (FDR)	1.40	179,399	2022
NORTH RIDGE RD	E OF S PEARL ST	GLADYS AVE	FULL DEPTH RECLAMATION (FDR)	0.92	122,426	2022
OAK POINT RD	YORKTOWN RD	US-6 (ERIE AVE)	PARTIAL DEPTH REPAIR	1.94	178,262	2022
THE 2022 REQUIRED BUDGET FOR THE "MAINTAIN AN AVERAGE NETWORK PCR OF 80" STRATEGY					\$480,087	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	109,296	2023
E 31ST ST	TACOMA AVE	LORAIN ECL	FULL DEPTH RECLAMATION (FDR)	0.84	110,546	2023
KANSAS AVE	F ST	ERIE AVE (US-6)	PAVEMENT MILLING	1.44	56,210	2023
SR 58	SR-611	W ERIE AVE (US-6)	PAVEMENT MILLING	1.14	81,370	2023
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	FULL DEPTH RECLAMATION (FDR)	1.96	208,335	2023

The Maintain an Average Network PCR of 80

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
SR 611	W ERIE AVE (US-6)	DIDRICKSON DR	FULL DEPTH RECLAMATION (FDR)	1.20	127,553	2023
TACOMA AVE	E 31ST ST	E 28TH ST	TIE-BAR & DOWEL-BAR RETROFIT AND DIAMOND GRINDING	0.46	13,154	2023
WASHINGTON AVE	0.04 MI N OF HIGHLAND PARK BLVD	N CENTRAL DR	PARTIAL DEPTH REPAIR	0.14	21,620	2023
WASHINGTON AVE	N CENTRAL DR	W 22ND ST	PARTIAL DEPTH REPAIR	0.44	49,073	2023
THE 2023 REQUIRED BUDGET FOR THE "MAINTAIN AN AVERAGE NETWORK PCR OF 80" STRATEGY					\$777,157	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
SR 611	DIDRICKSON DR	LEAVITT RD (SR-58)	FULL DEPTH RECLAMATION (FDR)	3.36	454,120	2024
SR 611	LEAVITT RD (SR-58)	ASHLAND AVE	FULL DEPTH RECLAMATION (FDR)	2.84	369,077	2024
W 36TH ST	FALBO AVE	DAYTON AVE	FULL DEPTH REPAIR	0.48	75,870	2024
THE 2024 REQUIRED BUDGET FOR THE "MAINTAIN AN AVERAGE NETWORK PCR OF 80" STRATEGY					\$899,067	

The M&R Program

Pavement Treatment List

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
COOPER-FOSTER PARK RD	AMHERST ECL	OBERLIN AVE	PARTIAL DEPTH REPAIR	0.08	9,504	2020
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	100,900	2020
E 36TH ST	DUNTON RD	PLANT ST	FULL DEPTH RECLAMATION (FDR)	0.76	71,027	2020
E 36TH ST	ELYRIA AVE	DALLAS AVE	PAVEMENT MILLING	0.82	43,902	2020
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	205,603	2020
ELYRIA AVE	E 39TH ST	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.46	2,405	2020
KOLBE RD	BEAVERCREST DR	ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.08	95,886	2020
KOLBE RD	Longbrook Rd	BEAVERCREST DR	PAVEMENT MILLING	0.86	35,418	2020
Longbrook Rd	YORKTOWN RD	KOLBE RD	FULL DEPTH RECLAMATION (FDR)	0.68	63,550	2020
OAK POINT RD	YORKTOWN RD	US-6 (ERIE AVE)	PARTIAL DEPTH REPAIR	1.94	169,012	2020
SR 58	COOPER FOSTER PARK RD	SR-611	FULL DEPTH RECLAMATION (FDR)	9.36	1,224,647	2020
SR 611	ASHLAND AVE	HAMILTON AVE	FULL DEPTH RECLAMATION (FDR)	0.96	107,662	2020
SR 611	ELYRIA AVE	BRIDGE OVER BLACK RIVER	FULL DEPTH RECLAMATION (FDR)	1.28	125,605	2020
SR 611	HAMILTON AVE	ELYRIA AVE	FULL DEPTH RECLAMATION (FDR)	1.90	310,741	2020
SR 611	HENDERSON DR	LORAIN ECL	PARTIAL DEPTH REPAIR	2.76	404,396	2020
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	PARTIAL DEPTH REPAIR	1.94	199,743	2020
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	PARTIAL DEPTH REPAIR	1.94	199,743	2020
W 33RD ST	FALBO AVE	LEXINGTON AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.64	4,832	2020
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	PARTIAL DEPTH REPAIR	0.44	45,303	2020

The M&R Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
W 36TH ST	FALBO AVE	DAYTON AVE	PARTIAL DEPTH REPAIR	0.48	49,420	2020
WASHINGTON AVE	0.04 MI N OF HIGHLAND PARK BLVD	N CENTRAL DR	PARTIAL DEPTH REPAIR	0.14	19,959	2020
WASHINGTON AVE	N CENTRAL DR	W 22ND ST	PARTIAL DEPTH REPAIR	0.44	45,303	2020
YORKTOWN RD	OAK POINT RD	Longbrook Rd	PARTIAL DEPTH REPAIR	0.56	53,223	2020
THE 2020 REQUIRED BUDGET FOR THE "M&R" PROGRAM					\$3,587,784	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	FULL DEPTH RECLAMATION (FDR)	3.12	374,319	2021
SR 57	SR-57 (E 28TH ST)	E 14TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	4.00	25,378	2021
THE 2021 REQUIRED BUDGET FOR THE "M&R" PROGRAM					\$399,697	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2022\$)	YEAR
KANSAS AVE	COLORADO AVE (SR-611)	F ST	PARTIAL DEPTH REPAIR	1.36	107,927	2022
MIDDLE RIDGE RD	OLD WEST RIDGE RD (N OF SR-2 RAMPS)	COOPER FOSTER PARK	FULL DEPTH RECLAMATION (FDR)	1.40	179,399	2022
NORTH RIDGE RD	E OF S PEARL ST	GLADYS AVE	FULL DEPTH RECLAMATION (FDR)	0.92	122,426	2022
SR 57	E 14TH ST	E 9TH ST	PARTIAL DEPTH REPAIR	1.24	134,658	2022

The M&R Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2022\$)	YEAR
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	FULL DEPTH RECLAMATION (FDR)	1.96	202,858	2022
SR 611	W ERIE AVE (US-6)	DIDRICKSON DR	FULL DEPTH RECLAMATION (FDR)	1.20	124,199	2022
WASHINGTON AVE	HIGHLAND PARK BLVD	0.04 MI N OF HIGHLAND PARK BLVD	PARTIAL DEPTH REPAIR	0.08	8,687	2022
THE 2022 REQUIRED BUDGET FOR THE "M&R" PROGRAM					\$880,154	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	109,296	2023
E 31ST ST	TACOMA AVE	LORAIN ECL	FULL DEPTH RECLAMATION (FDR)	0.84	110,546	2023
E 36TH ST	DUNTON RD	PLANT ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.76	3,912	2023
E 36TH ST	ELYRIA AVE	DALLAS AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.82	5,487	2023
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	222,711	2023
ELYRIA AVE	E 39TH ST	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.46	2,605	2023
KOLBE RD	LONGBROOK RD	BEAVERCREST DR	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.86	4,427	2023
LONGBROOK RD	YORKTOWN RD	KOLBE RD	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.68	3,500	2023
OAK POINT RD	AMHERST NCL	YORKTOWN RD	PARTIAL DEPTH REPAIR	1.38	130,229	2023
OAK POINT RD	YORKTOWN RD	US-6 (ERIE AVE)	CLEANING & SEALING OF JOINT AND CRACKS	1.94	13,426	2023

The M&R Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
SR 58	COOPER FOSTER PARK RD	SR-611	CRACK SEALING, REJUVENATORS, CHIP SEALING	9.36	67,451	2023
SR 611	ASHLAND AVE	HAMILTON AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.96	5,930	2023
SR 611	HAMILTON AVE	ELYRIA AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	1.90	17,115	2023
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	TIE-BAR & DOWEL-BAR RETROFIT AND DIAMOND GRINDING	1.94	57,697	2023
TOWER BLVD	OBERLIN AVE	FALBO AVE	PAVEMENT MILLING	1.24	71,913	2023
US 6	LEAVITT RD (SR-58)	SR-57 (BROADWAY)	CRACK SEALING, REJUVENATORS, CHIP SEALING	5.76	34,838	2023
W 33RD ST	FALBO AVE	LEXINGTON AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.64	5,234	2023
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.44	3,599	2023
W 36TH ST	FALBO AVE	DAYTON AVE	FULL DEPTH REPAIR	0.48	73,875	2023
WASHINGTON AVE	N CENTRAL DR	W 22ND ST	CLEANING & SEALING OF JOINT AND CRACKS	0.44	3,599	2023
YORKTOWN RD	OAK POINT RD	Longbrook Rd	FULL DEPTH REPAIR	0.56	79,559	2023
THE 2023 REQUIRED BUDGET FOR THE "M&R" PROGRAM					\$1,026,949	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	CRACK SEALING, REJUVENATORS, CHIP SEALING	3.12	20,617	2024
KANSAS AVE	F ST	ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.44	130,996	2024
MAIN ST	AMHERST NCL	Longbrook Dr	PAVEMENT MILLING	0.36	18,143	2024

The M&R Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
PEARL AVE	NORTH RIDGE RD	E 36TH ST	PAVEMENT MILLING	2.76	126,450	2024
SR 57	BROADWAY AVE	FULTON RD	CRACK SEALING, REJUVENATORS, CHIP SEALING	2.44	15,478	2024
SR 57	E 36TH ST	ELYRIA NCL	PARTIAL & FULL DEPTH PATCHING, CHIP PATCHING	2.04	61,829	2024
SR 57	E 36TH ST	E 28TH ST (SR-57)	PARTIAL & FULL DEPTH PATCHING, CHIP PATCHING	2.08	84,056	2024
SR 57	SR-57 (E 28TH ST)	E 14TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	4.00	27,489	2024
SR 58	SR-611	W ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.14	189,633	2024
SR 611	DIDRICKSON DR	LEAVITT RD (SR-58)	FULL DEPTH RECLAMATION (FDR)	3.36	454,120	2024
SR 611	LEAVITT RD (SR-58)	ASHLAND AVE	FULL DEPTH RECLAMATION (FDR)	2.84	369,077	2024
TACOMA AVE	E 31ST ST	E 28TH ST	PARTIAL DEPTH REPAIR	0.46	50,661	2024
US 6	ARKANSAS AVE	E OF ROOT RD	CRACK SEALING, REJUVENATORS, CHIP SEALING	4.92	46,816	2024
US 6	BROADWAY (SR-57)	ARKANSAS AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	1.08	5,424	2024
W 36TH ST	LEXINGTON AVE	BROADWAY AVE	PARTIAL & FULL DEPTH PATCHING, CHIP PATCHING	0.48	15,760	2024
WASHINGTON AVE	W 22ND ST	W 13TH ST	PARTIAL & FULL DEPTH PATCHING, CHIP PATCHING	1.04	43,341	2024
THE 2024 REQUIRED BUDGET FOR THE "M&R" PROGRAM					\$1,659,890	

The Lowest Standard PCR Program

Pavement Treatment List

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
BROADWAY AVE	W 39TH ST	E 28TH ST (SR-57)	PAVEMENT MILLING	3.12	160,618	2020
COOPER-FOSTER PARK RD	AMHERST ECL	OBERLIN AVE	PARTIAL DEPTH REPAIR	0.08	9,504	2020
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	100,900	2020
E 36TH ST	DUNTON RD	PLANT ST	FULL DEPTH RECLAMATION (FDR)	0.76	71,027	2020
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	205,603	2020
ELYRIA AVE	E 39TH ST	E 36TH ST	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.46	2,405	2020
KANSAS AVE	F ST	ERIE AVE (US-6)	MICROSURFACING & SLURRY SEALING	1.44	17,297	2020
KOLBE RD	BEAVERCREST DR	ERIE AVE (US-6)	FULL DEPTH RECLAMATION (FDR)	1.08	95,886	2020
Longbrook Rd	YORKTOWN RD	KOLBE RD	FULL DEPTH RECLAMATION (FDR)	0.68	63,550	2020
OAK POINT RD	COOPER FOSTER PARK RD	AMHERST NCL	CLEANING & SEALING OF JOINT AND CRACKS	0.16	1,208	2020
SR 58	COOPER FOSTER PARK RD	SR-611	FULL DEPTH RECLAMATION (FDR)	9.36	1,224,647	2020
SR 611	ASHLAND AVE	HAMILTON AVE	FULL DEPTH RECLAMATION (FDR)	0.96	107,662	2020
SR 611	ELYRIA AVE	BRIDGE OVER BLACK RIVER	FULL DEPTH RECLAMATION (FDR)	1.28	125,605	2020
SR 611	HAMILTON AVE	ELYRIA AVE	FULL DEPTH RECLAMATION (FDR)	1.90	310,741	2020
TACOMA AVE	E 31ST ST	E 28TH ST	TIE-BAR & DOWEL-BAR RETROFIT AND DIAMOND GRINDING	0.46	12,144	2020
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	PARTIAL DEPTH REPAIR	1.94	199,743	2020
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	PARTIAL DEPTH REPAIR	1.94	199,743	2020

The Lowest Standard PCR Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2020\$)	YEAR
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	PARTIAL DEPTH REPAIR	0.44	45,303	2020
W 36TH ST	FALBO AVE	DAYTON AVE	PARTIAL DEPTH REPAIR	0.48	49,420	2020
WASHINGTON AVE	0.04 MI N OF HIGHLAND PARK BLVD	N CENTRAL DR	PARTIAL DEPTH REPAIR	0.14	19,959	2020
WASHINGTON AVE	HIGHLAND PARK BLVD	0.04 MI N OF HIGHLAND PARK BLVD	CLEANING & SEALING OF JOINT AND CRACKS	0.08	604	2020
YORKTOWN RD	OAK POINT RD	Longbrook Rd	PARTIAL DEPTH REPAIR	0.56	53,223	2020
THE 2020 REQUIRED BUDGET FOR THE "MAINTAIN LOWEST STANDARD PCR" STRATEGY					\$3,076,792	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
COOPER-FOSTER PARK RD	OAK POINT RD	LORAIN ECL	CLEANING & SEALING OF JOINT AND CRACKS	0.42	3,257	2021
KANSAS AVE	COLORADO AVE (SR-611)	F ST	CLEANING & SEALING OF JOINT AND CRACKS	1.36	7,707	2021
MIDDLE RIDGE RD	OLD WEST RIDGE RD (N OF SR-2 RAMPS)	COOPER FOSTER PARK	PAVEMENT MILLING	1.40	76,979	2021
NORTH RIDGE RD	E OF S PEARL ST	GLADYS AVE	PAVEMENT MILLING	0.92	52,532	2021
OAK POINT RD	YORKTOWN RD	US-6 (ERIE AVE)	PARTIAL DEPTH REPAIR	1.94	173,576	2021
SR 57	E 14TH ST	E 9TH ST	CLEANING & SEALING OF JOINT AND CRACKS	1.24	9,615	2021

The Lowest Standard PCR Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2021\$)	YEAR
W 36TH ST	LEXINGTON AVE	BROADWAY AVE	CRACK SEALING, REJUVENATORS, CHIP SEALING	0.48	3,045	2021
WASHINGTON AVE	N CENTRAL DR	W 22ND ST	PARTIAL DEPTH REPAIR	0.44	46,526	2021
THE 2021 REQUIRED BUDGET FOR THE "MAINTAIN LOWEST STANDARD PCR" STRATEGY					\$373,237	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2022\$)	YEAR
E 31ST ST	TACOMA AVE	LORAIN ECL	PAVEMENT MILLING	0.84	47,435	2022
E 36TH ST	DALLAS AVE	DUNTON RD	MICROSURFACING & SLURRY SEALING	0.50	7,964	2022
OAK POINT RD	AMHERST NCL	YORKTOWN RD	CLEANING & SEALING OF JOINT AND CRACKS	1.38	9,299	2022
SR 58	SR-611	W ERIE AVE (US-6)	PAVEMENT MILLING	1.14	79,231	2022
SR 611	BRIDGE OVER BLACK RIVER	COLORADO AVE	FULL DEPTH RECLAMATION (FDR)	1.96	202,858	2022
SR 611	LEAVITT RD (SR-58)	ASHLAND AVE	PAVEMENT MILLING	2.84	154,205	2022
SR 611	W ERIE AVE (US-6)	DIDRICKSON DR	FULL DEPTH RECLAMATION (FDR)	1.20	124,199	2022
THE 2022 REQUIRED BUDGET FOR THE "MAINTAIN LOWEST STANDARD PCR" STRATEGY					\$625,191	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
E 28TH ST	SR-57 (GROVE AVE)	TACOMA AVE	PARTIAL DEPTH REPAIR	0.98	109,296	2023

The Lowest Standard PCR Program

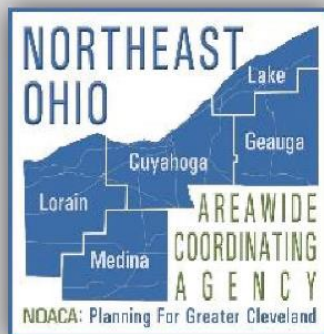
Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2023\$)	YEAR
E 36TH ST	PLANT ST	SR-57 (GROVE AVE)	FULL DEPTH RECLAMATION (FDR)	2.20	222,711	2023
KOLBE RD	Longbrook Rd	Beavercrest Dr	PAVEMENT MILLING	0.86	38,365	2023
SR 611	DIDRICKSON DR	LEAVITT RD (SR-58)	PAVEMENT MILLING	3.36	194,860	2023
TACOMA AVE	E 31ST ST	E 28TH ST	TIE-BAR & DOWEL-BAR RETROFIT AND DIAMOND GRINDING	0.46	13,154	2023
W 36TH ST	FALBO AVE	DAYTON AVE	FULL DEPTH REPAIR	0.48	73,875	2023
WASHINGTON AVE	HIGHLAND PARK BLVD	0.04 MI N OF HIGHLAND PARK BLVD	PARTIAL DEPTH REPAIR	0.08	8,922	2023
THE 2023 REQUIRED BUDGET FOR THE "MAINTAIN LOWEST STANDARD PCR" STRATEGY					\$661,183	
ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
COOPER-FOSTER PARK RD	NORTH RIDGE RD	BROADWAY AVE	PAVEMENT MILLING	2.18	119,853	2024
COOPER-FOSTER PARK RD	OAK POINT RD	LORAIN ECL	CLEANING & SEALING OF JOINT AND CRACKS	0.42	3,528	2024
COOPER-FOSTER PARK RD	OBERLIN AVE	NORTH RIDGE RD	CLEANING & SEALING OF JOINT AND CRACKS	0.52	5,376	2024
E 36TH ST	ELYRIA AVE	DALLAS AVE	PAVEMENT MILLING	0.82	48,839	2024
KANSAS AVE	F ST	ERIE AVE (US-6)	PAVEMENT MILLING	1.44	57,727	2024
MAIN ST	AMHERST NCL	Longbrook Dr	PAVEMENT MILLING	0.36	18,143	2024
OBERLIN AVE	MEISTER RD	ERIE AVE (US-6)	PAVEMENT MILLING	3.48	286,987	2024
PEARL AVE	E 36TH ST	E 28TH ST (SR-57)	PAVEMENT MILLING	1.08	113,805	2024

The Lowest Standard PCR Program

Pavement Treatment List (Continued)

ROAD NAME	FROM	TO	RECOMMENDED TREATMENT	LANE-MILES	IMPLEMENTATION	
					COST (2024\$)	YEAR
PEARL AVE	NORTH RIDGE RD	E 36TH ST	PAVEMENT MILLING	2.76	126,450	2024
SR 57	E 14TH ST	E 9TH ST	PARTIAL DEPTH REPAIR	1.24	142,028	2024
TOWER BLVD	LEAVITT RD (SR-58)	OBERLIN AVE	CLEANING & SEALING OF JOINT AND CRACKS	1.94	16,295	2024
TOWER BLVD	OBERLIN AVE	LEAVITT RD (SR-58)	TIE-BAR & DOWEL-BAR RETROFIT AND DIAMOND GRINDING	1.94	59,255	2024
W 33RD ST	LEXINGTON AVE	BROADWAY AVE	CLEANING & SEALING OF JOINT AND CRACKS	0.44	3,696	2024
YORKTOWN RD	OAK POINT RD	Longbrook Rd	FULL DEPTH REPAIR	0.56	81,707	2024
THE 2024 REQUIRED BUDGET FOR THE "MAINTAIN LOWEST STANDARD PCR" STRATEGY					\$1,083,689	



NORTHEAST OHIO
AREAWIDE
COORDINATING
AGENCY
1299 Superior Ave.
Cleveland, Ohio 44114

Phone: 216-241-2414 FAX: 216-621-3024

www.noaca.org

 noaca.org  [@noaca_mpo](https://twitter.com/noaca_mpo)

The preparation of this publication was financed through grants received from the Federal Highway Administration and the Ohio Department of Transportation, and appropriations from the counties of and municipalities within Cuyahoga, Geauga, Lake, Lorain and Medina. The contents do not necessarily reflect official views or policies of the U.S. Department of Transportation or the Ohio Department of Transportation. This document does not constitute a standard or regulation.

NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure, and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE the quality of life in Northeast Ohio. NOACA will STRENGTHEN regional cohesion, PRESERVE existing infrastructure, and BUILD a sustainable multimodal transportation system to SUPPORT economic development and ENHANCE the quality of life in Northeast Ohio.