Transportation Asset Management Plan 2021 - 2023

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Introduction

Roads, bridges, culverts and traffic signals are some of the most important assets in any community. The cost of building and maintaining this infrastructure, their importance to society, and the investment made by taxpayers all place a high level of responsibility on local agencies to plan, build and maintain the road network in an efficient and effective manner.

Asset management is defined by Public Act 325 of 2018 as “an ongoing process of maintaining, preserving, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment and investment to achieve established performance goals”. Asset management, in the context of this plan, ensures that public funds are spent as effectively as possible to maximize the condition of the road network. Asset management also provides a transparent decision-making process that allows the public to understand the technical and financial challenges of managing road infrastructure with a limited budget.

The Washtenaw County Road Commission (WCRC) has adopted an “asset management” business process to overcome the challenges presented by having limited financial, staffing and other resources while needing to meet road users’ expectations. This process is endorsed by leaders in municipal planning and transportation infrastructure, including the Michigan Municipal League, County Road Association of Michigan, the Michigan Department of Transportation (MDOT) and the Federal Highway Administration (FHWA). WCRC is supported in its use of asset management principles and processes by the Michigan Transportation Asset Management Council (TAMC), formed by the State of Michigan.

This plan outlines how WCRC determines its strategy to maintain and upgrade roads and bridges given agency goals, priorities of its road users and resources provided. An updated plan is to be released every three years to reflect changes in road conditions, finances and priorities.

An asset management plan is required by Michigan Public Act 325 of 2018, and this document represents fulfillment of WCRC’s obligations towards meeting these requirements. This asset management plan also helps demonstrate WCRC’s responsible use of public funds by providing elected and appointed officials as well as the public with inventory, condition and planned projects for WCRC’s road and bridge assets.

Questions regarding the use or content of this plan should be directed to:

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Asset Inventory and Condition

Roads

WCRC is responsible for approximately 1,659 centerline miles of public roads. Public roads are classified in multiple ways.

State Classifications

In Michigan, road classifications are determined by Public Act 51 of 1951 also known as Act 51. Act 51 has been amended many times since it was first passed 70 years ago but it remains the core legislation related to roads in Michigan. Click here to read more about Act 51 from the State of Michigan's website.

In Michigan, per Act 51, public roads within a county are classified by MDOT as either state trunkline, primary or local roads. State trunkline roads are under the direct control of MDOT. Primary and local roads are under the county road agency's jurisdiction.

The state trunkline consists of roads, streets and highways, found both inside and outside limits of incorporated cities and villages. State trunkline roads in Washtenaw County include I-94, US-23, US-12 (Michigan Avenue), M-14, M-17 (Washtenaw Avenue), M-52 and M-153 (Ford Road).

Primary roads are the backbone of the county road system. Primary roads connect communities and local roads often to state trunklines. Examples of primary roads in Washtenaw County include Austin Road, Carpenter Road, Plymouth Road, State Road, Jackson Road, etc.

Local[1] county roads are further classified by Act 51 as either local collector or local subdivision roads. Local collector roads have the main function of connecting homes and business to county primary roads or state trunklines. Local subdivision roads have the main function of providing access to and from adjacent properties within a subdivision or business park.

Of WCRC's 1659.3 miles of road, 604.8 miles are classified as county primary and 1,054.5 miles are classified as county local.

WCRC is not responsible for maintenance or construction of roads within Washtenaw County's cities and villages. Roads within cities and villages are under the sole jurisdiction of the respective city or village.

[1] In addition to local roads, the term "local" is used in other ways within the Michigan transportation world. MDOT will often refer to "local agencies" meaning county road commissions, county road departments, cities and villages. MDOT also has a "Local Bridge Program" which is a funding mechanism for funding bridge projects on county, city and village roads. See page 28 to see the Local Bridge Program projects planned in Washtenaw County for 2021 – 2023.

Figure 1: Percentage of county primary and county local roads for WCRC.

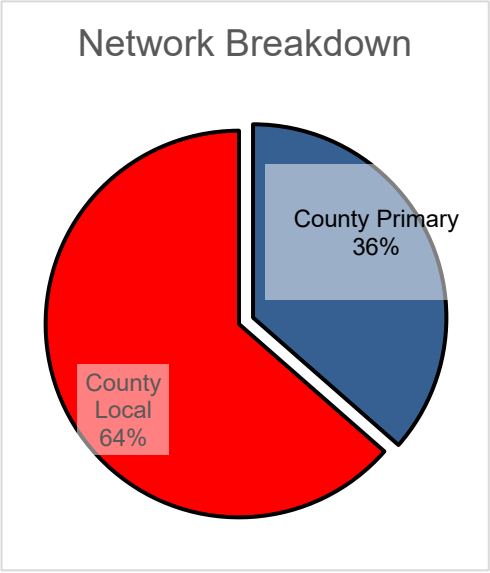
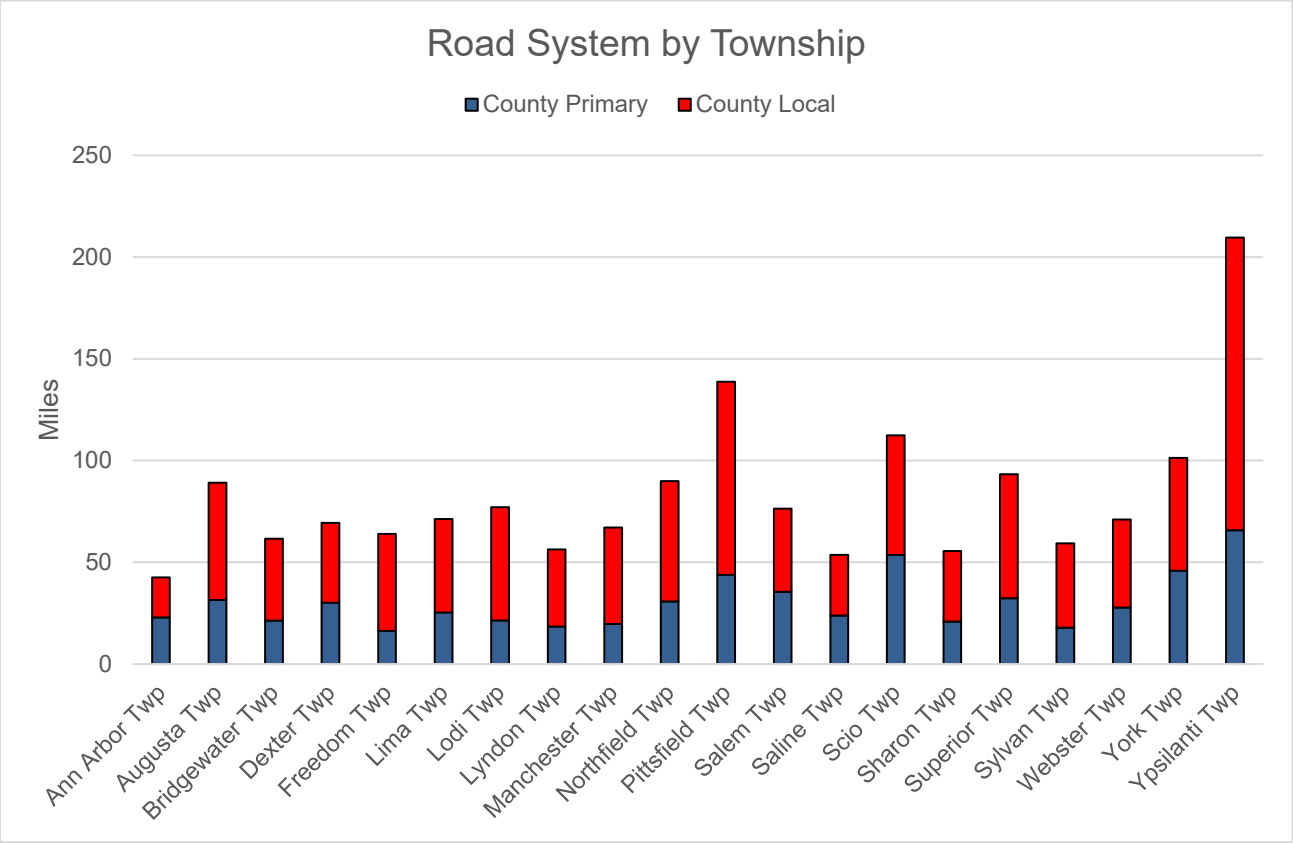


Figure 2: County primary and county local roads by township for WCRC's jurisdiction.



Federal Classifications

At the federal level, roads are classified through the National Functional Classifications (NFC) System administered by the FHWA.

Of the 604 centerline miles of primary public roads under WCRC's jurisdiction, approximately 82% are classified through the NFC as federal-aid eligible. This designation allows them to receive federal funding for their rehabilitation and construction.

Within these primary roads eligible for federal funds, there are 24.9 centerline roads that are also classified as a part of the National Highway System (NHS). Roads classified as a part of the NHS are subject to special rules and regulations and have their own performance metrics dictated by the FHWA.

Conversely, of the 1,054 centerline miles of local roads under WCRC's jurisdiction, only 1% are classified as federal-aid eligible.

Surface Type

To the typical resident, the most important designation of their roads is the surface type. Roads come in two basic forms—paved and unpaved. Paved roads have hard surfaces. These hard surfaces can be constructed from various pavement materials, including asphalt, concrete, composite (asphalt and concrete) and sealcoat. On the other hand, unpaved roads have no pavement but are composed of aggregates and underlying soils.

Whether or not a road is paved with asphalt, concrete or left unpaved, surface type is influenced by several different factors, such as cost of construction, cost of maintenance, frequency of maintenance and type of maintenance. These factors all influence asset life and the road user experience.

In Washtenaw County, WCRC is responsible for a variety of road surfaces including approximately 900 miles of paved roads (514 miles of paved primary, 394 miles of paved local) and 760 miles of unpaved roads (78 miles of unpaved primary, 665 miles of unpaved local). These surface types are further explained below.

Figure 3: WCRC road surface type by percentage

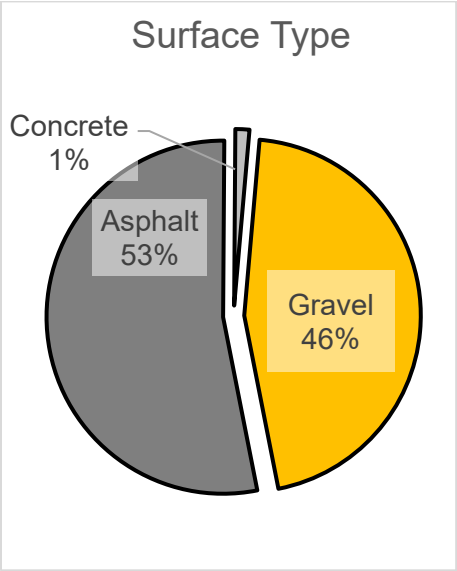
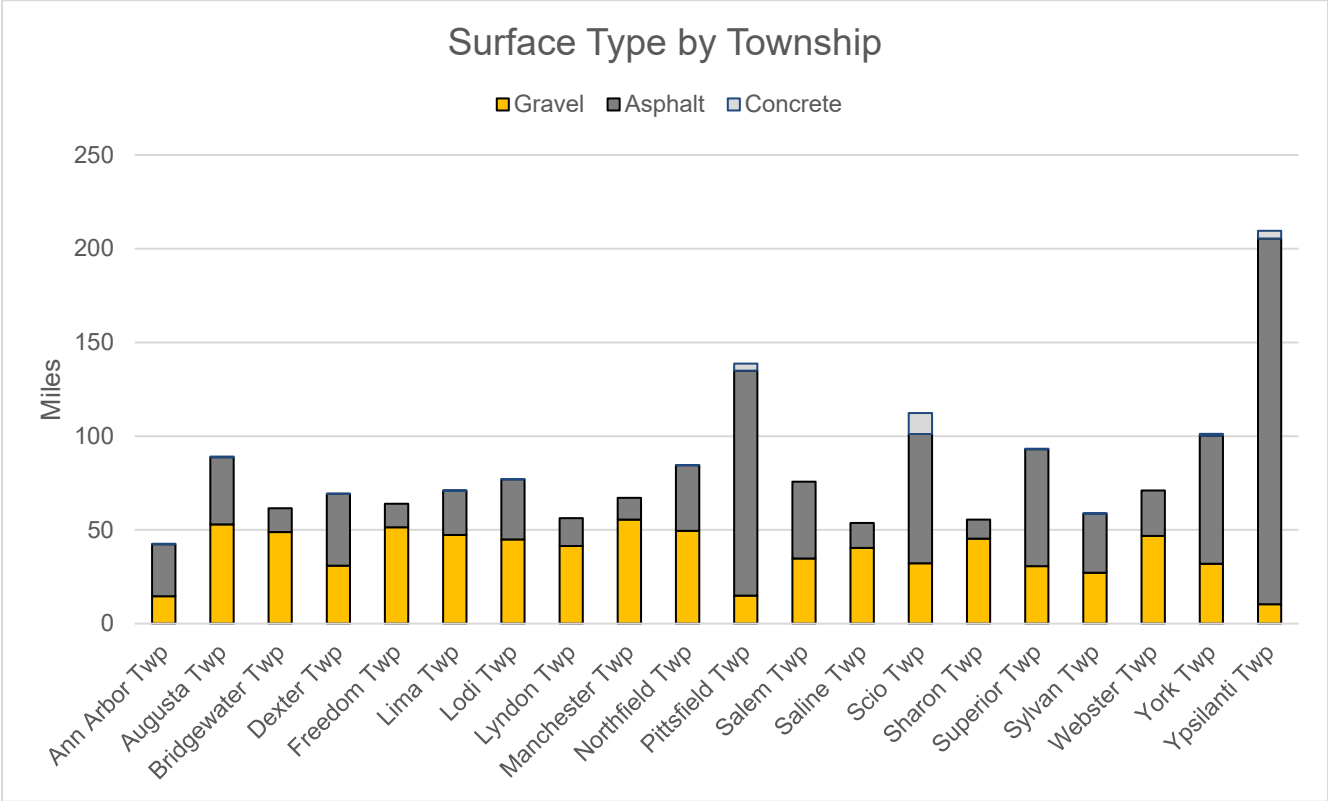


Figure 4: WCRC road surface type by township



Concrete pavement: Concrete pavement, which is sometimes called a rigid pavement, is durable and lasts a long time when properly constructed and maintained. Concrete pavement can have longer service periods between maintenance activities, which can help reduce maintenance-related traffic disruptions. However, concrete pavements have a high initial cost and can be challenging to rehabilitate and maintain at the end of their service life. A typical concrete pavement design life will provide service for 30 years with appropriate preventative maintenance.

Hot-mix asphalt pavement (HMA): HMA pavement, sometimes known as asphalt or flexible pavement, is currently less expensive to construct than concrete pavement However, HMA requires frequent maintenance activities to maximize its service life. A typical HMA pavement design life will provide service for 20 years with appropriate preventative maintenance. The vast majority of WCRC's pavements are HMA pavements.

Composite pavement: Composite pavement is a combination of concrete and asphalt layers. Typically, composite pavements are old concrete pavements exhibiting ride-related issues that were overlaid by several inches of HMA in order to gain more service life from the pavement before it would need reconstruction. Converting a concrete pavement to a composite pavement is typically used as a "holding pattern" treatment to maintain the road in usable condition until reconstruction funds become available.

Gravel/Limestone: Gravel or limestone are low-cost road surfaces made from layers of soil and aggregate. In the right conditions, a properly constructed and maintained gravel road can provide a service life comparable to an HMA pavement and can be significantly less expensive than the other pavement types. There are several potential drawbacks such as dust, mud and ride smoothness when maintenance is delayed or traffic increases. Gravel roads require frequent low-cost maintenance activities. Gravel can be very cost effective for lower-volume roads.

Inventory and Condition

Background

WCRC is committed to monitoring the condition of its road network and using data to drive cost-effective decision-making and preservation of valuable road assets.

For paved roads, WCRC uses the Pavement Surface Evaluation and Rating (PASER) system. PASER was developed by the University of Wisconsin Transportation Information Center to provide a simple, efficient and consistent method for evaluating road condition through visual inspection. The widely used PASER system has specific criteria for assessing pavements.

Meanwhile, unpaved roads are very difficult to evaluate. Their condition varies dramatically depending on the season and weather conditions. Due to their constantly changing condition, WCRC does not rate unpaved roads, but staff are very aware of the general condition of unpaved roads through direct observation.

PASER

Michigan's Transportation Asset Management Council (TAMC) has adopted the PASER system for measuring statewide pavement conditions in Michigan. Broad use of the PASER system means that data collected at WCRC is consistent with data collected statewide. PASER data is collected using trained inspectors in a slow-moving vehicle and GPS-enabled data collection software.

The PASER system rates surface condition using a 1-10 scale where 10 is a brand-new road with no defects that can be treated with routine maintenance, 5 is a road with distresses but is structurally sound that can be treated with preventative maintenance and 1 is a road with extensive surface and structural distresses that needs total reconstruction. PASER scores are grouped into TAMC definition categories of good (8-10), fair (5-7), and poor (1-4) categories.

Roads with lower PASER scores generally require costlier treatments to restore their quality than roads with higher PASER scores. As a road deteriorates, it costs more dollars per mile to fix it, and the dollars spent on maintenance are less efficient in increasing the road's service life. Understanding this cost principle helps to draw meaning from the current PASER condition assessment.

"Good" roads: According to the TAMC, have PASER scores of 8, 9 or 10. Roads in this category have very few, if any, defects and only require minimal maintenance; they may be kept in this category longer using planned pavement maintenance. These roads may include those that have been recently resurfaced or newly constructed.

"Fair" roads: According to the TAMC, have PASER scores of 5, 6 or 7. Roads in this category still show good structural support, but their surface is starting to deteriorate. Preventative maintenance can be cost effective for maintaining the road's "fair" condition or even raising it to "good" condition before the structural integrity of the pavement has been severely impacted. These treatments can be likened to shingles on a roof of a house: while the shingles add no structural value, they protect the house from structural damage by maintaining the protective function of a roof covering.

"Poor" roads: According to the TAMC, have PASER scores of 1, 2, 3 or 4. These roads exhibit evidence that the underlying structure is failing, such as alligator cracking and rutting. These roads must be rehabilitated with treatments like a multi-layer resurfacing, pulverization and resurfacing, or total reconstruction.

WCRC's Ratings

WCRC collected PASER data every two years on its paved primary road system and beginning in 2021 plans to collect it every year. WCRC also collects PASER data on its paved local roads every two years.

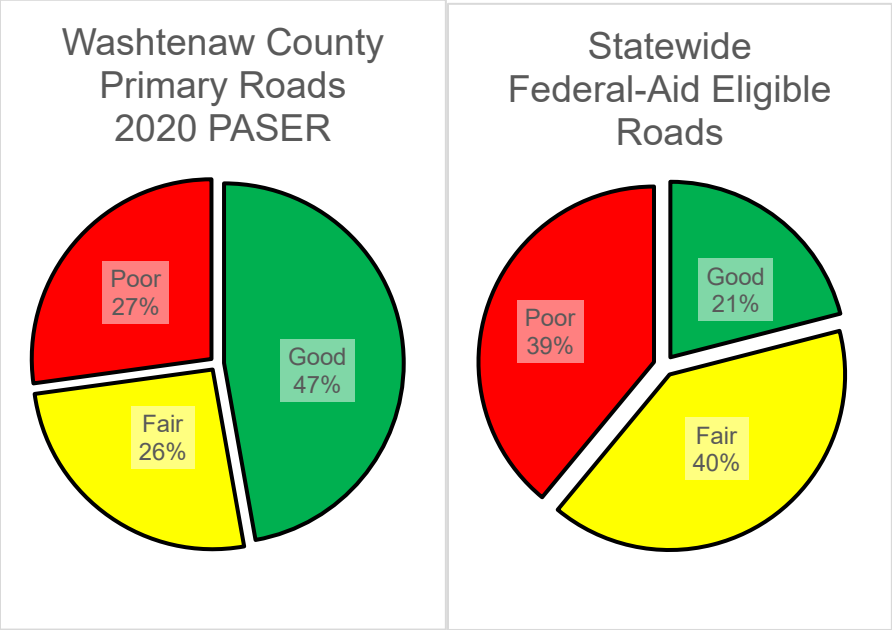
Primary Road Ratings

In 2020, the county primary network of roads has:

- 47% in good condition
- 26% in fair condition
- 27% in poor condition

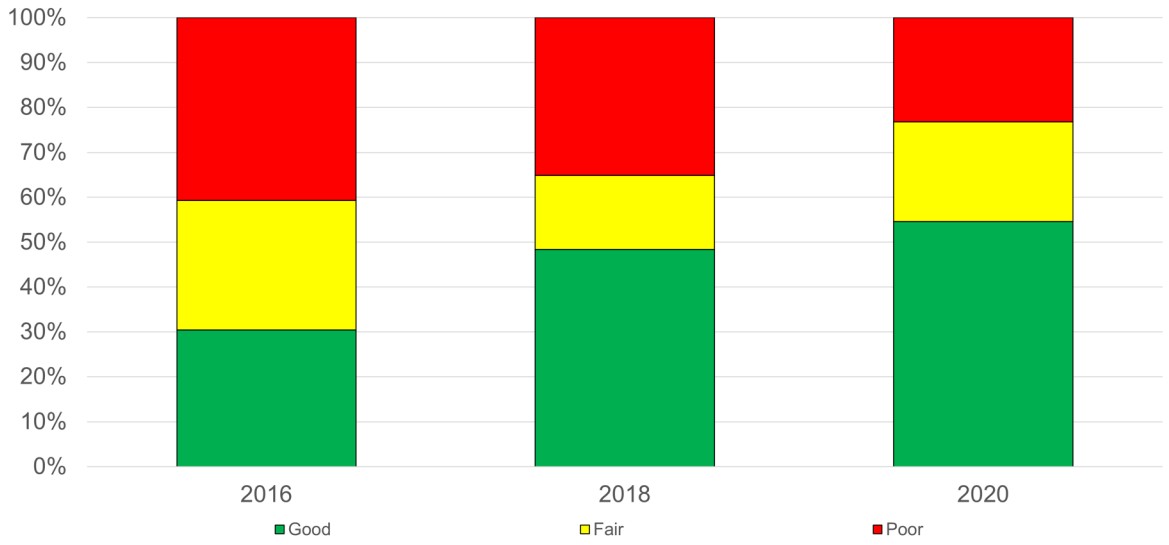
In comparison, the statewide paved, county federal-aid eligible system[2] has 21% of roads in the TAMC good condition category, 40% in fair, and 39% in poor (Figure 5B). These figures shows that WCRC's paved county primary road network is better than similarly classified roads in the rest of the state. Click here to view other road condition graphs on the TAMC pavement condition dashboard.

Figure 5: (A) Left: WCRC paved primary road PASER (2020) and (B) Right: Statewide federal-aid eligible system conditions



[2] County-owned, federal-aid eligible roads are nearly always primary roads in Michigan.

Figure 6: Paved county primary network condition trend, 2016 - 2020



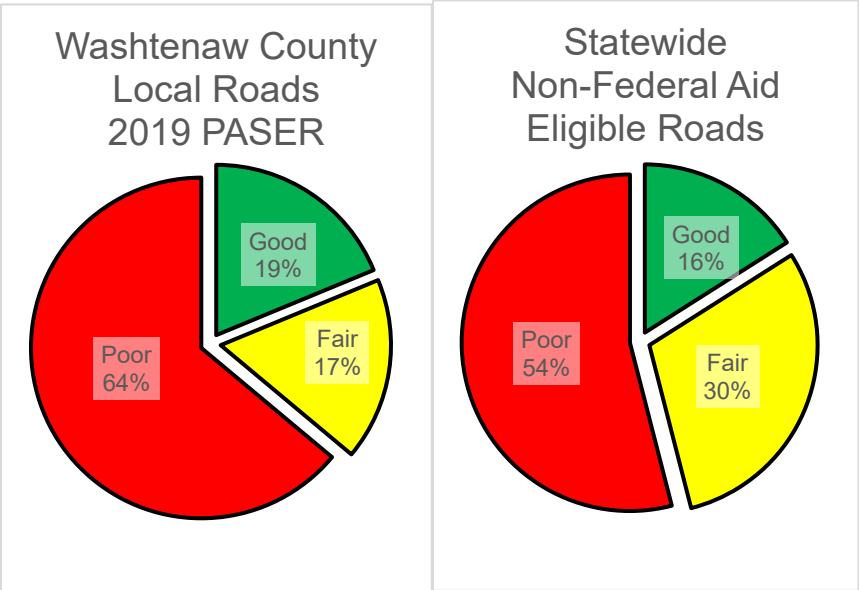
See Appendix A for the 2020 PASER Condition Map for Primary Roads in Washtenaw County.

Local Road Ratings
The county local network of roads has:

- 19% in good condition
- 17% in fair condition
- 64% in poor condition

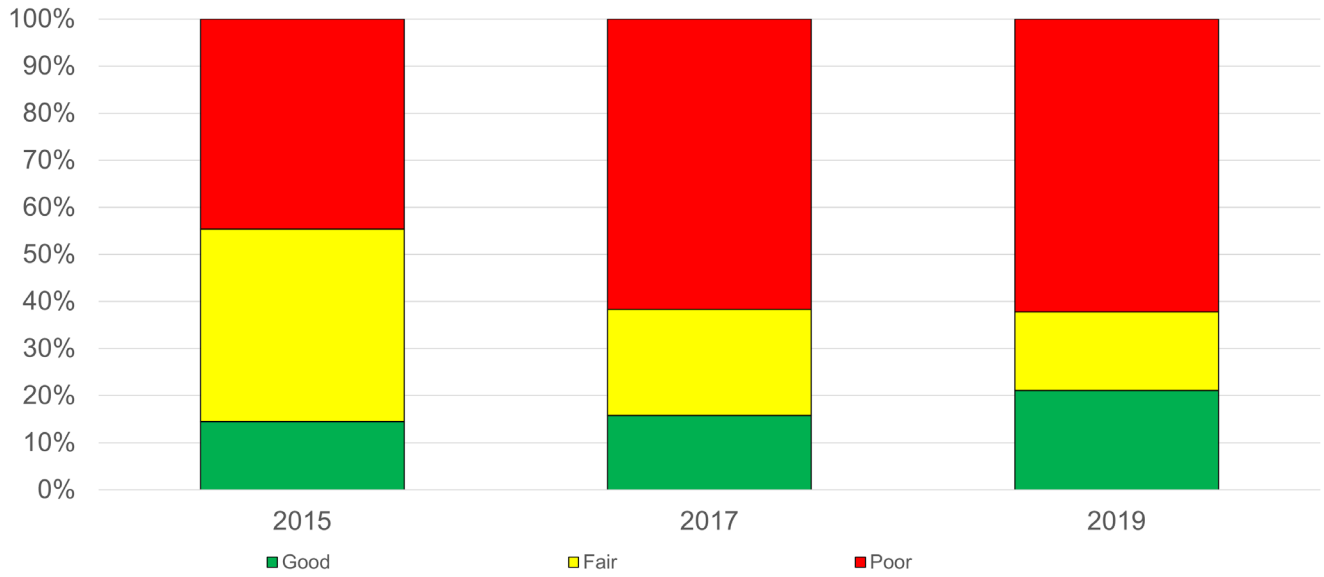
In comparison, the statewide paved non, federal-aid eligible system[3] has 16% in good, 30% in fair, and 54% in poor (Figure 7B). Click here to view other road condition graphs on the TAMC pavement condition dashboard.

Figure 7: (A) Left: WCRC paved local road PASER (2019) and (B) Right: Paved non, federal-aid eligible system conditions



[3] County-owned, non federal-aid eligible roads are nearly always local roads in Michigan.

Figure 8: County local network condition trend, 2015 – 2019



Unfortunately, as Figure 7 and Figure 8 show, there is a very challenging situation on local paved roads in Washtenaw County. There was a major subdivision building boom in the 1990s and early 2000s in Washtenaw County. With these new subdivisions came new roads. Unfortunately, these roads are now reaching the end of their design life and the condition assessment reflects that.

Solving the problems on Washtenaw County's local road system will require significant local investment. There is no federal funding available to local roads and the state road funding allocated for local roads barely covers WCRC's costs for routine maintenance such as snow plowing, pothole patching and grading. Under current state law, any improvements to a local road (for example resurfacing) must have at least 50% of its funding come from a source other than the road commission, often the township. Due to lack of funding to maintain local subdivision roads, WCRC's procedures and regulations were changed in 2014 to only accept platted subdivisions into the county road network. Since that time, most new subdivisions roads constructed in Washtenaw County are private roads, outside of the jurisdiction or responsibility of WCRC.

Knowing that funding local road improvements is challenging, the Washtenaw County Board of County Road Commissioners has historically transferred funds from its Primary Road Fund to its Local Road Fund, even though this transfer limits maintenance activity on the primary road system. These monies are used to fund WCRC's Local Road Matching Program which is made up of three matching programs:

1. Conventional Local Road Match
2. Drainage Local Road Match
3. Local Road Culverts and Bridges

Each year, WCRC staff meets with township officials to discuss how a township might use money available to them through a local road matching program or a township revenue source to make desired improvements. WCRC is also available to assist any township interested in creating its own asset management plan for its local roads.

See Appendix B for the 2020 PASER Condition Map for Local Roads in Washtenaw County. Click here to visit WCRC's Township Information Web Page.

Fixing and Improving County Roads

Roads age and deteriorate just like any other asset. All roadways are damaged by water, freeze/thaw cycles, sunlight and commercial vehicle traffic. To offset natural deterioration and normal wear-and-tear on the road, WCRC must complete treatment projects that either protect and/or add service life to its pavements.

WCRC uses many types of repair treatments for its roads, each selected to balance costs, benefits and road life expectancy. Financial resources influence how much work can be accomplished across the network within agency budget and what treatments and strategies can be afforded. A full discussion of WCRC's financial resources can be found in the *Financial Resources* section starting on page 34.

Types of Road Treatments

Selection of repair treatments for roads aims to balance costs, benefits and road life expectancy.

Reconstruction: Pavement reconstruction treats failing or failed pavements by completely removing the old pavement and base and constructing an entirely new road. Compared to the other treatments, reconstruction is the most expensive per mile and most disruptive to regular traffic patterns. Reconstructed pavement will subsequently require one or more of the maintenance treatments to maximize service life and performance. A reconstructed road lasts approximately 20 years and costs $1,000,000 or more per mile for a two-lane roadway.

Pulverize and resurface/crush and shape: During this treatment, the existing pavement and base are pulverized and then the road surface is reshaped to correct imperfections in the road's crown and profile. The crushed material is compacted and paved with typically two courses of asphalt. This treatment is usually done on roads with severe structural distress. A pulverize and resurface treatment lasts approximately 15 years and costs approximately $400,000 per mile for a two-lane roadway.

Full-depth concrete repair: A full-depth concrete and joint repair removes sections of damaged concrete pavement and replaces it with new concrete. It is usually performed on isolated deteriorated joint locations or entire slabs that are much further deteriorated than adjacent slabs. The purpose is to restore the riding surface, delay water infiltration, restore load transfer from one slab to the next and eliminate the need to perform costly temporary patching. This repair lasts approximately 10 – 15 years and costs vary depending on the magnitude of the repairs.

Mill and resurface: The top layer (wearing course) of the asphalt road is milled off and resurfaced. This treatment creates a new wearing surface for traffic and seals the pavement from water, debris and sunlight damage. A mill and resurfacing treatment lasts approximately 5 – 10 years and costs approximately $200,000 per mile for a two-lane roadway.

Chip seal: A chip seal is a two-part treatment that starts with liquid asphalt sprayed onto the old pavement surface followed by a single layer of small stone chips spread onto the wet liquid asphalt layer. The liquid asphalt seals the pavement from water and debris and holds the stone chips in place. Chip seal also helps to prevent further surface deterioration usually caused by oxidation. Chip seals are best applied to pavements that are not exhibiting problems with strength, and their purpose is to help preserve that strength. A chip seal treatment lasts approximately 3 – 5 years and costs approximately $37,000 per mile when paired with a fog seal.

Fog Seal: Fog sealing sprays a liquid asphalt coating onto the entire pavement surface to fill hairline cracks and prevent damage from sunlight. In 2020, WCRC began applying a fog seal on top of recently chip sealed roads. This additional treatment helps to extend the life of the chip seal.

MDOT provides guidance regarding when a specific pavement may be a candidate for a particular treatment. Correlating with each PASER score are specific types of treatments best performed either to protect the pavement or to add strength back into the pavement. These identified PASER scores "trigger" the timing of projects appropriately to direct the right pavement fix at the right time, thereby providing the best chance for a successful project. The information provided in Figure 9 below is a guide for identifying potential projects; however, this table should not be the sole criteria for pavement treatment selection. Other information such as future development, traffic volume, utility projects and budget play a role in project selection. This table should not be a substitute for engineering judgement.

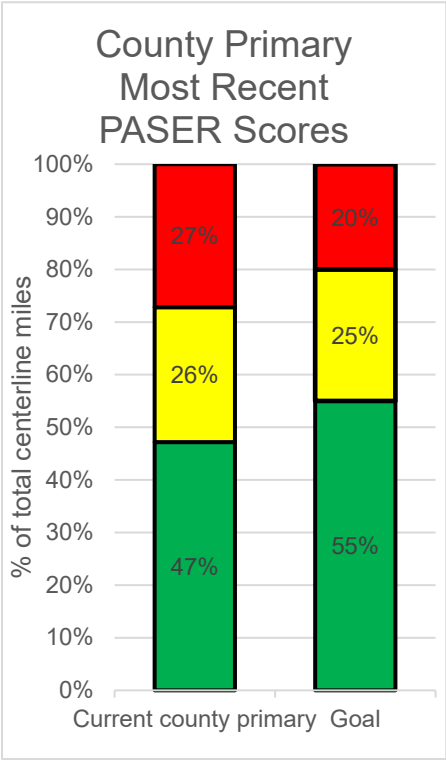
Figure 9: Expected service life extension for pavement types gained by fix type

Pavement Condition (PASER)	Possible Treatment	Estimated Cost per Mile for Two-Lane Road	Estimated Life Expectancy	PASER Reset Score (if Treatment is Completed)
Good (10-8 rating)	Crack sealing	$10,000	Can last up to 3 years	No change
	Seal coat (chip seal, fog seal)	$37,000	Can extend the life of a road by 3-5 years	8
Fair (7-5 rating)	Seal coat (chip seal, fog seal)	$37,000	Can extend the life of a road by 3-5 years	8
	Mill and resurface	$200,000	Can extend the life of a road for 5-7+ years (with proper maintenance)	9
Poor (4-1 rating)	Pulverize and resurface	$400,000	Can extend the life of a road for 10-15+ years (with preventative maintenance)	9
	Reconstruct	$1,000,000+	Can last up to 15 to 20 years (with proper maintenance)	10

Goals

It is important to set realistic network condition goals that efficiently use limited budget resources to build and maintain roads. The overall goal for WCRC's paved county primary road network is to have 80% of paved primary roads in good or fair condition by 2023. The baseline condition for this goal is illustrated in Figure 10.

Figure 10: WCRC's 2020 county primary road network condition



Planned Projects

WCRC plans construction projects several years in advance. For some of the more complicated projects, especially those involving federal funds, it can take WCRC's engineering staff years to work through design, permitting, potential rights-of-way acquisitions and other regulatory requirements for each project. Some of the regulatory agencies that are required to weigh-in on these larger projects include the Michigan Department of Environment, Great Lakes and Energy (EGLE) and Michigan State Historical Preservation Office (SHPO). Each agency's permitting process alone can take months to work through.

Due to limited resources, WCRC plans a "mix of fixes" each year. Many projects focus on preventative maintenance practices like chip seal, fog seal and mill/resurfacing. WCRC also works to pulverize/resurface and reconstruct several miles of road each year.

Per PA 499 of 2002 (later amended by PA 199 of 2007), primary road projects for the upcoming three years are required to be reported annually to the TAMC. Planned projects represent the best estimate of future activity; however, changes in design, funding and permitting may require WCRC to alter initial plans. Project planning information is used to predict the future condition of the road networks that WCRC maintains.

See Appendix C for a map showing the road improvement projects planned on paved primary roads in 2021 – 2023. See Appendix D for a list of road improvement projects planned on paved primary roads in 2021 – 2023.

If additional funding becomes available, WCRC also maintains a list of potential projects that currently are unfunded. See Appendix E for the latest unfunded paved primary road projects list.

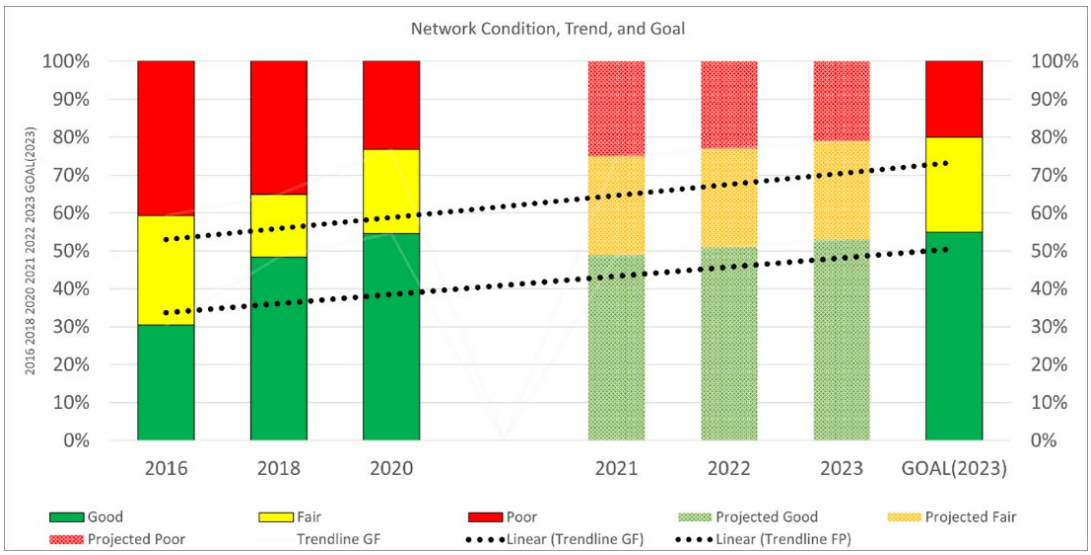
Modeled Trends and Analysis

Figure 11: Historic and planned improvement miles

Primary Road Network (<**604.8** miles)		
Treatment Type	**2018-2020 Total Miles Completed**	**2021-2023 Total Planned Miles**
Crack seal	26.5	0
Sealcoat (chip seal and fog seal)	236	300
Mill and resurface	57	42
Pulverize and resurface	22	13.7
Reconstruct	3.5	1
Total	**345**	**356.7**

Given the planned projects for the next three years, WCRC will be achieving its goal of having 80% of the paved primary network in good or fair condition by 2023. The chart below displays the past three sets of PASER data along with the predicted PASER based on planned projects for 2021 – 2023.

Figure 12: Network condition, trend and goal



Bridges

Bridges are among the most important assets in any community along with other assets like roads, culverts, traffic signs, traffic signals and utilities that support and affect the road network. The cost of building and maintaining bridges, their importance to society, and the investment made by taxpayers all place a high level of responsibility on local agencies to plan, build and maintain the road and bridge network in an efficient and effective manner. This asset management plan is intended to report on how WCRC is meeting its obligations to maintain the bridges for which it is responsible.

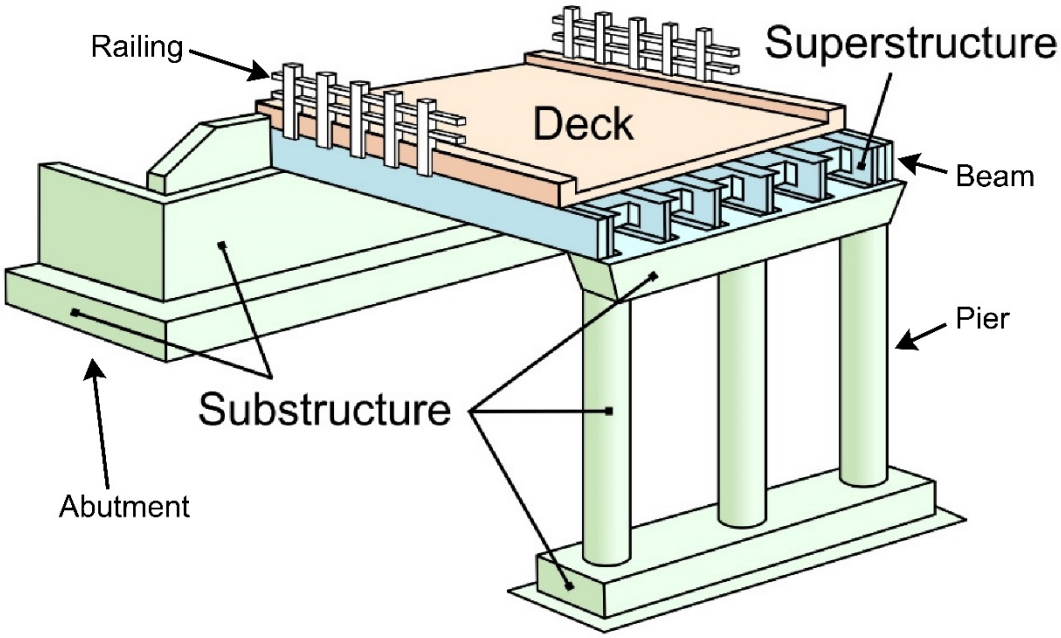
WCRC has 126 total bridges in its road and bridge network. See Appendix F for a map showing the locations of WCRC's bridges.

Bridge Types

Bridges are structures that span 20 feet or more. These bridges can extend across one or multiple spans. If culverts are placed side-by-side to form a span of 20 feet or more (for example, three 6-foot culverts with one-foot between each culvert), then this culvert system would be defined as a bridge.

Bridge types can be classified based on two features: type of superstructure or upon material.

Figure 13: Diagram of basic elements of a bridge



Beam/deck bridge: This is the most common bridge design. With this design, the bridge deck transfers vehicle loads to beams that, in turn, transfer the load to the piers or abutments.

Figure 14: An example of a bridge with concrete beams (Sharon Valley Road Bridge, over River Raisin (STR 10969), Sharon Township)

Slab bridge: A slab bridge transfers the vehicle load directly to the abutments and, if necessary, piers without beams.

Truss bridge: Truss bridges consist of a support structure that is created when structural members are connected at joints to form interconnected triangles. Structural members may consist of steel tubes or angles connected at joints with gusset plates.

Figure 15: An example of a truss bridge (E. Delhi Road Bridge, over the Huron River (STR 11029), Scio Township)

Pre-cast box or arch bridge: This type of structure utilizes prefabricated structural elements which are installed in segments over the watercourse. The pre-cast concrete box structures are manufactured in sections off-site and shipped to the job site where they are assembled. Similarly, the aluminum or steel arch structures are assembled on site utilizing manufactured sections. Once the structure is in place in the watercourse, backfill material is placed and the roadway is constructed.

Figure 16: An example of a pre-cast concrete box bridge.
(Miller Road Bridge, over Honey Creek (STR 10981), Scio Township)

Bridges are generally constructed from concrete, steel, pre-stressed concrete or timber. Some historical bridges or bridge components in Michigan may be constructed from stone or masonry.

Inventory and Condition

Bridges in Michigan are given a good, fair or poor rating based on the National Bridge Inspection Standards (NBIS) rating scale – the National Bridge Inventory (NBI), which was created by the Federal Highway Administration to evaluate a bridge's deficiencies and to ensure the safety of road users. Elements of the bridge's superstructure, deck and substructure receive a 9 if they are in excellent condition down to a 0 if they are in failed condition.

Figure 17: Summary of the NBI rating scale

NBI Rating	General Condition
7-9	Good/like new
5-6	Fair
3-4	Serious/poor
0-2	Failed/critical

NBI scores are grouped into TAMC definition categories of good (7-9), fair (5-6) and poor (0-4) categories. The current condition of WCRC's bridge network based on the NBIS is 54 structures rated good, 43 structures rated fair and 27 structures rated poor (see Figure 18).

Figure 18: WCRC's bridges by type and condition

Bridge Type	Total Number of Bridges	Total Deck Area (sq. ft)	2020 Condition				Impact to Legal Load	
			Poor	Fair	Good		Posted	Closed
Aluminum box	2	1,780	0	0	2		0	0
Concrete arch deck	1	1,866	0	0	1		0	0
Concrete box	15	26,139	0	2	13		0	0
Concrete slab	2	1,937	0	1	1		0	0
Concrete tee beam	5	5,897	2	2	1		1	0
Concrete continuous slab	2	5,806	0	2	0		0	0
Prestressed concrete box beam/girders – multiple	41	87,044	11	14	16		5	0
Prestressed concrete box beam/girders – single spread	5	16,613	0	0	5		0	0
Prestressed concrete – multistringer	8	79,639	0	1	7		0	0
Steel box	14	16,281	5	7	2		0	0
Steel multistringer	12	27,556	6	6	0		9	1
Steel truss	2	4,469	0	2	0		2	0
Timber slab	15	14,864	3	6	6		1	0
Railroad bridges[4]	2	n/a	n/a	n/a	n/a		n/a	n/a
Total	**126 bridges**	**275,027 sq. ft**						
		Total[5]	**27**	**43**	**54**		**18**	**1**
		Percentage	**22%**	**35%**	**44%**		**15%**	**1%**

[4] WCRC inspects these railroad bridges however they are owned and maintained by the railroad.
[5] Total does not include railroad bridges. See note above.

Bridges are designed to carry legal loads in terms of vehicles and traffic. Due to a decline in condition, a bridge may be “posted” with a restriction for what would be considered safe loads passing over the bridge. WCRC has 18 structures that are posted for load restriction (Figure 18). Designating a bridge as “posted” has no influence on its condition rating. A “closed” bridge is one that is closed to all traffic. Closing a bridge is contingent upon its ability to carry a set minimum live load. WCRC has one structure that is closed.

To see exact locations of these load restricted structures, visit wcroads.org for WCRC’s Truck Operator’s Map.

Fixing and Improving County Bridges

Types of Bridge Treatments

Selection of repair treatments for bridges aims to balance costs, benefits and bridge life expectancy. Each of the following treatments and strategies—reconstruction, structural improvements, capital preventative maintenance and others used by WCRC and are designed to maximize the service life of the bridge.

Replacement: Replacement work is typically performed when a bridge is in poor condition (NBI rating of 4 or less) and will improve the bridge to good condition (NBI rating of 7 or more). The Local Bridge Program, a part of MDOT’s Local Agency Program, defines bridge replacement as full replacement, which removes the entire bridge (superstructure, deck and substructure) before re-building a bridge at the same location. The decision to perform a total replacement over rehabilitation (see below) is made based on a life-cycle cost analysis. Generally, replacement is selected if rehabilitation costs more than two-thirds of the cost of replacement. Replacement is generally the most expensive of the treatment options.

Rehabilitation: Rehabilitation involves repairs that improve the existing condition and extend the service life of the structure and the riding surface. Most often, rehabilitation options are associated with bridges that have degraded beyond what can be fixed with preventative maintenance. Rehabilitation is typically performed on poor-rated elements (NBI rating of 4 or less) to improve them to fair or good condition (NBI rating of 5 or more). Rehabilitation can include superstructure replacement (removal and replacement of beams and deck) or deck replacement. While typically more expensive than preventative maintenance, rehabilitation treatments may be more cost-effective than replacing the entire structure.

Preventative Maintenance: Preventative maintenance work is typically done on bridges rated fair (NBI rating of 5 or 6) in order to slow the rate of deterioration and keep the bridge in fair or good condition. Treatments range from concrete deck repairs, joint repairs, epoxy overlays, painting and repaving of the road approaches leading to the structure.

Goals

The goal of WCRC's asset management program is the preservation and safety of its bridge network; it also aims to extend the period of time that bridges remain in good and fair condition, thereby increasing their useful service life.

WCRC's goal is to continue to have 78% of its bridges in good or fair condition in 2023.

Planned Projects

WCRC received more than $3 million in total bridge funding from the Michigan Local Bridge Program in 2021 for specific bridge projects. Below is a summary of planned bridge investments for the fiscal years 2021, 2022 and 2023.

Figure 19: Planned bridge projects

Strategy	2021	2022	2023
Replacement of Existing Bridges			
STR 11000 Dennison Road over Saline River, York Township	$1,520,000		
STR 10977 Geddes Road over Fowler Creek, Superior Township	$950,000		
Subtotal	$2,470,000	$0	$0
Rehabilitation of Existing Bridges			
STR 10996 Mast Road over Huron River, Webster Township	$184,000		
STR 10971 Bridge Road over Huron River, Ypsilanti Township	$215,000		
STR 11030 Maple/Foster Road over Huron River, Ann Arbor Township		$562,000	
STR 11029 East Delhi Road over Huron River, Scio Township		$172,000	
Subtotal	$399,000	$734,000	$0
Preventative Maintenance			
Locations TBD	$0	$500,000	$500,000
Total Planned Bridge Investment	**$2,869,000**	**$1,234,000**	**$500,000**

In addition, WCRC has applied to the Michigan Local Bridge Program for funding on the following bridges for fiscal year 2024.

Figure 20: Bridge project applications submitted for potential funding in 2024

Structure Number	Location	Scope	Estimated Cost of Project
11002	Stony Creek Road over Paint Creek, Ypsilanti Township	Replacement	$1,239,000
10972	Tyler Road over Willow Run, Ypsilanti Township	Removal	$654,000
10987	Dexter-Chelsea Road over Letts Creek, Lima Township	Superstructure Replacement	$859,000
10990	Sharon Hollow Road over Raisin River, Sharon Township	Preventative Maintenance	$226,000
11003	Whittaker Road over Stony Creek, Augusta Township	Preventative Maintenance	$286,000
10983	Plymouth Road over Fleming Creek, Superior Township	Preventative Maintenance	$50,000
11004	Whittaker Road over Paint Creek, Augusta Township	Preventative Maintenance	$38,000
11005	Whittaker Road over Paint Creek, Ypsilanti Township	Preventative Maintenance	$44,000
11038	Sharon Valley over River Raisin, Sharon Township	Replacement	$1,307,000
		Total	**$4,703,000**

If the projects outlined in Figure 20 are not funded for fiscal year 2024, they will be added to the Unfunded Bridge List, see Appendix G for the full list of unfunded bridge projects.

Bridge Goal Analysis

Given these planned projects, WCRC anticipates achieving the stated goal of maintaining the overall current condition of its bridges (78% in good/fair condition) through 2023. Staff will continue to monitor bridge conditions through the bridge inspection program.

Culverts

Culverts are structures that lie underneath roads, enabling water to flow from one side of the roadway to the other. The important distinguishing factor between a culvert and a bridge is the size. Culverts are considered any crossing with a span less than 20 feet. While similar in function to storm sewers, culverts differ from storm sewers in that culverts are open on both ends, are constructed as straight-line conduits, and lack intermediate drainage structures like manholes and catch basins. Culverts are critical to the service life of a road because of the important role they play in keeping the pavement layers well drained and free from the forces of water building up on one or both sides of the roadway.

Culvert Types

In Washtenaw County, the material type used for constructing culverts ranges from corrugated steel, concrete, plastic, aluminum and masonry/tile. The shapes of the culverts are circular, pipe arch, arch, rectangular, horizontal ellipse or box.

Inventory of Assets

WCRC continues to work to collect and organize inventory and condition data of its culvert assets. To date WCRC has inventoried a total of 2,415 culverts. In general, this information includes culvert location, size and length but due to a lack of the necessary resources, WCRC does not have data on the condition of most of these culverts.

Since 2015, WCRC performs regular annual inspections on culverts that are between 5 feet and 20 feet in diameter or span. The inspection of each of these culverts is done on a four-year cycle. Culverts that are in poor condition are inspected more frequently.

So far, WCRC has evaluated the condition of 360 culverts that are between 5 feet and 20 feet in diameter or span. Of these structures, 58 culverts are considered good, 208 culverts are considered fair, 94 culverts are considered poor and one culvert where the road is closed based on the poor condition.

In addition, WCRC has developed a Storm Water Asset Management Plan to help better manage all storm water infrastructure under WCRC’s jurisdiction. Contact WCRC for more information on this plan.

Planned Projects

WCRC's practice is to replace or repair culvert assets concurrent with projects affecting road segments carried by the particular culverts. WCRC also includes culvert assets in road projects affecting road segments carried by the particular culverts.

Culverts on primary roads found to be in poor condition are replaced as funding allows and subject to any permitting requirements. In addition, as part of the Local Road Program, WCRC has committed to covering 50% of the cost to replace local road culverts that require permits from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and/or the Washtenaw County Water Resources Commissioner's Office. These culverts are usually larger and more expensive to fix or replace. This funding source is applied on a case-by-case basis in partnership with interested townships or other financial partners.

See Appendix H for a list of unfunded primary road culvert projects.

Traffic Signals

Traffic at intersections can be managed in a number of ways from road design to signage to some type of electronic control. An electronically controlled intersection is one with any power-operated device by which traffic is warned or directed to take some specific action, examples include:

- Stop-and-go traffic signal utilizing green, yellow and red indications
- Overhead flashing beacon warning motorists of an intersection ahead
- Multiway stop-controlled intersection
- Rectangular rapid flashing beacon (RRFB) for mid-block pedestrian crossings

This asset management plan only addresses stop-and-go traffic signals as a functioning unit and does not consider other electronic traffic control devices.

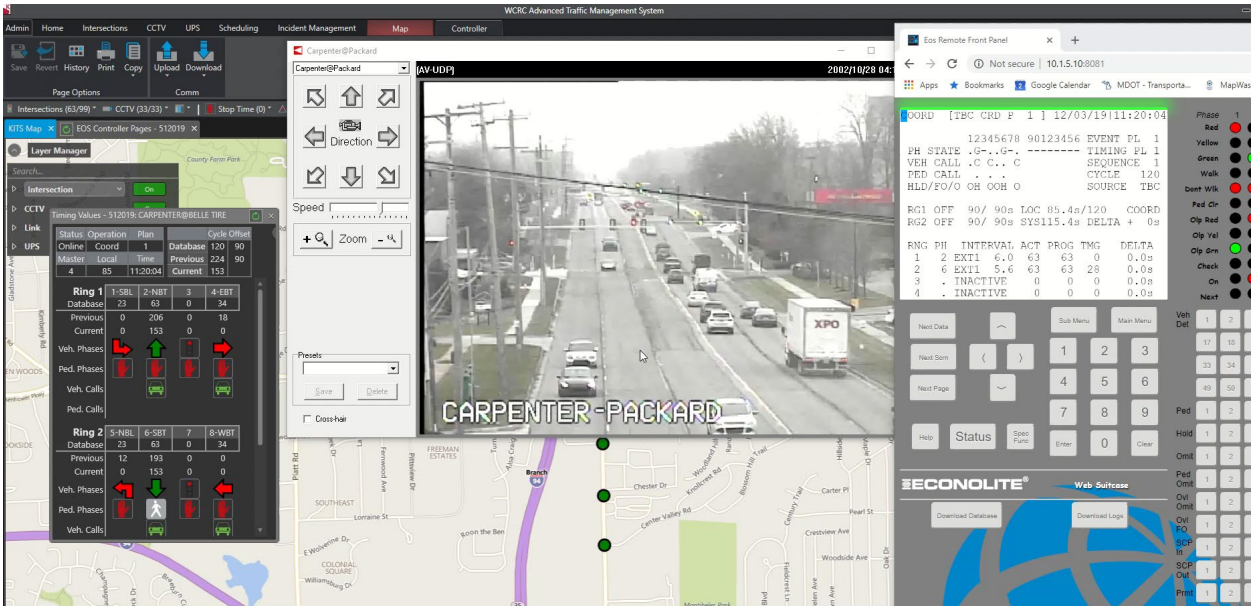
Inventory of Assets

WCRC owns 102 stop-and-go traffic signals and maintains on behalf of MDOT an additional 66 stop-and-go traffic signals.

See Appendix I for a map showing WCRC's stop-and-go traffic signal locations.

In addition to these electronic controls, WCRC also manages a complex Advanced Traffic Management System (ATMS) that includes a point-to-point wireless communication network. This system interconnects and communicates on a second-by-second basis with WCRC's signalized intersections. This allows staff to manipulate signal timings, store and archive signal timing data, and create and monitor vehicle progression across the system.

Figure 21: Screenshot of ATMS



Planned Projects

WCRC engineers review intersections to see if a traffic signal is necessary or warranted based on state-wide standards. WCRC adheres to regular maintenance and servicing policies outlined in the *Michigan Manual of Uniform Traffic Control Devices*. If some type of traffic signal is warranted, a funding source must be identified, which can be a challenge, prior to construction of any improvements.

See Appendix D for a list of planned primary projects for 2021-2023 (includes traffic signal projects).

Financial Resources

Every road agency in Michigan is fiscally constrained due to decades of underinvestment at the local, state and federal levels. WCRC strives to apply a balanced approach when it comes to prioritizing needs within these budget constraints. Each year, the WCRC budget strikes a balance between investing in road improvement projects, maintenance, equipment, facilities and workforce investments, including long-term employee commitments.

WCRC will provide an overview of its general revenue sources currently devoted to transportation infrastructure investments. This financial information is not intended to be a full financial disclosure or a formal report. Full details of WCRC's financial status can be found on its website at wcroads.org/about/transparency-budget/.

Funding Sources

WCRC receives funding from the following sources:

- **State funds** – WCRC's principal source of transportation funding is received from the Michigan Transportation Fund (MTF). This fund is supported by license/vehicle registration fees and the state's per-gallon fuel taxes. In 2015, the Michigan Legislature voted to increase the state fuel tax and license/vehicle registration fees[6], the first increase went into effect in 2017. The state fuel tax is a flat rate applied per gallon of fuel purchased. This means that as the price of fuel increases, revenue to MTF does not necessarily increase. In 2015, the state fuel tax was tied to inflation for the first time in its history, the first inflationary adjustment will go into effect in January 2022[7].
  MTF revenue is distributed to state and local governmental units based on a legislated formula per Act 51, which includes factors such as population, miles of certified roads and vehicle registration fees for vehicles registered in the agency's jurisdiction. County road commissions collectively receive approximately 39% of MTF revenue.

- **Federal funds** – WCRC also receives funding for projects from the federal fuel tax[8]. The federal fuel tax is also a flat rate applied per gallon of fuel purchased. This money is distributed to road projects through regional planning organizations and administered by WCRC through the Michigan Department of Transportation. Specifically, WCRC works through the Washtenaw Area Transportation Study (WATS) and ultimately the Southeast Michigan Council of Governments (SEMCOG) to program road projects that receive funding for federal-aid eligible roads.

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[6] See the Michigan Vehicle Code (Act 300 of 1949) for more information regarding Michigan's registration taxes on vehicles.
[7] See the Motor Fuel Tax Act (Act 403 of 2000) for more information regarding Michigan's state fuel taxing structure.
[8] See the U.S. Energy Information Administration's Frequently Asked Questions to learn more about the Federal Fuel Tax.

- **Federal and state grants for individual projects** – These are typically competitive funding applications that are targeted at a specific project to accomplish a specific purpose. These may include safety enhancement projects, economic development projects or other targeted funding. Examples of grant programs include Local Bridge Program; Congestion, Mitigation, Air Quality (CMAQ); High Risk Rural Roadways Program (HRRR); Highway Safety Improvement Program (HSIP); etc.

- **Local road program** – Under current state law, any improvements to a local road (for example resurfacing) must have at least 50% of its funding come from a source other than the road commission, often the township. Each year, WCRC partners with the county's 20 townships to invest in improvements on the local road system. WCRC administers a three-part Local Road Matching Program to help with this effort.

  In Washtenaw County, townships generate revenue to invest in roads in a number of ways, including township-wide road millages, bonding, investing general funds collected from property taxes, township-wide Special Assessment Districts, etc. Click here to read the most recent Local Road Program Packets created for each township.

- **County-wide road millage** – In 2016, Washtenaw County voters passed the first County-Wide Roads and Non-Motorized Millage. This four-year, 0.5 mill tax was renewed overwhelmingly by voters in 2020. The property tax is levied each winter and those revenues are invested in specific road and non-motorized projects the very next year. This four-year millage has a project plan for 2021-2024. Click here to read more about this millage.

- **Private contributions to construction projects for specific improvements** – This category includes funding received to mitigate the impact of commercial or residential developments as a condition of permit to access the public road system for the construction of a specific development project.

- **Interest** – Interest from invested funds.

- **Permit fees** – Generally, permit fees cover the cost of a permit application review.

- **Other** – Other revenues can be gained through salvage sales, property rentals, land and building sales, sundry refunds, equipment disposition, private sources and financing.

Risk of Failure Analysis

Transportation infrastructure is designed to be resilient. The system of interconnecting roads and bridges maintained by WCRC provides road users with multiple alternate options in the event of an unplanned disruption of one part of the system. There are, however, key links in the transportation system that may cause significant inconvenience to users if they are unexpectedly closed to traffic.

Key transportation links include:

- **National Highway System (NHS) Routes:** NHS consists of interconnected urban and rural principal arterials and highways which serve major population centers, airports, public transportation facilities, other intermodal facilities and other major travel destinations. NHS routes under WCRC's jurisdiction include Ann Arbor-Saline Road, Baker Road, Carpenter Road, Ellsworth Road, Jackson Road, Michigan Avenue, Packard Road, Plymouth Road and Wiard Road.
- **Geographic divides:** Areas where a geographic feature (river, lake, hilly terrain or limited access road) limits crossing points of the feature; bridge failures, in particular, can create loss of access to portions of Washtenaw County. Bridges on primary roads that cross the following water courses are examples of these critical routes; Huron River, Saline River, River Raisin and Mill Creek.
- **Emergency alternate routes for high-volume roads and bridges:** Roads and bridges that are routinely used as alternate routes for high-volume assets and are included in an emergency response plan. Examples include all the NHS routes and other primary roads adjacent to freeways.
- **Hospital access:** Roads and bridges that serve to access the University of Michigan medical centers, St. Joseph Mercy Hospital Ann Arbor and St. Joseph Mercy Hospital Chelsea.
- **Main access to key commercial districts and universities:** Areas with a large concentration of businesses or universities will be significantly impacted if a road is unavailable.
- **Scour critical bridges:** Bridges that are considered "scour critical" pose a risk to WCRC's road and bridge network. Scour is the depletion of sediment from around the foundation elements of a bridge commonly caused by fast-moving water. According to MDOT's *Michigan Structure Inventory and Appraisal Coding Guide*, a scour critical bridge is one that has unstable abutments and/or piers due to observed or potential (based on an evaluation study) scour. Bridges receiving a scour rating of 3 or less are considered scour critical. WCRC has 25 scour critical bridges, which are listed in Figure 22.

Figure 22: Bridges that are considered scour critical

Structure Number	Location	Structure Number	Location
10978	Jackson Road over Mill Creek, Lima Township	11038	Sharon Valley Road over Raisin River, Sharon Township
10979	Jackson Road over Mill Creek, Lima Township	11044	Sheridan Road over Iron Creek, Bridgewater Township
10981	Miller Road over Honey Creek, Scio Township	11046	Grass Road over Bauer Drain, Saline Township
10982	Plymouth Road over Fleming Creek, Superior Township	11048	Hack Road over Macon Creek, York Township
10991	McCollum Road over Saline River, Bridgewater Township	11053	Liss Road over Paint Creek, Augusta Township
10998	Zeeb Road over Huron River, Scio Township	11055	Arkona Road over Stony Creek, Augusta Township
11013	Sager Road over Mill Creek, Lima Township	11056	Fuller Road over Sugar Creek, Augusta Township
11014	Liberty Road over Mill Creek, Lima Township	11059	Judd Road over Paint Creek, Augusta Township
11015	Jerusalem Road over Mill Creek, Lima Township	11060	Judd Road over Paint Creek, Augusta Township
11020	Guenther Road over Mill Creek, Lima Township	12976	Birkdale Drive over U of M Lake Drain, Scio Township
11022	Dancer Road over Mill Creek, Lima Township	12977	Kilkenny Court over U of M Lake Drain, Scio Township
11030	Maple/Foster Road over Huron River Ann Arbor Township	13195	Dornoch Drive over U of M Lake Drain, Scio Township
11037	Dell Road over Saline River, Lodi Township		

In addition to scour critical bridges, WCRC has posted or closed bridges and culverts that are critical to accessing specific areas or individual properties within its jurisdiction. These bridges and culverts are listed in Figure 22 above and shown on WCRC's Truck Operators Map located at wcroads.org.

Coordination with Other Entities

An asset management plan provides a significant value for infrastructure owners because it serves as a platform to engage other infrastructure owners using the same shared right-of-way space.

WCRC communicates with both public and private infrastructure owners to coordinate work in the following ways:

- **Community Engagement Policy**: This policy and a staff procedure were created in 2018 to clearly outline which community engagement practices should take place based on project scope and potential impact. See Appendix J for the Community Engagement Policy and Procedure.
- **Township Meetings:** WCRC staff meet throughout the year with township officials to discuss potential projects, current construction and resident concerns. In addition, WCRC staff coordinate with multiple townships and public agencies that maintain drinking water, sanitary and storm sewer assets.
- **Utility Coordination Meetings**: WCRC staff also work closely with franchise utilities within the road rights-of-way. Staff hold utility coordination meetings throughout the year with companies that include telecommunications, gas, electric and pipeline companies to discuss planned road and bridge projects.

Proof of Acceptance

PUBLIC ACT 325

CERTIFICATION OF TRANSPORTATION ASSET MANAGEMENT PLAN

Certification Year: 2021

Local Road-owning Agency Name: Washtenaw County Road Commission

Beginning October 2021 and on a three-year cycle thereafter, certification must be made for compliance to Public Act 325. A local road-owning agency with 100 certified miles or more must certify that it has developed an asset management plan for the road, bridge, culvert, and traffic signal assets. Signing this form certifies that the hitherto referred agency meets with minimum requirements as outlined by Public Act 325 and agency-defined goals and objectives.

This form must be signed by the chairperson of the local road-owning agency or the county executive and chief financial officer of the local road-owning agency.

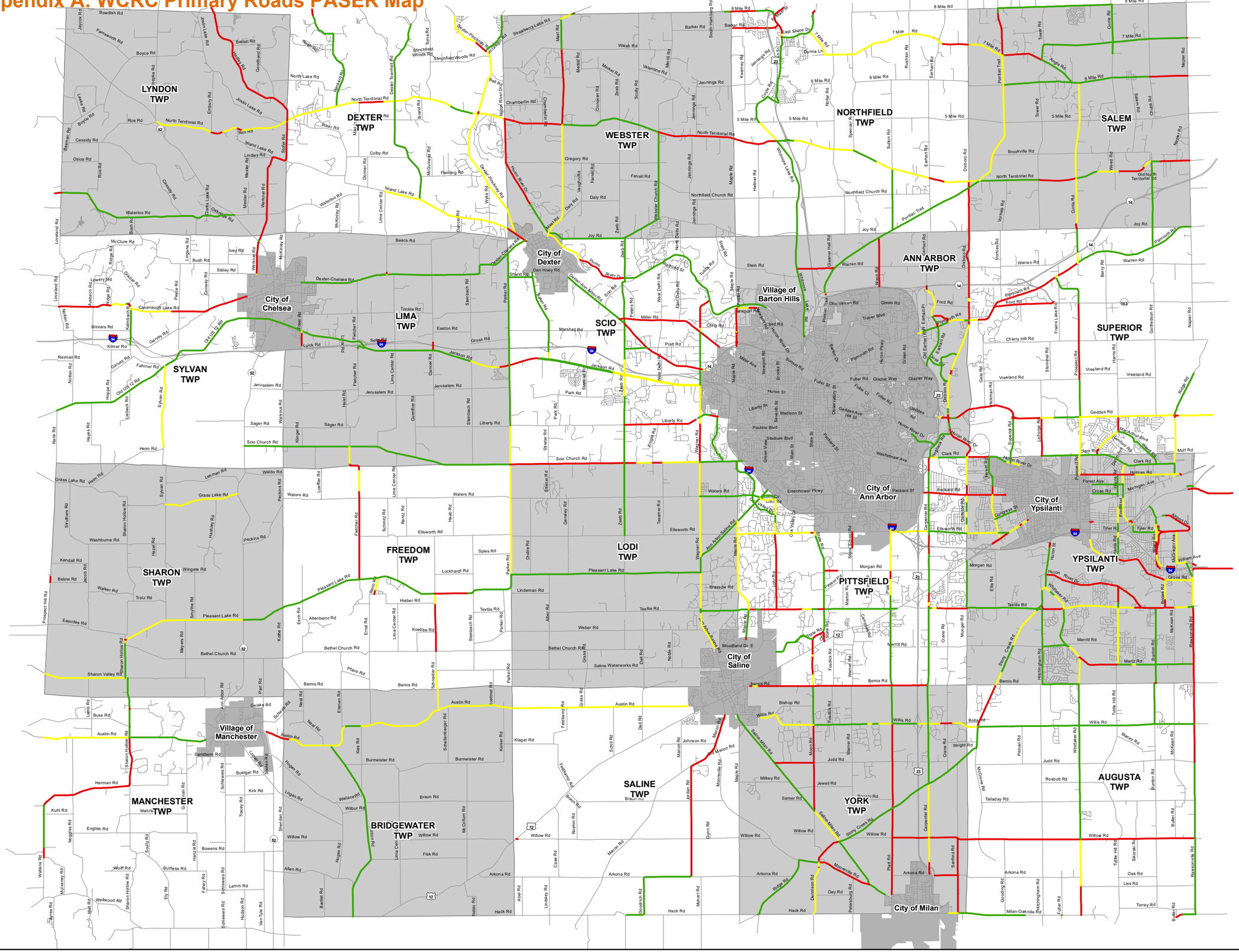
Signature		Signature	
Printed Name:	Barbara Ryan Fuller	Printed Name:	Sheryl Soderholm Siddall, P.E.
Title:	Board Chair	Title:	Managing Director
Date:		Date:	

Due every three years based on agency submission schedule

Submittal Date: _____

See Appendix K for the board resolution.

Appendix A: WCRC Primary Roads PASER Map



WASHTENAW COUNTY ROAD COMMISSION

Current Pavement Surface Evaluations and Ratings (PASER) Primary Roads

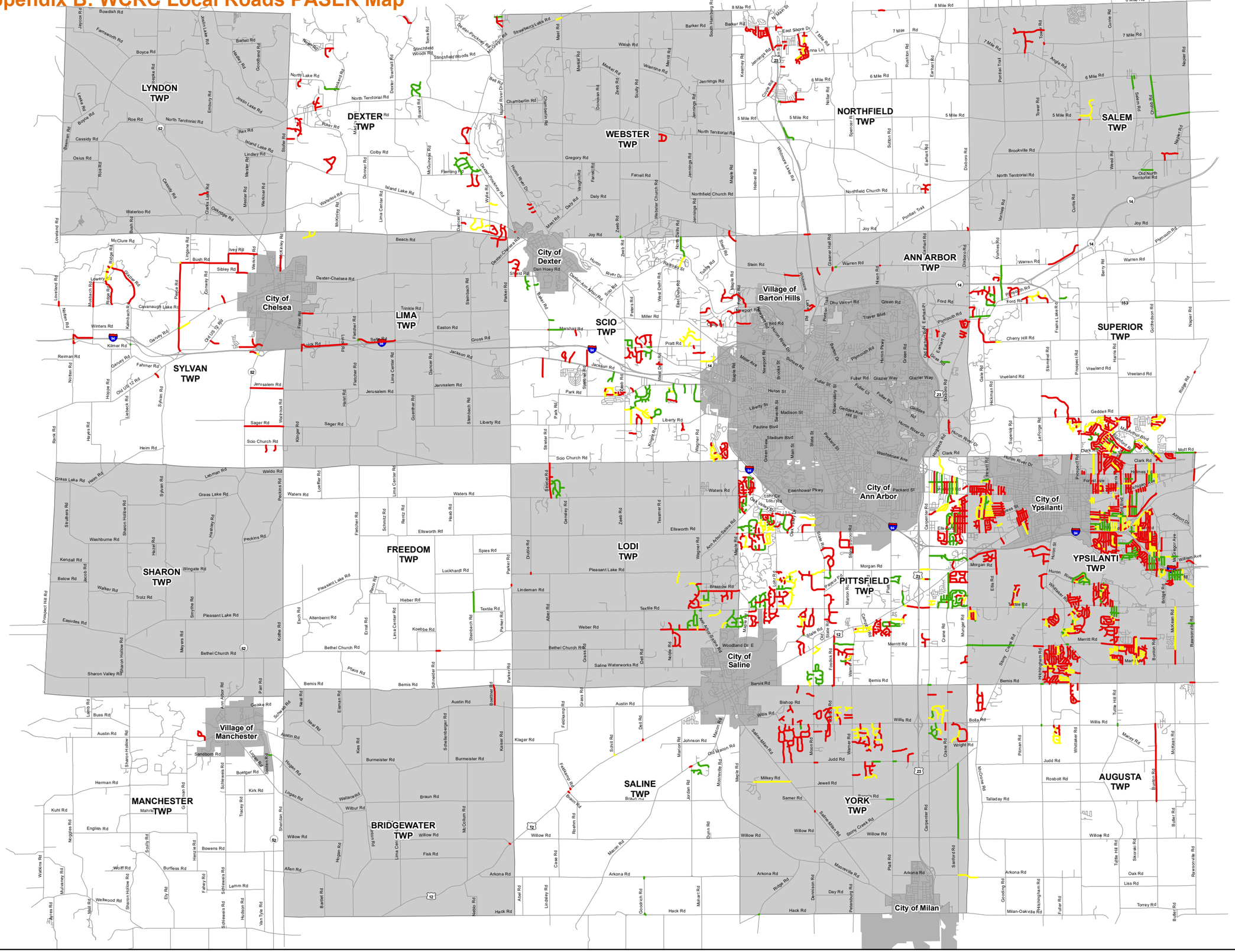
- Good - Routine Maintenance (8-10)
- Fair - Capital Preventative Maintenance (5-7)
- Poor - Structural Improvement (1-4)

0 1 2 Miles

N

Date: November, 2020

Appendix B: WCRC Local Roads PASER Map



WASHTENAW COUNTY ROAD COMMISSION

Current Pavement Surface Evaluations and Ratings (PASER) Local Roads

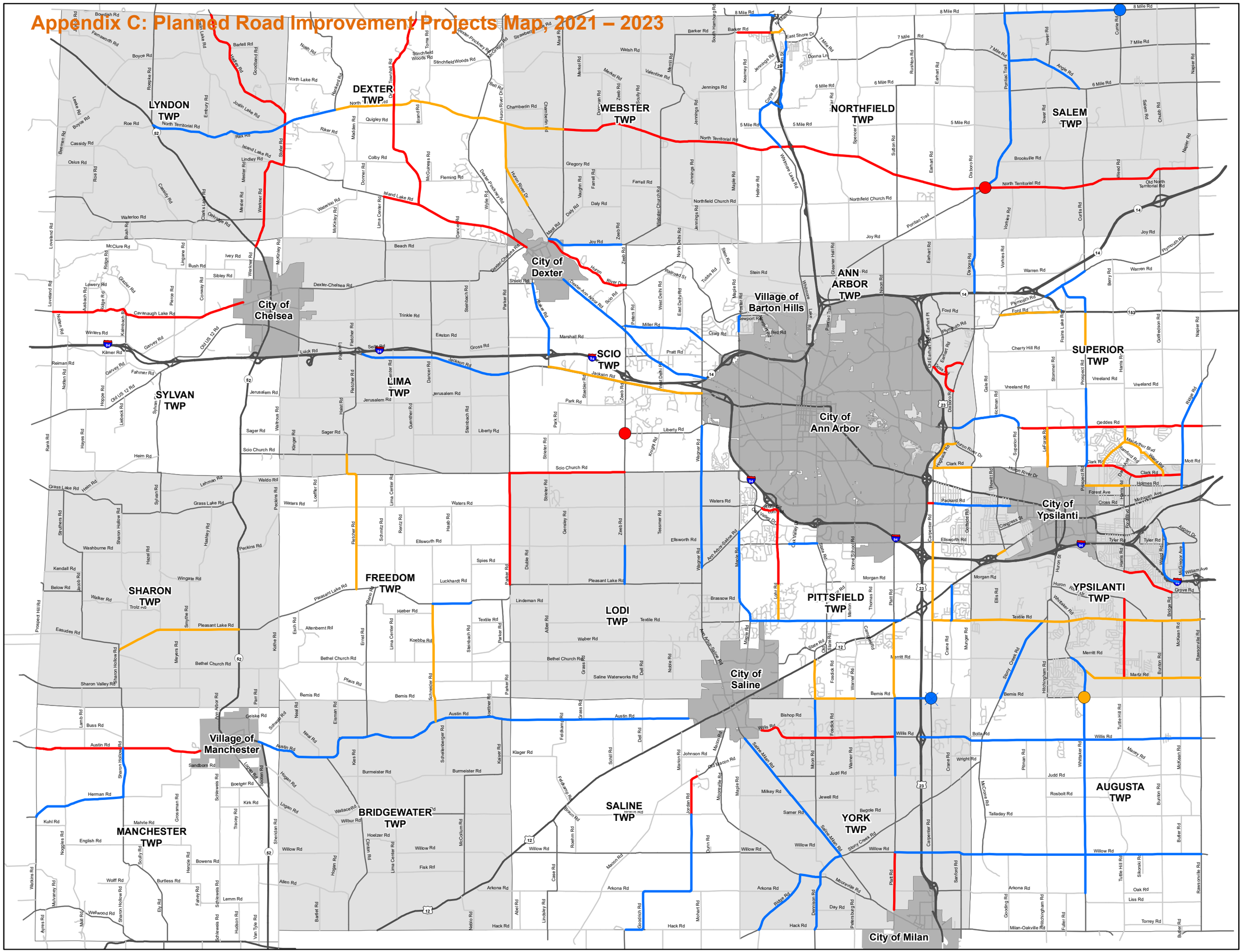
- Good - Routine Maintenance (8-10)
- Fair - Capital Preventative Maintenance (5-7)
- Poor - Structural Improvement (1-4)

0 1 2 Miles

N

Date: November, 2020

Appendix C: Planned Road Improvement Projects Map, 2021 – 2023



Appendix D: List of Planned Road Projects on Primary Roads, 2021 – 2023

2021 Primary Road Projects *Project Location*	*Township*	*Type of Project*	*Status*	Federal/State Funded Construction (000's)	Others Funded Construction (000's)	WCRC Funded Construction (000's)	Total Cost (000's)
Bemis Rd between Platt Rd and Carpenter Rd	Pittsfield, York	Resurfacing	Const.	$ 589		$ 147	.
Ford Rd between Plymouth Rd and M-153	Superior	Resurfacing	Const.	$ 760		$ 190	$ 950
Jackson Rd between Steinbach Rd and Parker Rd	Lima	Resurfacing	Const.	$ 304		$ 76	$ 380
Miller Rd between the Honey Creek and Wagner Rd	Scio	Resurfacing	Const.			$ 200	$ 200
Packard Rd between Carpenter Rd and Golfside Rd	Pittsfield	Resurfacing	Const.	$ 640		$ 160	$ 800
Plymouth Rd between M-153 and Curtis Rd	Superior	Resurfacing	Const.	$ 360		$ 90	$ 450
Whittaker Rd between Arkona Rd and Willow Rd	Augusta	Resurfacing	Const.	$ 200		$ 50	$ 250
Wiard Rd between I-94 and Airport Dr	Ypsilanti	Resurfacing	Const.	$ 769		$ 192	$ 961
Zeeb Rd between Pleasant Lake Rd and Ellsworth Rd	Lodi	Pave gravel road	Const.		$ 400	$ 1,100	$ 1,500
Judd Rd & Miller Rd	Scio, York	Overlay Program	Const.			$ 420	$ 420
Willow Rd, Platt Rd, Saline-Milan Rd, Stony Creek Rd, Mooreville Rd, Dennison Rd, Jordan Rd, Hack Rd, Herman Rd, Jackson Ave, Baker Rd, Wagner Rd, Wagner Rd, Joy Rd, Dixboro Rd, Dixboro Rd, Prospect Rd, Whittaker Rd, McGregor Rd, Angle Rd, 7 Mile Rd, 8 Mile Rd, Whitmore Lake Rd, 6 Mile Rd, Main St, Eight Mile Rd	Augusta, Ann Arbor, Lima, Lodi, Manchester, Northfield, Pittsfield, Salem, Saline, Scio, Superior, Webster, York, Ypsilanti	Sealcoat and Crack Sealing Program	Const.			$ 1,500	$ 1,500
8 Mile Rd, Arkona Rd, Austin Rd, Crane Rd, Dexter-Ann Arbor Rd, Goodrich Rd, Moon Rd, N. Territorial Rd, Pontiac Tr, Prospect Rd, Ridge Rd, Saline-Milan Rd, Stony Creek Rd, Textile Rd, Whittaker Rd, Willis Rd	Augusta, Bridgewater, Dexter, Lyndon, Manchester, Pittsfield, Ypsilanti, Salem Saline, Scio, Superior,York	County Millage Sealcoat Program	Const.		$ 1,295	$ 605	$ 1,900
Ellsworth Rd, Geddes Rd, Maple Rd, Miller Rd, Packard Rd, Pleasant Lake Rd, Sharon Hollow Rd	Freedom, Lodi, Pittsfield, Scio, Ypsilanti	County Millage Overlay Program	Const.		$ 2,707	$ 295	$ 3,002
			Primary Road Pavement Total	**$ 3,622**	**$ 4,402**	**$ 5,025**	**$ 12,313**
2021 Primary Road Gravel Projects							
Parker Rd, Grass Lake Rd, Mooreville Rd	Bridgewater, Freedom, Lodi, Saline, Sharon, York	Limestone/Gravel Program	Const.			$ 1,301	$ 1,301
2021 Primary Road Bridge & Culvert Projects							
Bridge Rd Bridge, over the Huron River	Ypsilanti	Bridge rehabilitation	Const.	$ 300		$ 16	$ 316
Dennison Rd Bridge, over Saline River	York	Bridge replacement	Const.	$ 1,520		$ 80	$ 1,600
Geddes Rd Bridge, over Fowler Creek	Superior	Bridge replacement	Const.	$ 950		$ 50	$ 1,000
Mast Rd Bridge, over Huron River	Webster	Bridge rehabilitation	Const.	$ 285		$ 15	$ 300
McCrone Rd over the Conde and Paine Drain	Augusta	Culvert replacement	Const.			$ 125	$ 125
			Primary Road Bridge & Culvert Projects Total	**$ 3,055**	**$ -**	**$ 286**	**$ 3,341**
2021 Primary Road Traffic & Safety Projects							
Bemis Rd at Carpenter Rd	Pittsfield, York	Intersection improvement - traffic signal	Const.		$ 300	$ 230	$ 530
Dixboro Rd at Plymouth Rd	Ann Arbor	Intersection improvement - turn lane	Const.	$ 240		$ 201	$ 441
Jackson Rd between Fletcher Rd and Wagner Rd	Scio	Traffic signal interconnect	Const.	$ 1,274			$ 1,274
Lohr Rd at Textile Rd	Pittsfield	Intersection improvement - traffic signal	Const.		$ 180	$ 185	$ 365
Maple Rd at Textile Rd	Pittsfield	Intersection improvement - traffic signal	Const.		$ 190	$ 120	$ 310
Oak Valley Dr at Ann Arbor-Saline Rd	Pittsfield	Intersection improvement - traffic signal & turn lanes	Const. (Carryover)		$ 800		$ 800
Wagner Rd (north) between Liberty Rd and Huron River Dr	Scio	Safety	Const.	$ 384		$ 43	$ 427
Wagner Rd (south) between Liberty Rd and Ann Arbor-Saline Rd	Lodi	Safety	Const.	$ 598		$ 192	$ 790
County-wide Pavement Marking Program	County-wide	Pavement Marking Program	Const.			$ 275	$ 275
Various Locations	County-wide	Guardrail Program	Const.			$ 140	$ 140
			Primary Road Traffic & Safety Projects Total	**$ 2,496**	**$ 1,470**	**$ 1,386**	**$ 5,352**
2021 Non-Motorized Projects							
Dixboro Rd between Matthaei Botanical Gardens and Plymouth Rd	Ann Arbor	Non-motorized - Phase 2	Const.	$ 727	$ 277		$ 1,004
Hewitt Rd, at Harding Ave	Ypsilanti	Safety - pedestrian improvement	Const. (Carryover)	$ 291	$ 29		$ 320
Prospect Rd between Clark Rd and Geddes Rd	Superior	Non-motorized	Const.	$ 429	$ 186		$ 615
Various Signalized Intersections	County-wide	Non-motorized improvements	Const.			$ 450	$ 450
			2021 Non-motorized Projects Total	**$ 1,447**	**$ 492**	**$ 450**	**$ 2,389**

2022 Primary Road Projects

Project Location	*Township*	*Type of Project*	*Status*	Federal/State Funded Construction (000's)	Others Funded Construction (000's)	WCRC Funded Construction (000's)	Total Cost (000's)
Arrowhead Rd, Woodbridge Dr, Goss Rd in Ann Arbor Tech Park	Ann Arbor	Sealcoat	Const.		$ 37		$ 37
Austin Rd between County Line and Manchaeter Village Limits	Manchester	Sealcoat	Const.		$ 98		$ 98
Barker Rd between End of Pavt and US-23	Northfield	Resurfacing	Const.	$ 419		$ 69	$ 488
Cavanaugh Lake Rd between Pierce Rd and Chelsea City Limits	Sylvan	Pulverize & Pave	Const.		$ 651		$ 651
Cavanaugh Lake Rd between County Line and Pierce Rd	Sylvan	Sealcoat	Const.		$ 76		$ 76
Clark Rd between Prospect Rd and Ridge Rd	Ypsilanti	Sealcoat	Const.		$ 60		$ 60
Dexter-Townhall Rd between Island Lake Rd and County Line	Dexter	Sealcoat	Const.		$ 123		$ 123
Geddes Rd between Superior Rd and County Line	Superior	Sealcoat	Const.		$ 109		$ 109
Grove Rd between Harris Rd and Bridge Rd	Ypsilanti	Resurfacing	Const.	$ 855		$ 165	$ 1,020
Hadley Rd between N. Territorial Rd and County Line	Lyndon	Sealcoat	Const.		$ 89		$ 89
Huron River Dr between Mast Rd and Zeeb Rd	Scio	Mill & Overlay	Const.		$ 446		$ 446
Island Lake Rd between Lima Center Rd and Dexter City Limits	Dexter and Webster	Sealcoat	Const.		$ 84		$ 84
Jordan Rd between Braun Rd and James Dr	Saline	Sealcoat	Const.		$ 23		$ 23
LeForge Rd between Clark Rd and Geddes Rd	Superior	Resurfacing	Const.	$ 220		$ 55	$ 275
Liberty Rd at Zeeb Rd	Scio	Intersection improvement - roundabout	Const.		$ 150	$ 625	$ 775
Lohr Rd between Regents Park Ct and Ann Arbor-Saline Rd	Pittsfield	Mill & Overlay	Const.		$ 414		$ 414
N. Territorial Rd between Mast Rd and Napier Rd	Webster, Northfield & Salem	Sealcoat	Const.		$ 385		$ 385
Packard Rd between US-23 and Carpenter Rd	Pittsfield	Resurfacing	Const.	$ 372		$ 93	$ 465
Parker Rd between Pleasant Lake Rd and Scio Church Rd	Freedom & Lodi	Sealcoat	Const.		$ 68		$ 68
Platt Rd between Milan City Limits and Willow Road	York	Pulverize & Pave	Const.		$ 525		$ 525
Pontiac Trail at N. Territorial Rd	Salem	Intersection	Const.	$ 943		$ 623	$ 1,566
Scio Church Rd between Strieter Rd and Zeeb Rd	Scio & Lodi	Mill & Overlay	Const.		$ 355		$ 355
Scio Church Rd between Parker Rd and Strieter Rd	Scio & Lodi	Pulverize & Pave	Const.		$ 364		$ 364
Stofer Rd between Werkner Rd and N. Territorial Rd	Lyndon & Dexter	Sealcoat	Const.		$ 25		$ 25
Tuttle Hill Rd between Martz Rd and Huron River Drive	Ypsilanti	Resurfacing	Const.	$ 500		$ 125	$ 625
Werkner Rd between M-52 and Stofer Rd	Sylvan & Lyndon	Sealcoat	Const.		$ 63		$ 63
Willis Rd between Saline City Limits and Platt Rd	York	Sealcoat	Const.		$ 82		$ 82
			Primary Road Pavement Total	**$ 3,309**	**$ 4,091**	**$ 1,755**	**$ 9,155**

2022 Primary Road Gravel Projects

TBD	TBD	Limestone/Gravel Program	Const.			$ 1,000	$ 1,000

2022 Primary Road Bridge & Culvert Projects

TBD	TBD	Bridge rehabilitation	Const.			$ 500	$ 500
TBD	County-wide	Culvert Replacement	Const.			$ 500	$ 500
			Primary Road Bridge & Culvert Projects Total	**$ -**	**$ -**	**$ 1,000**	**$ 1,000**

2022 Primary Road Traffic & Safety Projects

CMAQ Plymouth Rd Signals Intercon btw Old Earhart Rd and M-153	Ann Arbor & Superior	Congestion & Safety	Const.	$ 535			$ 535
CMAQ State Rd Traffic Signals Intercon btw US-12 and Morgan Rd	Pittsfield	Congestion & Safety	Const.	$ 501			$ 501
Dexter-Pinckney Rd between Island Lake Rd and County Line	Dexter	Safety	Const.	$ 598		$ 66	$ 664
Dexter Townhall Rd between Island Lake Rd and N. Territorial Rd	Dexter	Safety	Const.	$ 281		$ 32	$ 313
Ellsworth Rd at Oak Valley Dr	Pittsfield	Traffic Signal	Const.		$ 200		$ 200
Pleasant Lake Rd between Schneider Rd and Parker Rd	Freedom	Safety	Const.	$ 590		$ 66	$ 655
County-wide Pavement Marking Program	County-wide	Pavement Marking Program	Const.			$ 275	$ 275
TBD	County-wide	Guardrail Program	Const.			$ 150	$ 150
			Primary Road Traffic & Safety Projects Total	**$ 1,468**	**$ 200**	**$ 589**	**$ 2,257**

2022 Non-Motorized Projects

Huron River Dr between Zeeb Rd and Delhi Metropark	Scio	Non-motorized - Segment D3	Const.	$ 2,000	$ 2,000		$ 4,000
Platt Rd between Wall Park and Michigan Ave	Pittsfield, York	Non-motorized - Phase 2	Const.	$ 1,100	$ 400		$ 1,500
TBD	County-wide	Non-motorized improvements	Const.			$ 350	$ 350
			Non-motorized Projects Total	**$ 3,100**	**$ 2,400**	**$ 350**	**$ 5,850**

2023 Primary Road Projects

Project Location	*Township*	*Type of Project*	*Status*	Federal/State Funded Construction (000's)	Others Funded Construction (000's)	WCRC Funded Construction (000's)	Total Cost (000's)
Barker Rd between US-23 and Main St	Northfield	Pulverize & Pave	Const.		$ 175		$ 175
Bemis Rd between Moon Rd and Warner Rd	Pittsfield	Mill & Overlay	Const.		$ 180		$ 180
Carpenter Rd between Textile Rd and Ellsworth Rd	Pittsfield	Resurfacing	Const.	$ 375		$ 125	$ 500
Clark Rd between Hogback Rd and Huron River Dr/Golfside Rd	Ann Arbor & Pittsfield	Sealcoat	Const.		$ 23		$ 23
Fletcher Rd between Pleasant Lake Rd and Scio Church Rd	Freedom & Lima	Sealcoat	Const.		$ 85		$ 85
Ford Rd between Plymouth Rd and M-153	Superior	Sealcoat	Const.		$ 36		$ 36
Harris Rd between Macarthur Rd and Geddes Rd	Superior	Sealcoat	Const.		$ 9		$ 9
Hogback Rd between Clark Rd and Huron River Dr	Ann Arbor	Sealcoat	Const.		$ 8		$ 8
Holmes Rd between Prospect Rd and Ford Blvd	Ypsilanti	Mill & Overlay	Const.		$ 238		$ 238
Huron River Drive between Hogback Rd and Clark Road	Ann Arbor	Resurfacing	Const.	$ 280		$ 70	$ 350
Huron River Dr between Hogback Rd and Dixboror Rd	Ann Arbor	Sealcoat	Const.		$ 14		$ 14
Huron River Drive between Gregory Rd and N. Territorial Rd	Dexter & Webster	Pulverize & Pave	Const.		$ 399		$ 399
Huron River Drive between North of Brass Creek Dr and Gregory Rd	Webster	Pulverize & Pave	Const.		$ 466		$ 466
Intersection Improvement	TBD	Intersection	Const.			$ 750	$ 750
Jackson Rd between Barker Rd and Wagner Rd	Scio	Conc Pavt & Joint Repairs	Const.		$ 400		$ 400
Leforge Rd between Clark Rd and Geddes Rd	Superior	Sealcoat	Const.		$ 23		$ 23
Lohr Rd between Textile Rd and Regents Park Ct	Pittsfield	Pulverize & Pave	Const.		$ 350		$ 350
Macarthur Rd between Clark Rd and Wiard Rd	Superior	Sealcoat	Const.		$ 32		$ 32
Martz Rd between Whittaker Rd and Rawsonville Rd	Ypsilanti	Sealcoat	Const.		$ 71		$ 71
Michigan Ave between I-94 and Hewitt Rd	Ypsilanti	Resurfacing	Const.	$ 1,028		$ 145	$ 1,173
Moon Rd between Bemis Rd and US-12	Pittsfield	Sealcoat	Const.		$ 30		$ 30
N. Territorial Rd between Hankerd Rd and Mast Rd	Dexter & Webster	Sealcoat	Const.		$ 141		$ 141
Platt Rd between Bemis Rd to US-12	Pittsfield	Sealcoat	Const.		$ 60		$ 60
Pleasant Lake Rd between Sharon Hollow Rd to M-52	Sharon	Sealcoat	Const.		$ 74		$ 74
Preventative Maintenance Urban	Countywide	Resurfacing	Const.	$ 620		$ 155	$ 775
Preventative Maintenance Rural	Countywide	Resurfacing	Const.	$ 960		$ 240	$ 1,200
Prospect Rd between Cherry Hill Rd and M-153	Superior	Mill & Overlay	Const.		$ 182		$ 182
Schneider Rd between Austin Rd and Pleasant Lake Rd	Bridgewater & Freedom	Sealcoat	Const.		$ 71		$ 71
Textile Rd between Carpenter Rd and Rawsonville Rd	Pittsfield & Ypsilanti	Mill & Overlay	Const.		$ 1,262		$ 1,262
Whittaker Rd at Bemis Rd	Ypsilanti & Augusta	Intersection	Const.		$ 200	$ 500	$ 700
Wiard Rd between Clark Rd and Macarthur Rd	Superior	Sealcoat	Const.		$ 20		$ 20
			Primary Road Pavement Total	**$ 3,263**	**$ 4,195**	**$ 1,985**	**$ 9,798**

2023 Primary Road Gravel Projects

TBD	TBD	Limestone/Gravel Program	Const.			$ 1,000	$ 1,000

2023 Primary Road Bridge & Culvert Projects

TBD	TBD	Bridge rehabilitation	Const.			$ 500	$ 500
TBD	County-wide	Culvert Replacement	Const.			$ 500	$ 500
			Primary Road Bridge & Culvert Projects Total	**$ -**	**$ -**	**$ 1,000**	**$ 1,000**

2023 Primary Road Traffic & Safety Projects

County-wide Traffic Signal Interconnect System Enhancement	County-wide	Congestion & Safety	Const.	$ 1,350			$ 1,350
County-wide Pavement Marking Program	County-wide	Pavement Marking Program	Const.			$ 275	$ 275
TBD	County-wide	Guardrail Program	Const.			$ 150	$ 150
			Primary Road Traffic & Safety Projects Total	**$ 1,350**	**$ -**	**$ 425**	**$ 1,775**

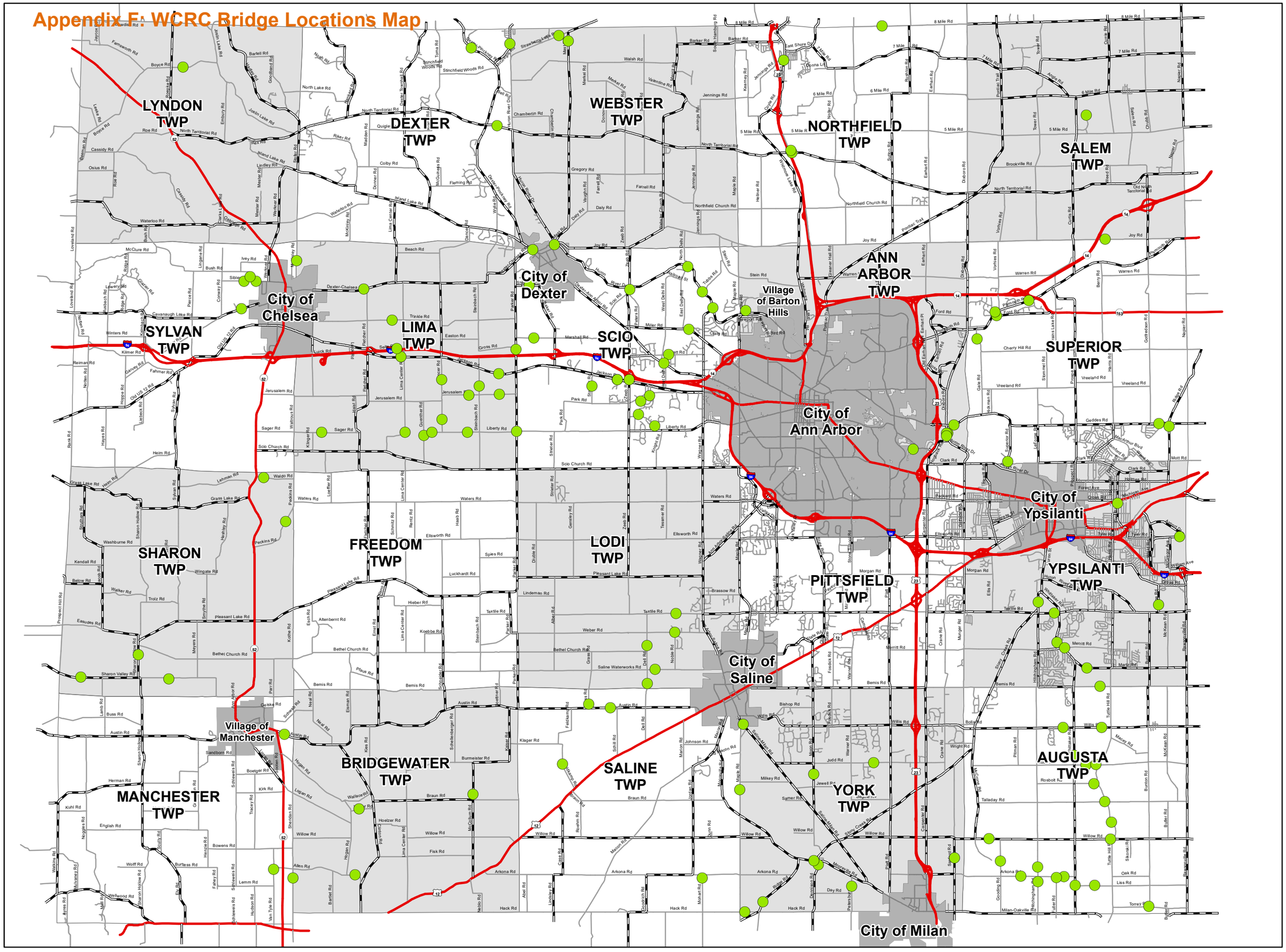
2023 Non-Motorized Projects

Huron River Dr between Delhi Metropark and Wagner Rd	Scio	Non-motorized - Segment D4	Const.	$ 990	$ 3,010		$ 4,000
State Rd Pathway between Morgan Rd and Ellsworth Rd	Pittsfield	Non-motorized improvements	Const.	$ 1,018	$ 436		$ 1,454
TBD	County-wide	Non-motorized improvements	Const.			$ 350	$ 350
			Primary Road Non-motorized Project Total	**$ 2,008**	**$ 3,446**	**$ 350**	**$ 5,804**

Appendix E: List of Unfunded Primary Road Paving Rehabilitation Projects

Road	Limits	Township	Designated (All Season) Route	Urban	Average Daily Traffic (ADT)	Length (Miles)	PASER Rating	Work Type	Estimated Treatment Cost per Mile	Estimated Cost
6 Mile Rd	Chubb Rd to Napier Rd	Salem	No	Yes	3,800	1	2	Pulverize & Pave	$ 400,000	$ 400,000
8 Mile Rd	Township line to Lemen Rd	Northfield	No	Yes	5,300	0.65	2	Pulverize & Pave	$ 400,000	$ 260,000
Airport Dr	Wiard Rd to Tyler Rd	Ypsilanti	Yes	Yes	3,500	1.07	2	Mill & Overlay	Multi-lane	$ 500,000
Bemis Rd	Warren Rd to Platt Rd	Pittsfied & York	No	Yes	6,200	1.04	4	Mill & Overlay	$ 200,000	$ 208,000
Bemis Rd	City of Saline to Moon Rd	Pittsfied & York	No	Yes	6,600	1.58	3	Pulverize & Pave	$ 400,000	$ 632,000
Dixboro Rd	M-14 to Pontiac Trail	Northfield, Salem, Ann Arbor & Superior	No	No	5,200	2.5	4	Pulverize & Pave	$ 400,000	$ 1,000,000
Freer Rd	Luick Rd to Old US-12	Lima	No	No	N/A	0.37	2	Pulverize & Pave	$ 400,000	$ 148,000
Herman Rd	Watkins to Sharon Hollow Rd	Manchester	No	No	1,200	2.4	3	Pulverize & Pave	$ 400,000	$ 960,000
Hewitt Rd	Packard Rd to Washtenaw Ave	Ypsilanti	Yes	Yes	11,600	0.24	(3-4)	Mill & Overlay	Multi-lane	$ 250,000
Huron River Dr	Huron Rd to Textile Rd	Ypsilanti	No	Yes	10,600	2.87	4	Mill & Overlay	$ 200,000	$ 574,000
Jackson Rd	Parker Rd to Baker Rd	Scio	Yes	Yes	9,300	1.03	4	Mill & Overlay	$ 200,000	$ 206,000
Jordan Rd	Braun to Arkona Rd	Saline	No	No	1,700	2	3	Pulverize & Pave	$ 400,000	$ 800,000
Macon Rd	City of Saline to James Dr	Saline	No	Yes	2,600	1.7	2	Pulverize & Pave	$ 400,000	$ 680,000
Main St	East Shore Dr to county line	Northfield	No	Yes	6,600	0.7	3	Pulverize & Pave	$ 400,000	$ 280,000
Miller Rd	Wagner Rd to M-14	Scio	No	Yes	8,300	0.64	(3-4)	Mill & Overlay	$ 200,000	$ 128,000
Moon Rd	Willis Rd to Saline Milan Rd	York	No	Yes	2,900	2.3	2	Pulverize & Pave	$ 400,000	$ 920,000
Mooreville Rd	Ridge Rd to Saline Milan Rd	York	No	No	6,800	2	2	Pulverize & Pave	$ 400,000	$ 800,000
Nixon Rd	M-14 to Pontiac Trail	Ann Arbor	No	No	3,300	1.3	3	Pulverize & Pave	$ 400,000	$ 520,000
Platt Rd	Willis Rd to Willow Rd	York	No	Yes	6,100	3	(2-4)	Pulverize & Pave	$ 400,000	$ 1,200,000
Plymouth Rd	Dixboro Rd to M153	Superior	Yes	Yes	10,400	2.15	4	Mill & Overlay	$ 200,000	$ 430,000
Prospect Rd	Vreeland Rd to Cherry Hill Rd	Superior	No	Yes	5,000	1	4	Mill & Overlay	$ 200,000	$ 200,000
Rawsonville Rd	Judd Rd to Textile Rd	Augusta & Ypsilanti	Yes	Yes	11,800	4	2	Pulverize & Pave	$ 400,000	$ 1,600,000
Sanford Rd	Willow Rd to Milan Oakville Rd	York	No	Yes	300	2	1	Pulverize & Pave	$ 400,000	$ 800,000
Stony Creek Rd	Bemis Rd to Bolla Rd	Augusta	No	Yes	1,900	1.2	3	Pulverize & Pave	$ 400,000	$ 480,000
Stony Creek Rd	Saline Milan Rd to Mooreville Rd	York	No	No	7,300	0.8	(2-4)	Pulverize & Pave	$ 400,000	$ 320,000
Tyler Rd	Wiard Rd to Airport Dr	Ypsilanti	Yes	Yes	800	0.87	2	Mill & Overlay	Multi-lane	$ 500,000
Wagner Rd	Ann Arbor-Saline Rd to Waters Rd	Lodi	No	No	6,800	1.64	3	Pulverize & Pave	$ 400,000	$ 656,000
Werkner Rd	Sibley Rd to M-52	Sylvan	No	Yes	600	0.8	2	Pulverize & Pave	$ 400,000	$ 320,000
Whitehall Dr	Earhart Rd to Plymouth Rd	Ann Arbor	No	Yes	2,600	0.51	4	Mill & Overlay	$ 200,000	$ 102,000
Willow Rd	Platt Rd to Bunton Rd	Augusta & York	No	No	2,700	7	3	Pulverize & Pave	$ 400,000	$ 2,800,000
					Total mileage	**50.36**			**Total costs**	**$ 18,674,000**

Appendix F: WCRC Bridge Locations Map



WASHTENAW COUNTY ROAD COMMISSION

2021 Bridge Inventory

Bridge Locations

0 1 2 Miles

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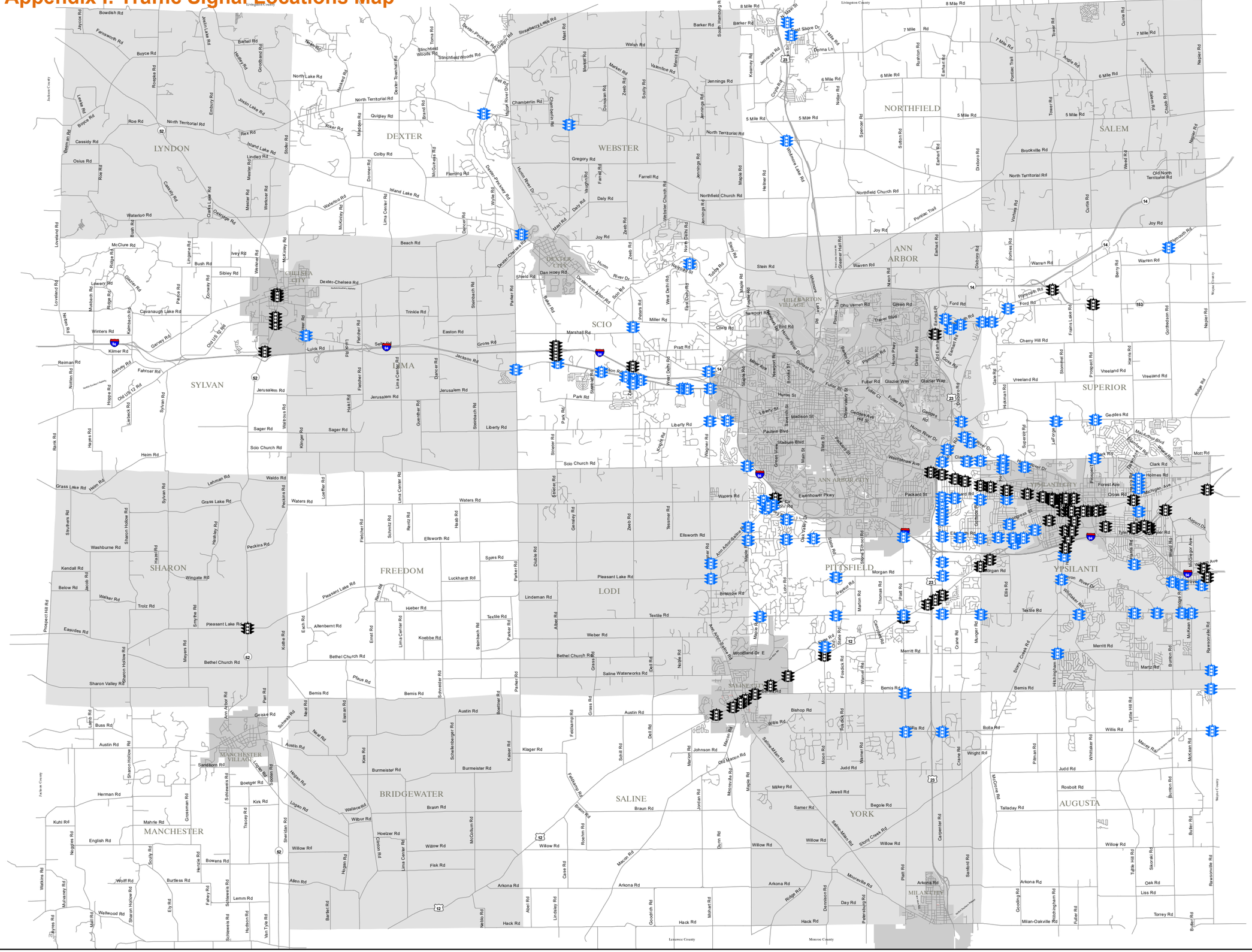
Appendix G: List of Unfunded Bridge Projects

Structure ID	Road	Feature (Water Course)	Township	Restriction	Designated (All Season) Route	Urban	Average Daily Traffic (ADT)	Rating	Existing Span	Existing Width	Proposed Span	Proposed Width	Estimated Cost
C0206013	Barker Rd	Unnamed Creek	Northfield	36T/55T/65T	No	Yes	3,400	3	14	60	21	66	$ 422,000
14363	Dexter Ann Arbor Rd	Honey Creek	Scio	None	No	Yes	6,651	4	33	44	26	43	$ 903,000
C0822004	Dexter Ann Arbor Rd	Honey Creek	Scio	None	No	Yes	4,800	4	38	39	24	60	$ 764,000
10987	Dexter Chelsea Rd	Letts Creek	Lima	42/65/75T	Yes	No	2,700	6	62	37.4	62	37.4	$ 859,000
10984	Ford Rd	Fleming Creek	Superior	31/40/66	No	Yes	4,900	4	18	65	22	66	$ 816,000
C0802008	Huron River Dr	Boyden Creek	Scio	None	No	Yes	2,900	4	17	40	22	55	$ 693,000
10999	Main St- Whitmore	Horseshoe Lake Outlet	Northfield	None	No	Yes	4,900	4	29.9	36.1	35	43	$ 1,627,000
13913	Parker Rd	Trib to Mill Creek	Lima	None	No	No	3,700	4	20.5	24	20	43	$ 1,182,000
10982	Plymouth Rd	Flemming Creek	Superior	None	Yes	Yes	7,431	3	28.9	60	30	60	$ 1,363,000
C0729004	S Fletcher Rd	Mill Creek	Lima	None	No	No	300	4	18.2	36	30	43	$ 1,062,000
C0636001	Scio Church Rd	Mill Creek	Sylvan/Lima	None	No	No	1,500	3	17	36	22	60	$ 730,000
11002	Stony Creek Rd	Paint Creek	Ypsilanti	31/50/67 T	No	Yes	8,856	4	27.9	30.2	48	43	$ 1,413,000
10968	Willis Rd	Paint Creek	Augusta	42/66/77 T	No	No	4,200	4	35.8	27.6	64	43	$ 1,786,000
												Total costs	**$ 13,620,000**

Appendix H: List of Unfunded Primary Road Culvert Projects

Structure ID	Road	Feature (Water Course)	Township	Restriction	Designated (All Season) Route	Urban	Average Daily Traffic (ADT)	Rating	Existing Span (ft)	Existing Width (ft)	Proposed Span (ft)	Proposed Width (ft)	Estimated Cost
C0111001	6 Mile Rd	Rogue River Trib	Salem	None	No	Yes	3,800	4	10	65	12	70	$ 404,000
C1610001	Austin Rd	Unnamed Channel	Manchester	None	No	No	5,600	4	5	60	5	66	$ 205,000
C1703003	Austin Rd	Saline River	Bridgewater	None	No	No	3,300	4	12	50	16	60	$ 593,000
C1912003	Carpenter Rd	Buck Creek	York	None	Yes	Yes	4,200	4	9.7	51	11	60	$ 484,000
C1912009	Carpenter Rd	Unnamed Creek	York	None	Yes	Yes	4,200	4	10	45	10	60	$ 447,000
C0115005	Curtis Rd	Johnson Drain	Salem	None	No	No	5,300	4	10	40	12	60	$ 365,000
C0127002	Curtis Rd	Wagner Drain	Salem	None	No	No	5,300	4	10	50	9	75	$ 225,000
C1928002	Dennison Rd	Trib to Saline River	York	None	No	No	900	2	6	0	11	72	$ 517,000
C0424001	Dexter Pinckney Rd	Huron Creek	Dexter	None	No	Yes	8,300	4	7	77	11	80	$ 552,000
C0936004	E Huron River Dr	Swift Drain	Ann Arbor	None	No	Yes	5,000	4	10	80	14	80	$ 677,000
C1027002	Geddes Rd	Superior #1 Drain	Superior	None	No	No	6,800	4	8	24	12	60	$ 477,000
C1029001	Geddes Rd	Unnamed Creek	Superior	None	No	No	9,700	3	12	30	14	66	$ 683,000
C2018003	McCrone Rd	Unnamed Creek	Augusta	15T	No	No	300	3	6	60	6	60	$ 194,000
C0901001	N Dixboro Rd	Fleming Creek	Ann Arbor/Superior	None	No	No	5,200	3	10.5	45	13	60	$ 518,000
C0912001	N Dixboro Rd	Fleming Creek	Ann Arbor/Superior	None	No	No	5,200	4	12.5	60	16	66	$ 619,000
C0221011	North Territorial Rd	O'Connor Drain	Northfield	None	No	No	6,800	4	9.5	33	11	50	$ 409,000
C0315005	North Territorial Rd	Arms Creek	Webster	None	No	No	7,900	4	7	55	10	60	$ 437,000
C0621005	Old US 12	Unnamed Creek	Sylvan	None	Yes	No	5,000	3	10	52	10	66	$ 466,000
C0614001	Old US-12	Unnamed Creek	Sylvan	None	Yes	Yes	6,000	4	15	30	16	60	$ 590,000
C0621003	Old US-12	Unnamed Creek	Sylvan	36/55/65T	Yes	No	5,000	3	13.5	30	13	60	$ 397,000
C0701006	Parker Rd	Unnamed Creek	Lima & Scio	22/30/55T	No	Yes	3,500	3	17	51	17	60	$ 426,000
C0909001	Pontiac Trl	Traver Creek	Ann Arbor	None	No	No	3,200	3	6	89	16	90	$ 798,000
C2013003	Rawsonville Rd	Bradshaw Drain	Augusta	36T/55T/65T	Yes	No	4,200	3	10	52	10	66	$ 352,000
C0211001	S Rushton Rd	Unnamed Channel	Northfield	None	No	No	300	4	7	50	12	66	$ 511,000
C1921002	Saline Milan Rd	Trib to Saline River	York	None	No	No	3,700	4	8	35	12	60	$ 483,000
C0834002	Scio Church Rd	Unnamed Channel	Scio/Lodi	None	No	Yes	4,900	4	6	60	9	60	$ 210,000
C2006001	Stony Creek Rd	McCarthy Drain	Augusta	None	No	Yes	1,900	4	6.3	30	6	60	$ 332,000
C1032005	Superior Rd	Snidecar Drain	Superior	None	No	Yes	6,000	4	10	35	14	60	$ 549,000
C0628002	Sylvan Rd	Letts Creek	Sylvan	None	No	No	400	4	8	60	10	66	$ 465,000
C1503003	Sylvan Rd	Unnamed Creek	Sharon	None	No	No	400	4	6	50	9	66	$ 213,000
C1130001	Textile Rd	Unnamed Creek	Ypsilanti	None	No	Yes	8,200	4	10	55	13	66	$ 735,000
C0105001	W 8 Mile Rd	Unnamed Channel	Salem	None	No	Yes	9,000	4	10	38	12	60	$ 488,000
C1033002	W Clark Rd	Superior #1 Drain	Superior/Ypsilanti	None	No	Yes	4,900	4	15	85	11	60	$ 354,000
C0601001	Werkner Rd	North Fork Mill Creek	Sylvan	None	No	Yes	600	4	8	60	12	66	$ 389,000
C1906001	Willis Rd	Pittsfield #5 Drain	York	None	No	Yes	2,500	4	15	39	15	60	$ 386,000
												Total costs	**$ 15,950,000**

Appendix I: Traffic Signal Locations Map



Traffic Signal Locations

WCRC Signals

MDOT Signals

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0 1 2 Miles

Printed: August, 2021

Appendix J: Community Engagement Policy and Procedure

ORGANIZATIONAL POLICY	GENERAL ADMINISTRATION APPLICATION: All Employees				
TITLE: **Community Engagement**	RESOLUTION NUMBER RC18-314	SUPERCEDE N/A	EFFECTIVE DATE 09/04/2018	SUPERCEDE N/A	POLICY NUMBER ADMN-

DIRECTIVE

The purpose of this policy is to formalize community engagement processes that have been in place for years and to provide clear direction to staff on how and when to engage with the community regarding Washtenaw County Road Commission (WCRC) road improvement projects.

GOAL

It is WCRC's goal to continue to engage with the community, including elected officials.

This policy and procedure will clarify specific community engagement tactics related to a road improvement project, determined by the project's scope/scale.

REPRESENTATIVES

The managing director, director of engineering, director of operations and communications manager will work with Board of County Road Commissioners of the County of Washtenaw and the community to develop, implement and evaluate the effectiveness of this policy.

PRINCIPALS

- Provide as much information as possible.
- Share project information on WCRC channels in a timely and professional manner.
- Respond to community inquiries about specific projects in a timely and professional manner.
- Communicate consistently about projects of comparative scope/scale.
- Strive for continuous improvement in all community engagement.

PROJECT SCOPE DETERMINATION

WCRC will categorize projects into three different tracks based on the following criteria:

- Project cost
- Type of work
- Duration of road closure
- Environmental impact (such as degree of tree removals)
- Other special circumstances determined by WCRC

The level of community engagement will be determined by the track the project fits into (see community engagement procedure chart).

COMMUNICATION CHANNELS

WCRC staff will use a variety of channels to engage the community depending on which track the WCRC road construction project fits into.

The current channels available to WCRC include:

- Project webpage within wcroads.org
- Email updates
- Weekly road work updates
- Social media
    - Facebook and Twitter
- Media advisories
- Public meeting(s)
- Mailings
- Electronic sign boards

External channels that may share information related to road construction include:

- Township newsletters and meetings
- Community groups
- Local print and electronic media

INTEROFFICE PROCEDURE	INTEROFFICE PROCEDURE APPLICATION: All Employees		
TITLE: Community Engagement	EFFECTIVE DATE 09/04/2018	SUPERSEDE	

Major Project - Track 1		Minor Project - Track 2		Routine Maintenance - Track 3	
Project Scope		Project Scope		Project Scope	
-Project costs more than $500,000 AND/OR -Project is changing the character of the road AND/OR -If a major road will be closed for more than two weeks AND/OR -Project includes significant tree removal		-Road will be closed more than a day, but less than two weeks AND/OR -Emergency repair work AND/OR -Other significant traffic impacts		-Routine Maintenance AND/OR -Road will be closed for less than a day	
Required Steps	**Optional Steps**	**Required Steps**	**Optional Steps**	**Required Steps**	**Optional Steps**
Staff will notify chief township officials through email, phone call and/or “Project Announcement” release.	During the grant application process, staff will inform the County Board of Road Commissioners of the call for projects and grant applications submitted.	Staff will notify chief township officials through email or phone call.	Staff will create a project webpage on wcroads.org.	Staff will share general information on WCRC’s webpage.	Staff will post work updates on WCRC’s social media pages.
Staff will mail letter to residents within the project limits explaining project details, and will mail/email a copy of the letter to township officials and county commissioner for that district.	If a grant is approved, staff will inform the County Board of Road Commissioners and post the grant application and approval notice to wcroads.org.	Staff will include the project on the Weekly Road Work Update during construction.	Staff will post project updates on WCRC’s social media pages.		Staff will send out Media Advisory to township list when road is closed or lane restricted.
Staff will hold construction information meeting before project starts and invite residents within the project limits via mailed letter and other impacted residents via social media and website.	*When appropriate:* Staff will hold public meeting during design phase and invite residents within the project limits via mailed letter and other impacted residents via social media and website.	Staff will send out Media Advisory to township list when road is closed or lane restricted.	*When appropriate*: Staff will set-up message boards near project area providing project information (meeting dates, start dates, project webpage etc.)		Staff will distribute informational flyer explaining upcoming work.
Staff will create a project email list and webpage. Staff will provide at least monthly project updates to this page and email list.	*When appropriate*: Staff will set-up message boards near project area providing project information (meeting dates, start dates, project webpage etc.).		Once completed, staff will send a “we’re open” email to residents, elected officials and post to social media		
Staff will post project updates on WCRC’s social media pages.					
Staff will include the project on the Weekly Road Work Update during construction.					
Once completed, staff will send a “we’re open” email to residents, elected officials and post to social media.					

Appendix K: Board Resolution

WASHTENAW COUNTY ROAD COMMISSION

RESOLUTION CERTIFICATION

2021-2023 WCRC Transportation Asset Management Plan Approval
Resolution No. RC21-356

September 7, 2021

"Moved …

that upon the recommendation of the Director of Engineering/ County Highway Engineer and the concurrence of the Managing Director, the Board hereby approves and authorizes the Chair and Managing Director to sign the 2021-2023 WCRC Transportation Asset Management Plan in accordance with Public Act 325.

Roll Call Vote:
YEAS: B. Fuller, R. Green, G. Llamas, J. McCollum
NAYS: None
ABSENT: D. Fuller
ABSTAIN: None

Motion Carried.

I hereby certify that the foregoing is a true copy of a resolution duly adopted at a meeting of the Board of Washtenaw County Road Commissioners held on September 7, 2021,and is on file at the Office of the Washtenaw County Road Commission, 555 North Zeeb Road, Ann Arbor, Michigan 48103.

_____
Sheryl Soderholm Siddall, Deputy Clerk

Dated: _____