



Transportation Asset Management Program 2014/2015 Federal Aid PASER Road Survey

October 2015



**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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Transportation Asset Management Council 2012/2013 PASER Road Survey

I. Background

What Is Asset Management?

Asset management is a concept in the transportation industry that is emerging 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

Each year, WMSRDC staff, along with the Michigan Department of Transportation (MDOT) and a county road commission employee, collects this data within our region. Each year, staff attends a training session to review the previous year’s collection process and to retrain those who will be involved.

Each region within the state 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, 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 task assignments below.

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 using the PASER system. Activities to be undertaken as part of this task include:

1. Attendance at a 1-day training seminar on the use of PASER.
2. Participation as part of a 3-person team that will rate the federal-aid eligible roads in the region.
3. Providing the results of the PASER ratings to local agencies for review and revise where appropriate.
4. Public display of PASER ratings on Web site 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 (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. This collection of the 50 percent of the data continued in 2014 and 2015. Each year, WMSRDC staff, along with an MDOT employee and a county road commission employee, collects this data within the region.

The first step in this process is for each of the County Road Commissions to decide which roads will be included in the current year's 50 percent rating survey. Once this has been decided a network is created in RoadSoft and exported 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. The rating group then drives the entire network that was previously selected by the Road Commission. For each segment of road the three person 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 collects data using a laptop computer with the RoadSoft GIS Laptop Data Collector software. A Garmin GPS unit was connected to the laptop to track position and locate road segments. 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.

Staff Time:

For the purpose of collecting PASER data, it is most efficient to have three people in the vehicle, one driver, one navigator/rater, and the third staff member who is assigned to enter information into the computer. For each county road rating project, there is always one representative from our region, one road commission, and one MDOT representative present.

Training:

All participants in the survey were required to attend a daylong training session. Participants received an overview of the project and were 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 taught the new participants how to use the

RoadSoft program and guided them through the rating process. Most participants felt comfortable after an hour of working the computer and rating the 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 amount 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 fixes 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Severe distress with extensive loss of surface integrity. 	Failed. Needs total reconstruction.

IV. County Projects

Lake County

Project overview:

In 2014 and 2015, West Michigan Shoreline Regional Development Commission staff, along with representatives of the Lake County Road Commission (LCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Lake County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results:

Approximately 115 miles of federal-aid eligible roads were rated in 2014 and 152 miles were rated in 2015 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 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capital Preventative Maintenance
- Roads receiving a rating less than or equal to 4 require Structural Improvements

PASER Rating Prescribed Fix Miles Percent of Total Miles Rated

1-4 Structural Improvements 133.534 miles (49.90%)

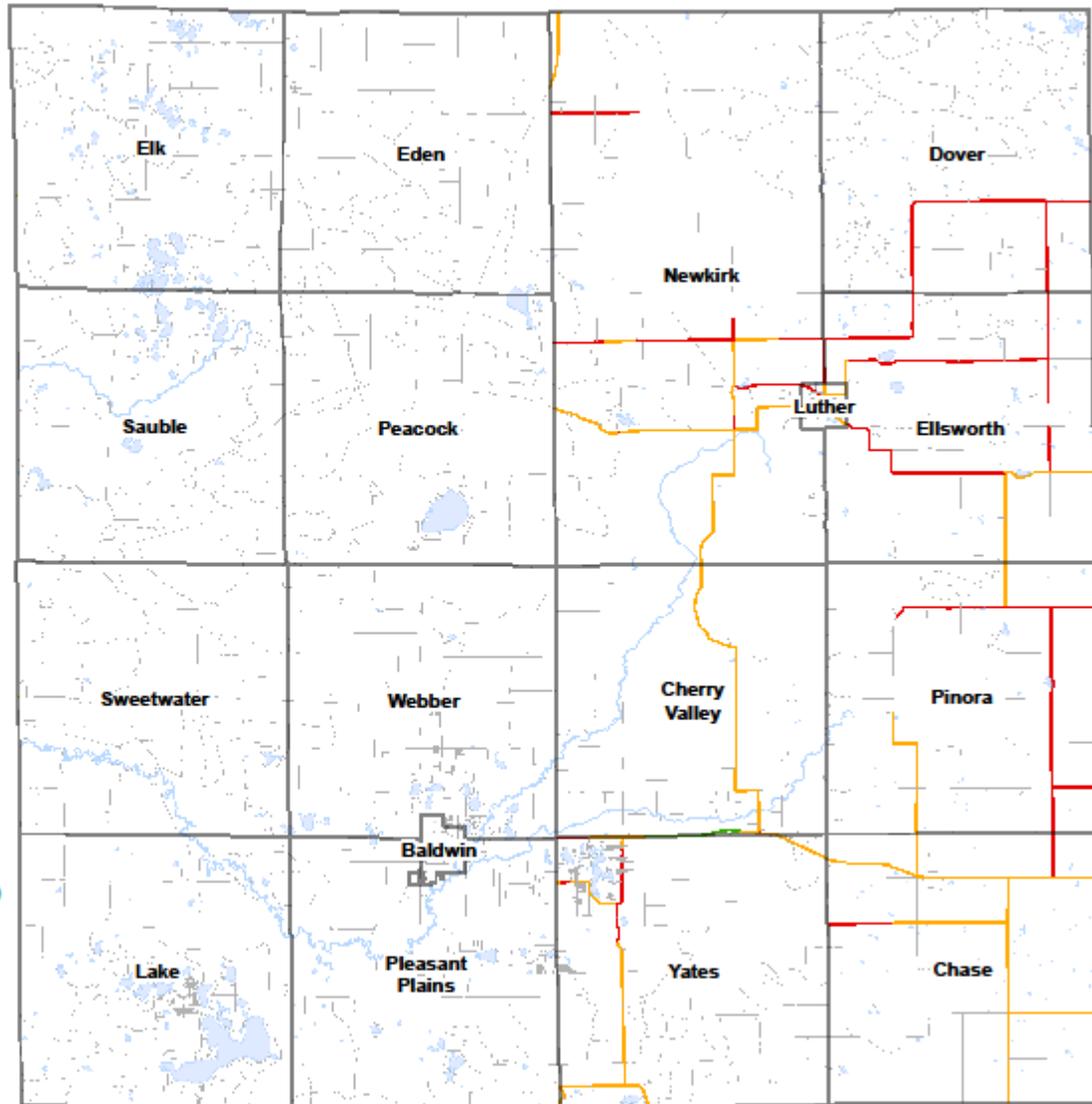
5-7 Capital Preventative Maintenance 113.342 miles (42.41%)

8-10 Routine Maintenance 20.527 (7.68%)

Lake County 2014 Federal Aid Road Survey

2014 PASER Ratings

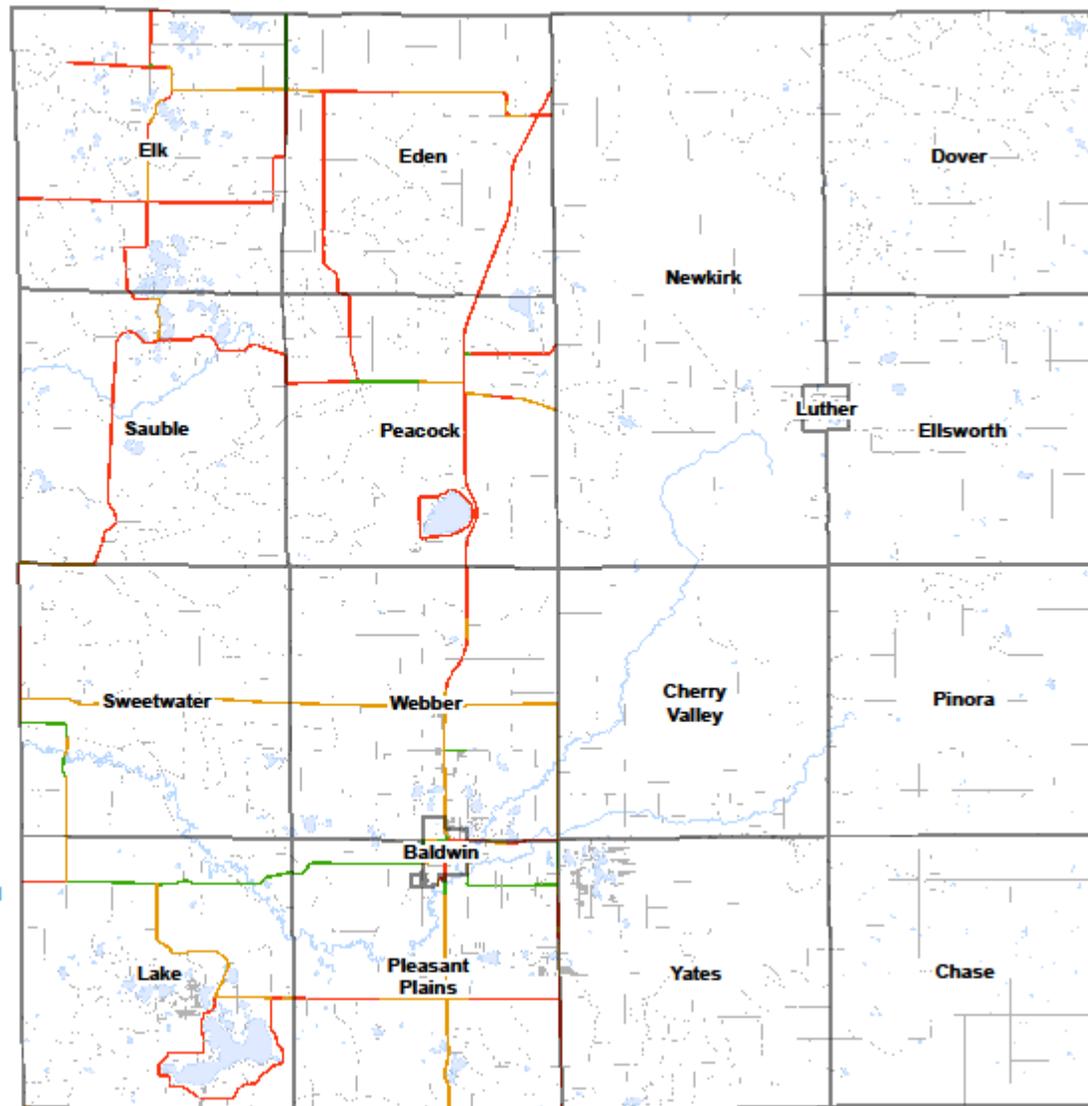
- Unrated Roads
- 8-10 (Routine Maintenance)
- 5-7 (Capital Preventive Maintenance)
- 1-4 (Structural Improvements Needed)



Lake County 2015 Federal Aid Road Survey

2015 PASER Ratings

- Other Roads
- 8-10 - Routine Maintenance
- 5-7 - Capital Preventive Maintenance
- 1-4 - Structural Improvements Needed



Mason County

Project overview:

In 2014 and 2015, West Michigan Shoreline Regional Development staff, along with representatives of the Mason County Road Commission (MCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Mason County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results:

Approximately 137 miles of federal-aid eligible roads were rated for this project in 2014 and 167 miles for 2015. 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 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capital Preventative Maintenance
- Roads receiving a rating less than or equal to 4 require Structural Improvements

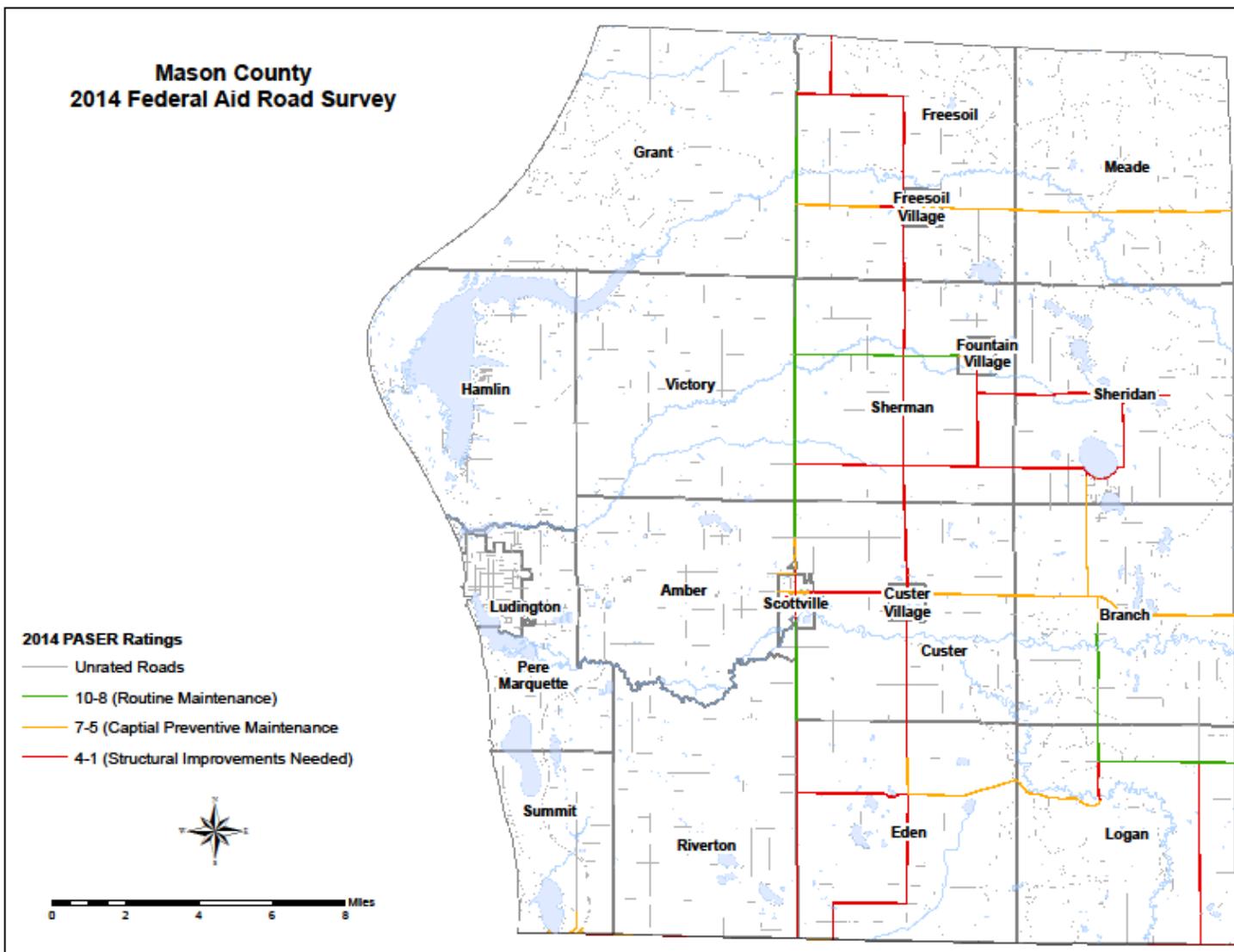
PASER Rating Prescribed Fix Miles Percent of Total Miles Rated

1-4 Structural Improvements 140.806 miles (46.35%)

5-7 Capital Preventative Maintenance 110.266 miles (36.30%)

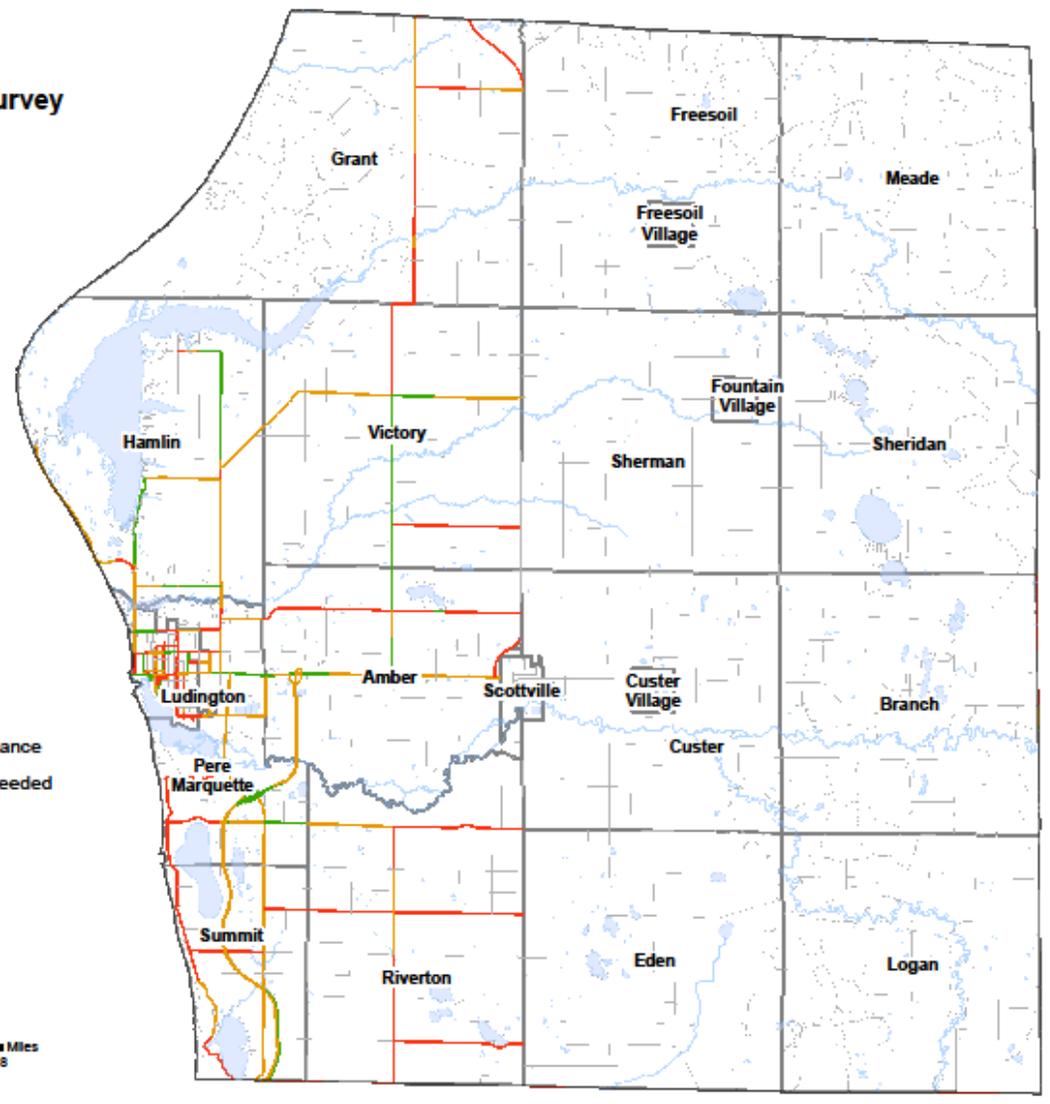
8-10 Routine Maintenance 52.690 miles (17.35%)

Mason County 2014 Federal Aid Road Survey



Mason County 2015 Federal Aid Road Survey

- 2015 PASER Ratings**
- Other Roads
 - 8-10 - Routine Maintenance
 - 5-7 - Capital Preventive Maintenance
 - 1-4 - Structural Improvements Needed



Muskegon County

Project overview:

In 2014 and 2015, West Michigan Shoreline Regional Development Commission staff, along with representatives of the Muskegon County Road Commission (MCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Muskegon County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results:

Approximately 639 miles of federal-aid eligible roads were rated for this project: 368 miles of federal-aid eligible roads were rated in 2014 and 271 miles for 2015. 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:

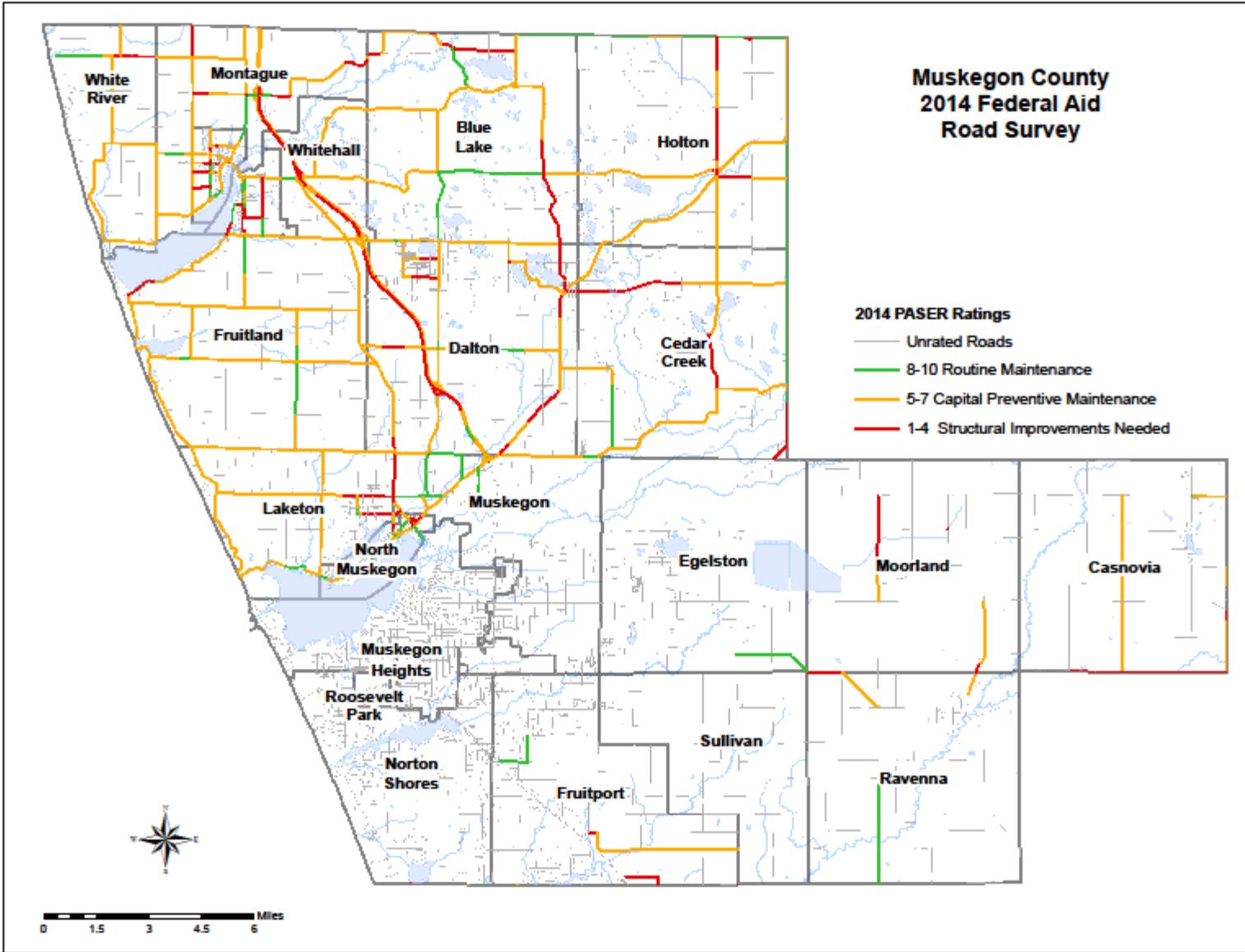
- Roads receiving a rating of 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capital Preventative Maintenance
- Roads receiving a rating less than or equal to 4 require Structural Improvements

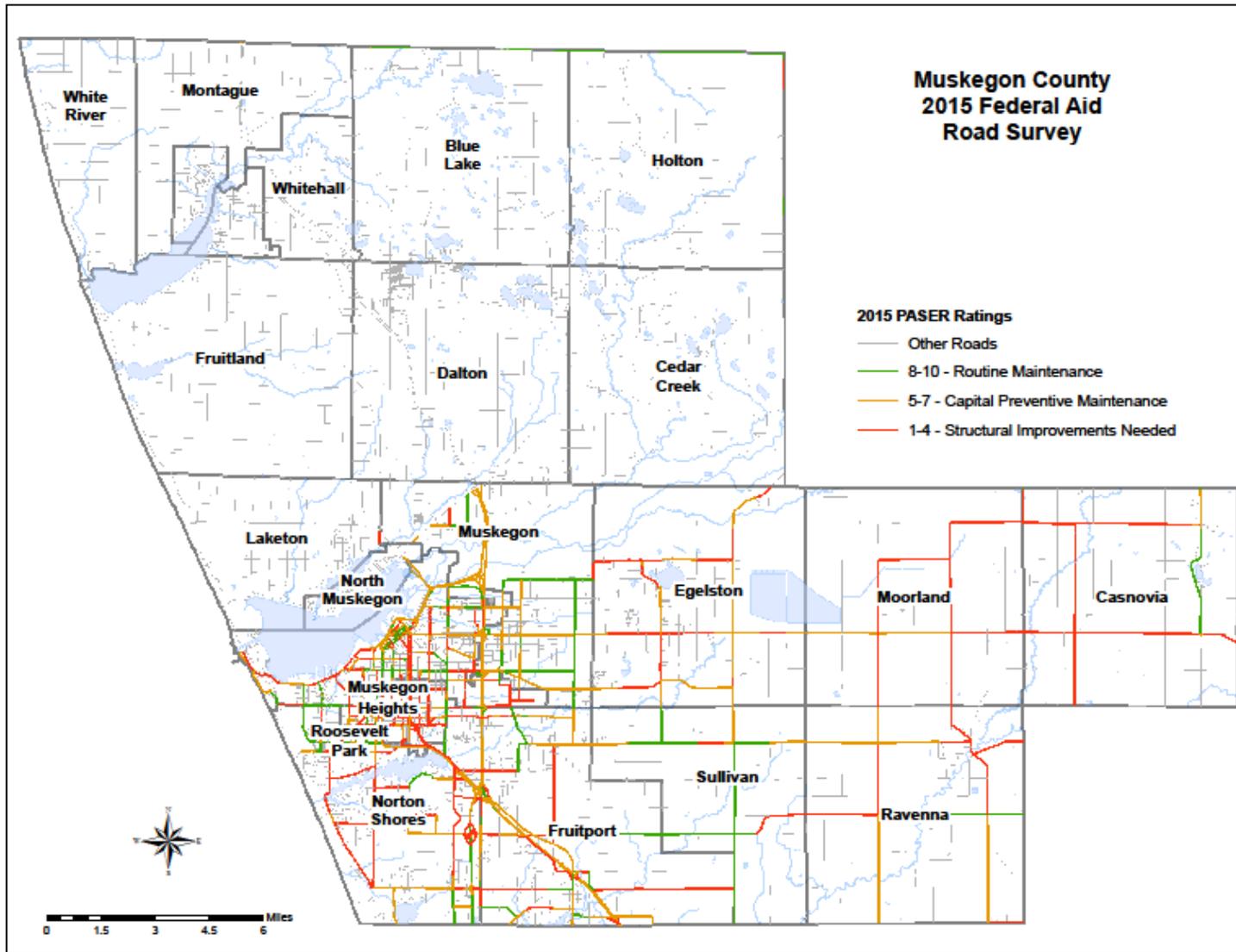
PASER Rating Prescribed Fix Miles / Percent of Total Miles Rated

1-4 Structural Improvements 188.310 miles (29.47%)

5-7 Capital Preventative Maintenance 323.753 miles (50.67%)

8-10 Routine Maintenance 126.909 miles (19.86%)





Newaygo County

Project overview:

In 2014 and 2015, West Michigan Shoreline Regional Development Commission staff, along with representatives of the Newaygo County Road Commission (NCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Newaygo County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results:

Approximately 467 miles of federal-aid eligible roads were rated for this project: 237 miles of federal-aid eligible roads were rated in 2014 and 230 miles for 2015. 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 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capital Preventative Maintenance
- Roads receiving a rating less than or equal to 4 require Structural Improvements

PASER Rating Prescribed Fix Miles / Percent of Total Miles Rated

1-4 Structural Improvements 247.421 miles (53.01%)

5-7 Capital Preventative Maintenance 149.396 miles (32%)

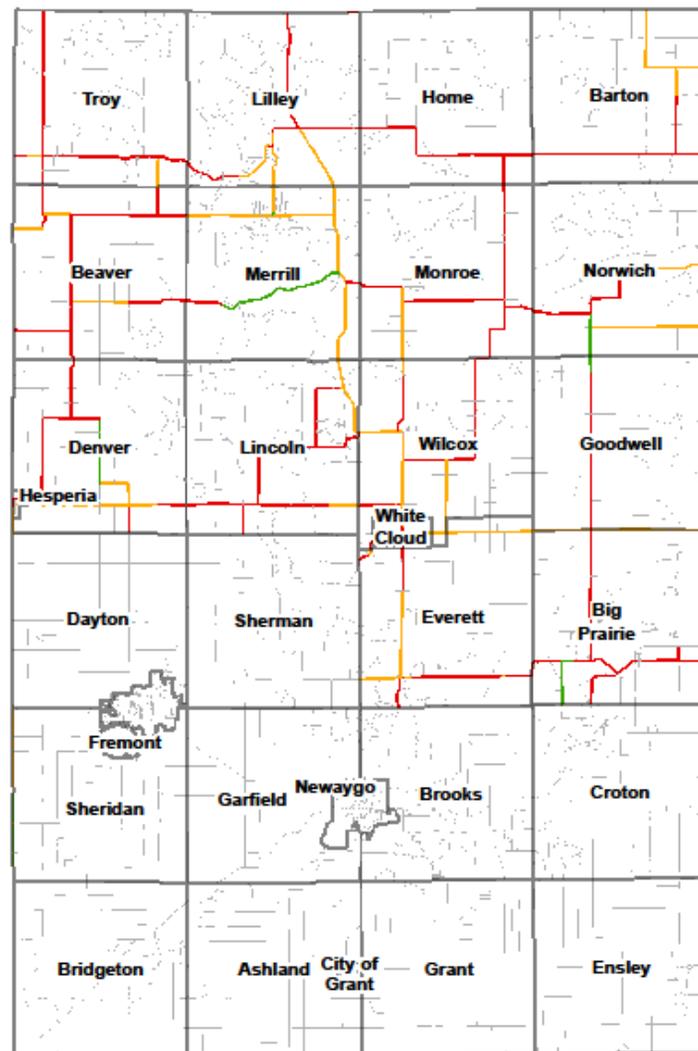
8-10 Routine Maintenance 69.963 miles (14.99%)

Newaygo County 2014 Federal Aid Road Survey

- 2014 PASER Ratings**
- Unrated Roads
 - 8-10 (Routine Maintenance)
 - 5-7 (Capital Preventive Maintenance)
 - 1-4 (Structural Improvements Needed)

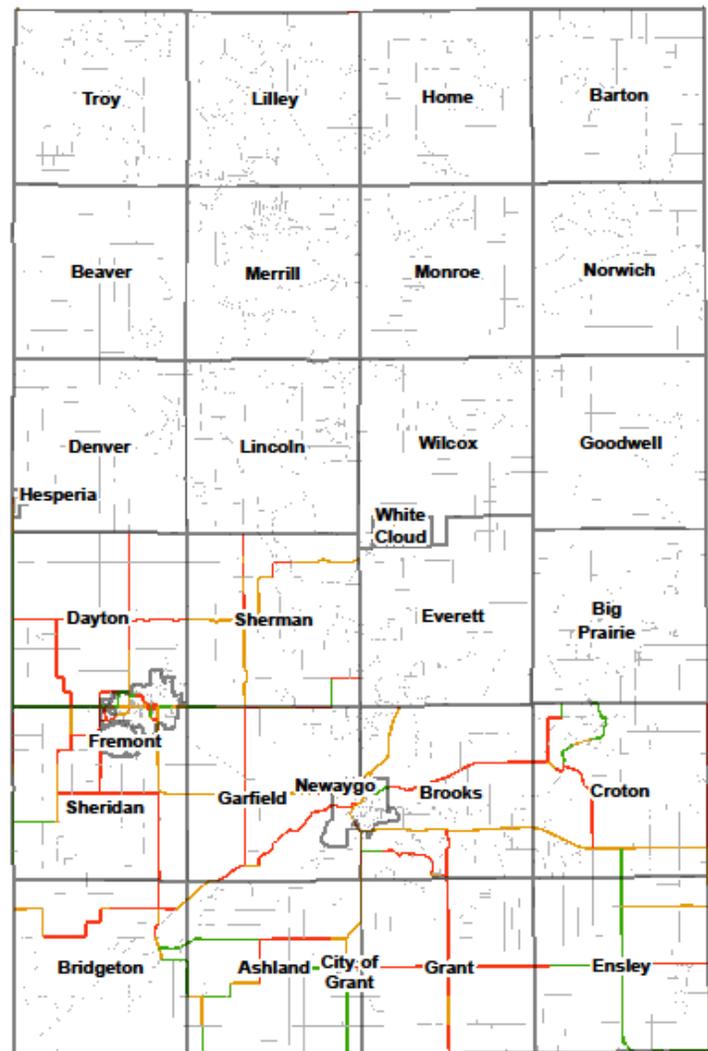


0 2 4 6 8 Miles



Newaygo County 2015 Federal Aid Road Survey

- 2015 PASER Ratings**
- Other Roads
 - 8-10 - Routine Maintenance
 - 5-7 - Capital Preventive Maintenance
 - 1-4 - Structural Improvements Needed



Oceana County

Project overview:

In 2014 and 2015, West Michigan Shoreline Regional Development Commission staff, along with representatives of the Oceana County Road Commission (OCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Oceana County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council.

Results:

Approximately 402 miles of federal-aid eligible roads were rated for this project: 206 miles of federal-aid eligible roads were rated in 2014 and 196 miles for 2015. 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 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capital Preventative Maintenance
- Roads receiving a rating of 1 to 4 require Structural Improvements

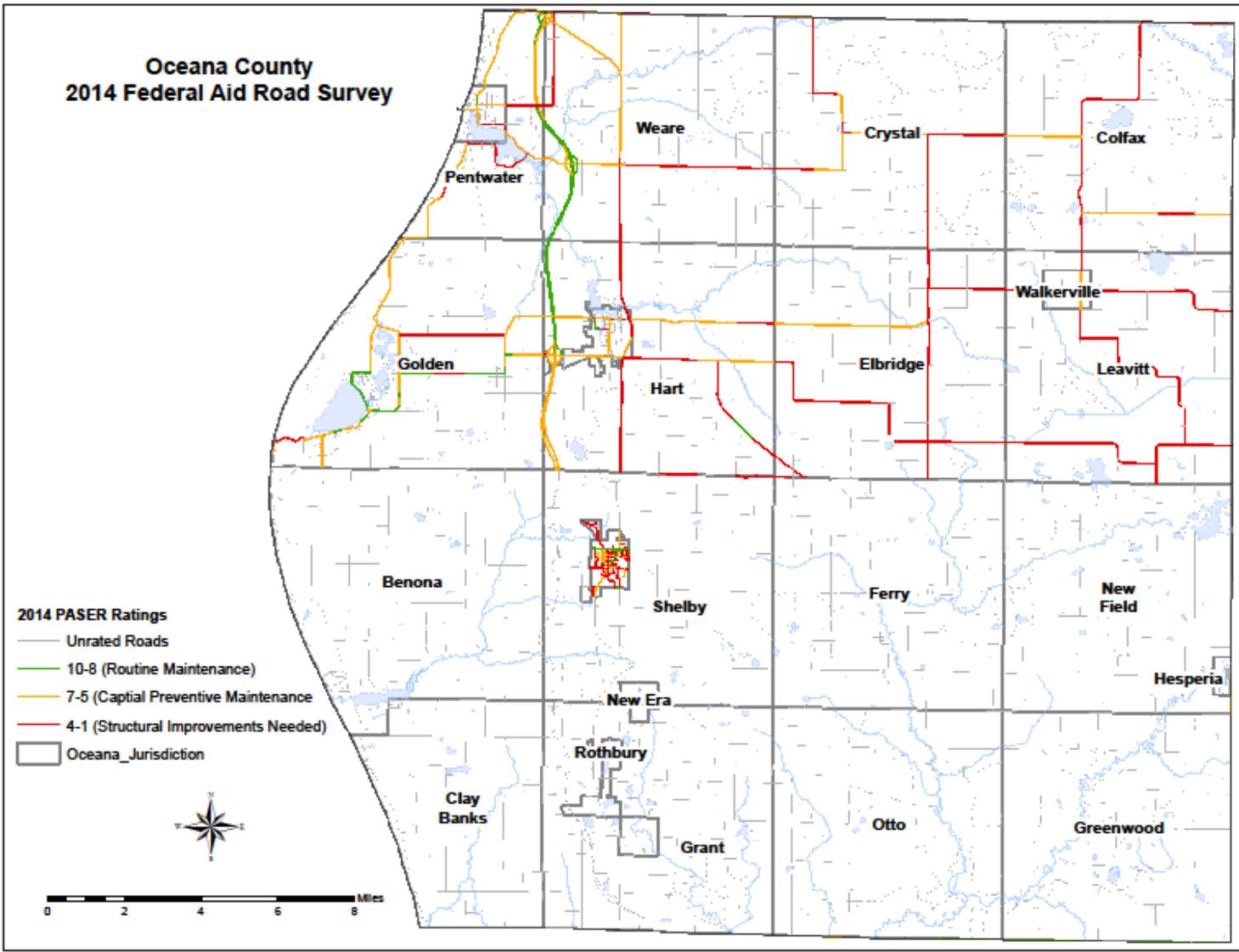
PASER Rating Prescribed Fix Miles / Percent of Total Miles Rated

1-4 Structural Improvements 196.729 miles (49%)

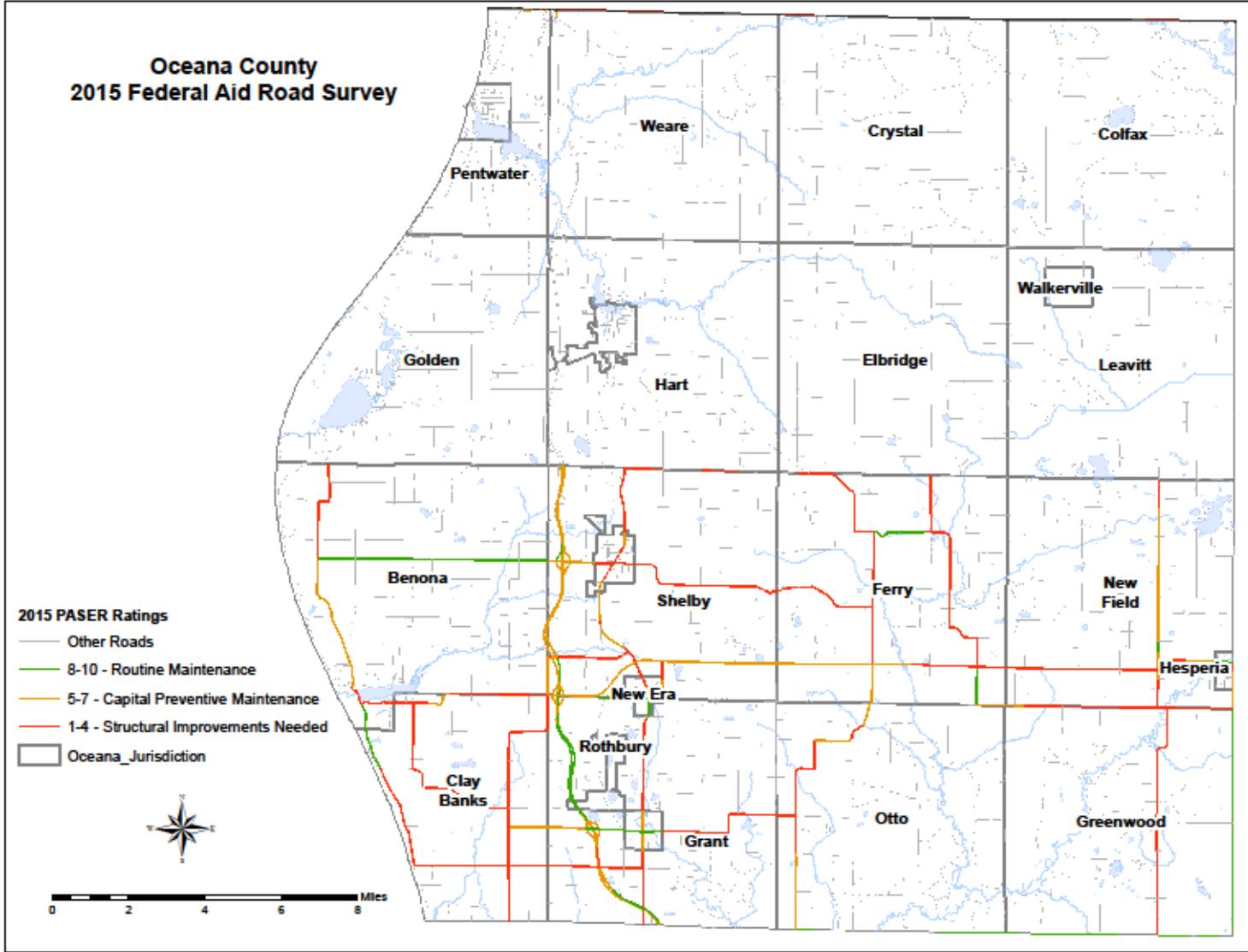
5-7 Capital Preventative Maintenance 134.927 miles (34%)

8-10 Routine Maintenance 70.043 miles (17%)

**Oceana County
2014 Federal Aid Road Survey**



**Oceana County
2015 Federal Aid Road Survey**



Ottawa County

Project overview:

In 2015, West Michigan Shoreline Regional Development Commission staff, along with representatives of the Ottawa County Road Commission (OCRC) and the Michigan Department of Transportation (MDOT), assessed the condition of Oceana County federal-aid eligible roads using the PASER road rating system, as requested by the State of Michigan Asset Management Council. Since WMSRDC only covers the northern portion of Ottawa County, that portion is only rated every other year.

Results:

Approximately 183 miles of federal-aid eligible roads were rated 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 8 or better require only Routine Maintenance
- Roads receiving a rating of 5-7 require Capitol Preventative Maintenance
- Roads receiving a rating of 1 to 4 require Structural Improvements

PASER Rating Prescribed Fix Miles / Percent of Total Miles Rated

1-4 Structural Improvements 65.569 miles (36%)

5-7 Capital Preventative Maintenance 77.803 miles (42%)

8-10 Routine Maintenance 39.509 miles (22%)

