

The State of Michigan Transportation



2003-2011 PASER Road Survey

For Berrien County, Michigan



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Appendix (available at http://swmpc.org/asset_mgmt_b.asp):

- Table: Percentage of Roads in Each PASER Category By Jurisdiction
- PASER Asphalt Rating Chart
- PASER Concrete Rating Chart
- PASER Gravel Rating Chart
- Road Rating History Report
- PASER Thematic Maps

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PROJECT OVERVIEW

Since 2003, the Southwest Michigan Planning Commission (SWMPC) and representatives of each of the three counties (Berrien, Cass, and Van Buren) in the Southwest Region and the Michigan Department of Transportation (MDOT) have jointly conducted annual assessments of the condition of the Southwest Region's federal aid eligible roads. These assessments have utilized the Pavement Surface Evaluation and Rating (PASER) system in establishing road conditions. The effort has been funded and administered through the State of Michigan Transportation Asset Management Council and has satisfied the Governmental Accounting Standards Board Statement 34 (GASB 34), requiring tri-annual road assessments for governmental units receiving federal aid, doing so with minimal staff over short time periods.

METHODOLOGY: THE PASER ROAD RATING SYSTEM

PASER, or Pavement Surface Evaluation and Rating, is a visual test of the surface condition of the road that utilizes a ten-point scale, focusing on pavement conditions; structural or geometric defects are not considered in determining the ratings. Ratings are applied to road segments of varying length, with segment values ranging from 10 for a new road segment to 1 for a completely failed segment, and specific ratings determined by the number and type of surface defects. The ratings are compiled by teams of three to four individuals who drive the roads and conduct windshield surveys. PASER rating charts for asphalt, concrete, and gravel roads have been included in the appendix of this report.

PASER Rating	Pavement Quality
10	Excellent
9	
8	
7	
6	
5	
4	
3	
2	
1	Poor

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 encompasses day-to-day maintenance activities, 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 that retard future deterioration and maintain or improve 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. These 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, addressing the structural integrity of a road.

Computer Equipment and Software

Teams collected data using a laptop computer with the RoadSoft GIS Laptop Data Collector software loaded. A GlobalSat BU-353 Waterproof USB GPS Receiver 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 purposes of this project, a team of three members was used for collecting PASER data. Each team member played a separate role within the vehicle during the data collection. One individual drove and collaborated in the road rating, a second navigated and also collaborated in the road ratings, and a third entered the rating information into the laptop computer. The team was comprised of one SWMPC representative, one representative from a county road commission (depending upon which county the team was in at the time), and one MDOT representative from the Coloma Transportation Service Center (TSC).

Training

All participants in the survey were required to attend a daylong training session that took place at the Kalamazoo Area Transportation Study offices. 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.

RESULTS

County-Wide Results

As shown in Figure 1 and Table 1 below, the surface condition of federal aid eligible roads in Berrien County has generally worsened from 2003 through 2011. The percentage of assessed road segments receiving a Good rating of 8-10 has decreased from a high of 38.8% in 2004 to an average of 16.0% in 2010 and 2011. Likewise, the percentage of road segments rated Poor (1-4) grew from a low of 3.5% in 2004 to a high of 36.1% in 2008 and an average of 29.2% in 2010 and 2011.

Figure 1: Percentage of road segments falling under surface condition classifications, by year

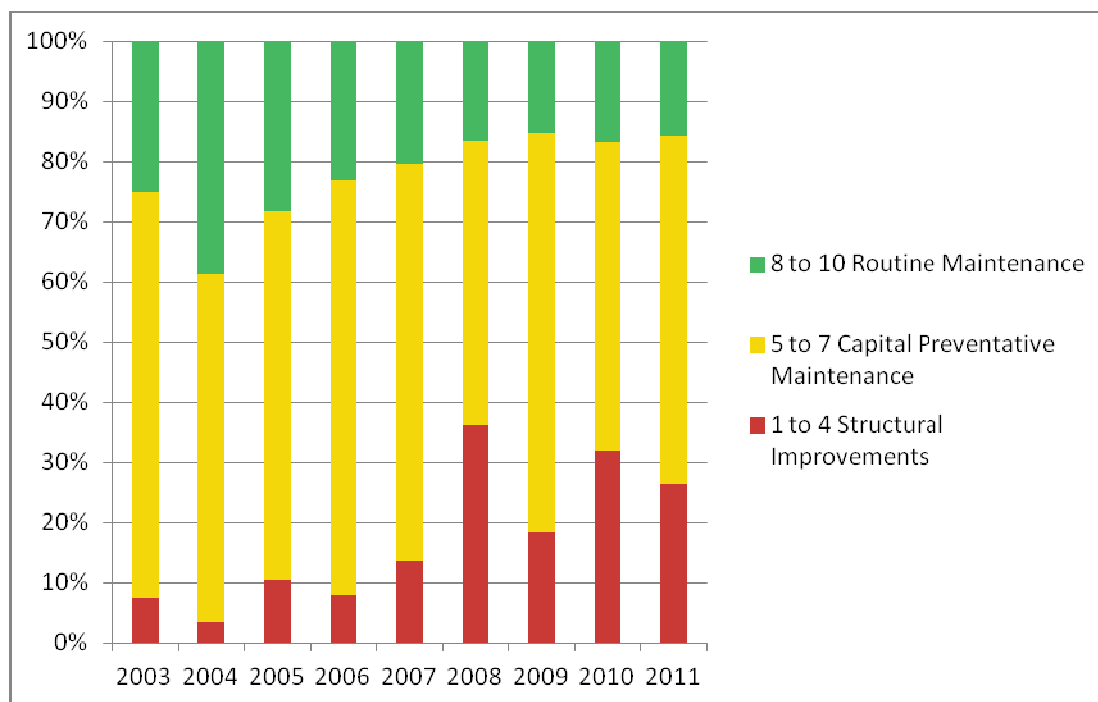


Table 1: Road segment classifications and total road-miles rated, by year

Year	1 to 4 Structural Improvements	5 to 7 Capital Preventive Maintenance	8 to 10 Routine Maintenance	Total	Total Miles Rated
2003	7.5%	67.4%	25.1%	100%	575.3
2004	3.5%	57.7%	38.8%	100%	614.8
2005	10.5%	61.3%	28.2%	100%	723.0
2006	8.0%	68.8%	23.2%	100%	725.5
2007	13.6%	66.0%	20.4%	100%	853.1
2008	36.1%	47.3%	16.6%	100%	441.5
2009	18.3%	66.4%	15.4%	100%	465.4
2010	31.9%	51.3%	16.8%	100%	390.1
2011	26.3%	58.0%	15.7%	100%	376.9
2003-2004 Totals	5.4%	62.4%	32.2%	100.0%	1190.1
2010-2011 Totals	29.2%	59.5%	16.0%	100.0%	767.0
Change from 03-04 to 10-11	23.8%	-2.9%	-16.2%	--	-423.1

While surface conditions show a clear downward trend, it's important to exercise care in making specific comparisons between years. Between 2003 and 2007, efforts were made to rate the entire network of federal aid eligible roads in Berrien County. Beginning in 2008, however, the road network was split approximately in half, with the northern half of the county's federal aid eligible roads assessed on even years and the southern half assessed on odd years. Thus, ratings changes between consecutive years primarily represent differences in surface condition between disparate road segments, as opposed to changes in condition of the same segments. To account for this, Table 1 contains a row demonstrating the change in average conditions over 2003-2004 to the average conditions over 2010-2011.

Road Ratings by Jurisdiction

In addition to the aggregate county-wide conditions displayed above, Table 2 (starting on page 7, also available in Excel format at http://swmpc.org/asset_mgmt_b.asp) displays yearly rating data by local jurisdiction. The portion of the table displayed on page 11 of this document provides a detailed list of how road conditions have changed at the jurisdictional level over the past 6-7 years. Of the 39 cities, villages, and townships in Berrien County with federal aid eligible roads, 20 have seen the percentage of such road segments in good condition either stay the same or increase. Unfortunately, the number of road segments in disrepair has grown much more quickly; 33 of these jurisdictions have seen the percentage of road segments in poor condition increase.

Table 2: Percentage of Federal Aid Eligible Roads in Each PASER Category by Jurisdiction

Berrien County Jurisdictions	2003				2004			
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated
Bainbridge Twp	5.7%	72.3%	22.0%	19.0	0.0%	61.2%	38.8%	21.5
Baroda	0.0%	100.0%	0.0%	0.7	0.0%	100.0%	0.0%	0.7
Baroda Twp	0.0%	92.4%	7.6%	19.3	4.4%	56.7%	39.0%	19.6
Benton Harbor	5.6%	78.8%	15.6%	13.0	3.7%	77.4%	18.9%	13.0
Benton Twp	4.0%	68.4%	27.6%	47.9	0.1%	66.5%	33.4%	50.1
Berrien Springs	34.1%	40.9%	25.0%	0.9	0.0%	26.5%	73.5%	0.9
Berrien Twp	10.8%	59.3%	29.9%	31.9	0.0%	30.4%	69.6%	37.3
Bertrand Twp	2.8%	84.7%	12.6%	28.6	4.7%	84.5%	10.9%	34.0
Bridgman	N/A	96.7%	3.3%	3.4	15.1%	78.6%	6.3%	3.4
Buchanan	1.9%	59.3%	38.8%	6.0	2.9%	73.3%	23.8%	4.9
Buchanan Twp	7.3%	43.2%	49.4%	11.5	8.8%	47.8%	43.4%	11.3
Chikaming Twp	0.9%	82.9%	16.2%	16.5	1.2%	70.2%	28.6%	12.9
Coloma	19.0%	50.3%	30.7%	2.7	0.0%	76.6%	23.4%	2.7
Coloma Twp	5.8%	22.4%	71.8%	16.9	0.0%	45.3%	54.7%	21.5
Eau Claire	N/A	N/A	N/A	0	0.0%	100.0%	0.0%	1.1
Galien	0.0%	50.1%	49.9%	0.9	24.7%	50.1%	25.2%	0.9
Galien Twp	24.4%	61.1%	14.5%	21.3	11.8%	69.0%	19.2%	21.3
Hagar Twp	0.0%	98.7%	1.3%	13.0	0.0%	84.5%	15.5%	17.0
Hartford Twp	0.7%	99.3%	0.0%	2.7	0.0%	62.9%	37.1%	2.7
Keeler Twp	0.0%	100.0%	0.0%	3.3	0.0%	72.7%	27.3%	3.3
Lake Twp	1.5%	77.9%	20.6%	19.1	0.0%	54.8%	45.2%	17.2
Lincoln Twp	0.0%	73.4%	26.6%	19.5	0.0%	53.2%	46.8%	21.2
New Buffalo	0.0%	100.0%	0.0%	2.3	0.0%	86.8%	13.2%	2.3
New Buffalo Twp	15.6%	79.6%	4.8%	33.1	15.0%	75.2%	9.8%	34.2
Niles	0.0%	89.0%	11.0%	15.5	4.2%	68.0%	27.8%	15.6
Niles Twp	5.4%	65.8%	28.8%	47.6	3.6%	43.2%	53.2%	51.6
Oronoko Twp	5.7%	42.8%	51.5%	36.8	0.1%	45.0%	54.8%	38.2
Pipestone Twp	27.7%	42.5%	29.8%	20.2	7.8%	39.2%	52.9%	18.2
Royalton Twp	0.0%	89.8%	10.2%	16.4	0.0%	58.8%	41.2%	19.2
Shoreham	0.0%	100.0%	0.0%	1.2	0.0%	100.0%	0.0%	1.2
Sodus Twp	0.0%	37.0%	63.0%	18.5	0.0%	16.2%	83.8%	28.7
St Joseph	5.6%	71.5%	23.0%	15.2	6.2%	64.5%	29.3%	15.4
St Joseph Twp	0.0%	80.3%	19.7%	12.8	0.0%	75.7%	24.3%	13.0
Stevensville	18.7%	71.7%	9.7%	4.5	18.1%	61.3%	20.6%	4.6
Three Oaks	87.9%	12.1%	0.0%	1.3	92.1%	7.9%	0.0%	1.3
Three Oaks Twp	26.4%	53.4%	20.2%	14.3	6.3%	55.9%	37.8%	15.3
Watervliet	14.3%	63.6%	22.1%	1.4	0.0%	36.6%	63.4%	1.4
Watervliet Twp	3.2%	59.5%	37.3%	16.8	6.0%	63.1%	31.0%	16.7
Weesaw Twp	21.3%	66.8%	11.9%	19.2	0.0%	70.3%	29.7%	19.4

Berrien County Jurisdictions	2005				2006			
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated
Bainbridge Twp	13.8%	54.9%	31.3%	26.9	5.7%	80.8%	13.5%	26.6
Baroda	49.4%	27.7%	22.8%	0.9	0.0%	100.0%	0.0%	0.5
Baroda Twp	16.9%	47.3%	35.8%	24.4	7.7%	51.4%	40.9%	24.3
Benton Harbor	23.4%	71.3%	5.3%	15.5	17.7%	69.2%	13.1%	17.0
Benton Twp	1.5%	71.7%	26.8%	69.2	1.9%	70.6%	27.6%	66.5
Berrien Springs	0.0%	25.0%	75.0%	0.9	42.4%	34.5%	23.1%	2.1
Berrien Twp	0.0%	77.2%	22.8%	37.3	0.0%	88.0%	12.0%	37.2
Bertrand Twp	7.6%	80.0%	12.4%	39.4	11.9%	79.4%	8.7%	38.6
Bridgman	39.5%	56.1%	4.4%	4.9	43.7%	56.3%	0.0%	4.8
Buchanan	2.2%	87.3%	10.6%	6.0	0.0%	89.3%	10.7%	6.0
Buchanan Twp	19.5%	26.8%	53.7%	20	18.2%	71.1%	10.7%	21.5
Chikaming Twp	3.0%	74.8%	22.2%	20	3.1%	68.8%	28.2%	19.7
Coloma	18.2%	32.6%	49.2%	2.7	9.8%	58.8%	31.4%	3.5
Coloma Twp	12.4%	48.6%	39.0%	24.0	8.9%	71.2%	20.0%	23.9
Eau Claire	16.3%	79.6%	4.1%	1.5	0.0%	85.7%	14.3%	1.5
Galien	78.7%	21.3%	0.0%	1.2	64.5%	35.5%	0.0%	1.2
Galien Twp	27.3%	58.8%	13.8%	21.8	25.1%	71.2%	3.7%	21.7
Hagar Twp	0.1%	86.6%	13.3%	17.1	0.0%	87.5%	12.5%	19.0
Hartford Twp	0.0%	99.3%	0.7%	2.7	0.0%	100.0%	0.0%	2.7
Keeler Twp	0.0%	100.0%	0.0%	3.3	0.0%	58.4%	41.6%	3.3
Lake Twp	5.9%	80.6%	13.4%	22.2	6.2%	93.8%	0.0%	22.2
Lincoln Twp	3.6%	63.5%	32.9%	25.9	0.6%	68.9%	30.4%	27.3
New Buffalo	0.0%	85.9%	14.1%	2.3	0.0%	100.0%	0.0%	2.2
New Buffalo Twp	18.6%	79.8%	1.6%	36.8	16.8%	74.0%	9.2%	36.4
Niles	6.9%	47.8%	45.3%	16.5	6.5%	72.6%	20.9%	16.5
Niles Twp	4.0%	53.5%	42.4%	60.8	0.2%	76.6%	23.2%	60.8
Oronoko Twp	6.7%	58.5%	34.8%	43.0	2.4%	66.1%	31.5%	42.1
Pipestone Twp	23.5%	41.2%	35.3%	23.0	23.1%	37.6%	39.3%	22.9
Royalton Twp	0.0%	63.4%	36.6%	20.2	0.0%	65.8%	34.2%	20.2
Shoreham	100.0%	0.0%	0.0%	1.2	0.0%	0.0%	100.0%	1.2
Sodus Twp	3.0%	20.1%	76.9%	33.3	2.9%	18.0%	79.1%	34.9
St Joseph	29.6%	53.1%	17.3%	17.3	19.2%	52.0%	28.8%	16.1
St Joseph Twp	3.1%	80.7%	16.2%	13.1	2.5%	66.2%	31.3%	13.0
Stevensville	0.0%	71.0%	29.0%	4.6	0.0%	77.4%	22.6%	4.6
Three Oaks	76.2%	0.0%	23.8%	1.3	80.1%	0.0%	19.9%	1.1
Three Oaks Twp	20.4%	50.4%	29.1%	19.6	17.0%	52.1%	30.9%	19.5
Watervliet	1.6%	94.3%	4.2%	2.6	1.5%	71.3%	27.2%	2.8
Watervliet Twp	17.2%	58.5%	24.4%	18.9	9.8%	76.4%	13.8%	19.6
Weesaw Twp	27.5%	62.8%	9.7%	20.5	19.8%	80.2%	0.0%	20.4

Berrien County Jurisdictions	2007				2008			
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated
Bainbridge Twp	8.1%	91.2%	0.7%	33.5	62.6%	33.4%	4.0%	33.6
Baroda	6.1%	58.3%	35.6%	1.3	64.3%	0.0%	35.7%	1.3
Baroda Twp	16.3%	79.2%	4.5%	25.4	N/A	N/A	N/A	0
Benton Harbor	28.5%	56.5%	15.0%	17.3	39.0%	53.8%	7.2%	17.1
Benton Twp	4.3%	75.6%	20.1%	95.8	27.5%	57.7%	14.7%	93.3
Berrien Springs	33.1%	42.9%	24.0%	2.3	N/A	N/A	N/A	0
Berrien Twp	0.3%	72.0%	27.7%	37.4	N/A	N/A	N/A	0
Bertrand Twp	28.7%	61.4%	9.9%	44.1	N/A	N/A	N/A	0
Bridgman	23.4%	76.3%	0.4%	8.1	29.9%	54.5%	15.6%	8.1
Buchanan	16.8%	74.8%	8.4%	6.0	N/A	N/A	N/A	0
Buchanan Twp	20.3%	61.5%	18.3%	24.4	N/A	N/A	N/A	0
Chikaming Twp	7.1%	91.0%	1.8%	36.6	N/A	N/A	N/A	0
Coloma	18.5%	39.0%	42.5%	3.6	38.1%	22.4%	39.5%	3.6
Coloma Twp	22.1%	54.3%	23.6%	25.6	37.8%	46.7%	15.4%	25.5
Eau Claire	0.0%	89.8%	10.2%	1.5	N/A	N/A	N/A	0
Galien	64.8%	35.2%	0.0%	1.2	N/A	N/A	N/A	0
Galien Twp	7.8%	68.1%	24.0%	21.8	N/A	N/A	N/A	0
Hagar Twp	6.2%	90.6%	3.2%	34.7	19.8%	78.8%	1.4%	34.6
Hartford Twp	78.4%	21.6%	0.0%	2.7	56.0%	44.0%	0.0%	2.7
Keeler Twp	100.0%	0.0%	0.0%	3.3	0.0%	0.0%	100.0%	3.3
Lake Twp	10.5%	89.5%	0.0%	33.3	42.0%	57.7%	0.3%	33.3
Lincoln Twp	1.5%	69.6%	28.9%	35.3	27.6%	57.5%	14.9%	36.2
New Buffalo	23.8%	43.3%	32.9%	2.3	N/A	N/A	N/A	0
New Buffalo Twp	32.7%	41.5%	25.8%	41.8	N/A	N/A	N/A	0
Niles	7.0%	80.1%	12.9%	16.7	N/A	N/A	N/A	0
Niles Twp	0.3%	61.2%	38.5%	62.7	N/A	N/A	N/A	0
Oronoko Twp	6.8%	55.3%	37.9%	44.5	N/A	N/A	N/A	0
Pipestone Twp	25.2%	72.9%	1.9%	26.0	65.4%	9.2%	25.4%	26.0
Royalton Twp	7.0%	82.4%	10.5%	20.4	46.7%	46.9%	6.4%	20.4
Shoreham	0.0%	100.0%	0.0%	1.2	100.0%	0.0%	0.0%	1.2
Sodus Twp	5.0%	21.3%	73.7%	39.9	27.7%	15.6%	56.7%	39.9
St Joseph	14.9%	57.6%	27.5%	18.4	28.4%	53.1%	18.5%	18.4
St Joseph Twp	10.4%	62.4%	27.2%	14.3	21.9%	62.7%	15.4%	14.3
Stevensville	5.5%	69.7%	24.8%	4.6	37.6%	50.7%	11.7%	4.6
Three Oaks	76.2%	0.0%	23.8%	1.3	N/A	N/A	N/A	0
Three Oaks Twp	31.3%	48.9%	19.8%	19.6	N/A	N/A	N/A	0
Watervliet	0.0%	65.5%	34.5%	2.8	40.3%	43.4%	16.3%	2.3
Watervliet Twp	34.5%	49.7%	15.7%	21.0	43.3%	39.8%	17.0%	21.7
Weesaw Twp	38.7%	60.7%	0.6%	20.5	N/A	N/A	N/A	0

Berrien County Jurisdictions	2009				2010			
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated
Bainbridge Twp	N/A	N/A	N/A	0	62.6%	36.5%	0.9%	32.3
Baroda	62.1%	N/A	37.9%	1.2	100.0%	0.0%	0.0%	0.1
Baroda Twp	18.1%	77.9%	4.0%	25.4	N/A	N/A	N/A	0
Benton Harbor	N/A	N/A	N/A	0	39.6%	36.9%	23.5%	17.4
Benton Twp	N/A	N/A	N/A	0	31.5%	57.2%	11.3%	94.3
Berrien Springs	22.5%	36.0%	41.5%	2.3	N/A	N/A	N/A	0
Berrien Twp	19.2%	71.8%	9.0%	40.3	N/A	N/A	N/A	0
Bertrand Twp	20.2%	60.4%	19.5%	44.1	N/A	N/A	N/A	0
Bridgman	14.4%	58.8%	26.8%	8.1	N/A	N/A	N/A	0
Buchanan	31.1%	50.4%	18.5%	6.0	N/A	N/A	N/A	0
Buchanan Twp	14.0%	66.0%	19.9%	25.7	N/A	N/A	N/A	0
Chikaming Twp	6.4%	74.5%	19.1%	36.6	N/A	N/A	N/A	0
Coloma	N/A	N/A	N/A	0	62.0%	38.0%	0.0%	3.6
Coloma Twp	N/A	N/A	N/A	0	13.6%	63.9%	22.5%	20.5
Eau Claire	N/A	N/A	N/A	0	31.3%	68.7%	0.0%	1.5
Galien	64.8%	35.2%	0.0%	1.2	N/A	N/A	N/A	0
Galien Twp	42.2%	30.1%	27.7%	21.8	N/A	N/A	N/A	0
Hagar Twp	N/A	N/A	N/A	0	21.1%	56.1%	22.8%	28.8
Hartford Twp	0.0%	100.0%	0.0%	2.7	100.0%	0.0%	0.0%	2.7
Keeler Twp	0.0%	100.0%	0.0%	3.3	100.0%	0.0%	0.0%	3.3
Lake Twp	6.2%	81.5%	12.3%	33.3	0.0%	0.0%	100.0%	0.3
Lincoln Twp	N/A	N/A	N/A	0	22.2%	64.0%	13.8%	34.7
New Buffalo	20.3%	79.7%	0.0%	2.3	N/A	N/A	N/A	0
New Buffalo Twp	2N/A	50.3%	29.6%	41.8	N/A	N/A	N/A	0
Niles	20.9%	73.8%	5.3%	16.7	0.0%	0.0%	100.0%	0.2
Niles Twp	13.9%	74.4%	11.7%	62.7	N/A	N/A	N/A	0
Oronoko Twp	10.3%	74.8%	14.9%	44.5	N/A	N/A	N/A	0
Pipestone Twp	0.0%	100.0%	0.0%	0.1	59.5%	36.3%	4.2%	25.9
Royalton Twp	N/A	N/A	N/A	0	22.2%	73.6%	4.2%	17.8
Shoreham	N/A	N/A	N/A	0	0.0%	100.0%	0.0%	1.2
Sodus Twp	N/A	N/A	N/A	0	20.5%	22.5%	57.0%	39.9
St Joseph	N/A	N/A	N/A	0	20.3%	66.0%	13.8%	19.4
St Joseph Twp	N/A	N/A	N/A	0	7.2%	58.7%	34.1%	14.3
Stevensville	N/A	N/A	N/A	0	36.4%	52.1%	11.6%	4.6
Three Oaks	76.2%	23.8%	0.0%	1.3	N/A	N/A	N/A	0
Three Oaks Twp	38.3%	51.5%	10.2%	19.6	N/A	N/A	N/A	0
Watervliet	N/A	N/A	N/A	0	44.6%	48.8%	6.6%	3.5
Watervliet Twp	N/A	N/A	N/A	0	25.8%	70.8%	3.4%	22.6
Weesaw Twp	29.8%	61.2%	8.9%	24.5	0.0%	0.0%	100.0%	0.4

Berrien County Jurisdictions	2011			
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	Total Miles Rated
Bainbridge Twp	N/A	N/A	N/A	0.0
Baroda	26.2%	61.3%	12.5%	0.6
Baroda Twp	6.6%	81.5%	11.9%	15.0
Benton Harbor	N/A	N/A	N/A	0.0
Benton Twp	N/A	N/A	N/A	0.0
Berrien Springs	19.6%	44.2%	36.1%	2.3
Berrien Twp	25.1%	58.5%	16.4%	34.2
Bertrand Twp	25.4%	54.0%	20.6%	41.7
Bridgman	33.1%	40.0%	26.9%	8.1
Buchanan	34.7%	62.8%	2.5%	6.1
Buchanan Twp	41.2%	57.6%	1.2%	18.8
Chikaming Twp	15.6%	60.7%	23.6%	35.2
Coloma	N/A	N/A	N/A	0.0
Coloma Twp	N/A	N/A	N/A	0.0
Eau Claire	12.4%	33.3%	54.3%	1.5
Galien	18.8%	40.8%	40.4%	1.0
Galien Twp	41.5%	3.0%	55.4%	10.8
Hagar Twp	N/A	N/A	N/A	0.0
Hartford Twp	N/A	N/A	N/A	0.0
Keeler Twp	N/A	N/A	N/A	0.0
Lake Twp	39.6%	55.2%	5.2%	20.6
Lincoln Twp	N/A	N/A	N/A	0.0
New Buffalo	20.3%	79.7%	0.0%	2.3
New Buffalo Twp	19.2%	61.6%	19.3%	34.6
Niles	50.1%	38.3%	11.6%	16.7
Niles Twp	26.7%	70.6%	2.8%	60.3
Oronoko Twp	7.6%	72.2%	20.3%	34.7
Pipestone Twp	N/A	N/A	N/A	0.0
Royalton Twp	N/A	N/A	N/A	0.0
Shoreham	N/A	N/A	N/A	0.0
Sodus Twp	N/A	N/A	N/A	0.0
St Joseph	N/A	N/A	N/A	0.0
St Joseph Twp	N/A	N/A	N/A	0.0
Stevensville	N/A	N/A	N/A	0.0
Three Oaks	40.5%	27.6%	31.9%	1.3
Three Oaks Twp	18.6%	43.2%	38.3%	11.5
Watervliet	N/A	N/A	N/A	0.0
Watervliet Twp	N/A	N/A	N/A	0.0
Weesaw Twp	53.0%	42.2%	4.9%	19.8

Berrien County Jurisdictions	Change from 2003 to 2010-2011 Total*			Change in Total Miles Rated
	Struc. Impr. (1 to 4)	Cap. Prev. (5 to 7)	Rout. Maint. (8 to 10)	
Bainbridge Twp	56.9%	-35.8%	-21.1%	13.3
Baroda	36.7%	-47.5%	10.7%	0.0
Baroda Twp	6.6%	-10.9%	4.3%	-4.3
Benton Harbor	34.0%	-41.9%	7.9%	4.4
Benton Twp	27.5%	-11.2%	-16.3%	46.4
Berrien Springs	-14.5%	3.3%	11.1%	1.4
Berrien Twp	14.3%	-0.8%	-13.5%	2.3
Bertrand Twp	22.6%	-30.7%	8.0%	13.1
Bridgman	33.1%	-56.7%	23.6%	4.7
Buchanan	32.8%	3.5%	-36.3%	0.1
Buchanan Twp	33.9%	14.4%	-48.2%	7.3
Chikaming Twp	14.7%	-22.2%	7.4%	18.7
Coloma	43.0%	-12.3%	-30.7%	0.9
Coloma Twp	7.8%	41.5%	-49.3%	3.6
Eau Claire	21.9%	51.0%	27.2%	3.0
Galien	18.8%	-9.3%	-9.5%	0.1
Galien Twp	17.1%	-58.1%	40.9%	-10.5
Hagar Twp	21.1%	-42.6%	21.5%	15.8
Hartford Twp	99.3%	-99.3%	0.0%	0.0
Keeler Twp	100.0%	-100.0%	0.0%	0.0
Lake Twp	37.5%	-23.5%	-14.0%	1.8
Lincoln Twp	22.2%	-9.4%	-12.8%	15.2
New Buffalo	20.3%	-20.3%	0.0%	0.0
New Buffalo Twp	3.6%	-18.0%	14.5%	1.5
Niles	49.5%	-51.2%	1.6%	1.4
Niles Twp	21.3%	4.8%	-26.0%	12.7
Oronoko Twp	1.9%	29.4%	-31.2%	-2.1
Pipestone Twp	31.8%	-6.2%	-25.6%	5.7
Royalton Twp	22.2%	-16.2%	-6.0%	1.4
Shoreham	0.0%	0.0%	0.0%	0.0
Sodus Twp	20.5%	-14.5%	-6.0%	21.4
St Joseph	14.7%	-5.5%	-9.2%	4.2
St Joseph Twp	7.2%	-21.6%	14.4%	1.5
Stevensville	17.7%	-19.6%	1.9%	0.1
Three Oaks	-47.4%	15.5%	31.9%	0.0
Three Oaks Twp	-7.8%	-10.2%	18.1%	-2.8
Watervliet	30.3%	-14.8%	-15.5%	2.1
Watervliet Twp	22.6%	11.3%	-33.9%	5.8
Weesaw Twp	30.7%	-25.4%	-5.1%	1.0

*The total of 2010 and 2011 ratings was used in order to show results for full Federal Aid Eligible network (see page 7 of this report). Red shading indicates an increase in the percentage of poor-condition roads and a decrease in the percentage of good-condition roads, respectively. Green indicates respective decreases in poor-condition roads and increases in good-condition roads.