

Transportation Asset Management Program 2023 Federal Aid PASER Road Survey





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WEST MICHIGAN SHORELINE REGIONAL DEVELOPMENT COMMISSION (WMSRDC)

The WMSRDC is a regional council of governments representing 127 local governments in the West Michigan counties of Lake, Mason, Muskegon, Newaygo, Oceana, and northern Ottawa. The mission of WMSRDC is to promote and foster regional development in West Michigan... through cooperation amongst local governments.



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I. Background

What Is Asset Management?

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.

Regional Commission Involvement

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 2023, 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 GIS, 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.

Purpose

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.

Method

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 2023, 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).

<u>Products</u>

- 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 2023. 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 has also 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. 	
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. 	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.

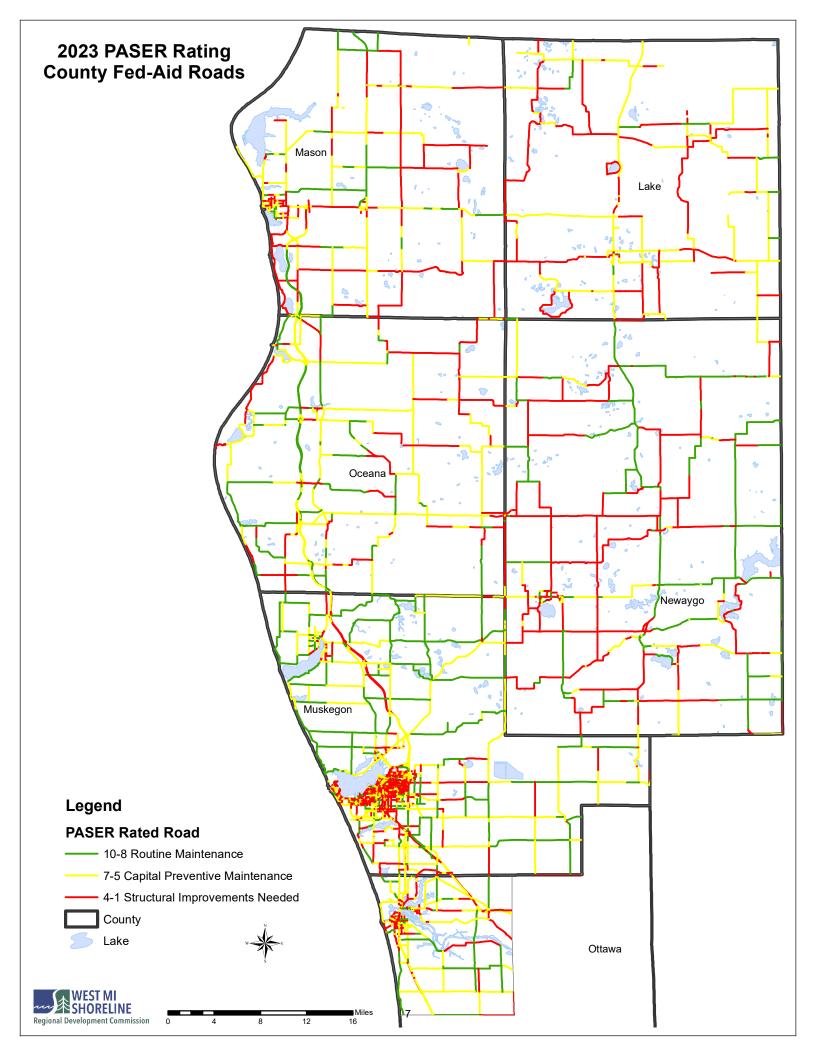
IV. County Projects

Summary: West Michigan Shoreline Regional Development Commission

In 2023, region staff rated approximately 2,049 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	# of Miles Needing Capital	# of Miles Needing Routine
	Structural Improvements	Preventive Maintenance	Maintenance
Lake	217.351	46.794	5.260
Mason	225.798	50.711	22.018
Muskegon	314.664	301.191	12.385
Newaygo	366.882	70.386	14.063
Oceana	197.294	150.116	24.083
Ottawa	103.198	83.042	3.927
TOTAL MILES	1425.187	702.240	81.736
PERCENTAGE	64.51%	31.79%	3.70%

The largest percentage of federal-aid eligible roads, 64.51%, 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 31.79% 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 3.70% of the network. Roads in this category need little to no maintenance.



Lake County

Project overview

In 2023, 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 269 miles of federal-aid eligible roads were rated in 2023 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 Preventative Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

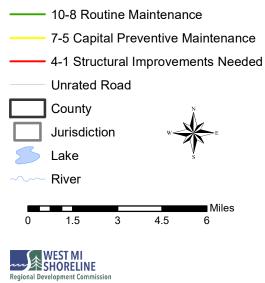
2023 PASER Rating Summary for Lake County

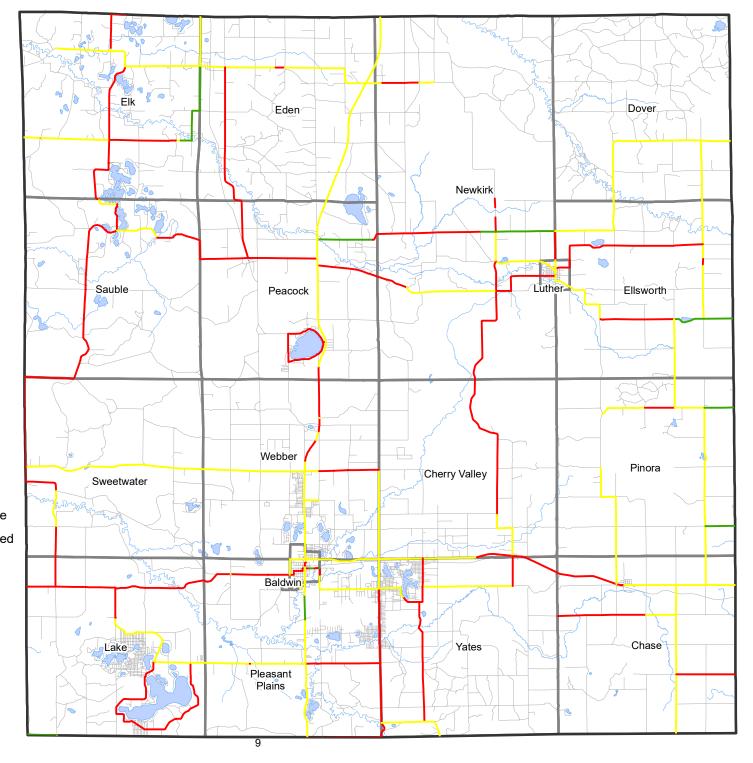
Condition	Centerline Miles	Percentage
Good (Rating 8+)	5.260	1.95%
Fair (Rating 5-7)	46.794	17.37%
Poor (Rating 1-4)	217.351	86.67%

Lake County 2023 PASER Rating County Fed-Aid Roads



PASER Rated Road





Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Lake	Yes
Operator	п	Ш	II
Field Name	TAMC Collection Year	County	Federal-aid



Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	6	œ	7	9	5	4	с	7	+	Not Rated	Centerline Mileage	APR*
Asphalt-Standard	0.000	0.000 0.000	3.647	6.201		18.824	9.544 18.824 31.892 25.462 23.154 4.522	25.462	23.154	4.522	0.000	123.246	3.885
Sealcoat-Standard	0.000	0.000 0.000	1.613	2.731	3.722	5.772	5.772 22.723 8.507 41.987 59.104	8.507	41.987	59.104	0.000	146.159	2.345
Total Centerline Mileage	0.000	0.000 0.000	5.260	8.932	8.932 13.266	24.596	54.615	33.969	33.969 65.141 63.626	63.626	0.000	269.405	3.049
	Ū	Good: 5 260		Ű	Fair: 46 794			Poor: 217.351	17.351				



Mason County

Project overview

In 2023, 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

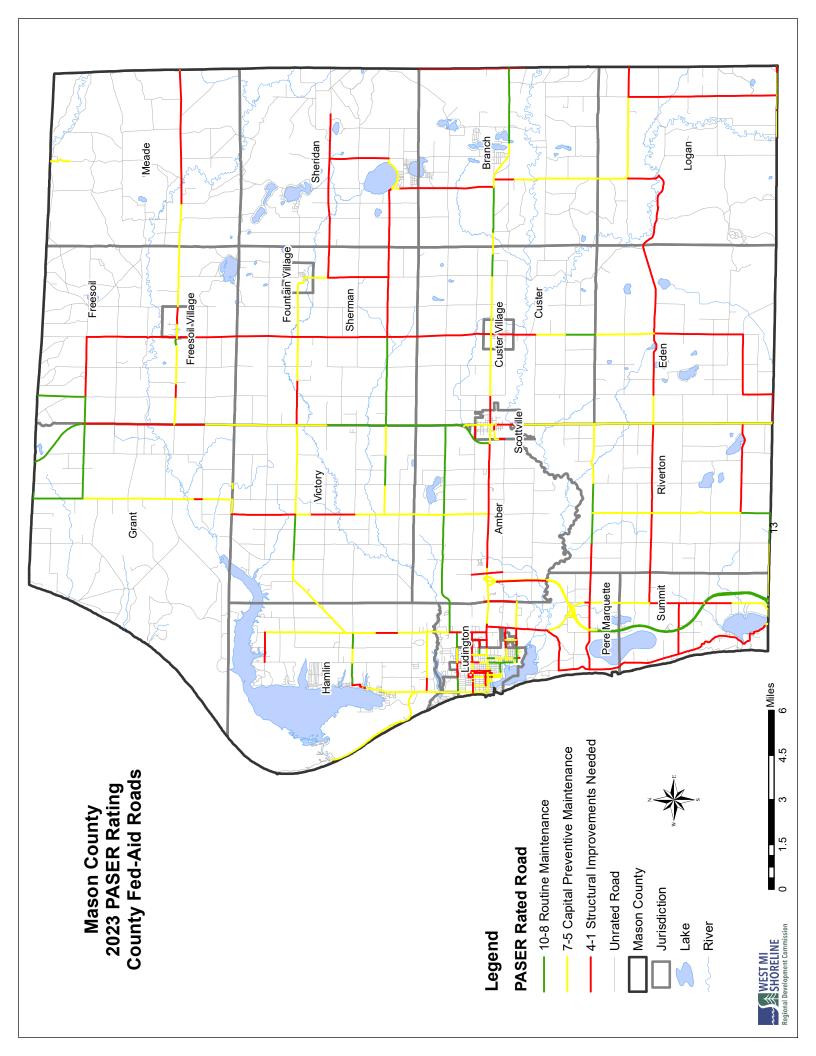
Approximately 298 miles of federal-aid eligible roads were rated for this project in 2023. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance

- Roads receiving a rating of Fair (5-7) require Capital Preventative Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2023 PASER Rating Summary for Mason County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	22.018	7.38%
Fair (Rating 5-7)	50.711	16.98%
Poor (Rating 1-4)	225.798	75.64%



Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Mason	Yes
Operator	II	11	11
Field Name	TAMC Collection Year	County	Federal-aid



Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	6	œ	7	9	5	4	с	7	-	Not Rated	Centerline Mileage	APR*
Asphalt-Standard	0.000	0.000	22.018	9.105	12.816 26.031	26.031	44.137	63.448	88.550	20.728	0.000	286.833	3.527
Composite	000.0	0.000	0.000	0.000	0.000	1.020	5.295	2.265	0.000	0.000	0.000	8.580	3.855
Concrete-Standard	0.000	0.000	0.000	0.000	0.000	1.739	0.160	0.000	0.000	0.000	0.000	1.899	4.916
Sealcoat-Standard	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.498	0.000	0.717	0000	1.215	1.820
Total Centerline Mileage	0.000	0.000	22.018	9.105	9.105 12.816 28.790	28.790	49.592	66.211	88.550	21.445	0.00	298.527	3.538
	g	Good: 22.018		Ľ	Fair: 50.711			Poor: 225.798	25.798				



Muskegon County

Project overview

In 2023, 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 2023. 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:

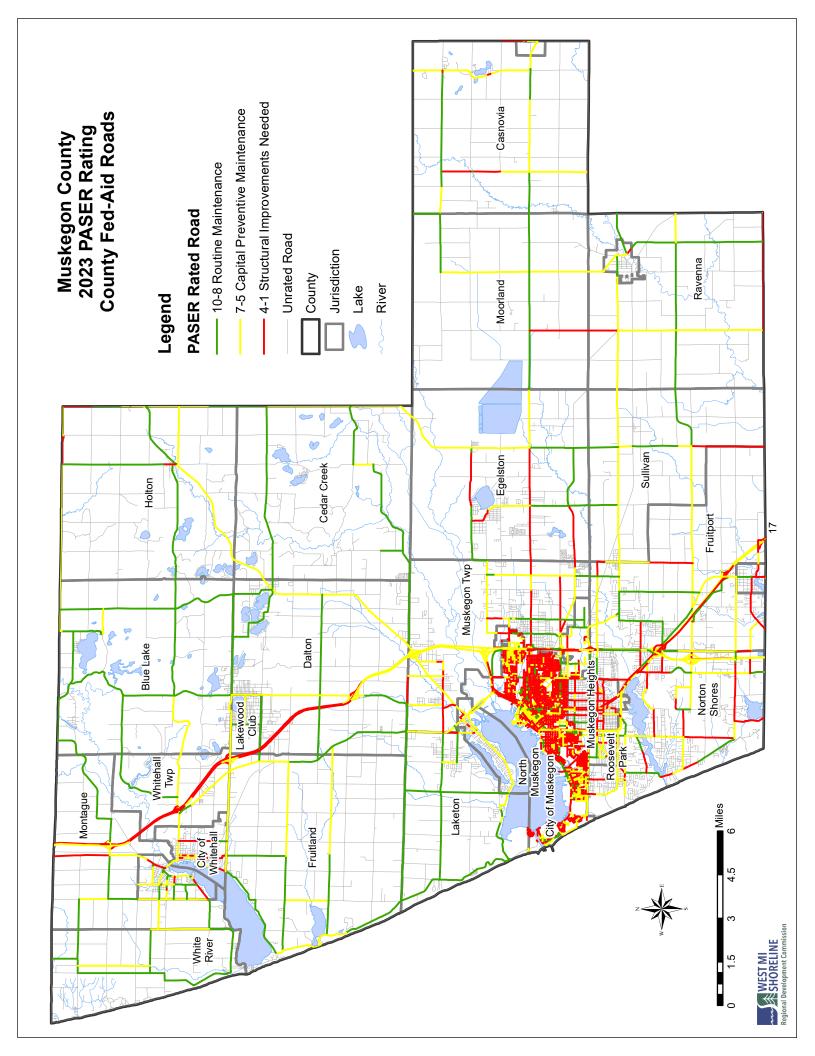
- Roads receiving a rating of Good (8 or higher) require only Routine Maintenance

- Roads receiving a rating of Fair (5-7) require Capital Preventative Maintenance

- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2023 PASER Rating Summary for Muskegon County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	12.385	1.97%
Fair (Rating 5-7)	301.191	47.94%
Poor (Rating 1-4)	314.664	50.09%



Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Muskegon	Yes
Operator	Ш	II	II
Field Name	TAMC Collection Year	County	Federal-aid



Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	ი	œ	7	9	5	4	с	7	-	Not Rated	Centerline Mileage	APR*
Asphalt-Standard	0.000	0.000	9.017	50.147	82.415	122.231	82.415 122.231 140.174 76.531	76.531	41.939 19.756	19.756	0.000	542.210	4.468
Composite	0.000	0.000	2.885	4.191	6.792	23.941	9.547	2.498	1.670	6.465	0.000	57.989	4.628
Concrete-Standard	0.000	0.000	0.483	2.305	5.291	3.878	2.880	9.753	2.050	0.391	0.000	27.031	4.306
Sealcoat-Standard	0.000	0.000	0.000	0.000	0.000	0.000	1.010	0.000	0.000	0.000	0.000	1.010	4.000
Total Centerline Mileage	0.00	0.000	12.385	56.643	94.498	150.050	56.643 94.498 150.050 153.611 88.782	88.782	45.659	26.612	0.000	628.240	4.475
	ő	Good: 12.385		Ë	Fair: 301.191	_		Poor: 314.664	4.664				



Newaygo County

Project overview

In 2023, 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.

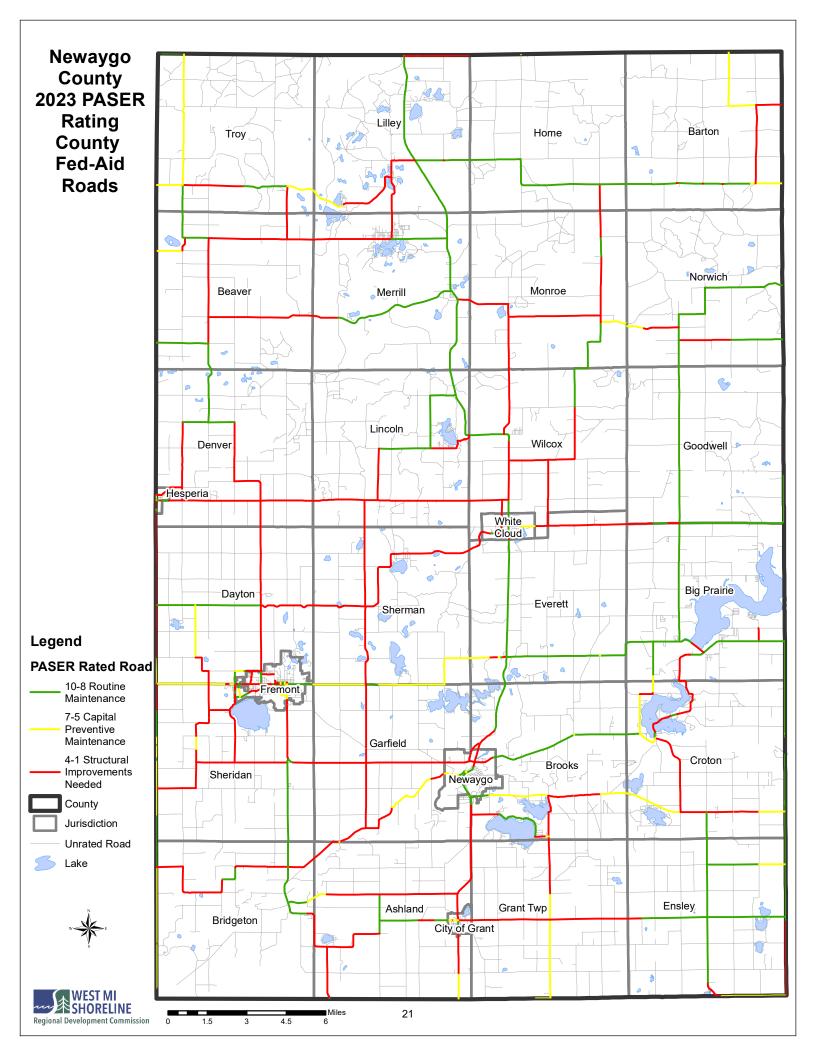
Results

Approximately 451 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 Preventative Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2023 PASER Rating Summary for Newaygo County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	14.063	3.12%
Fair (Rating 5-7)	70.386	15.60%
Poor (Rating 1-4)	366.882	81.28%



Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Yes	Newaygo
Operator	П	II	II
Field Name	TAMC Collection Year	Federal-aid	County



Current PASER Rating Mileage Summary

Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	6	8	7	9	5	4	3	2	-	Not Rated	Centerline Mileage	APR*
Asphalt-Standard	0.000	0.000	13.929	14.218	14.218 18.228	33.366	79.901	79.901 118.047	76.559	69.744	0.000	423.992	3.264
Asphalt-Standard2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.009	0.000	0.000	0000	1.009	3.000
Asphalt-Standard2.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0000	0.045	2.000
Composite	0.000	0.000	0.134	1.510	2.024	1.040	4.912	11.101	4.104	0.000	0000	24.825	3.631
Sealcoat-Standard	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.460	0.000	1.460	1.000
Total Centerline Mileage	0.00	0.000	14.063	15.728	15.728 20.252	34.406	84.813	84.813 130.157	80.708	71.204	0.000	451.331	3.276
	ອິ	Good: 14.063		Ľ	Fair: 70.386			Poor: 366.882	6.882				



Oceana County

Project overview

In 2023, region staff assessed the condition of 100% of Oceana County's federal-aid eligible roads using the PASER road rating system.

Results

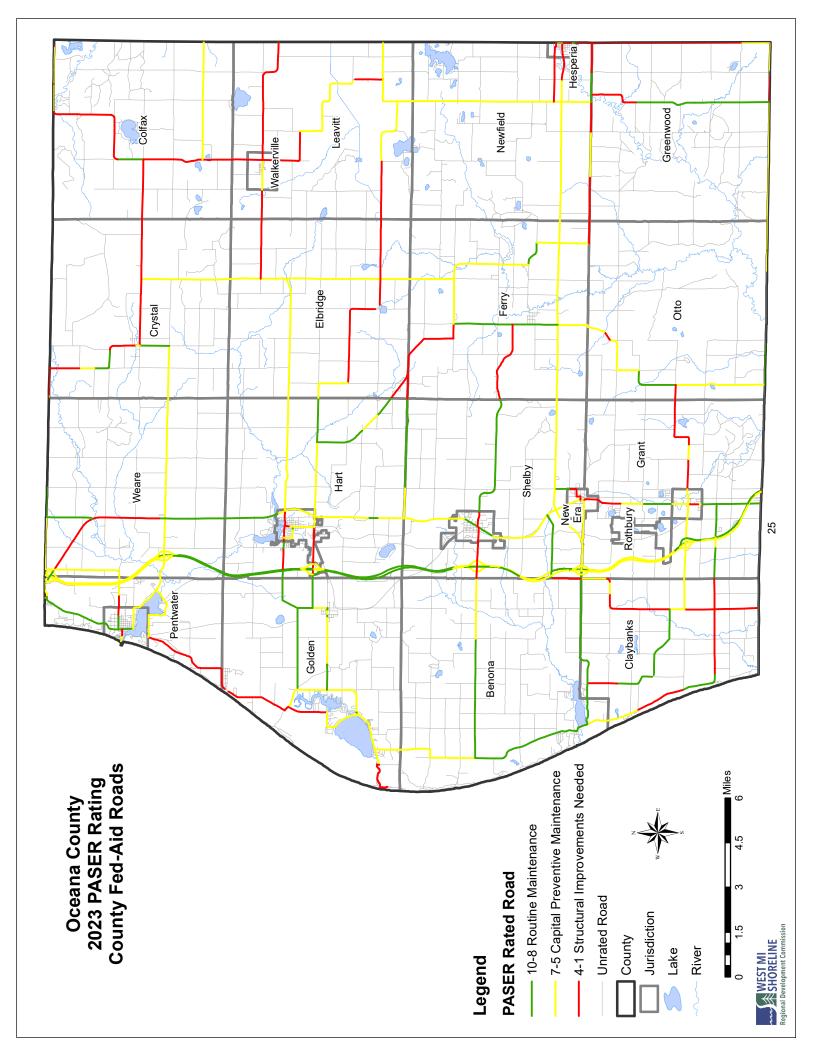
Approximately 371 miles of federal-aid eligible roads were rated for this project in 2023. This includes approximately 1 mile of unpaved roads which do not receive a number rating. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. 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 Preventative Maintenance
- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2023 PASER Rating Summary for Oceana County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	24.083	6.48%
Fair (Rating 5-7)	150.116	40.41%
Poor (Rating 1-4)	197.294	53.11%



Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Yes	Oceana
Operator	п	Ш	II
Field Name	TAMC Collection Year	Federal-aid	County



Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	6	œ	7	9	5	4	ю	7	-	Not Rated	Centerline Mileage	APR*
Asphalt-Standard	00000	3.053	18.801	19.378	27.338	39.169	19.378 27.338 39.169 31.951 57.160	57.160	59.520 34.179	34.179	0.000	290.549	3.875
Composite	000.0	0.000	2.229	18.824	18.824 28.401	8.145	4.018	3.566	0.000	0.000	000.0	65.183	5.945
Concrete-Standard	0.000	0.000	0.000	3.323	3.323 3.691	1.847	4.914 0.756	0.756	1.230 0.000	0.000	0.000	15.761	5.014
Total Centerline Mileage	0.000	3.053	21.030	41.525	59.430	49.161	41.525 59.430 49.161 40.883 61.482 60.750	61.482	60.750	34.179	0.00	371.493	4.287
	8	Good: 24.083		ű	Fair: 150.116			Poor: 197.294	17.294				



Ottawa County

Project overview

Northern Ottawa County is part of the WestPlan MPO which is administered by WMSRDC. In 2023, 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

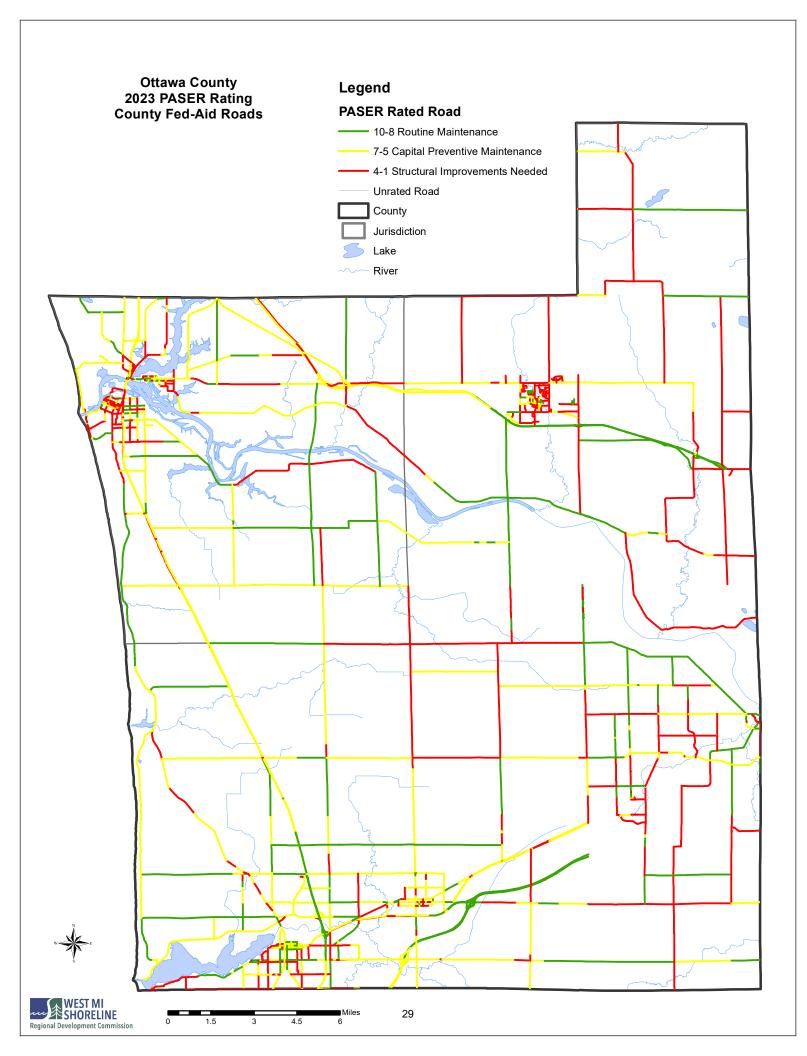
Approximately 190 miles of federal-aid eligible roads were rated for this project in 2023. This includes less than 1 mile of unpaved roads which do not receive a number rating. The following summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. 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 Preventative Maintenance

- Roads receiving a rating of Poor (4 or less) require Structural Improvements

2023 PASER Rating Summary for Ottawa County

Condition	Centerline Miles	Percentage
Good (Rating 8+)	3.97	2.06%
Fair (Rating 5-7)	83.042	43.66%
Poor (Rating 1-4)	103.198	54.27%



Printed On: Friday, January 26, 2024 Grouped By: Surface Subtype

Value(s)	2023	Yes	Ferrysburg or Grand Haven or Spring Lake or Spring Lake Twp or Grand Haven Twp or Crockery Twp or Robinson Twp
Operator	Ш	II	II
Field Name	TAMC Collection Year	Federal-aid	City/Twp



Current PASER Rating Mileage Summary

Printed On January, 26, 2024

Roadsoft Version 2023.3

					PASER Rating	Rating						Total	
Surface Subtype	10	6	8	7	9	5	4	ε	7	-	Not Rated	Centerline Mileage	APR*
Asphalt	0.000	0.000	0.000	0.700	0.000	0.159	0.000	0.000	0.000	0.000	000.0	0.859	6.630
Asphalt-Standard	0.000	0.000	3.355	8.509	22.690	35.896	27.914	30.256	12.308	4.327	0.000	145.255	4.361
Composite	0.000	0.000	0.572	8.195	2.084	4.265	12.044	3.837	0.365	0.000	0.000	31.362	4.980
Concrete	0.000	0.000	0.000	0.000	0.000	0.099	0.000	0.000	0.000	0.000	0.000	0.099	5.000
Concrete-Standard	0.000	0.000	0.000	0.000	0.000	0.445	0.688	10.042	1.417	0.000	0.000	12.592	3.013
Total Centerline Mileage	0.000	0.000	3.927	17.404	17.404 24.774	40.864	40.646	44.135	14.090	4.327	0.000	190.167	4.384
	õ	Good: 3.927		Ľ	Fair: 83.042			Poor: 103.198	3.198				

