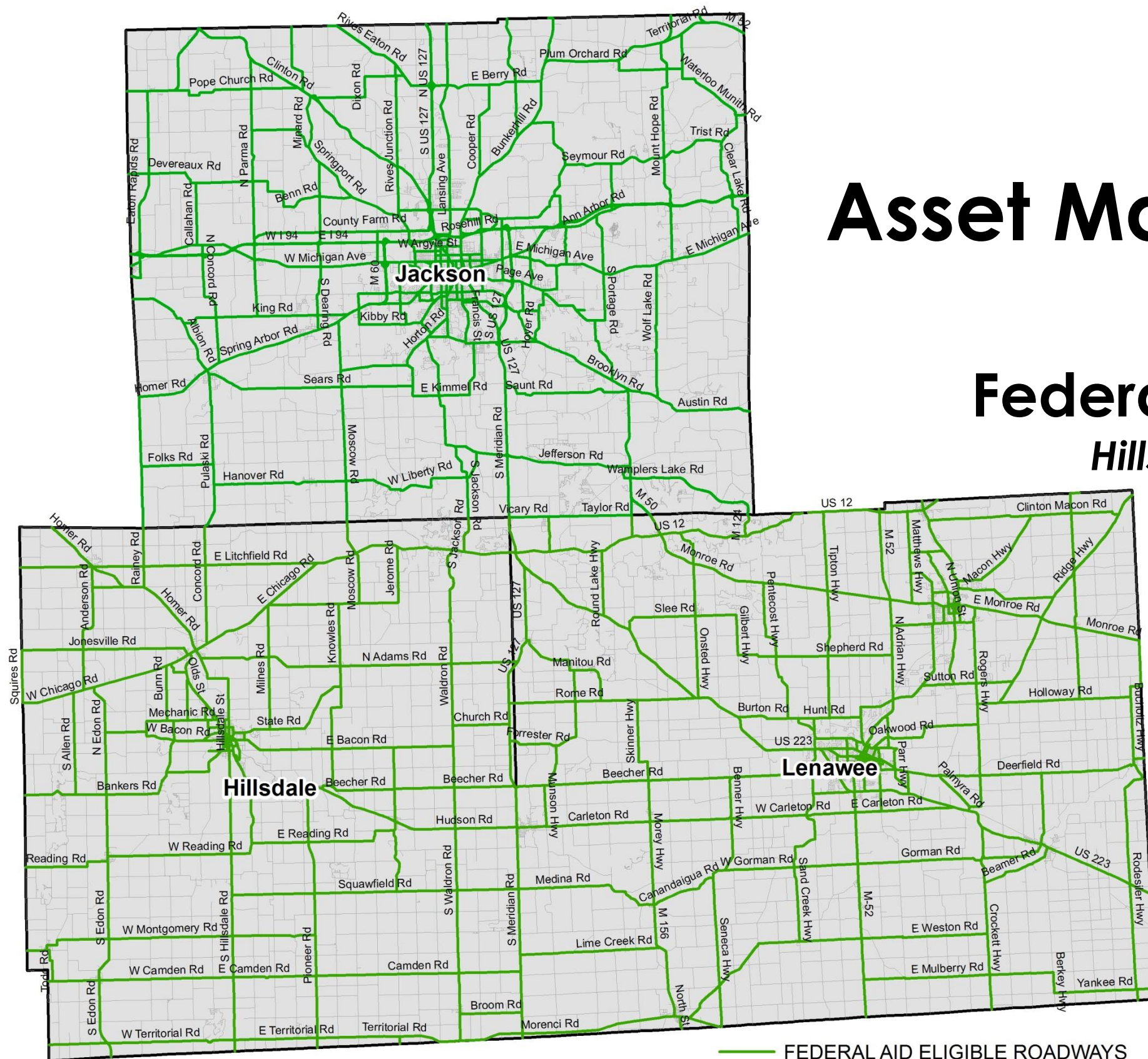# 2016-2017
Asset Management Report

Federal-Aid Eligible Roadways
Hillsdale, Jackson, & Lenawee Counties

November 2017

Region 2 Planning Commission
Serving Hillsdale, Jackson and Lenawee Counties

—— FEDERAL AID ELIGIBLE ROADWAYS

2016-2017 Region 2 Area Asset Management Report

Federal-Aid Eligible Roadways
Hillsdale, Jackson, & Lenawee Counties

November 2017

The Asset Management Program for Federal-Aid Eligible Roadways in the Region 2 Area (i.e., Hillsdale, Jackson, and Lenawee Counties) is administered by the Region 2 Planning Commission (R2PC) and funded by the Michigan Department of Transportation (MDOT). The 2016-2017 Asset Management Report was prepared by the R2PC.

The Asset Management Program in the Region 2 Area and the rest of Michigan is led by the Transportation Asset Management Council - an eleven (11) member body consisting of representatives from the Michigan Municipal League, Michigan Township Association, Michigan Transportation Planners Association, Michigan Association of Regions, Michigan Association of Counties, the County Road Association of Michigan, and MDOT. The mission of the Transportation Asset Management Council is:

"Advise the State Transportation Commission on a statewide asset management
strategy and the necessary procedures and analytical tools to implement such
a strategy on Michigan's highway system in a cost-effective, efficient manner".

Table of Contents

Introduction

The Asset Management Program in the Region 2 Area is a continuous effort to monitor the surface conditions of federal-aid eligible roadways in Hillsdale, Jackson and Lenawee Counties. The Program is administered by the Region 2 Planning Commission, with guidance from Michigan's Transportation Asset Management Council and in collaboration with the Michigan Department of Transportation (MDOT), the three county road commissions, and the various cities and villages located in the Region 2 Area. MDOT funds the Program.

The Asset Management Program involves a comprehensive and strategic approach that looks at the entire road network, rather than individual projects, and provides road agencies with a tool to:

- *manage road infrastructure in the short term*, and
- *plan for future improvements in the long term*.

The data compiled for the Asset Management Program is gathered in the field and analyzed using a software program known as RoadSoft-GIS[1]. Much of the data pertains to road surface conditions that can be utilized by road agencies to:

- *monitor the physical condition of the federal-aid roadway network (excluding bridges)*, and
- *optimize the preservation, improvement, and timely replacement of federal-aid roadways*.

Instead of simply accounting for existing infrastructure, the Asset Management Program can be utilized to ensure the proper use and performance of the federal-aid roadway network, a process that involves the continuous assessment of conditions and evaluation of trade-offs between different actions (i.e., a "mix of fixes").

The data collection effort was originally scheduled to take place over a three-year period, beginning in 2006. However, the program was extended and all of the federal-aid roads in each county have been rated over a two-year period (i.e., one-half of the roadways each year) since 2008. The following county and local road agencies are also utilizing RoadSoft-GIS to rate their local roadway network: the cities of Adrian, Hillsdale, Jackson, Litchfield, and Tecumseh; the Village of Blissfield; and the counties of Hillsdale, Jackson, and Lenawee.

Asset Management strives to gather road ratings that are accurate and consistent. For this reason, it is preferred that the same personnel are used to provide ratings from year-to-year. Also to help ensure consistency, raters are required to attend annual training provided by Michigan Technological University's Center for Technology and sponsored by the Michigan Department of Transportation.

2016-2017 Asset Management Survey Data Collection

The roadway network is comprised of several types of roadways:

- **Principal and minor arterials.** Interstates, other freeways, highways, roads, and streets designed to carry large amounts of traffic and to provide access to important destinations (e.g., employment centers, retail districts, etc.);
- **Major/urban Collectors.** Road and streets which function as conduits directing local traffic to arterial roadways and are designed to provide more access to property than arterial; and
- **Local roadways.** Road and streets designed to provide access to property and to carry small amounts of traffic.

This data collection effort is limited to federal-aid roadways (i.e., arterials and collectors) although various road agencies throughout the region are also rating local roadways. Federal-aid roads are eligible for federal transportation funding to be spent on their construction, repair, and maintenance. There are currently 1,664 miles of federal-aid eligible roadways in the Region 2 Area:

- **Hillsdale County** .... 426 miles
- **Jackson County** .... 687 miles
- **Lenawee County** .... 564 miles

The highways, roads, and streets which comprise the roadway network are owned and operated by the Michigan Department of Transportation (MDOT), the three road commissions and the various municipalities (i.e., cities and villages) in the Region 2 Area. Consequently, data is collected in each county —on a biennial basis (i.e., half [½] of the network each year)— by teams consisting of officials from MDOT, the county road commission and/or local municipalities:

- **Lanes.** The number of lanes in each roadway segment, with freeways and boulevards divided into separate segments by direction.
- **Surface subtype.** The surface subtype (i.e., asphalt, sealcoat, composite, concrete, or gravel) for each roadway segment.
- **Surface rating.** The condition of those surfaces are rated using the Pavement Surface Evaluation and Rating (PASER) system, according to the scale in Table 1.

---

[1] The Center for Technology ,Michigan Technological University, developed and maintains RoadSoft-GIS

Table 1
PASER Rating Scale

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 ft. 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 ¼ in.) spaced due to reflection or paving joints. ☛ Transverse cracks (open ¼ in.) 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 ¼ in. – ½ in.) due to reflection and paving joints. ☛ Transverse cracking (open ¼ in. – ½ in.), some spaced less than 10 ft. ☛ Slight to moderate flushing or polishing. ☛ Occasional patching in good condition.	Shows 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 ½ in.) 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 ½ in.). ☛ 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 in. deep or less).	Significant aging and first signs of need for strengthening. Would benefit from recycling or overlay.

(continued)

Table 1
PASER Rating Scale

Surface Rating		Visible Distress	General Condition/ Treatment Measures
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 in. or 2 in. deep). ⬜ Occasional potholes.	Need patching and major overlay or complete recycling.
2	Very poor	⬜ Alligator cracking (over 25% of surface). ⬜ Severe distortions (over 2 in. deep). ⬜ Extensive patching in poor condition. ⬜ Potholes.	Severe deterioration. Reconstruction with extensive base repair is needed.
1	Failed	⬜ Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

Hillsdale County

2016 Asset Management Team	2017 Asset Management Team
🚗 Laurent Fournier, MDOT University Reg.	🚗 Laurent Fournier, MDOT University Reg.
🚗 Heather Boyd, Hillsdale CRC	🚗 Heather Boyd, Hillsdale CRC
🚗 Aaron Dawson, R2PC	🚗 Alexa Gozdiff, R2PC
Survey Dates: 10/24/16, 10/25/16	**Survey Date:** 10/2/2017, 10/3/17

PASER (Pavement Surface Evaluation and Rating) ratings were gathered during the 2017 reporting period for more than 209 miles of western Hillsdale County roadways. Nearly 208 miles of roadways were rated in the eastern half of the County in 2016 (Map 1).

Table 1
2016-2017 Hillsdale County PASER Ratings

PASER Rating	2016		2017		2016-2017	
	Miles	Ratio	Miles	Ratio	Miles	Ratio
10	0.0	0.0%	0.0	0%	0.0	0.0%
9	13.9	6.4%	26.8	13%	36.5	8.7%
8	27.2	12.6%	6.8	3%	24.1	5.8%
7	2.2	1.0%	13.2	6%	29.9	7.2%
6	45.9	21.2%	30.3	14%	41.7	10.0%
5	15.5	7.2%	21.0	10%	52.6	12.6%
4	23.5	10.9%	57.4	27%	115.3	27.6%
3	84.7	39.2%	49.8	24%	96.4	23.1%
2	3.5	1.6%	4.2	2%	20.5	4.9%
1	0.0	0.0%	0.0	0%	0.0	0.0%
Total	207.7	100.0%	209.3	100%	417.1	100.0%

The surveys reveal that of the **federal-aid roadways**:

14.5% are in very good or excellent condition.

29.8% are in fair or good condition.

55.7% are in poor or very poor condition or have failed.

Please see Table 2 and Figure 1 for more detail.

The federal-aid roadway network can be divided into five different types:

🚗 **State trunkline (i.e., highways)** comprise 26.8% of the federal aid-roadway network. **14.6%** are in very good or excellent condition. **45.7%** are in fair or good condition. **39.7%** of state highways are in poor or very poor condition or have failed.

🚗 **County primary roads** comprise 66.3% of the federal-aid roadway network. **13.6%** of primary roads are in very good or excellent condition. **28.2%** of primary roads are in fair or good condition. **58.2%** of primary roads are in poor or very poor condition or have failed.

🚗 **Local county roads** comprise less than half of one percent of the federal-aid roadway network. This segment of local county road is in poor condition.

🚗 **Major streets** in cities and villages comprise 6.5% of the federal-aid roadway network. **4.4%** are in very good or excellent condition. **25.6%** are in fair or good condition. **70%** are in poor or very poor condition or have failed.

🚗 **Minor streets** in cities and villages did not comprise any of the ratings for the 2016-2017 collection years.

Hillsdale County Ratings History

Table 3 provides the PASER ratings for the federal-aid roadway network from 2007 through the 2016-2017 rating cycle for Hillsdale County:

Table 2
History of Hillsdale County PASER Ratings

PASER Rating	2007	2008-2009	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
8-10	15.6%	40.0%	20.0%	19.7%	19.4%	15.4%	11.2%	16.2%	14.5%
5-7	31.2%	28.1%	54.6%	52.1%	36.5%	38.1%	32.2%	29.1%	29.8%
1-4	53.2%	31.9%	25.4%	28.2%	44.1%	46.5%	56.6%	54.7%	55.7%

Figure 1
2016-2017 PASER Ratings
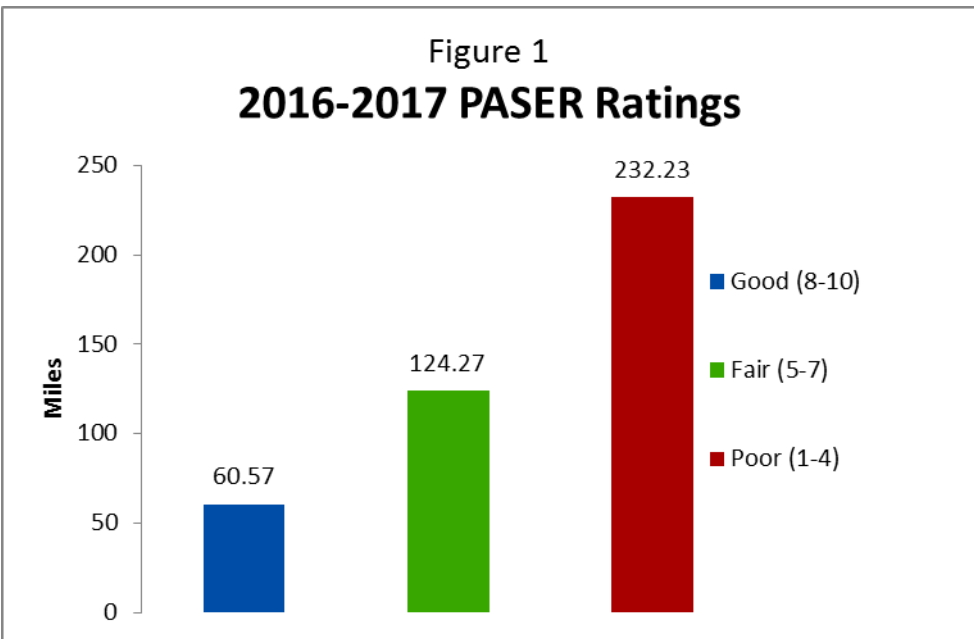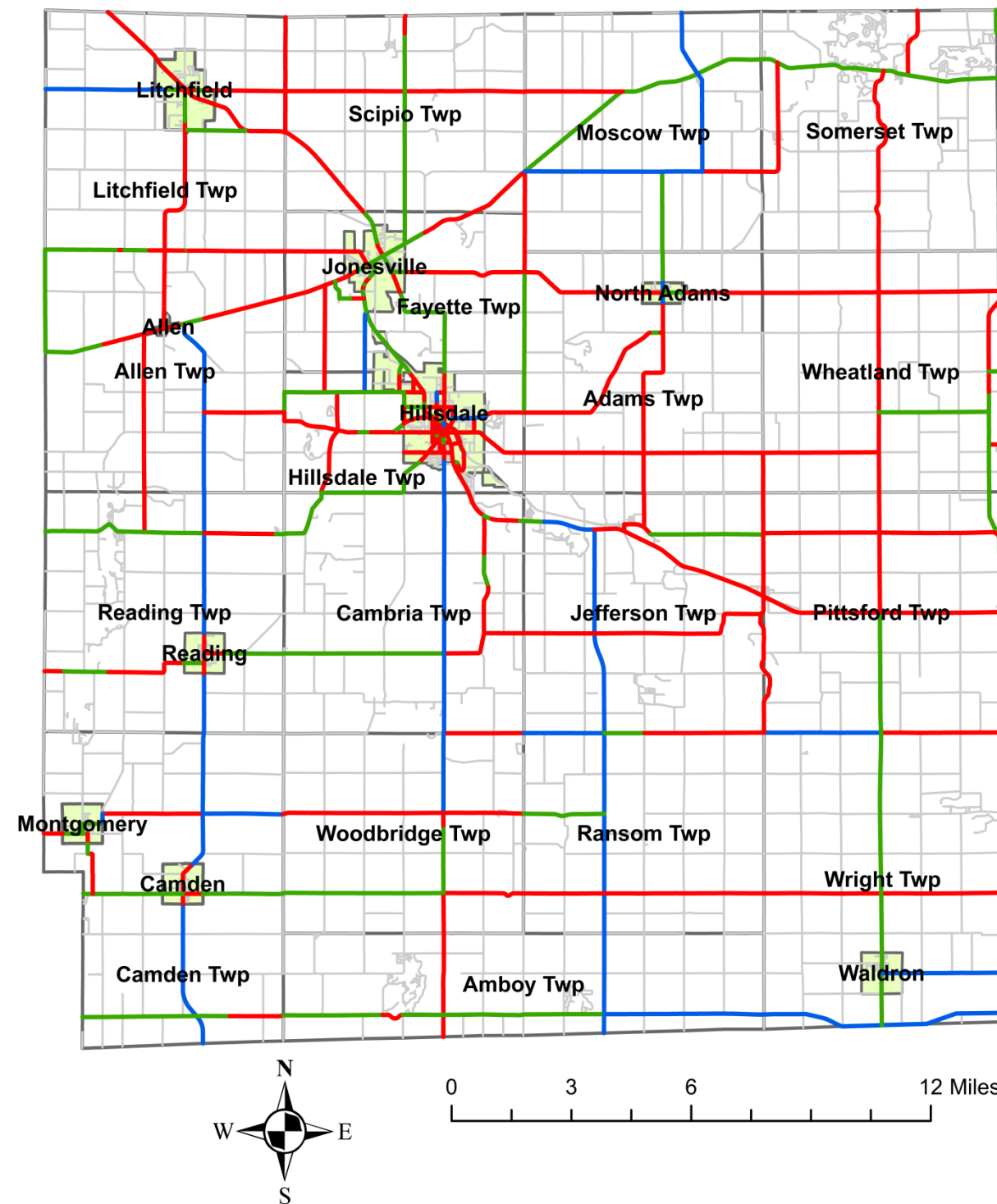
Hillsdale County 2016-2017

Asset Management (PASER)

Surface Condition Ratings

——	1 - 4 Poor
——	5 - 7 Fair
——	8 - 10 Good
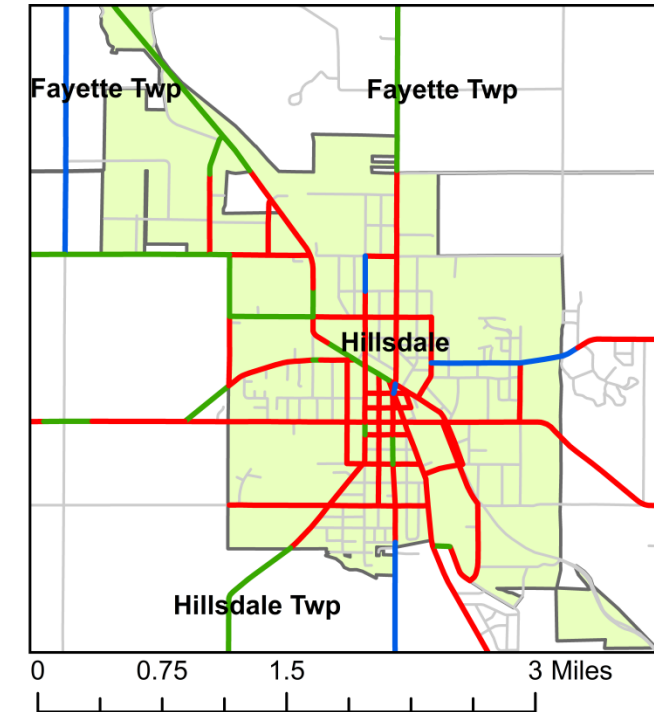
Source: 2016-2017 PASER Road Ratings
Map created November 2017

Jackson County

2016 Asset Management Team	2017 Asset Management Team
⚙ Scott Walter, MDOT University Region	⚙ Scott Walter, MDOT University Region
⚙ Dan Valdez, Jackson DOT	⚙ Corey Clevenger, Jackson DOT
⚙ Jon Dowling, City of Jackson	⚙ Alexa Gozdfif, R2PC
⚙ Aaron Dawson, R2PC	
Survey Dates: 9/26/16, 9/27/16, 10/21/16	Survey Dates: 9/26/17, 9/27/17

PASER (Pavement Surface Evaluation and Rating) ratings were gathered during the 2017 reporting period for 329 miles of Jackson County roadways. In 2016, nearly 355 miles of roadway were rated in the northern half of the county, including the City of Jackson. (Map 2).

The surveys reveal that of the **federal-aid roadways**:

21.5% are in very good or excellent condition.

56.6% are in fair or good condition.

21.9% are in poor or very poor condition or have failed. Please see Table 4 and Figure 2 for more detail.

Table 3
2016-2017 Jackson County PASER Ratings

PASER Rating	2016 Miles	2016 Ratio	2017 Miles	2017 Ratio	2016-2017 Miles	2016-2017 Ratio
10	3.1	0.9%	18.4	6%	21.5	3.1%
9	17.6	4.9%	4.0	1%	21.6	3.2%
8	14.9	4.2%	89.1	27%	104.0	15.2%
7	45.3	12.8%	87.5	27%	132.8	19.4%
6	110	31.0%	41.6	13%	151.6	22.2%
5	78.2	22.0%	24.4	7%	102.6	15.0%
4	50.6	14.3%	26.5	8%	77.1	11.3%
3	30	8.5%	34.8	11%	64.8	9.5%
2	5.2	1.5%	3.1	1%	8.3	1.2%
1	0	0.0%	0.0	0%	0.0	0.0%
Total	354.9	100.0%	329.3	100%	684.2	100.0%

The federal-aid roadway network can be divided into five different types:

⚙ **State trunkline** (i.e., highways) comprise 34.8% of the federal aid-roadway network.

30.8% are in very good or excellent condition. **39.1%** are in fair or good condition. And **30.1%** of state highways are in poor or very poor condition or have failed.
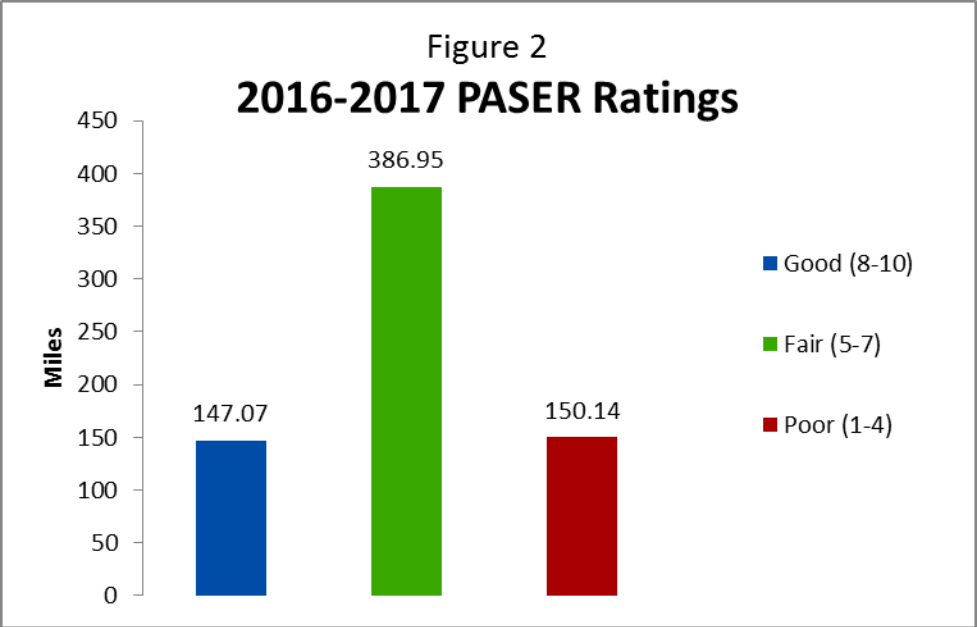
⚙ **Local county roads** comprise 19.3 miles of the federal-aid roadway network. **1.5%** are in very good or excellent condition. **27.9%** are in fair or good condition. **70.6%** are in poor or very poor condition or have failed.

⚙ **Major streets** in cities and villages comprise 7.1% of the federal-aid roadway network. **6.3%** are in very good or excellent condition. **68.8%** are in fair or good condition. **24.9%** are in poor or very poor condition or have failed.

⚙ **Minor streets** in cities and villages did not comprise any of the ratings for the 2016-2017 collection years.

Jackson County Ratings History

Table 5 provides the PASER ratings for the federal-aid roadway network from 2007 through the 2016-2017 rating cycle for Jackson County.

Table 4
History of Jackson County PASER Ratings

PASER Rating	2007	2008-2009	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
8-10	31.7%	19.7%	22.1%	15.2%	17.4%	18.4%	16.3%	15.4%	21.5%
5-7	65.2%	57.4%	59.1%	68.1%	59.0%	37.4%	39.1%	54.2%	56.6%
1-4	3.1%	22.9%	18.8%	16.7%	23.6%	44.2%	44.6%	30.4%	21.9%

Figure 2
2016-2017 PASER Ratings

Jackson County 2016-2017

Asset Management (PASER)

Surface Condition Ratings

———	1 - 4 Poor
———	5 - 7 Fair
———	8 - 10 Good

Springport Township   Tompkins Township   Rives Township   Henrietta Township

Waterloo Township

Blackman Charter Township

Parma Township   Sandstone Charter Township

Village of Parma

Village of Parma

Village of Parma

Leoni Township

Village of Grass Lake

Grass Lake Charter Township

City of Jackson

Summit Township

Concord Township   Spring Arbor Township

Summit Township

Village of Concord

Napoleon Township

Norvell Township

Pulaski Township   Hanover Township   Liberty Township   Columbia Township

Village of Hanover

Village of Brooklyn

Village of Cement City

Blackman Charter Township

City of Jackson

Leoni Township

Summit Township

Summit Township   Napoleon Township

0   1   2   4 Miles

Source: 2016-2017 PASER Road Ratings
Map created November 2017

N
W   E
S

0   3.75   7.5   15 Miles

Lenawee County

2016 Asset Management Team	2017 Asset Management Team
🚗 Laurent Fournier, MDOT University Reg. 🚗 Pete Greenman, Lenawee CRC 🚗 Aaron Dawson, R2PC	🚗 Laurent Fournier, MDOT University Reg. 🚗 Pete Greenman, Lenawee CRC 🚗 Alexa Gozdiff, R2PC
Survey Dates: 10/17/16, 10/18/16	**Survey Dates:** 10/17/17, 10/18/17

PASER (Pavement Surface Evaluation and Rating) ratings were gathered during the 2016 reporting period for nearly 257 miles of southern Lenawee County roadways. Nearly 257 miles of northern Lenawee County were rated in 2017. (Map 3).

Table 5
2016-2017 Lenawee County PASER Ratings

PASER Rating	2016		2017		2016-2017	
	Miles	Ratio	Miles	Ratio	Miles	Ratio
10	0.0	0.0%	2.9	1%	2.9	0.5%
9	13.3	5.2%	11.6	4%	24.9	4.5%
8	27.2	10.6%	55.9	19%	83.1	15.1%
7	12.3	4.8%	30.9	11%	43.2	7.8%
6	71.4	27.8%	53.7	18%	125.1	22.7%
5	31.0	12.1%	33.6	11%	64.6	11.7%
4	36.7	14.3%	69.0	23%	105.7	19.2%
3	42.2	16.4%	34.2	12%	76.4	13.9%
2	22.6	8.8%	2.2	1%	24.8	4.5%
1	0.0	0.0%	0.0	0%	0.0	0.0%
Total	256.8	100.0%	294.1	100%	550.8	100.0%

poor condition or have failed.

The surveys reveal of the **federal-aid roads**:

20.1% are in very good or excellent condition.

42.3% are in fair or good condition.

37.6% are in poor or very poor condition or have failed.

Please see Table 6 and Figure 3 for more detail.

The federal-aid roadway network can be divided into five different types:

🚗 **State trunkline** (i.e., highways) comprise 29.3% of the federal aid-roadway network. **8.3%** are in very good or excellent condition. **51.9%** are in fair or good condition. Only **39.8%** are in poor or very
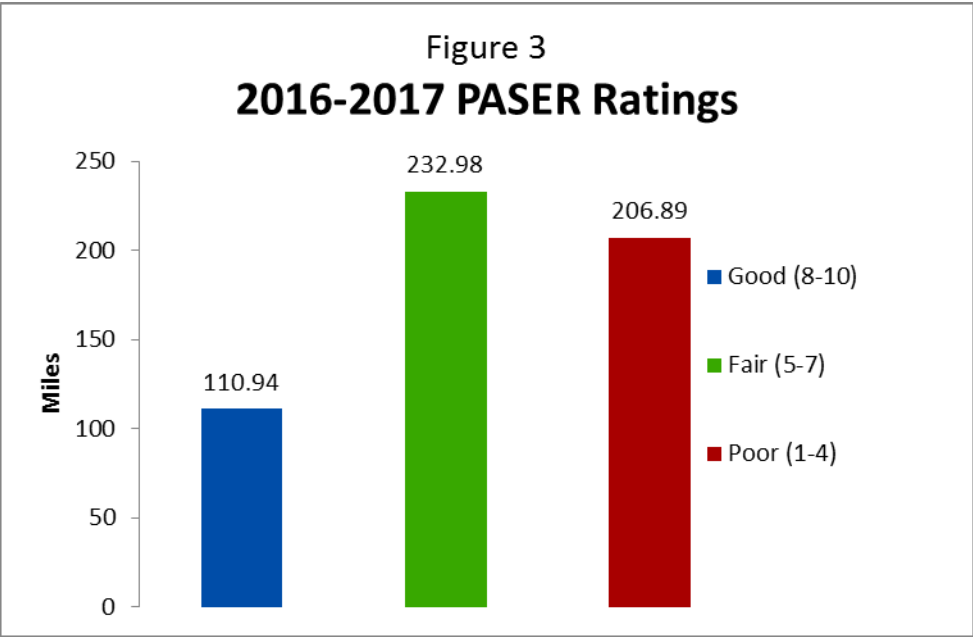
🚗 **County primary roads** comprise 59.6% of the federal-aid roadway network. **15.8%** are in very good or excellent condition. **24.1%** are in fair or good condition. **60.1%** are in poor or very poor condition or have failed.

🚗 **Local county roads** comprise 6.4 miles of the federal-aid roadway network. **55.9%** are in very good or excellent condition. **23.7%** are in fair or good condition. **20.4%** of local roads are in poor or very poor condition or have failed.

🚗 **Major streets** in cities and villages comprise 9.7% of the federal-aid roadway network. **12.2%** are in very good or excellent condition. **23.5%** are in fair or good condition. **64.3%** are in poor or very poor condition or have failed.

🚗 **Minor streets** in cities and villages comprise 1.4 miles of the federal-aid roadway network. **27.6%** are in very good or excellent condition. **12.9%** are in fair or good condition. **59.4%** are in poor or very poor condition or have failed.

Lenawee County Ratings History

Table 7 provides the PASER ratings for the federal-aid roadway network from 2007 through the 2016-2017 rating cycle for Lenawee County.

Table 6
History of Lenawee County PASER Ratings

PASER Rating	2007	2008-2009	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
8-10	28.9%	28.7%	13.6%	14.7%	20.9%	18.2%	15.5%	18.2%	20.1%
5-7	54.5%	51.5%	55.3%	59.3%	48.4%	45.8%	44.0%	43.9%	42.3%
1-4	16.6%	19.8%	31.1%	26.0%	30.7%	36.0%	40.5%	37.9%	37.6%

Figure 3
2016-2017 PASER Ratings

Good (8-10): 110.94
Fair (5-7): 232.98
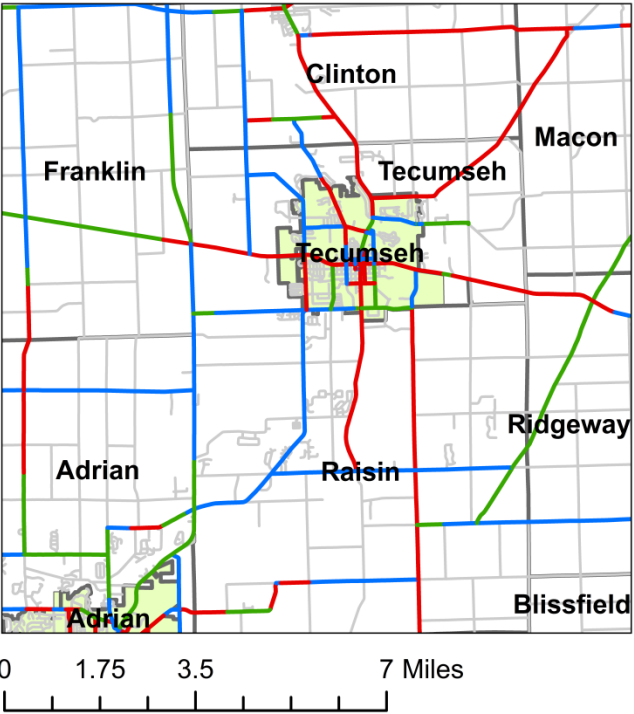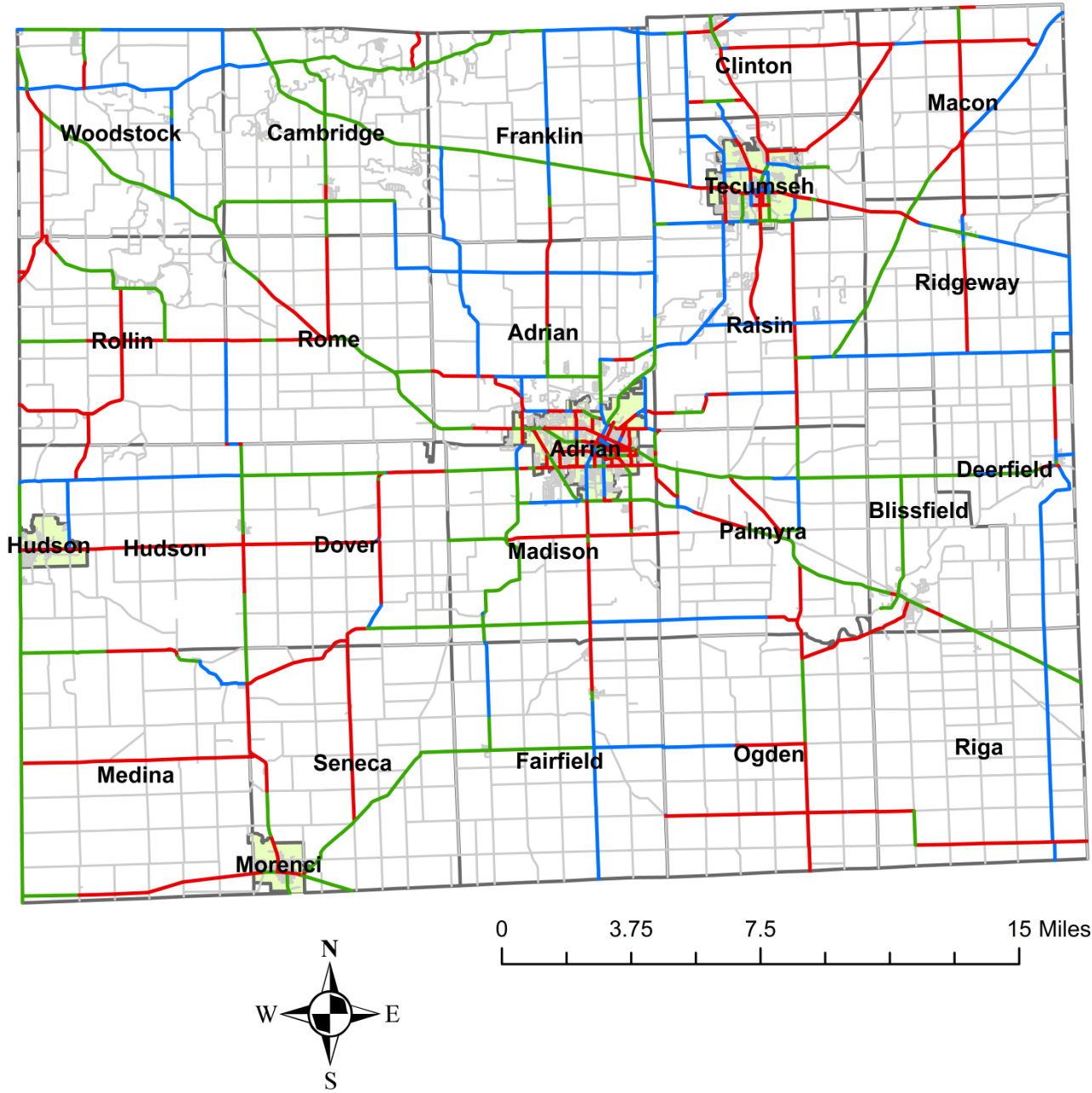Poor (1-4): 206.89

Lenawee County 2016-2017

Asset Management (PASER)
Surface Condition Ratings

— 1 - 4   Poor
— 5 - 7   Fair
— 8 - 10   Good

Source: 2016-2017 PASER Road Ratings
Map created November 2017