

The State of Michigan Transportation



2003-2009 PASER Road Survey

For Van Buren County, Michigan



Prepared by the Southwest Michigan Planning Commission
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Appendix (available at http://swmpc.org/asset_mgmt_vb.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

Over the course of 2003 to 2009 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) together assessed the condition of the southwest region's federal aid eligible roads. To do this, the Pavement Surface Evaluation and Rating (PASER) system was used as the tool for road ratings. The effort was funded and administered through the State of Michigan Asset Management Council.

According to the new Governmental Accounting Standards Board Statement 34 (GASB 34), governmental units receiving, or applying for federal money must assess the condition of their roads at least once every three years. This project has laid the foundation to meet the requirements of GASB 34 and continues to demonstrate that it can be accomplished with minimal staff in a relatively short period of time.

METHODOLOGY: THE PASER ROAD RATING SYSTEM

PASER, or Pavement Surface Evaluation and Rating, is a method of rating roads that utilizes

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

a ten-point scale. It is a visual test of the surface condition of the road. Structural or geometric defects are not considered in the determination of the ratings. Roads are rated in segments of varying length depending on the road. A segment value of ten represents a new road segment. A segment value of one represents a failed road segment. Various types of defects are considered during the visual analysis and aggregated to arrive at an overall score for the road segment. Teams of three to four individuals collaborated on the PASER windshield survey as they drove the region's road network. PASER rating charts for asphalt, concrete, and gravel roads have been included in the

appendix of this report.

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.

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 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.

Computer Equipment and Software

Teams collected data using a laptop computer with the RoadSoft GIS Laptop Data Collector software loaded. A Garmin GPS 35 PC TracPak Global Position System 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 purposes of this project a team of three to four 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, when the team rated roads within a city or village, a fourth member would be added from that city or village. 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) present. Several cities and villages also participated in the project. On average, 628 of Federal Aid Eligible road were rated each year in Berrien County.

Training

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

RESULTS

Following are the findings for Van Buren County for each year from 2003 to 2009.

2003 Results, Van Buren County: Approximately 511 miles of federal aid eligible roads were rated in 2003 for this project.

- 30 percent of the roads surveyed received a grade of 8 or above,
- 69 percent of the roads surveyed received a grade of 5, 6, or 7
- 1 percent of the roads surveyed received a rating of 4 or less.

2004 Results, Van Buren County: Approximately 481 miles of federal aid eligible roads were rated in 2004 for this project.

- 33 percent of the roads surveyed received a grade of 8 or above,
- 64 percent of the roads surveyed received a grade of 5, 6, or 7
- 3 percent of the roads surveyed received a rating of 4 or less.

2005 Results, Van Buren County: Approximately 547 miles of federal aid eligible roads were rated in 2005 for this project.

- 26 percent of the roads surveyed received a grade of 8 or above,
- 68 percent of the roads surveyed received a grade of 5, 6, or 7
- 5 percent of the roads surveyed received a rating of 4 or less.

2006 Results, Van Buren County: Approximately 564 miles of federal aid eligible roads were rated in 2006 for this project.

- 30 percent of the roads surveyed received a grade of 8 or above,
- 61 percent of the roads surveyed received a grade of 5, 6, or 7
- 9 percent of the roads surveyed received a rating of 4 or less.

2007 Results, Van Buren County: Approximately 569 miles of federal aid eligible roads were rated in 2007 for this project.

- 28 percent of the roads surveyed received a grade of 8 or above,
- 43 percent of the roads surveyed received a grade of 5, 6, or 7
- 29 percent of the roads surveyed received a rating of 4 or less.

2008 Results, Van Buren County: Approximately 469 miles of federal aid eligible roads were rated in 2008 for this project.

- 8 percent of the roads surveyed received a grade of 8 or above,
- 47 percent of the roads surveyed received a grade of 5, 6, or 7
- 46 percent of the roads surveyed received a rating of 4 or less.

2009 Results, Van Buren County: Approximately 274 miles of federal aid eligible roads were rated in 2009 for this project.

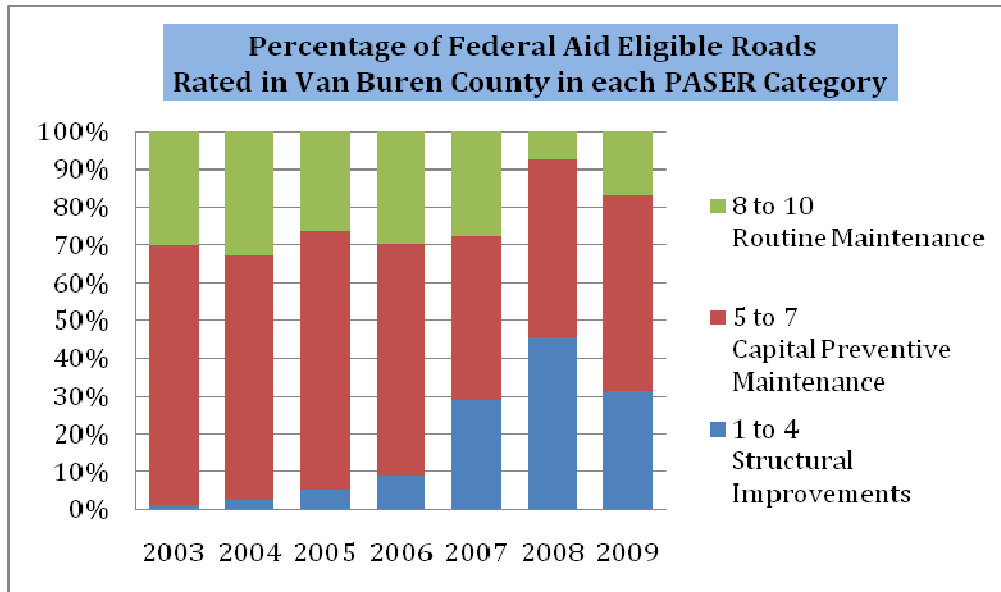
- 17 percent of the roads surveyed received a grade of 8 or above,
- 52 percent of the roads surveyed received a grade of 5, 6, or 7
- 32 percent of the roads surveyed received a rating of 4 or less.

Summary: Comparison 2003 through 2009

The following considerations should be noted when making comparisons between PASER rating years 2003 through 2009 in Van Buren County:

- The number of federal aid eligible roads that were rated each year in Cass County ranged from 274 to 569 miles.
- Because of this wide range it is difficult to make comparisons between years of the number of miles that were rated in a particular category. For this reason the below chart and tables show the percentages of miles rated that fell within each category.
- From 2003 to 2009, the percentage of miles rated in the PASER Rating Category of 8 to 10 decreased by 13 percent. This means that the County's proportion of roads that are in good condition, needing only routine maintenance, has gone down substantially.
- From 2003 to 2009, the percentage of miles rated in the PASER Rating Category of 5 to 7, which require capital preventive maintenance, decreased by 17 percent.
- From 2003 to 2009, the percentage of miles rated in the PASER Rating Category of 1 to 4 increased by 30 percent. This means that Cass County's proportion of roads that are in poor condition and require structural improvements has gone up significantly.

The following chart and table compare the percentages of federal aid eligible roads rated in each PASER category by year from 2003 to 2009.



**Percentage of Federal Aid Eligible Roads
Rated in Van Buren County in each PASER Category**

Year	1 to 4 Structural Improvements	5 to 7 Capital Preventive Maintenance	8 to 10 Routine Maintenance	Total	Total Miles Rated
2003	1.3%	68.7%	30.0%	100%	511.0
2004	2.8%	64.3%	32.9%	100%	481.2
2005	5.5%	68.1%	26.5%	100%	546.5
2006	8.9%	61.3%	29.7%	100%	563.8
2007	29.1%	43.2%	27.7%	100%	569.3
2008	45.8%	46.7%	7.5%	100%	469.5
2009	31.6%	51.6%	16.8%	100%	274.3
Percent Change from 2003 to 2009	30.3%	-17.0%	-13.2%		

Because some cities and townships in Van Buren County had road ratings done in some years and not others, it may be an over-generalization to analyze the trends from year to year for all roads in the County as an aggregate. That is to say that it may not be a fair comparison from year to year, since each year not all of the same roads were rated. The tables on the following pages disaggregate the data by city or township for each year.

The following table summarizes the PASER ratings and amount of miles rated for each of the jurisdictions represented in the county PASER road-rating project. This table is also available as a separate document at http://swmpc.org/asset_mgmt_vb.asp.

The last section in the table gives the change in the percentage of roads rated in each category from 2003 to 2009 (or from 2003 to 2008 if that city or township did not have any roads rated in 2009). This change illustrates the increase or decrease in condition of the roads rated for that city or township over time. The trends in each jurisdiction vary dramatically; some showed an improvement in road ratings over time and others showed a decline. The accuracy of these trends is also dependent upon whether the roads rated are representative of all of the roads in that jurisdiction. Some jurisdictions had as little as 0.3 miles of road rated in any given year.

Percentage of Federal Aid Eligible Roads in Each PASER Category By Jurisdiction

	2 0 0 3				2 0 0 4			
	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
Van Buren County Jurisdictions								
Almena Twp	0.0%	54.2%	45.8%	24.6	0.0%	12.9%	87.1%	21.3
Antwerp Twp	0.0%	71.9%	28.1%	32.5	0.0%	65.6%	34.4%	34.5
Arlington Twp	0.0%	39.1%	60.9%	21.4	0.0%	41.5%	58.5%	23.5
Bangor	3.6%	78.0%	18.4%	3.5	0.0%	72.3%	27.7%	1.8
Bangor Twp	5.3%	94.7%	0.0%	18.7	10.9%	71.1%	17.9%	18.1
Bloomingtondale	0.0%	66.8%	33.2%	2.3	0.0%	100.0%	0.0%	0.6
Bloomingtondale Twp	0.0%	82.5%	17.5%	19.1	0.0%	70.9%	29.1%	10.0
Breedsville	6.2%	93.8%	0.0%	1.8	0.0%	0.0%	0.0%	0.0
Columbia Twp	0.0%	69.4%	30.6%	22.0	0.0%	20.3%	79.7%	10.7
Covert Twp	0.0%	97.4%	2.6%	38.7	2.6%	89.7%	7.7%	38.7
Decatur	0.0%	81.2%	18.8%	1.6	0.0%	73.8%	26.2%	1.6
Decatur Twp	0.0%	81.5%	18.5%	13.2	16.9%	73.4%	9.7%	19.4
Geneva Twp	0.0%	57.5%	42.5%	24.8	0.0%	73.9%	26.1%	11.1
Gobles	11.1%	72.5%	16.4%	2.2	0.0%	24.2%	75.8%	2.2
Hamilton Twp	0.0%	77.4%	22.6%	26.5	0.0%	75.6%	24.4%	26.5
Hartford	0.0%	91.2%	8.8%	2.5	0.0%	100.0%	0.0%	2.5
Hartford Twp	0.1%	46.3%	53.6%	28.8	0.0%	55.0%	45.0%	28.8
Keeler Twp	0.0%	73.2%	26.8%	24.5	0.0%	70.1%	29.9%	24.5
Lawrence	47.3%	51.9%	0.8%	3.3	25.0%	46.9%	28.1%	3.3
Lawrence Twp	0.0%	46.6%	53.4%	36.6	0.0%	58.5%	41.5%	37.4
Lawton	7.1%	92.9%	0.0%	2.7	21.8%	64.1%	14.0%	2.7
Mattawan	0.0%	43.8%	56.2%	3.8	14.7%	65.4%	19.9%	3.8
Paw Paw	10.4%	76.7%	13.0%	2.8	0.0%	73.8%	26.2%	2.8
Paw Paw Twp	1.3%	53.0%	45.8%	40.0	1.3%	63.6%	35.0%	40.1
Pine Grove Twp	0.0%	61.7%	38.3%	21.0	0.0%	37.6%	62.4%	21.0
Porter Twp	0.0%	88.6%	11.4%	25.7	5.6%	90.6%	3.8%	26.7
South Haven	5.3%	91.2%	3.5%	19.7	14.7%	79.7%	5.7%	20.2
South Haven Twp	4.7%	84.2%	11.2%	34.1	0.2%	87.2%	12.5%	34.6
Waverly Twp	0.0%	22.6%	77.4%	12.7	0.0%	17.7%	82.3%	12.9

Van Buren County Jurisdictions	2 0 0 5				2 0 0 6			
	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
Almena Twp	0.0%	38.2%	61.8%	23.8	0.6%	69.8%	29.6%	27.7
Antwerp Twp	1.4%	69.8%	28.8%	38.4	0.0%	72.0%	28.0%	38.7
Arlington Twp	4.2%	92.4%	3.5%	23.5	10.1%	78.8%	11.1%	23.5
Bangor	7.6%	67.0%	25.4%	3.7	0.0%	65.3%	34.7%	3.7
Bangor Twp	17.7%	58.2%	24.1%	19.7	9.3%	82.6%	8.0%	21.1
Bloomington	0.0%	100.0%	0.0%	2.3	0.0%	94.4%	5.6%	2.3
Bloomington Twp	0.0%	88.9%	11.1%	23.6	0.0%	71.3%	28.7%	23.6
Breedsville	0.0%	0.0%	0.0%	1.8	0.0%	0.0%	0.0%	1.8
Columbia Twp	10.4%	70.2%	19.5%	28.0	0.0%	75.2%	24.8%	28.3
Covert Twp	9.5%	64.5%	26.1%	40.1	19.9%	30.1%	50.0%	40.1
Decatur	0.0%	64.0%	36.0%	1.6	8.3%	59.2%	32.5%	1.6
Decatur Twp	5.2%	53.2%	41.7%	19.4	29.3%	59.9%	10.8%	19.4
Geneva Twp	0.0%	71.0%	29.0%	30.0	3.6%	52.2%	44.2%	30.0
Gobles	0.0%	100.0%	0.0%	2.2	0.0%	91.2%	8.8%	2.2
Hamilton Twp	0.0%	70.1%	29.9%	26.5	3.4%	57.2%	39.4%	26.5
Hartford	0.0%	100.0%	0.0%	2.5	0.0%	79.9%	20.1%	2.5
Hartford Twp	0.0%	45.1%	54.9%	28.8	0.0%	43.1%	56.9%	28.7
Keeler Twp	0.0%	62.5%	37.5%	24.5	0.0%	67.3%	32.7%	24.6
Lawrence	25.0%	46.9%	28.1%	3.3	33.9%	55.1%	11.0%	3.3
Lawrence Twp	0.0%	54.0%	46.0%	37.3	10.2%	53.9%	35.9%	37.3
Lawton	0.0%	78.2%	21.8%	2.7	0.0%	74.6%	25.4%	3.4
Mattawan	15.9%	59.5%	24.6%	3.8	8.2%	88.8%	3.0%	6.7
Paw Paw	0.0%	79.6%	20.4%	2.8	0.0%	74.9%	25.1%	3.6
Paw Paw Twp	6.9%	63.9%	29.2%	40.1	6.3%	49.1%	44.6%	42.6
Pine Grove Twp	1.8%	91.0%	7.2%	21.0	4.0%	96.0%	0.0%	21.0
Porter Twp	10.5%	75.1%	14.4%	26.7	18.2%	31.2%	50.5%	26.7
South Haven	26.8%	61.8%	11.4%	20.4	34.4%	49.6%	16.0%	20.6
South Haven Twp	10.2%	84.3%	5.5%	35.1	24.2%	59.3%	16.5%	37.3
Waverly Twp	0.0%	84.2%	15.8%	12.9	0.0%	100.0%	0.0%	15.0

Van Buren County Jurisdictions	2 0 0 7				2 0 0 8			
	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
Almena Twp	35.3%	43.8%	20.9%	29.4	53.9%	46.1%	0.0%	29.4
Antwerp Twp	20.8%	45.0%	34.2%	40.2	59.9%	31.6%	8.5%	20.8
Arlington Twp	26.5%	44.9%	28.5%	23.4	61.5%	38.5%	0.0%	23.6
Bangor	18.1%	31.5%	50.3%	3.7	32.1%	67.9%	0.0%	3.7
Bangor Twp	33.1%	33.8%	33.1%	20.9	34.4%	58.6%	7.1%	21.1
Bloomingtondale Twp	0.0%	55.4%	44.6%	2.3	0.0%	100.0%	0.0%	2.3
Bloomingtondale Twp	26.8%	55.8%	17.4%	23.6	50.7%	48.8%	0.5%	23.6
Breedsville	0.0%	0.0%	0.0%	1.8	0.0%	0.0%	0.0%	1.8
Columbia Twp	50.7%	25.6%	23.8%	28.2	68.4%	31.6%	0.0%	28.3
Covert Twp	29.7%	40.0%	30.4%	40.1	22.5%	59.5%	18.0%	40.1
Decatur	4.7%	70.8%	24.5%	1.6	0.0%	0.0%	0.0%	0.0
Decatur Twp	58.5%	32.5%	9.0%	19.4	95.5%	4.5%	0.0%	14.6
Geneva Twp	28.5%	43.5%	28.1%	29.0	30.1%	65.5%	4.5%	30.0
Gobles	9.6%	90.4%	0.0%	2.2	27.6%	33.0%	39.5%	2.2
Hamilton Twp	33.7%	62.7%	3.6%	27.0	35.7%	60.0%	4.3%	19.6
Hartford	47.7%	34.0%	18.3%	2.5	44.2%	55.8%	0.0%	2.3
Hartford Twp	23.7%	36.1%	40.2%	31.3	37.8%	56.8%	5.4%	18.4
Keeler Twp	30.7%	45.8%	23.5%	24.6	36.0%	48.9%	15.2%	21.7
Lawrence	62.7%	26.3%	11.0%	3.3	66.7%	28.3%	5.0%	3.3
Lawrence Twp	25.8%	37.2%	37.0%	39.3	62.8%	36.3%	0.9%	26.3
Lawton	37.5%	33.5%	28.9%	3.4	100.0%	0.0%	0.0%	0.9
Mattawan	18.1%	78.5%	3.4%	5.9	59.6%	40.4%	0.0%	2.4
Paw Paw	26.2%	33.0%	40.9%	3.6	0.0%	0.0%	0.0%	0.0
Paw Paw Twp	9.9%	49.4%	40.7%	42.6	37.0%	51.1%	11.9%	19.2
Pine Grove Twp	24.6%	59.0%	16.4%	21.0	65.0%	34.4%	0.6%	21.0
Porter Twp	17.2%	43.9%	39.0%	26.7	63.3%	36.7%	0.0%	20.1
South Haven	45.2%	33.0%	21.8%	20.6	37.2%	45.4%	17.3%	20.6
South Haven Twp	25.2%	40.3%	34.4%	37.0	19.5%	50.8%	29.7%	37.3
Waverly Twp	38.5%	46.1%	15.4%	15.0	39.2%	60.8%	0.0%	15.0

Van Buren County Jurisdictions	2 0 0 9				Percentage Changed from 2003 to 2009			
	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
Almena Twp	0.0%	0.0%	0.0%	0.0	53.9%	-8.1%	-45.8%	156.2
Antwerp Twp	30.7%	45.0%	24.2%	41.1	30.7%	-26.8%	-3.9%	246.2
Arlington Twp	0.0%	0.0%	0.0%	0.0	61.5%	-0.6%	-60.9%	138.9
Bangor	0.0%	0.0%	0.0%	0.0	28.6%	-10.2%	-18.4%	19.9
Bangor Twp	0.0%	0.0%	0.0%	0.0	29.1%	-36.1%	7.1%	119.5
Bloomington	0.0%	0.0%	0.0%	0.0	0.0%	33.2%	-33.2%	12.0
Bloomington Twp	0.0%	0.0%	0.0%	0.0	50.7%	-33.7%	-17.0%	123.7
Breedsville	0.0%	0.0%	0.0%	0.0	-6.2%	-93.8%	0.0%	8.8
Columbia Twp	0.0%	0.0%	0.0%	0.0	68.4%	-37.7%	-30.6%	145.4
Covert Twp	0.0%	0.0%	0.0%	0.0	22.5%	-37.9%	15.4%	237.8
Decatur	52.1%	35.7%	12.2%	1.6	52.1%	-45.5%	-6.6%	9.6
Decatur Twp	58.5%	41.5%	0.0%	20.8	58.5%	-40.0%	-18.5%	126.3
Geneva Twp	0.0%	0.0%	0.0%	0.0	30.1%	8.0%	-38.1%	154.8
Gobles	0.0%	0.0%	0.0%	0.0	16.5%	-39.5%	23.0%	13.3
Hamilton Twp	46.0%	54.0%	0.0%	27.0	46.0%	-23.4%	-22.6%	179.8
Hartford	68.2%	29.3%	2.5%	2.5	68.2%	-61.9%	-6.3%	17.3
Hartford Twp	14.9%	57.2%	27.9%	31.3	14.8%	10.9%	-25.7%	196.0
Keeler Twp	19.3%	80.7%	0.0%	24.6	19.3%	7.6%	-26.8%	169.0
Lawrence	38.2%	45.9%	15.9%	3.3	-9.1%	-6.0%	15.1%	23.3
Lawrence Twp	27.7%	41.7%	30.6%	39.3	27.7%	-4.8%	-22.8%	253.6
Lawton	62.3%	19.0%	18.7%	3.1	55.2%	-73.9%	18.7%	18.9
Mattawan	16.5%	83.5%	0.0%	6.8	16.5%	39.7%	-56.2%	33.1
Paw Paw	66.0%	29.1%	5.0%	3.6	55.6%	-47.6%	-8.0%	19.2
Paw Paw Twp	19.7%	47.9%	32.4%	42.7	18.5%	-5.1%	-13.4%	267.4
Pine Grove Twp	0.0%	0.0%	0.0%	0.0	65.0%	-27.2%	-37.8%	125.8
Porter Twp	43.1%	56.9%	0.0%	26.7	43.1%	-31.7%	-11.4%	179.1
South Haven	0.0%	0.0%	0.0%	0.0	31.9%	-45.8%	13.8%	122.1
South Haven Twp	0.0%	0.0%	0.0%	0.0	14.8%	-33.4%	18.6%	215.4
Waverly Twp	0.0%	0.0%	0.0%	0.0	39.2%	38.2%	-77.4%	83.4

* For the cities and townships that did not have any roads rated in 2009, the 2008 percentages are used instead. That is, the difference in the percentages for each category is taken from 2003 to 2008.