Transportation Asset Management Program 2022 Federal Aid PASER Road Survey

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WEST MICHIGAN SHORELINE
REGIONAL DEVELOPMENT COMMISSION
(WMSRDC)

The Commission's mission is to "promote and foster regional development in West Michigan through cooperation amongst local governments and regional partners."
The general regional goal of the West Michigan Shoreline Regional Development Commission is to provide assistance to member local governments in addressing regional and public policy issues, especially as they pertain to planning and development.

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2022 Federal Aid PASER Road Survey

I. Background

<u>What Is Asset Management?</u>
Asset management is a concept in the transportation industry that has emerged as an important planning tool for public officials, planners, engineers, and others. Asset Management is based on an inventory of each local road network within the region. It will provide data that will allow transportation officials to monitor, plan, and strategically improve the road network. This strategic method of investment marks a break from the traditional "tactical" method of fixing roads that have the most severe problems.

The Michigan Transportation Commission has formed an Asset Management Council, with the objective to implement a state law that enacted the Asset Management Program. The Council is appointed by the Transportation Commission and answers directly to the Commission and legislature. Its five main elements include: policy goals and objectives, data collection, planning and programming, program delivery, and monitoring and reporting. Its goal is to inventory all 39,000 miles of federal aid eligible roads within the State of Michigan, and according to the data collected, determine future distribution of ACT 51 transportation funds. In the future, the Asset Management Council may implement a similar initiative to collect similar information on the remaining local road network.

<u>Regional Commission Involvement</u>
In a typical year, region staff, along with the Michigan Department of Transportation (MDOT) and a county road commission employee, collect this data within the region. Annually, staff attends a training session to review the previous year's collection process and to keep the training up to date for those who will be involved. In 2022, due to ongoing issues related to COVID-19, WMSRDC and Road Commission staff collected the data without MDOT.

Each region within the State of Michigan receives a laptop equipped with Laptop Data Collector (a GIS program), a GPS device, and software to collect the data. The data collection effort will require the collection of three items: PASER rating (Pavement Surface Evaluation and Rating), surface type, and the number of lanes. PASER is a visual rating assessment system that rates the road surface condition for a given segment on a scale of 1-10.

<u>Purpose</u>
The purpose of this task is to help satisfy the requirements of P.A. 499 of 2002, which establishes an Asset Management Council and charges it to develop an Asset Management Process for the State of Michigan. Regional transportation planning agencies play a significant role in this process as outlined in the following task assignments.

<u>Method</u>
The Asset Management Council has developed a statewide process that will result in approximately 50 percent of federal aid eligible roads in the state to be rated per year. Activities to be undertaken as part of this task include:

1. Attendance at training seminars on the use of PASER.
2. Participation as part of a three-person team that will rate the federal-aid eligible roads in the region. For 2021 and 2022, TAMC has authorized two-person teams.
3. Providing the results of the PASER ratings to local agencies to review and revise where appropriate.
4. Public display of PASER ratings on the WMSRDC website or through other public means so it is available for public review and use in project and plan development activities.
5. Transmit PASER ratings along with other roadway data to the TAMC. (i.e., traffic counts).

Products

1. Road network loaded in Roadsoft.
2. PASER data collected on federal-aid eligible roads in region.
3. Web based or other public display of PASER road ratings on network.
4. Report to the Asset Management Council with PASER and other roadway data and transportation project completion information for the region.

II. Data Collection Process

In previous years, regional staff assisted in rating 100 percent of roads on the Federal aid system. Beginning in 2008, regional staff rated 50 percent of the Federal aid system miles. No road ratings took place in 2020 due to COVID-19. In a typical year, region staff, along with an MDOT employee and a county road commission employee, collect this data within the region. However, COVID-19 continued to impact data collection in 2022. MDOT provided a vehicle for region staff, who successfully rated 100 percent of the Federal aid system.

The first step in this process is for each of the county road commissions to create a network in Roadsoft and export it to the region's Laptop Data Collector (LDC). The LDC software is housed on the region's laptop computer and connected to a GPS unit. Roadsoft GIS is an asset management software package created and distributed free of charge by the Michigan Technology Institute's Technology Development Group. The current version of the program was designed with a special module to collect PASER rating data. The rating group then drives the entire network that was previously selected by the Road Commission. For each segment of road, the rating team agrees on a road rating by using the PASER system, giving a numerical value for the condition of the road, 10 being new and 1 being failed.

Once the entire network has been rated, the data is exported back to the county road commission's Roadsoft program. After this is completed, the county's data is exported to the region, which passes the information back to the Asset Management Council.

Computer Equipment and Software

Staff collected data using a laptop computer with the Roadsoft GIS LDC software. A Garmin GPS unit was connected to the laptop to track position and locate road segments.

Staff Time

To collect PASER data, it is most efficient to have three people in the vehicle; one driver, one navigator/rater, and one who is assigned to enter information into the computer. In typical years, for each county road rating project, there is one representative from the region, one road commission employee, and one MDOT representative present.

Training

COVID-19 also has changed the training requirements for asset management. An in-person training was required for all raters pre-COVID-19. New trainees are now required to participate in three webinars containing background information on asset management. Participants receive an overview of the project and are given instruction on how to use the Roadsoft software and the PASER road rating system for data collection. Once out in the field, experienced staff members show the new participants how to use the Roadsoft program and guide them through the rating process. Most participants feel comfortable after an hour of working on the computer and rating the roads. In addition, every three years, raters are required to complete a webinar training on how to rate unpaved roads.

III. PASER Rating System

The PASER road rating system was developed by the University of Wisconsin-Madison Transportation Information Center to be used as the State of Wisconsin's standard road rating system. PASER is a "windshield" road rating system that uses a 1 to 10 rating scale, with a value of 10 representing a new road and a value of 1 representing a failed road. Condition ratings are assigned by monitoring the type and number of visual defects along a road segment while driving the segment. The PASER system interprets these observations into a condition rating. A sample PASER rating chart has been included with this report.

The State of Michigan Asset Management Council has requested that the information gathered in this survey be reported using the following categories:

• **Roads with PASER ratings of 8-10 require Routine Maintenance**. Routine maintenance is the day-to-day maintenance activities that are scheduled, such as street sweeping, drainage clearing, shoulder gravel grading, and sealing cracks to prevent standing water and water penetration.

• **Roads with PASER ratings of 5-7 require Capital Preventive Maintenance**. Capital preventive maintenance is a planned set of cost-effective treatments to an existing roadway system and its appurtenances that preserves, retards future deterioration, and maintains or improves the functional condition of the system without significantly increasing structural capacity. The purpose of capital preventive maintenance is to protect the pavement structure, slow the rate of pavement deterioration and/or correct pavement surface deficiencies. Surface treatments are targeted at pavement surface defects primarily caused by the environment and by pavement material deficiencies.

• **Roads with PASER ratings of 1-4 require Structural Improvements**. This category includes work identified as rehabilitation and reconstruction which address the structural integrity of a road.

This Road Rating system is illustrated on the following page.

Surface Rating		Visible Distress	General Condition / Treatment Measures
10	Excellent	• None	New construction
9	Excellent	• None	Recent overlay, like new.
8	Very Good	• No longitudinal cracks except reflection of paving joints. • Occasional transverse cracks, widely spaced (40' or greater).	Recent sealcoat or new road mix. Little or no maintenance required.
7	Good	• Very slight or no raveling, surface shows some traffic wear. • Longitudinal cracks (open 1/4") spaced due to reflection or paving joints. • Transverse cracks (open 1/4") spaced 10 feet or more apart, little or slight crack raveling. • No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6	Good	• Slight raveling (loss of lines) and traffic wear. • Longitudinal cracks (open 1/4" - 1/2") due to reflection and paving joints. • Transverse cracking (open 1/4" - 1/2") some spaced less than 10 feet. • Slight to moderate flushing or polishing. • Occasional patching in good condition.	Show signs of aging, sound structural condition. Could extend life with sealcoat.
5	Fair	• Moderate to severe raveling (loss of lines and coarse aggregate). • Longitudinal cracks (open 1/2") show some slight raveling and secondary cracks. First signs of longitudinal cracks near wheel path or edge. • Transverse cracking and first signs of block cracking. Slight crack raveling (open 1/2"). • Extensive to severe flushing or polishing. • Some patching or edge wedging in good condition.	Surface aging, sound structural condition. Needs sealcoat or non-structural overlay.
4	Fair	• Severe surface raveling. • Multiple longitudinal and transverse cracking with slight raveling. • Block cracking (over 25 - 50% of surface). • Patching in fair condition. • Slight rutting or distortions (1" deep or less).	Significant aging and first signs of need for strengthening. Would benefit from recycling or overlay.
3	Poor	• Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. • Block cracking over 50% of surface. • Some alligator cracking (less than 25% of surface). • Patches in fair to poor condition. • Moderate rutting or distortion (1" or 2" deep). • Occasional potholes.	Need patching and major overlay or complete recycling.
2	Very Poor	• Alligator cracking (over 25% of surface). • Severe distortions (over 2" deep). • Extensive patching in poor condition. • Potholes.	Severe deterioration. Needs reconstruction with extensive base repair.
1	Failed	• Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

IV. County Projects

Summary: West Michigan Shoreline Regional Development Commission

In 2022, region staff rated approximately 2,325 miles of federal aid eligible roads. Individual county summaries are included in the following pages. A summary of road ratings for all counties is illustrated in the following table.

	# of Miles Needing Structural Improvements	# of Miles Needing Capital Preventive Maintenance	# of Miles Needing Routine Maintenance
Lake	235.301	46.170	6.920
Mason	246.288	50.780	13.302
Muskegon	487.044	122.343	19.710
Newaygo	388.093	46.155	26.397
Oceana	224.302	117.297	31.106
Ottawa	179.539	66.688	18.350
TOTAL MILES	1760.567	449.43	115.785
PERCENTAGE	75.70%	19.32%	4.98%

The largest percent of Federal Aid eligible roads, 75.70%, need structural improvements. Typical actions required for this category would consist of reconstruction, major overlay, or complete rehabilitation. The next level of roads, those needing capital preventive maintenance, total 19.32% of the federal aid eligible roads within the region. These activities may include crack sealing, seal-coating, or non-structural overlays. Roads only needing routine maintenance, totaled 4.98% of the network. Roads in this category need little to no maintenance.

Lake County

Project overview

In 2022, region staff assessed the condition of 100% of Lake County's federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results

Approximately 288 miles of federal-aid eligible roads were rated in 2022 for this project. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2022 PASER Rating Summary for Lake County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	6.92	2.4%
Fair (Rating 5-7)	46.17	16.03%
Poor (Rating 1-4)	235.301	81.5%

Lake County
2022 PASER Rating
Fed-Aid Roads

Legend

——	10-8 Routine Maintenance
——	7-5 Capital Preventive Maintenance
——	4-1 Structural Improvements Needed
——	Unrated Road
▭	County
▭	Jurisdiction
▨	City
▨	Villages
◯	Lake
〰	River

Miles
0   1.5   3   4.5   6

WEST MI SHORELINE
Regional Development Commission

Elk

Eden

Dover

Newkirk

Sauble

Peacock

Luther

Ellsworth

Webber

Cherry Valley

Pinora

Sweetwater

Baldwin

Pleasant Plains

Yates

Chase

Lake

8
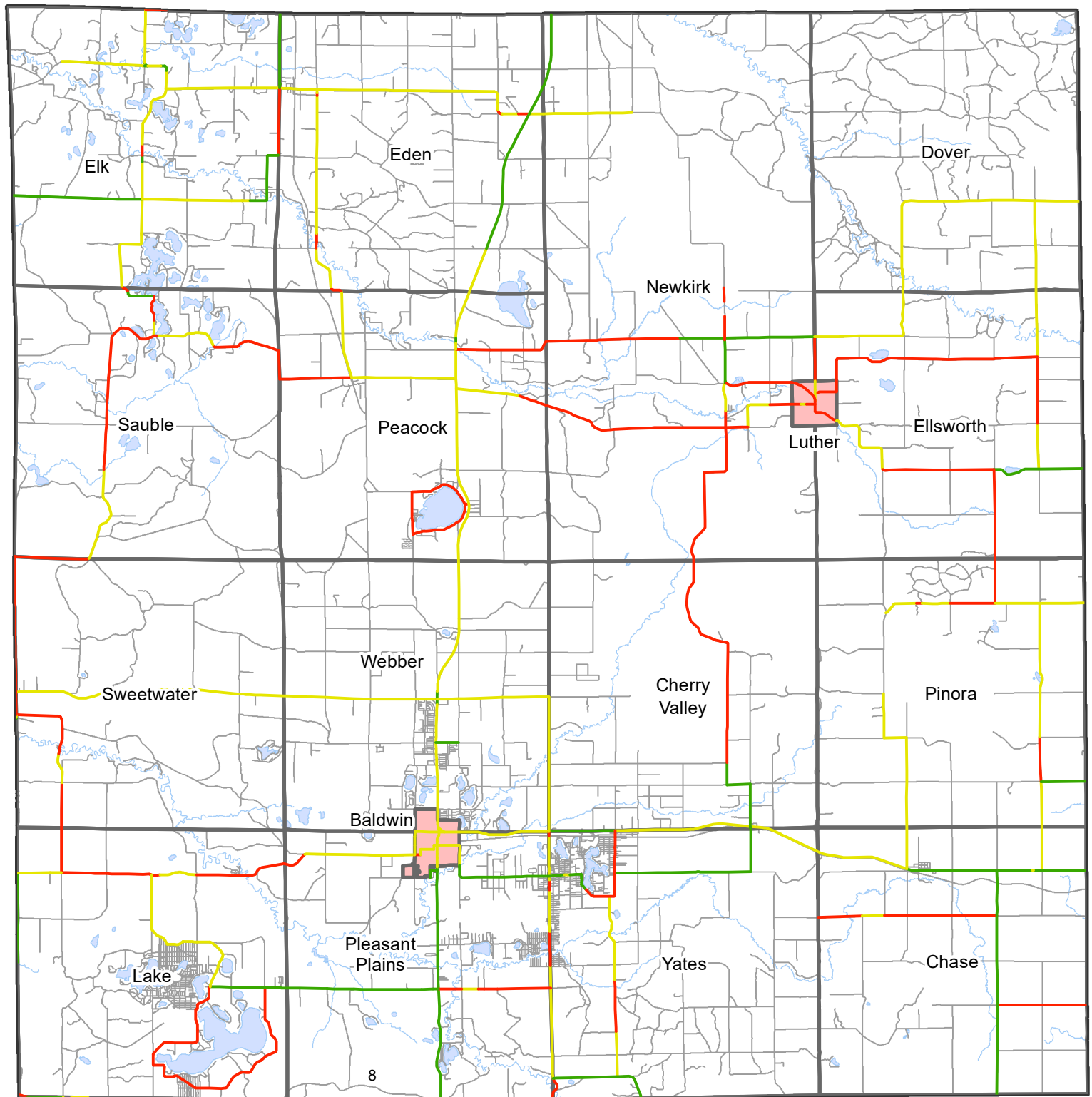
Good/Fair/Poor Summary

Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	6.920	2.40%
Fair (Rating 5-7)	46.170	16.01%
Poor (Rating 1-4)	235.301	81.59%
Unrated	0.000	0.00%

- Good (Rating 8+), 6.920 (2.4%)
- Fair (Rating 5-7), 46.170 (16.0%)
- Poor (Rating 1-4), 235.301 (81.6%)
- Unrated, 0.000 (0.0%)
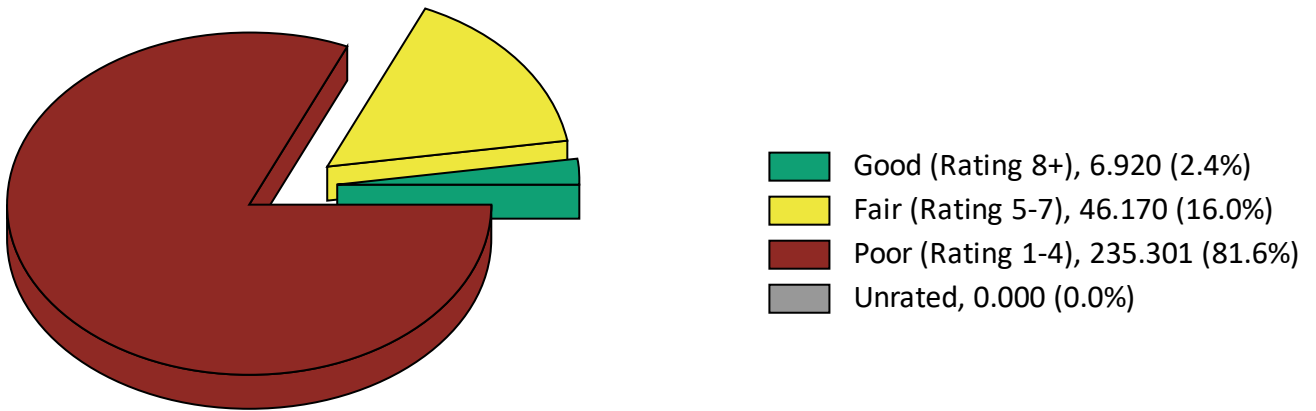
Mason County

Project overview

In 2022, region staff assessed the condition of 100% of Mason County's federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results

Approximately 310 miles of federal-aid eligible roads were rated for this project in 2022. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements
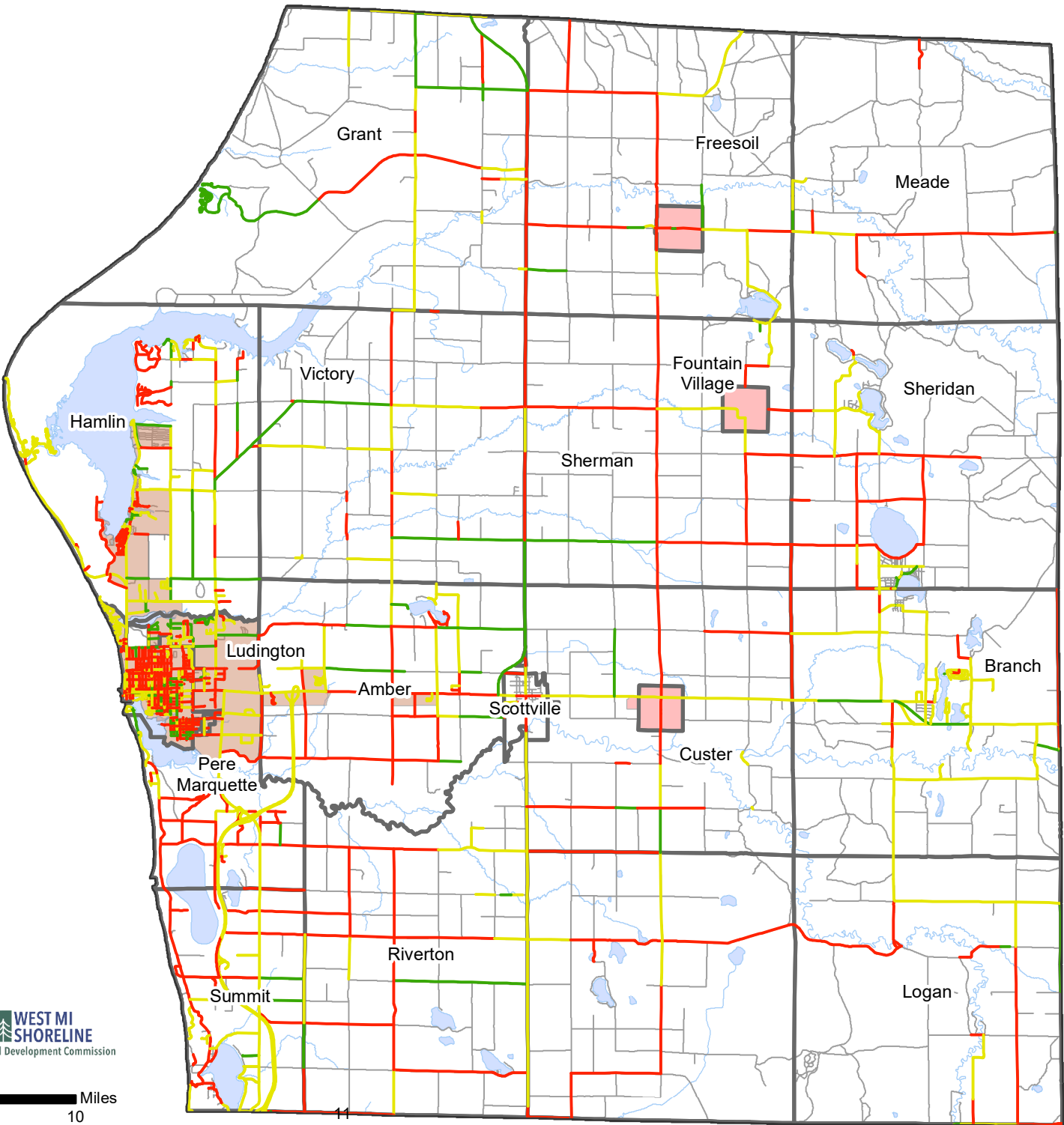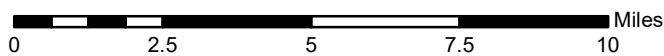
2022 PASER Rating Summary for Mason County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	13.302	4.29%
Fair (Rating 5-7)	50.78	16.36%
Poor (Rating 1-4)	246.288	79.35%

Mason County
2022 PASER Rating
Fed-Aid Roads

Grant

Freesoil

Meade

Victory

Fountain Village

Sheridan

Hamlin

Sherman

Ludington

Amber

Scottville

Branch

Pere Marquette

Custer

Riverton

Summit

Logan

Legend

— 10-8 Routine Maintenance

— 7-5 Capital Preventive Maintenance

— 4-1 Structural Improvements Needed

— Unrated Road

County

Jurisdiction

City

Villages

Lake

River

WEST MI SHORELINE
Regional Development Commission

0   2.5   5   7.5   10   Miles

Good/Fair/Poor Summary

Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	13.302	4.29%
Fair (Rating 5-7)	50.780	16.36%
Poor (Rating 1-4)	246.288	79.35%
Unrated	0.000	0.00%

- Good (Rating 8+), 13.302 (4.3%)
- Fair (Rating 5-7), 50.780 (16.4%)
- Poor (Rating 1-4), 246.288 (79.4%)
- Unrated, 0.000 (0.0%)
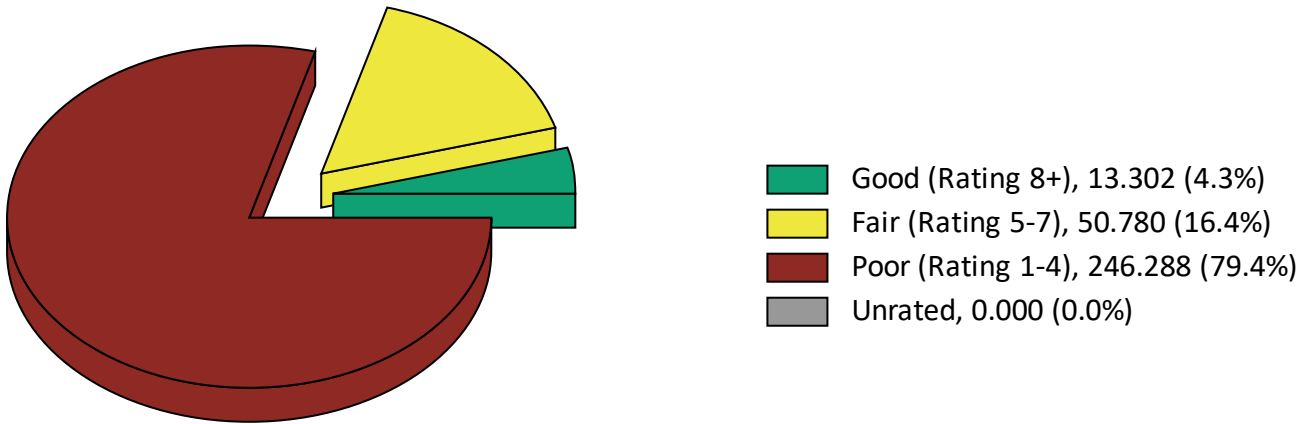
Muskegon County

Project overview

In 2022, region staff assessed the condition of 100% of Muskegon County's federal-aid eligible roads, using the PASER road rating system, as required by the State of Michigan Asset Management Council.

Results

Approximately 629 miles of federal-aid eligible roads were rated for this project in 2022. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2022 PASER Rating Summary for Muskegon County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	19.71	3.13%
Fair (Rating 5-7)	122.343	19.45%
Poor (Rating 1-4)	487.044	77.42%

Muskegon County
2022 PASER Rating
Fed-Aid Roads

Legend

—— 10-8 Routine Maintenance

—— 7-5 Capital Preventive
Maintenance

—— 4-1 Structural Improvements
Needed

—— Unrated Road

☐ County

☐ Jurisdiction

▨ City

▨ Villages

◆ Lake

~ River

Montague

White River

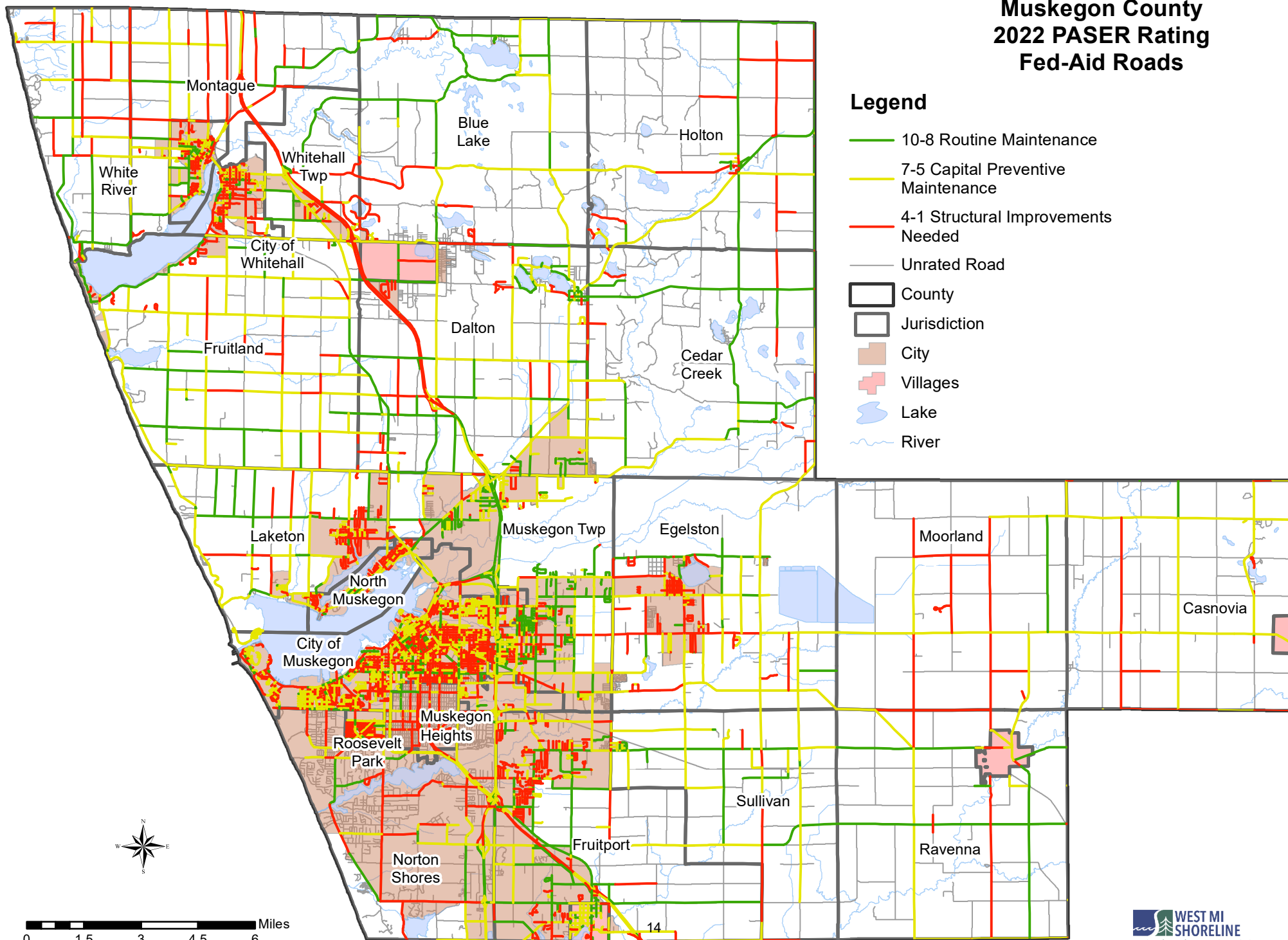Whitehall Twp

Blue Lake

Holton

City of Whitehall

Fruitland

Dalton

Cedar Creek

Laketon

North Muskegon

Muskegon Twp

Egelston

Moorland

Casnovia

City of Muskegon

Muskegon Heights

Roosevelt Park

Sullivan

Norton Shores

Fruitport

Ravenna

14

Miles
0   1.5   3   4.5   6

N W E S

WEST MI SHORELINE
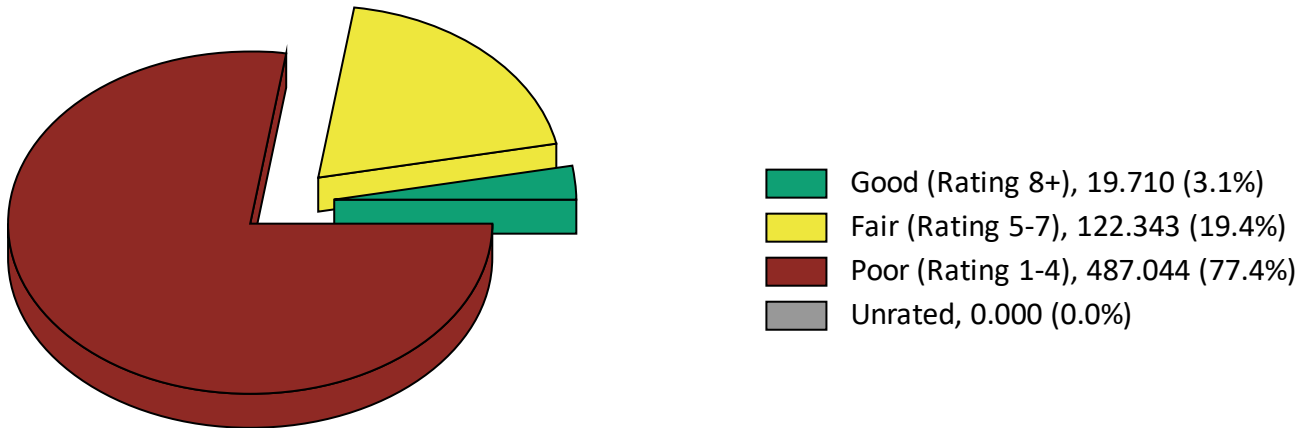Regional Development Commission

Good/Fair/Poor Summary

Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	19.710	3.13%
Fair (Rating 5-7)	122.343	19.45%
Poor (Rating 1-4)	487.044	77.42%
Unrated	0.000	0.00%

Good (Rating 8+), 19.710 (3.1%)
Fair (Rating 5-7), 122.343 (19.4%)
Poor (Rating 1-4), 487.044 (77.4%)
Unrated, 0.000 (0.0%)

Newaygo County

Project overview

In 2022, region staff assessed the condition of 100% of Newaygo County's federal-aid eligible roads using the PASER road rating system as requested by the State of Michigan Asset Management Council.

Results

Approximately 460 miles of federal-aid eligible roads were rated for this project. This includes approximately 4 miles of unpaved roads which do not receive a number rating. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2022 PASER Rating Summary for Newaygo County

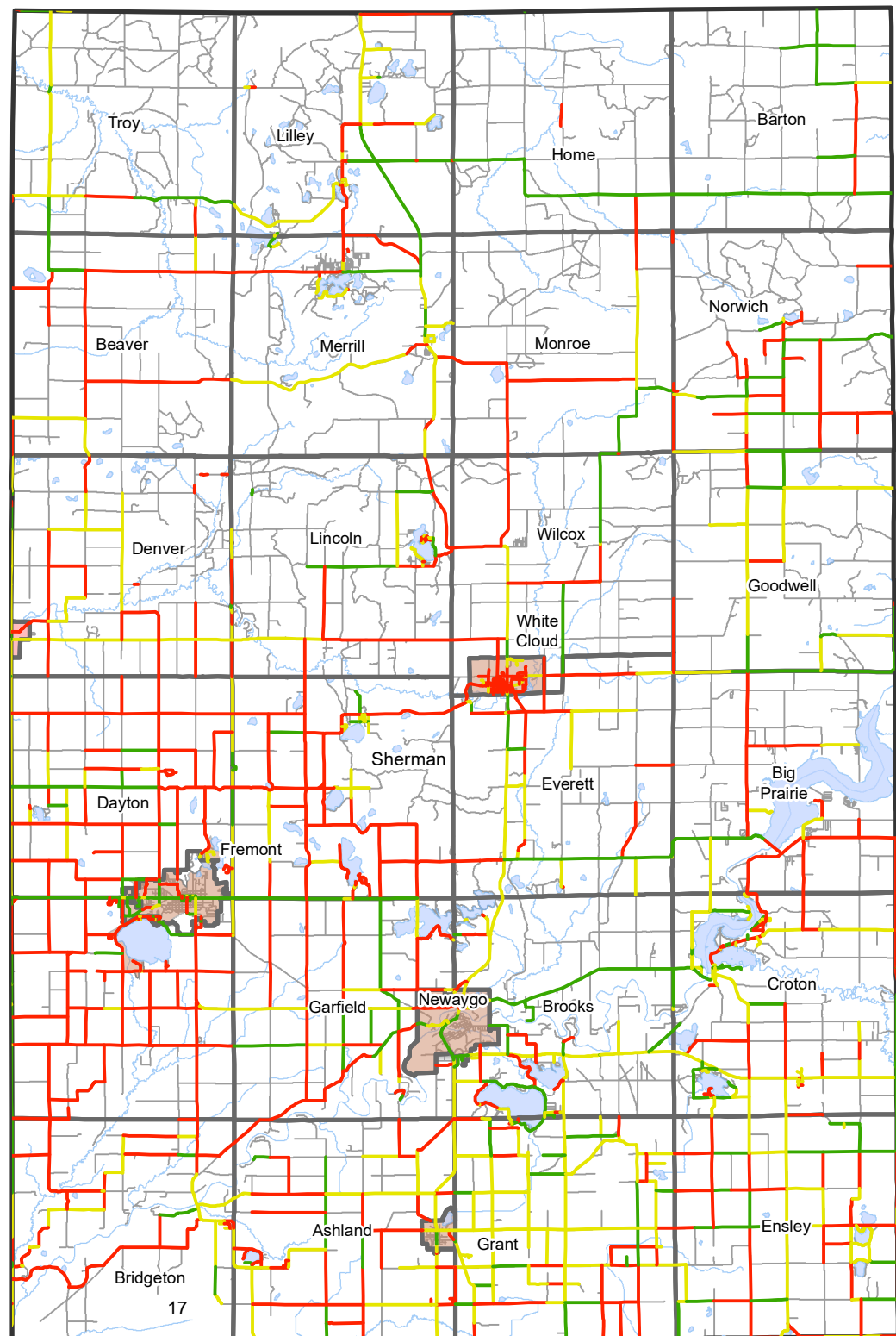| Condition	Centerline Miles	Percentage
Good (Rating 8+)	26.397	5.7%
Fair (Rating 5-7)	46.155	10.02%
Poor (Rating 1-4)	388.093	84.25%

Newaygo County
2022 PASER Rating
Fed-Aid Roads

Legend

— 10-8 Routine Maintenance

— 7-5 Capital Preventive Maintenance

— 4-1 Structural Improvements Needed

— Unrated Road

☐ County

☐ Jurisdiction

■ City

■ Village

■ Lake

～ River

Miles
0   2.5   5   7.5   10

WEST MI SHORELINE
Regional Development Commission

Troy Lilley Home Barton

Beaver Merrill Monroe Norwich

Denver Lincoln Wilcox Goodwell

White Cloud

Sherman Everett Big Prairie

Dayton Fremont Croton

Garfield Newaygo Brooks

Ashland Grant Ensley

Bridgeton

17

Good/Fair/Poor Summary
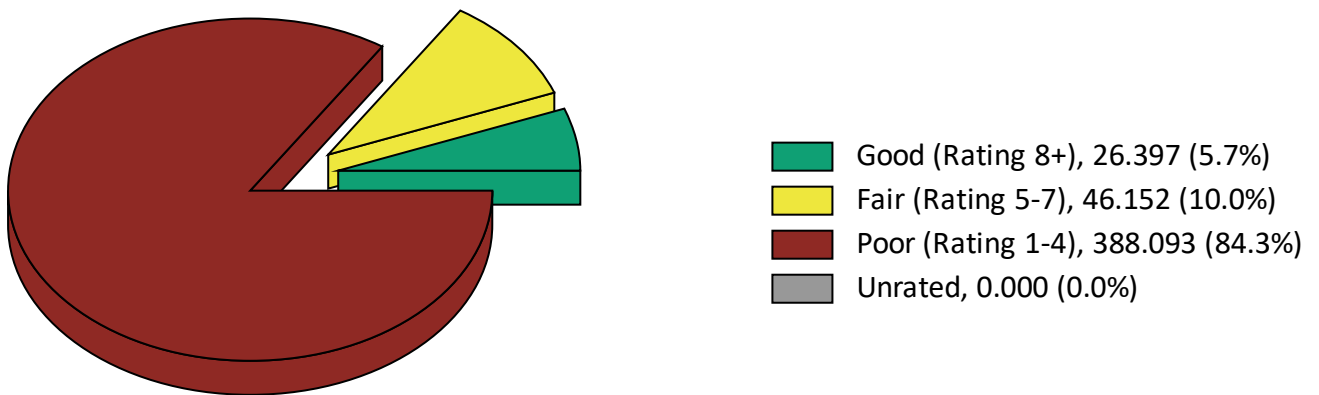
Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	26.397	5.73%
Fair (Rating 5-7)	46.152	10.02%
Poor (Rating 1-4)	388.093	84.25%
Unrated	0.000	0.00%

- Good (Rating 8+), 26.397 (5.7%)
- Fair (Rating 5-7), 46.152 (10.0%)
- Poor (Rating 1-4), 388.093 (84.3%)
- Unrated, 0.000 (0.0%)

Oceana County

Project overview

In 2022, region staff assessed the condition of 100% of Oceana County's federal-aid eligible roads using the PASER road rating system.

Results

Approximately 372 miles of federal-aid eligible roads were rated for this project in 2022. This includes approximately 1 mile of unpaved roads which do not receive a number rating. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2022 PASER Rating Summary for Oceana County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	31.106	8.35%
Fair (Rating 5-7)	117.297	31.47%
Poor (Rating 1-4)	224.302	60.18%

Oceana County
2022 PASER Rating
Fed-Aid Roads

Legend

— 10-8 Routine Maintenance

— 7-5 Capital Preventive
Maintenance

— 4-1 Structural Improvements
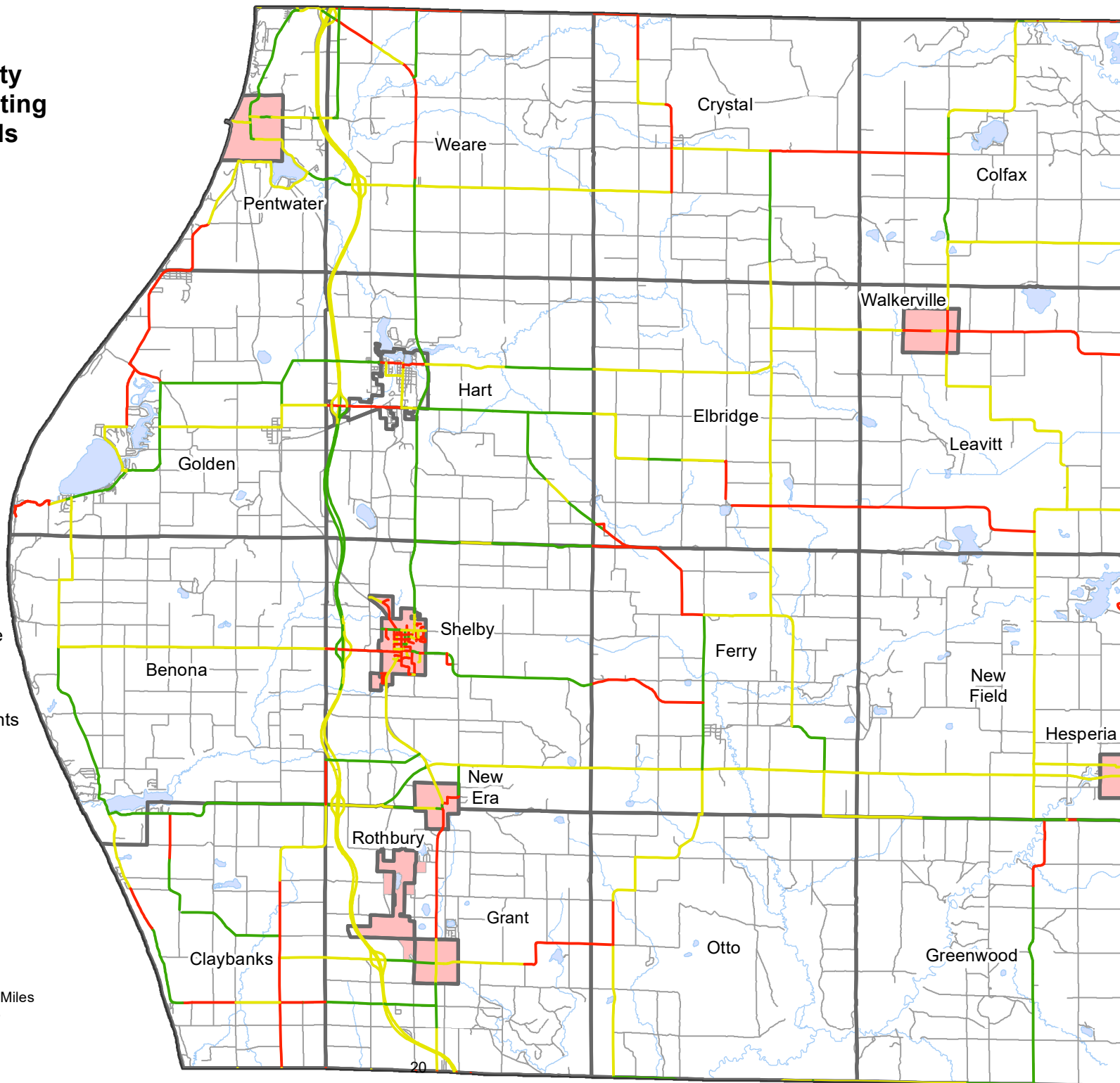Needed

— Unrated Road

County

Jurisdiction

City

Villages

Lake

River

Miles

0   1.5   3   4.5   6

WEST MI
SHORELINE
Regional Development Commission

Pentwater

Weare

Crystal

Colfax

Walkerville

Hart

Elbridge

Leavitt

Golden

Shelby

Ferry

New
Field

Benona

Hesperia

New
Era

Rothbury

Grant

Claybanks

Otto

Greenwood

20

N
W   E
S

Good/Fair/Poor Summary
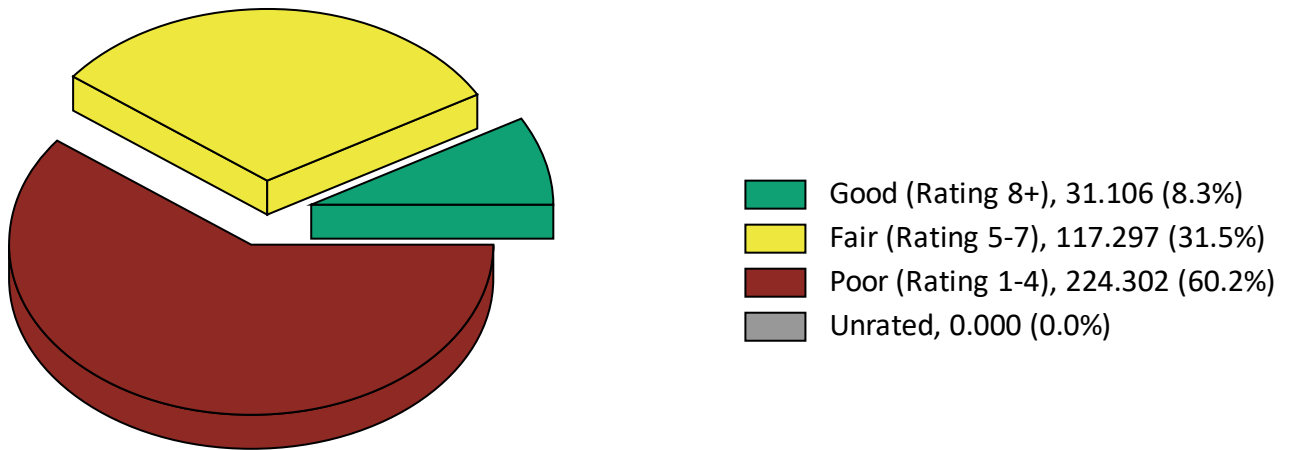
Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	31.106	8.35%
Fair (Rating 5-7)	117.297	31.47%
Poor (Rating 1-4)	224.302	60.18%
Unrated	0.000	0.00%

- Good (Rating 8+), 31.106 (8.3%)
- Fair (Rating 5-7), 117.297 (31.5%)
- Poor (Rating 1-4), 224.302 (60.2%)
- Unrated, 0.000 (0.0%)

Ottawa County

Project overview

Northern Ottawa County is part of the WestPlan MPO which is administered by WMSRDC. In 2022, region staff assessed the condition of 100% of the federal-aid eligible roads in the Village of Spring Lake, the City of Ferrysburg, the City of Grand Haven, Spring Lake Township, Grand Haven Township, Robinson Township, and Crockery Township, as well as local roads in the City of Grand Haven, using the PASER road rating system.
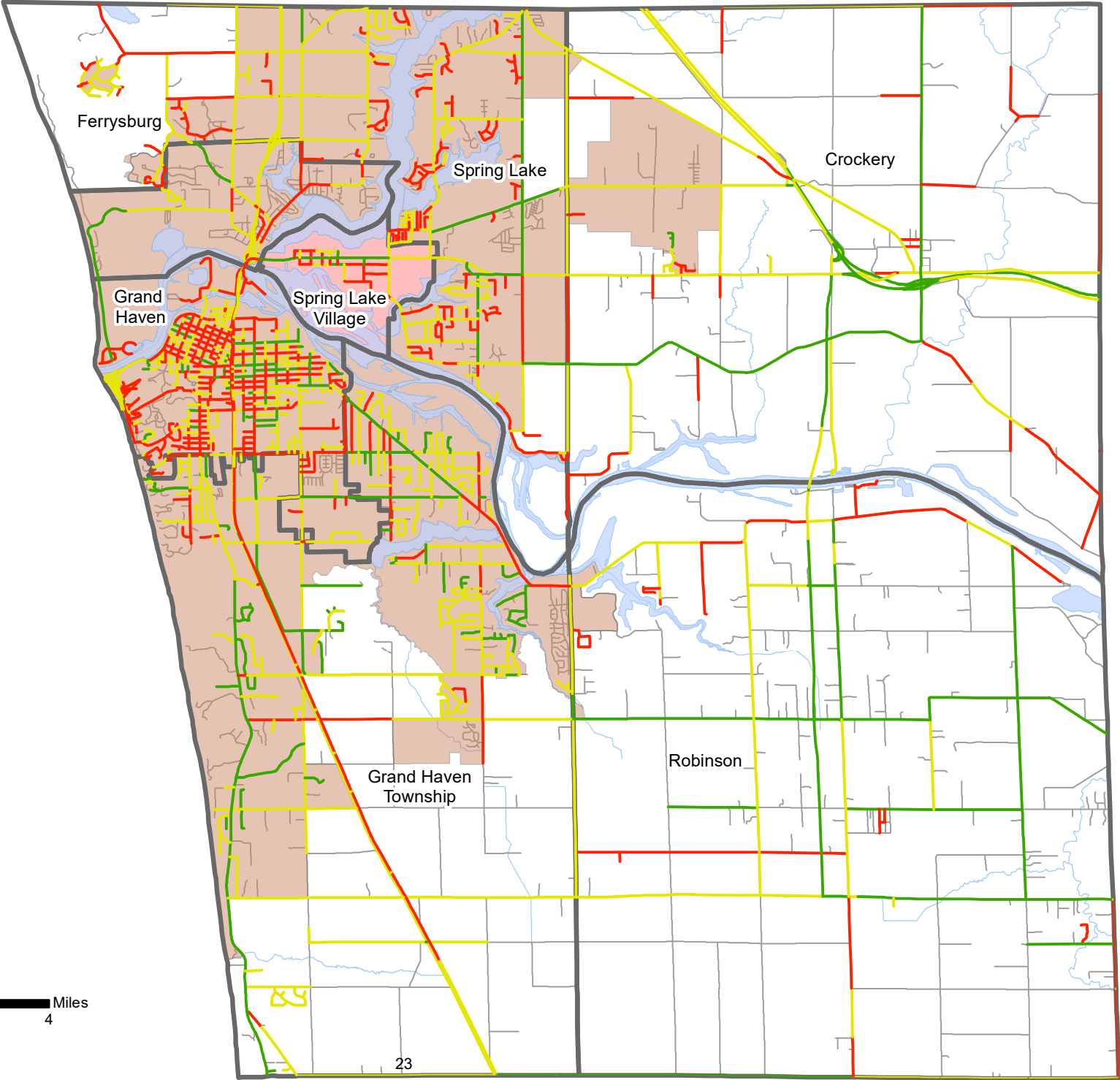
Results

Approximately 264 miles of federal-aid eligible roads were rated for this project in 2022. This includes less than 1 mile of unpaved roads which do not receive a number rating. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance
- Roads receiving a rating of Fair (5-7) require Capital Preventive Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2022 PASER Rating Summary for Ottawa County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	18.35	6.9%
Fair (Rating 5-7)	66.688	25.21%
Poor (Rating 1-4)	179.539	67.85%

Northern Ottawa County
2022 PASER Rating
Fed-Aid Roads

Ferrysburg

Spring Lake

Crockery

Grand Haven

Spring Lake Village

Grand Haven Township

Robinson

Legend

— 10-8 Routine Maintenance

— 7-5 Capital Preventive Maintenance

— 4-1 Structural Improvements Needed

— Unrated Road

City

Village

Lake

River

N

Miles

0   1   2   3   4

23

WEST MI SHORELINE
Regional Development Commission

Good/Fair/Poor Summary

Mileage Type: Centerline miles
Road Class: All Roads
Road Type: All Roads

Condition	Centerline Miles	Percentage
Good (Rating 8+)	18.350	6.94%
Fair (Rating 5-7)	66.688	25.21%
Poor (Rating 1-4)	179.539	67.86%
Unrated	0.000	0.00%

- Good (Rating 8+), 18.350 (6.9%)
- Fair (Rating 5-7), 66.688 (25.2%)
- Poor (Rating 1-4), 179.539 (67.9%)
- Unrated, 0.000 (0.0%)