

The State of Michigan Transportation Asset Management Council

2013 PASER Survey Lapeer County



Prepared by the
Genesee County Metropolitan Planning Commission

**The State of Michigan
Transportation Asset Management Council
2013 PASER Road Survey
Lapeer County**

Project Overview:

On August 6 through August 22, 2013, GLS Region V staff along, with representatives of the Lapeer County Road Commission (LCRC), City of Lapeer, and the Michigan Department of Transportation (MDOT), assessed the condition of Lapeer County federal aid eligible roads using the PASER road rating system as requested by the State of Michigan Transportation Asset Management Council.

PASER Road 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. PASER rating charts for asphalt and concrete roads have been included with this report.

The State of Michigan Transportation 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, gravel shoulder 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.

Computer Equipment and Software:

Staff collected data using a laptop computer with the RoadSoft GIS Laptop Data Collector 7.6.1 software loaded. A GPS unit was connected to the laptop to track position and locate road segments. *Note: Please contact RoadSoft staff for questions regarding a specific GPS units' compatibility with the RoadSoft program.* RoadSoft GIS is an asset management software package created and distributed free of charge by the Michigan Technological University's Center for Technology and Training. The current version of the program was designed with a special module to collect PASER rating data.

Staff Time:

Three staff members is the optimal amount to use for collecting PASER data. One drives, one rates the roads, and the third staff member enters information into the computer. For the Lapeer County road rating project there was always one Region V representative, one LCRC or City representative, and one MDOT representative present. It took 29.5 hours to rate 453.25 linear miles of road, averaging approximately 15 miles per hour. This report provides information in lane miles which is linear miles multiplied by the number of lanes. Lane mile calculations provide a better representation of the condition of the system and what it may take to maintain the system.

Training:

All participants in the survey were required to attend a day long training session hosted by the Michigan Transportation Asset Management Council. 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.

Overview of the Federal Aid Network:

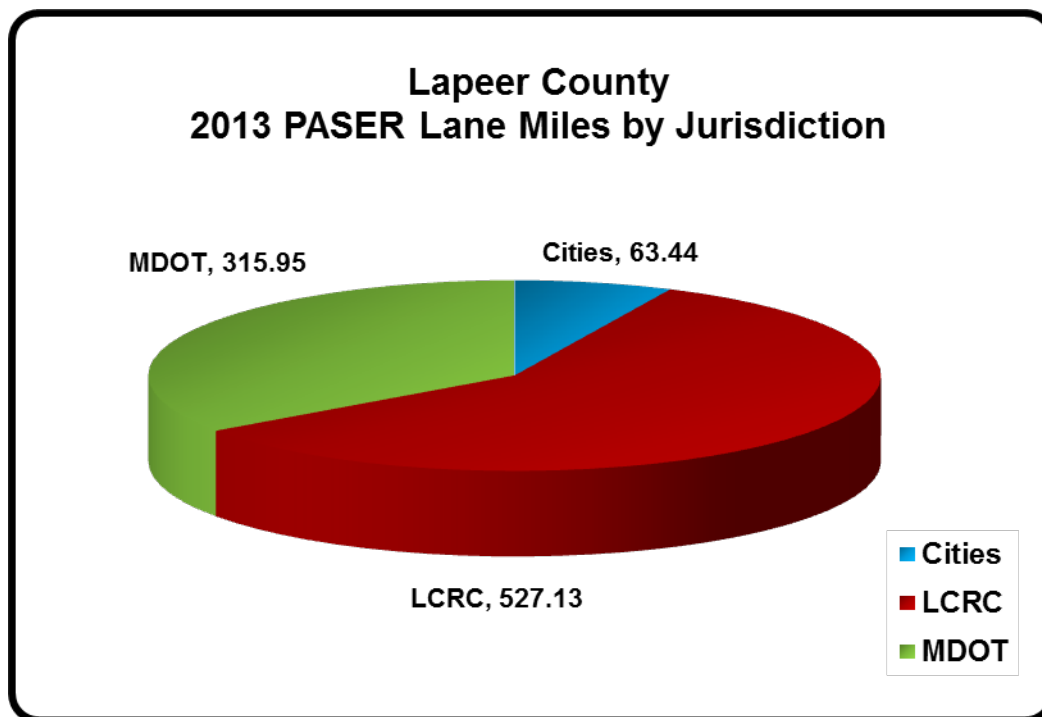
The Lapeer County Federal Aid network is comprised of approximately 906.52 lane miles. Of the total, 527.13 lane miles (58%) are within Townships, which are under the jurisdiction of the Lapeer County Road Commission (LCRC). Approximately 315.95 lane miles (35%) of roadway are state trunk lines, which are maintained by the Michigan Department of Transportation (MDOT). Of the total roads surveyed, 783.01 lane miles (approximately 86%) were asphalt, and 123.51 lane miles (approximately 14%) were concrete. Local Road Agencies with the greatest amount of federal aid miles within their jurisdiction are the LCRC with 527.13 lane miles, City of Lapeer with 41.19 lane miles, and the City of Imlay City with 5.16 lane miles.

| 2013 PASER Rating by Cities and Villages | | | | | |
|--|--------------------------------------|--|-----------------------------------|---------------------|---|
| Description | 1 to 4 Structural Improvements | 5 to 7 Capital Preventative Maintenance | 8 to 10 Routine Maintenance | Total Lane Miles | Percentage of PASER Lane Miles in Jurisdiction |
| Almont | 1.06 | 0.00 | 0.00 | 1.06 | 1.7% |
| Clifford | 3.17 | 2.18 | 0.00 | 5.35 | 8.4% |
| Columbiaville | 2.48 | 0.84 | 0.00 | 3.32 | 5.2% |
| Dryden | 1.25 | 0.27 | 0.65 | 2.17 | 3.4% |
| Imlay City | 5.16 | 0.00 | 0.00 | 5.16 | 8.2% |
| Lapeer | 22.55 | 16.42 | 2.22 | 41.19 | 64.9% |
| Metamora | 0.00 | 0.95 | 0.57 | 1.52 | 2.4% |
| North Branch | 1.46 | 0.00 | 0.00 | 1.46 | 2.3% |
| Otter Lake | 0.00 | 0.45 | 1.76 | 2.21 | 3.5% |
| Total | 37.13 | 21.11 | 5.20 | 63.44 | 100% |
| Percentage | 59% | 33% | 8% | 100% | |

| 2013 PASER Rating by Townships | | | | | |
|--------------------------------|--------------------------------------|--|-----------------------------------|---------------------|---|
| Description | 1 to 4 Structural Improvements | 5 to 7 Capital Preventative Maintenance | 8 to 10 Routine Maintenance | Total Lane Miles | Percentage of PASER Lane Miles in Jurisdiction |
| Almont Twp | 7.13 | 4.95 | 5.11 | 17.19 | 3.3% |
| Arcadia Twp | 19.37 | 5.93 | 6.99 | 32.29 | 6.1% |
| Attica Twp | 15.03 | 6.44 | 14.75 | 36.22 | 6.9% |
| Burlington Twp | 17.74 | 8.24 | 0.00 | 25.98 | 4.9% |
| Burnside Twp | 3.96 | 0.00 | 8.02 | 11.98 | 2.3% |
| Deerfield Twp | 18.84 | 8.76 | 1.00 | 28.60 | 5.4% |
| Dryden Twp | 20.83 | 2.36 | 1.51 | 24.70 | 4.7% |
| Elba Twp | 27.31 | 5.80 | 17.15 | 50.26 | 9.5% |
| Goodland Twp | 17.47 | 5.87 | 0.00 | 23.34 | 4.4% |
| Hadley Twp | 16.65 | 5.18 | 10.79 | 32.62 | 6.2% |
| Imlay Twp | 4.12 | 10.54 | 3.47 | 18.13 | 3.4% |
| Lapeer Twp | 22.02 | 15.31 | 13.06 | 50.39 | 9.6% |
| Marathon Twp | 32.04 | 8.05 | 0.74 | 40.83 | 7.7% |
| Mayfield Twp | 30.34 | 1.63 | 8.45 | 40.42 | 7.7% |
| Metamora Twp | 6.56 | 1.16 | 6.64 | 14.36 | 2.7% |
| North Branch Twp | 20.12 | 1.00 | 2.00 | 23.12 | 4.4% |
| Oregon Twp | 38.74 | 0.60 | 0.00 | 39.34 | 7.5% |
| Rich Twp | 16.10 | 1.03 | 0.23 | 17.36 | 3.3% |
| LCRC Total | 334.37 | 92.85 | 99.91 | 527.13 | 100% |
| Percentage | 63% | 18% | 19% | 100% | |

| 2013 PASER Rating by Jurisdiction | | | | | |
|-----------------------------------|--------------------------------------|--|-----------------------------------|---------------------|---|
| Description | 1 to 4 Structural Improvements | 5 to 7 Capital Preventative Maintenance | 8 to 10 Routine Maintenance | Total Lane Miles | Percentage of PASER Lane Miles in Jurisdiction |
| Cities | 37.13 | 21.11 | 5.20 | 63.44 | 7% |
| LCRC | 334.37 | 92.85 | 99.91 | 527.13 | 58% |
| MDOT | 41.13 | 182.81 | 92.01 | 315.95 | 35% |
| Lapeer Total | 412.63 | 296.77 | 197.12 | 906.52 | 100% |
| Percentage | 45% | 33% | 22% | 100% | |

*** Township federal aid roads are under the Jurisdiction of the Lapeer County Road Commission (LCRC)

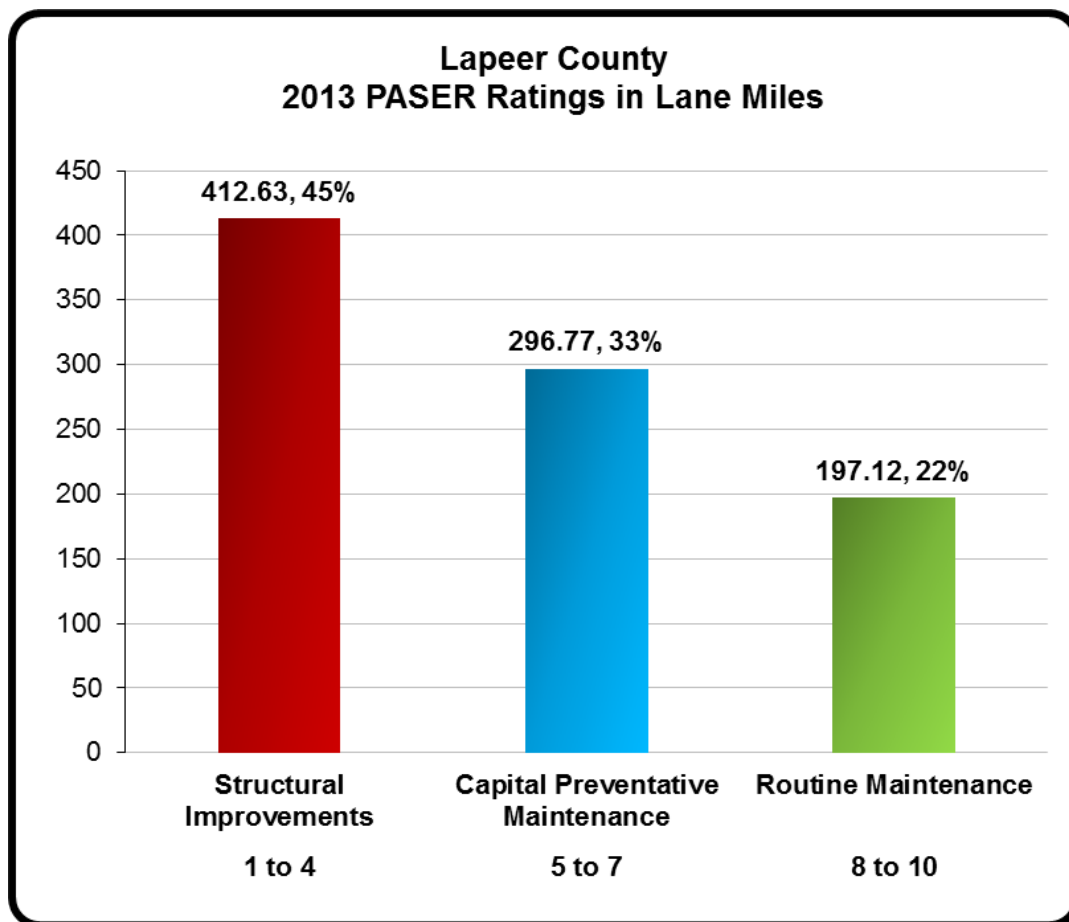


Results:

Approximately 906.52 lane miles of federal aid eligible roads were rated for this project. The chart on the following page summarizes the distribution of ratings by mileage and percentage of the total for all roads rated in the project. The data is distributed into three categories, in which 412.63 lane miles (45%) received a rating less than or equal to 4; 296.77 lane miles (33%) of the roads rated received a rating of 5, 6 or 7; and 197.12 lane miles (22%) of roads rated received a rating of 8 or better. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

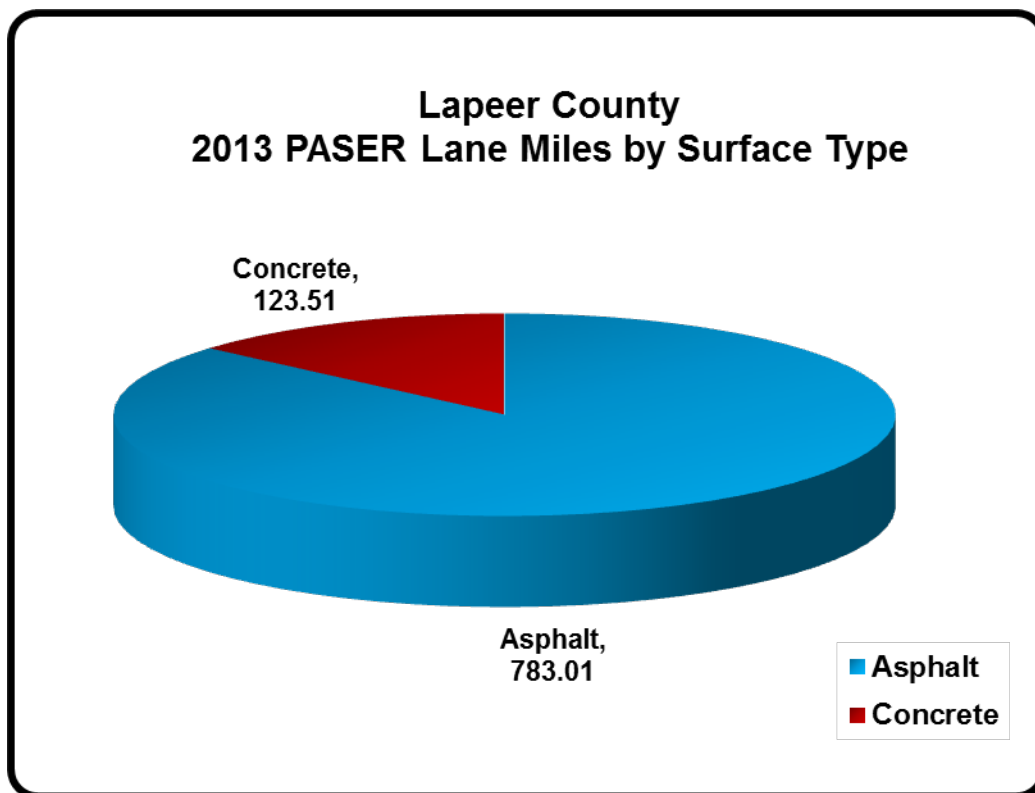
- Roads receiving a rating less than or equal to 4 require Structural Improvements
- Roads receiving a rating of 5-7 require Capital Preventive Maintenance
- Roads receiving a rating of 8 or better require only Routine Maintenance

| Lapeer County 2013 PASER Ratings | | | |
|----------------------------------|----------------------------------|------------------|--------------------------------|
| PASER Rating | Prescribed Fix | Total Lane Miles | Percentage of PASER Lane Miles |
| 1 to 4 | Structural Improvements | 412.63 | 45% |
| 5 to 7 | Capital Preventative Maintenance | 296.77 | 33% |
| 8 to 10 | Routine Maintenance | 197.12 | 22% |

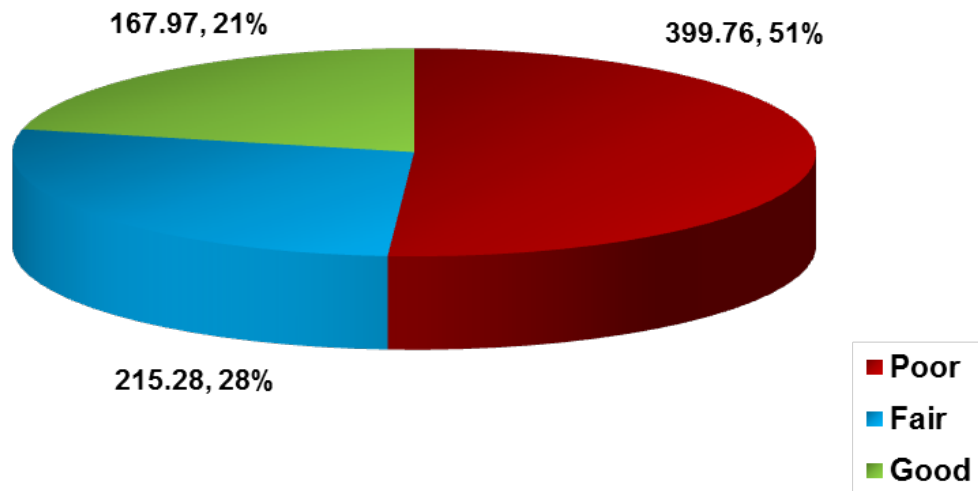


The following tables and charts provide a summary of the 2013 PASER survey ratings by surface type.

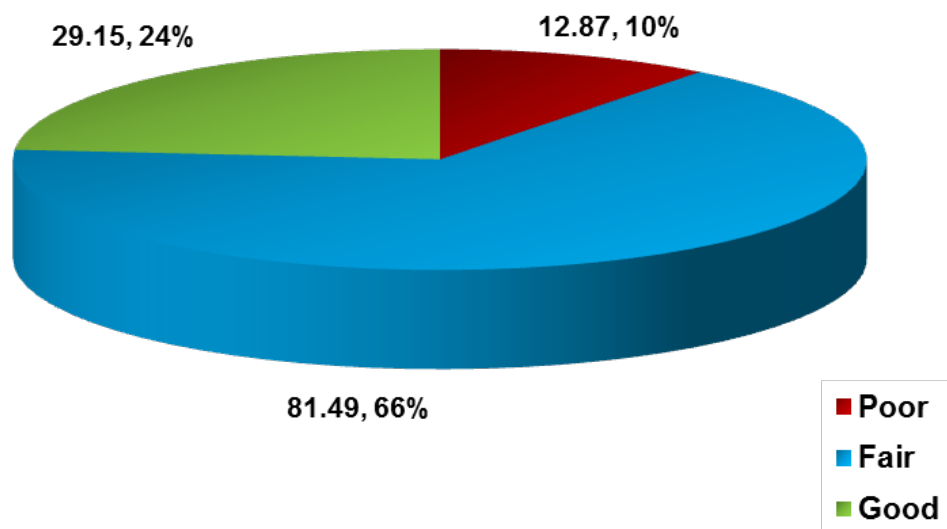
| 2013 PASER Rating by Surface Type | | | | | |
|-----------------------------------|--------------------------------------|--|-----------------------------------|---------------------|--------------------------------------|
| Description | 1 to 4 Structural Improvements | 5 to 7 Capital Preventative Maintenance | 8 to 10 Routine Maintenance | Total Lane Miles | Percentage of PASER Lane Miles |
| Asphalt | 399.76 | 215.28 | 167.97 | 783.01 | 86.4% |
| Concrete | 12.87 | 81.49 | 29.15 | 123.51 | 13.6% |
| Total | 412.63 | 296.77 | 197.12 | 906.52 | 100% |
| Total % | 45% | 33% | 22% | 100% | |



Lapeer County 2013 PASER Asphalt Ratings in Lane Miles

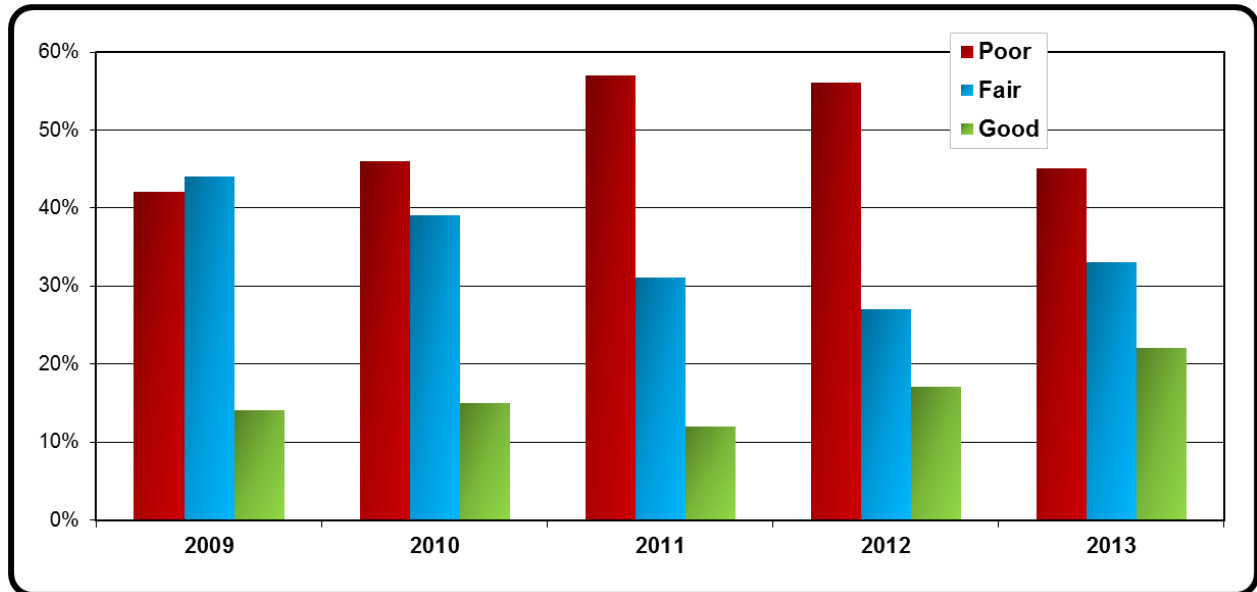


Lapeer County 2013 PASER Concrete Ratings in Lane Miles

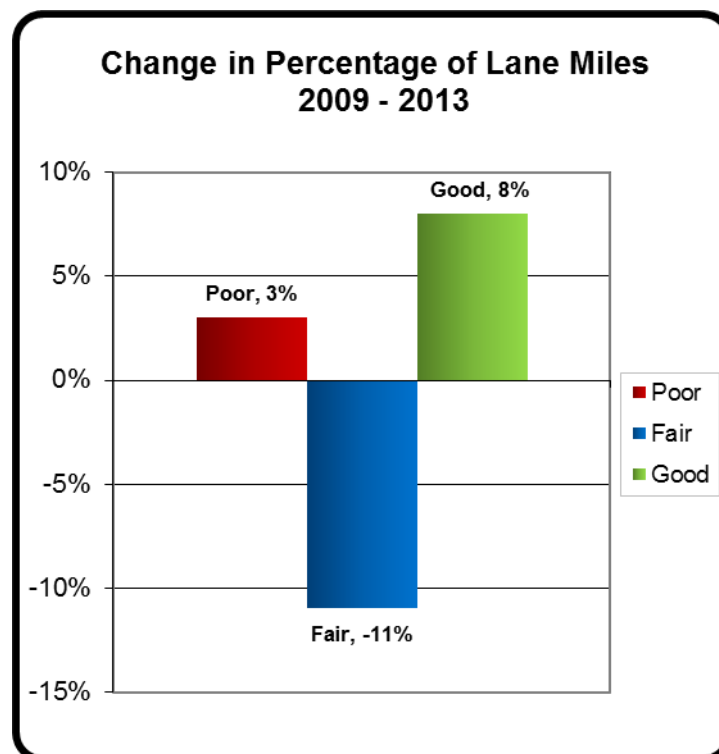


Comparison of 2009 to 2013 Lapeer County PASER Surveys

The following section analyzes data from PASER surveys conducted between 2009 and 2013 for Lapeer County as a whole and for each individual road agency. The data is provided in lane miles and as percent of lane miles for a given year.



*The graph above illustrates the percent of lane miles in each rating category for each year.



- In 2013, approximately 45% (412.63 lane miles) of the Federal Aid Road System received a PASER rating between 1 and 4. Roads with 1 to 4 ratings require structural improvements that may include full depth repairs, a major overlay or reconstruction. This represents an increase of 3% as compared to the 2009 rating distribution in the same category.
- In 2013, approximately 33% (296.77 lane miles) of the Federal Aid Road System received a PASER rating between 5 and 7. Roads with 5 to 7 ratings require capital preventative maintenance treatments, such as partial depth joint repairs, a seal coat or crack filling. This represents a decrease of 11% as compared to the 2009 rating distribution in the same category.
- In 2013, approximately 22% (197.12 lane miles) of the Federal Aid Road System are in the PASER Rating Category of 8 to 10. Roads with 8 to 10 ratings require only routine maintenance. This represents an increase of 8% as compared to the 2009 rating distribution in the same category.

In general, the comparison indicates that the overall system has seen a slight improvement between 2009 and 2013. After a sharp increase in the percentage of poor roads between 2010 and 2011, conditions have improved from 2011 to 2013. This is likely the result of an increase in preventative and routine maintenance treatments, such as chip sealing and crack sealing. As less funding is available to make structural improvements, we have seen a shift toward treatments that focus on road preservation, rather than reconstruction. These road preservation techniques may temporarily increase PASER ratings, but more costly reconstruction will eventually be required.

A deterioration trend was analyzed during the development of the 2040 Genesee County Long Range Transportation Plan. As part of the analysis, staff used the RoadSoft program to evaluate several different maintenance scenarios and found that the only way to improve the overall condition of the system is to provide at least 3 times the current level of funding for road improvements. This is a trend that is seen in similar analysis statewide, and can be reasonably applied to Lapeer County. As part of a pavement management program, an increased level of funding would help to stabilize roads that require routine and preventative maintenance and would also be able to incrementally improve roads that require more costly structural repairs.

The data provided in the following tables represents the percent of lane miles in each rating category for each year between 2009 and 2013 and the change in each rating category between 2009 to 2013 for each jurisdiction and Lapeer County as a whole.

| Almont | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|---------------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 0% | 0% | 0% | 0% | 0% | 0% |
| Fair 5 to 7 | 60% | 59% | 45% | 0% | 0% | -60% |
| Poor 1 to 4 | 40% | 41% | 55% | 100% | 100% | 60% |
| | 2013 Lane Miles: 1.06 | | | | | |

| Clifford | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|---------------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 39% | 39% | 0% | 0% | 0% | -39% |
| Fair 5 to 7 | 0% | 0% | 39% | 37% | 41% | 41% |
| Poor 1 to 4 | 61% | 61% | 61% | 63% | 59% | -2% |
| | 2013 Lane Miles: 5.35 | | | | | |

| Columbiaville | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|----------------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 22% | 22% | 22% | 0% | 0% | -22% |
| Fair 5 to 7 | 45% | 45% | 43% | 31% | 25% | -20% |
| Poor 1 to 4 | 33% | 33% | 35% | 69% | 75% | 42% |
| | 2013 Lane Miles: 3.32 | | | | | |

| Dryden | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|---------------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 42% | 70% | 69% | 32% | 30% | -12% |
| Fair 5 to 7 | 58% | 30% | 31% | 34% | 13% | -45% |
| Poor 1 to 4 | 0% | 0% | 0% | 34% | 57% | 57% |
| | 2013 Lane Miles: 2.17 | | | | | |

| Imlay City | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|---------------------|------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 0% | 25% | 13% | 0% | 0% | 0% |
| Fair 5 to 7 | 0% | 0% | 12% | 34% | 0% | 0% |
| Poor 1 to 4 | 100% | 75% | 75% | 66% | 100% | 0% |
| | 2013 Lane Miles: 5.16 | | | | | |

| Lapeer | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|---------------------|-------------------------------|-------------|-------------|-------------|-------------|-----------------------------|
| Good 8 to 10 | 2% | 5% | 4% | 5% | 5% | 3% |
| Fair 5 to 7 | 52% | 34% | 14% | 24% | 40% | -12% |
| Poor 1 to 4 | 46% | 61% | 82% | 71% | 55% | 9% |
| | 2013 Lane Miles: 41.19 | | | | | |

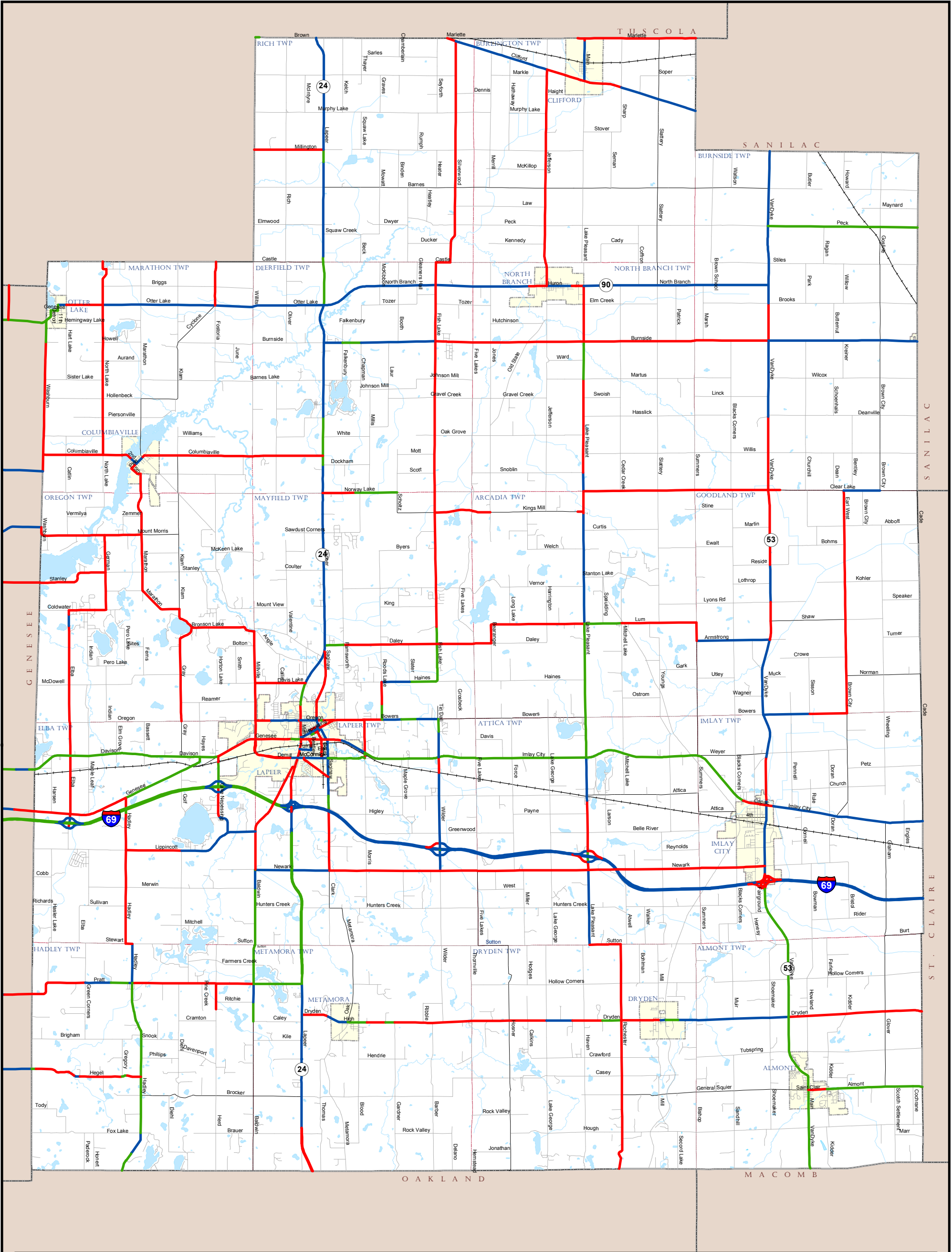
| Lapeer County | 2009 | 2010 | 2011 | 2012 | 2013 | Change 2009-2013 |
|-------------------------|------|------|------|------|------|---------------------|
| Good 8 to 10 | 14% | 15% | 12% | 17% | 22% | 8% |
| Fair 5 to 7 | 44% | 39% | 31% | 27% | 33% | -11% |
| Poor 1 to 4 | 42% | 46% | 57% | 56% | 45% | 3% |
| 2013 Lane Miles: 906.52 | | | | | | |

Updating the ratings:

According to the 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.

To obtain a digital copy of the data collected in this study, each Local Road Agency (LRA) must submit a written request to Region V staff. The data will be distributed as a RoadSoft GIS file, so each LRA must also obtain a copy of the latest RoadSoft GIS program from Michigan Tech prior to using the data.

PASER THEMATIC MAPS

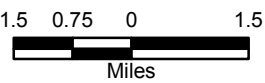
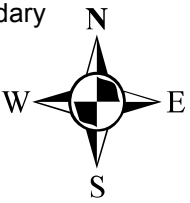


Lapeer County Roads

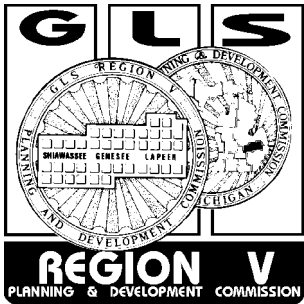
- Interstate/Freeway
- Arterials
- Collectors
- Local Roads
- Railroads
- Rivers and Streams
- Municipal Boundary

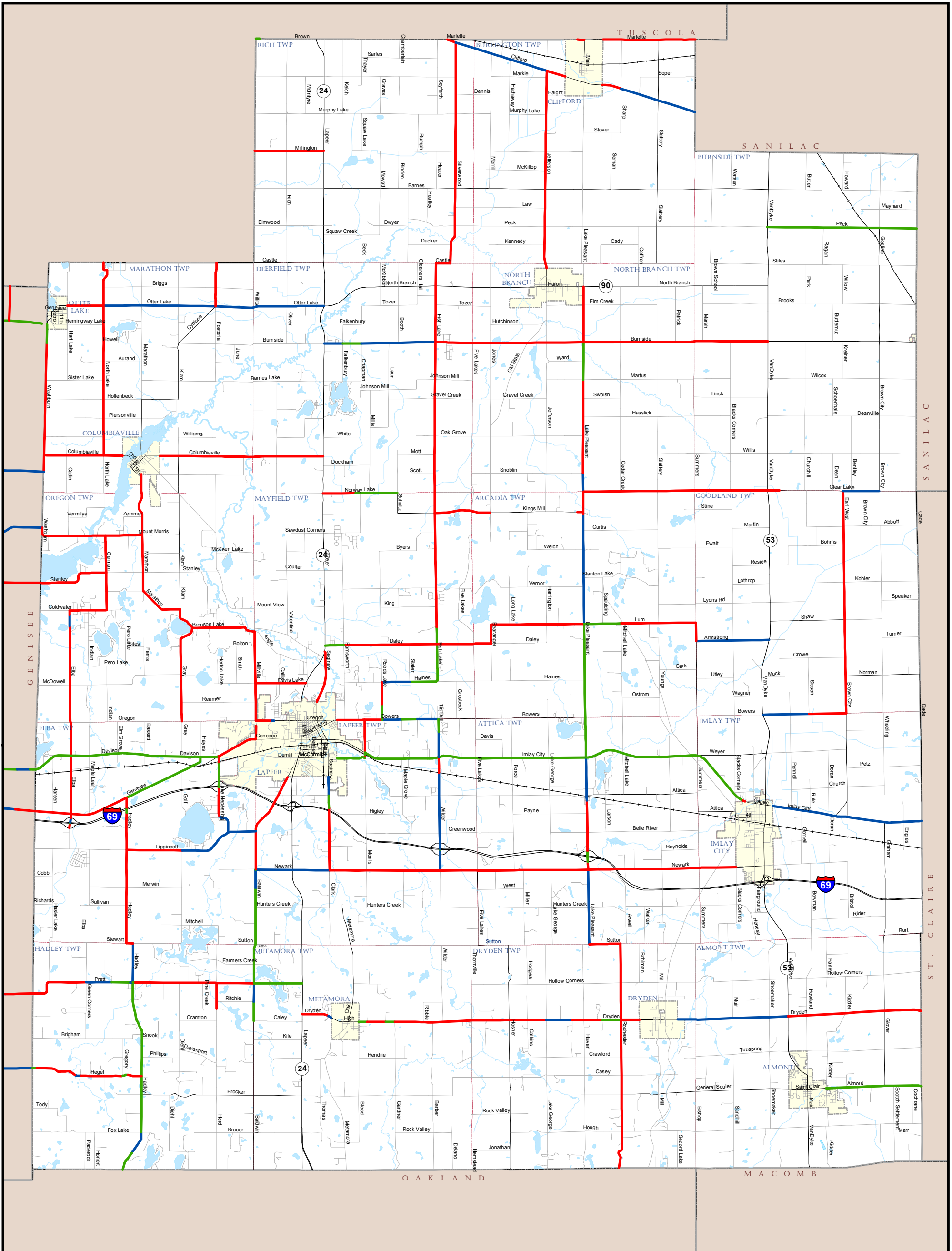
2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 197.12 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 296.77 lane miles)
- Rating 1-4 (Structural Improvements, 412.63 lane miles)



Sources: Michigan Geographic Framework Vs5a
Date: October 2014
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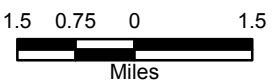
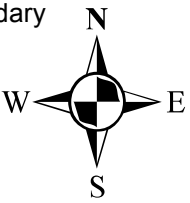


Lapeer County Road Commission Roads

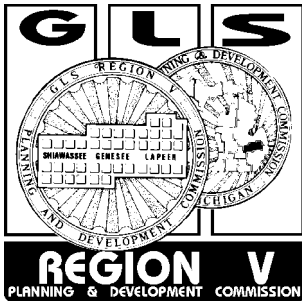
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- Arterials
- Collectors
- Local Roads
- Railroads
- Rivers and Streams
- Municipal Boundary

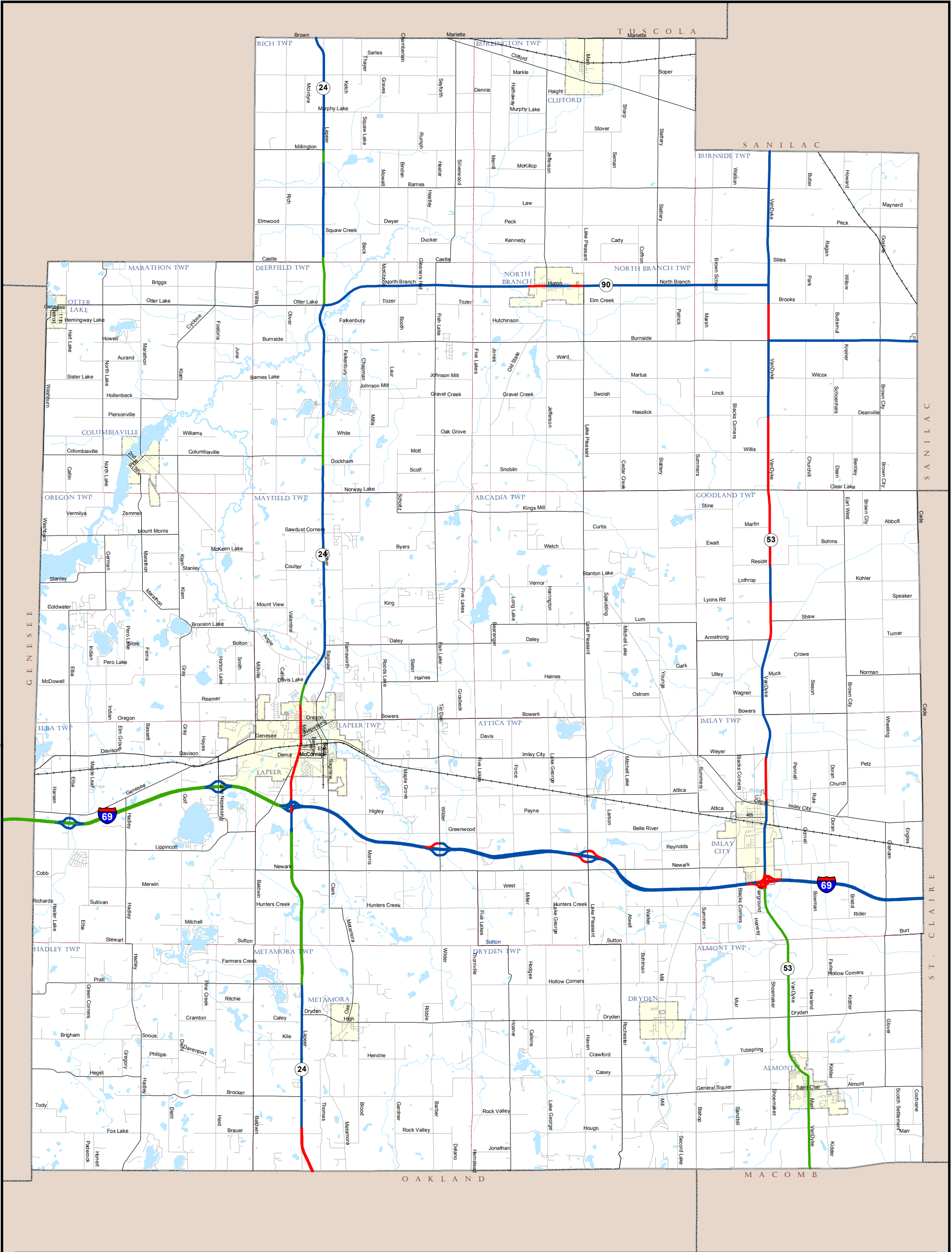
2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 99.91 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 92.85 lane miles)
- Rating 1-4 (Structural Improvements, 334.37 lane miles)



Sources: Michigan Geographic Framework Vs5a
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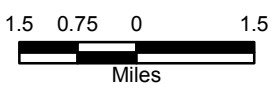
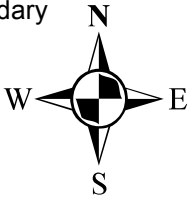


Lapeer County MDOT Roads

- Interstate/Freeway
- Arterials
- Collectors
- Local Roads
- Railroads
- Rivers and Streams
- Municipal Boundary

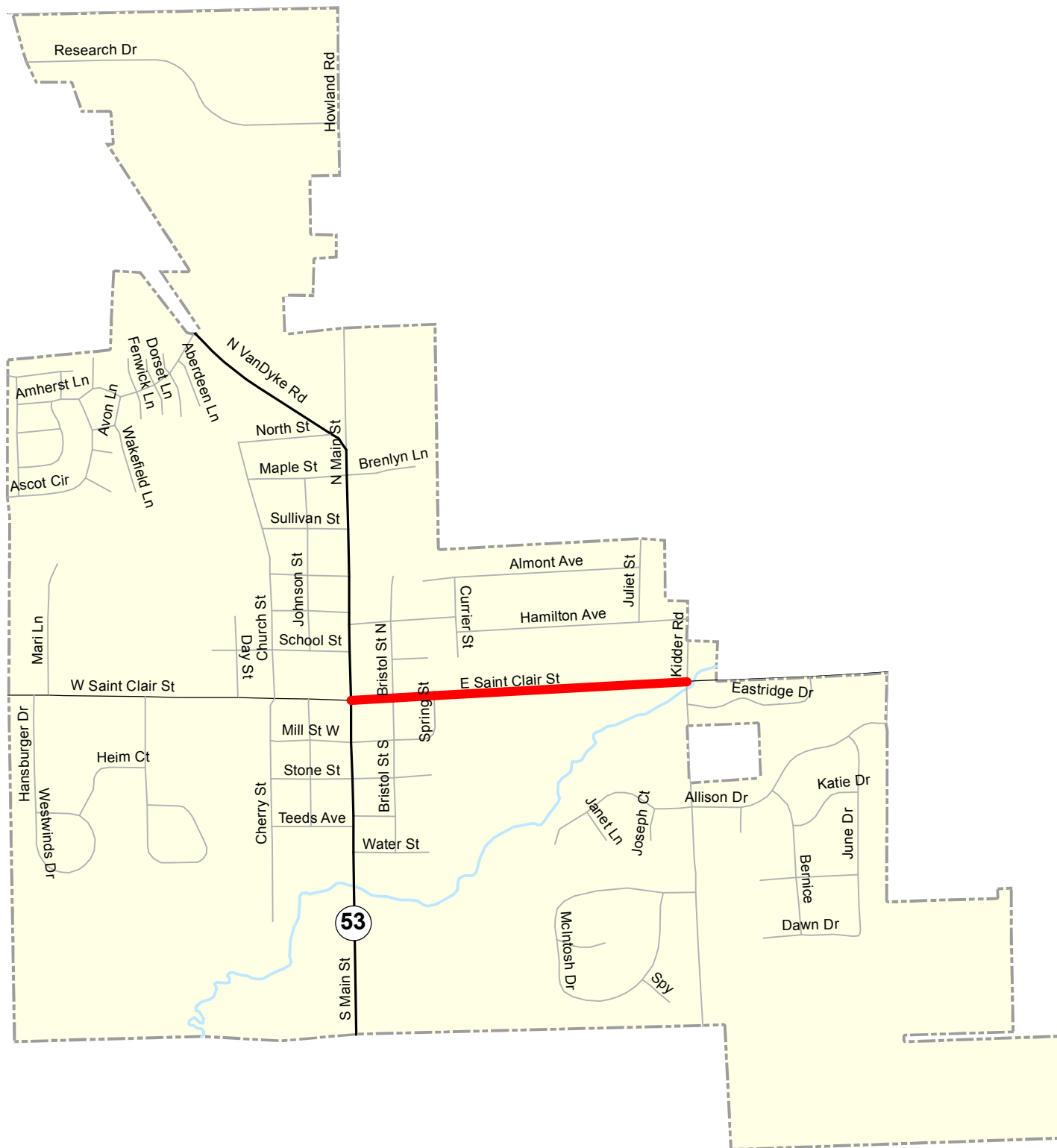
2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 92.01 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 182.81 lane miles)
- Rating 1-4 (Structural Improvements, 41.13 lane miles)

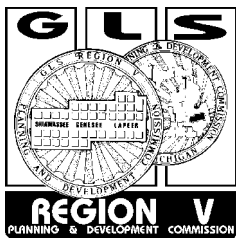


Sources: Michigan Geographic Framework V5a
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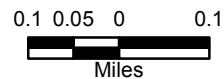
Village of Almont



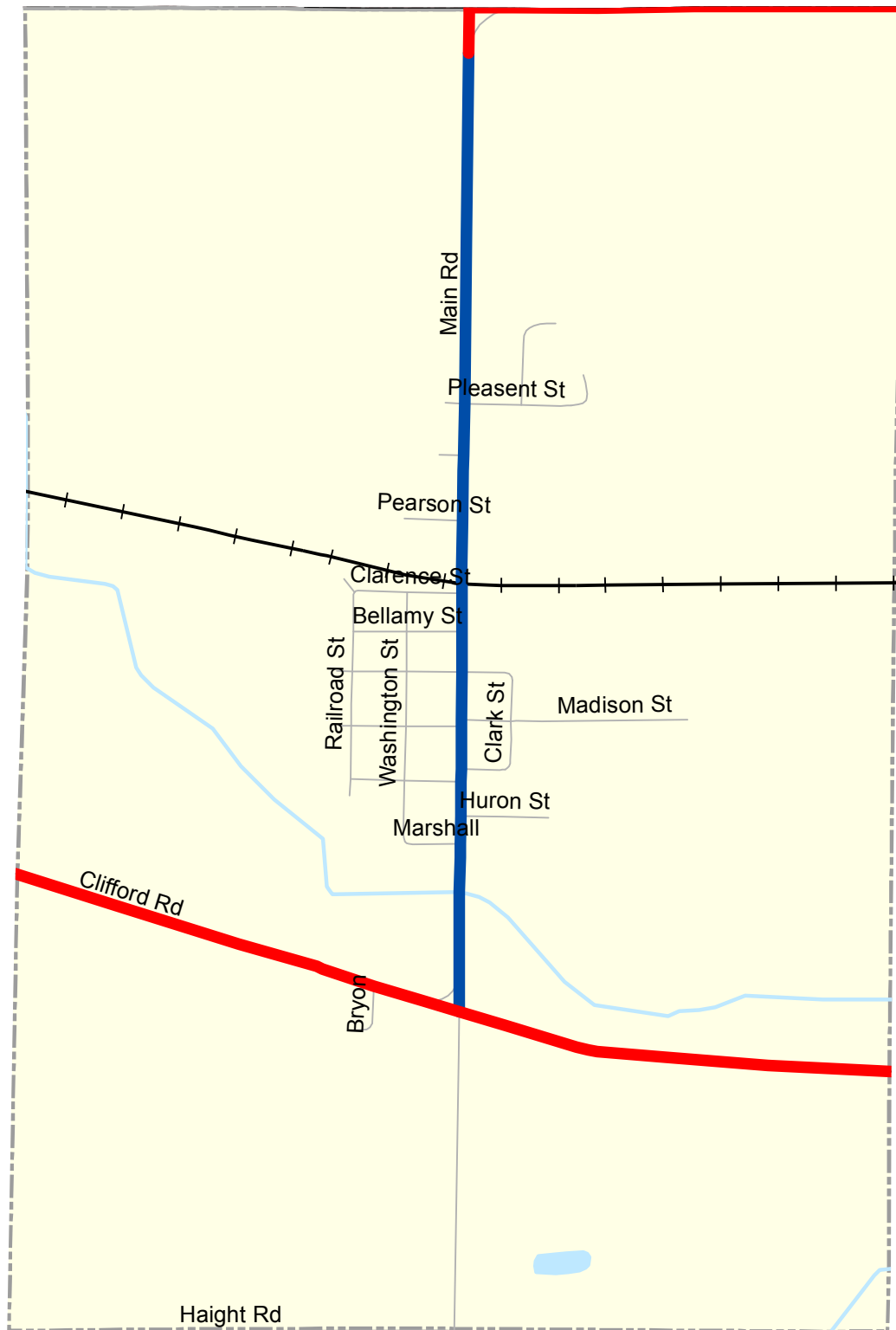
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|--|--------------------|--|-------------|--|--------------------|
| | Interstate/Freeway | | Collectors | | Railroads |
| | Arterials | | Local Roads | | Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.0 miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.0 lane miles)
- Rating 1-4 (Structural Improvements, 1.06 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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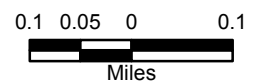
Village of Clifford



- | | | | | | |
|--|--------------------|--|-------------|--|--------------------|
| | Interstate/Freeway | | Collectors | | Railroads |
| | Arterials | | Local Roads | | Rivers and Streams |

2013 PASER Survey

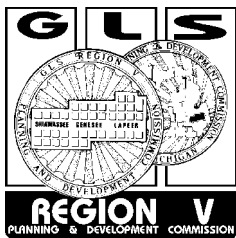
- Rating 8-10 (Routine Maintenance, 0.0 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 2.18 lane miles)
- Rating 1-4 (Structural Improvements, 3.17 lane miles)



Sources: Michigan Geographic Framework Vs5a
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Village of Columbiaville



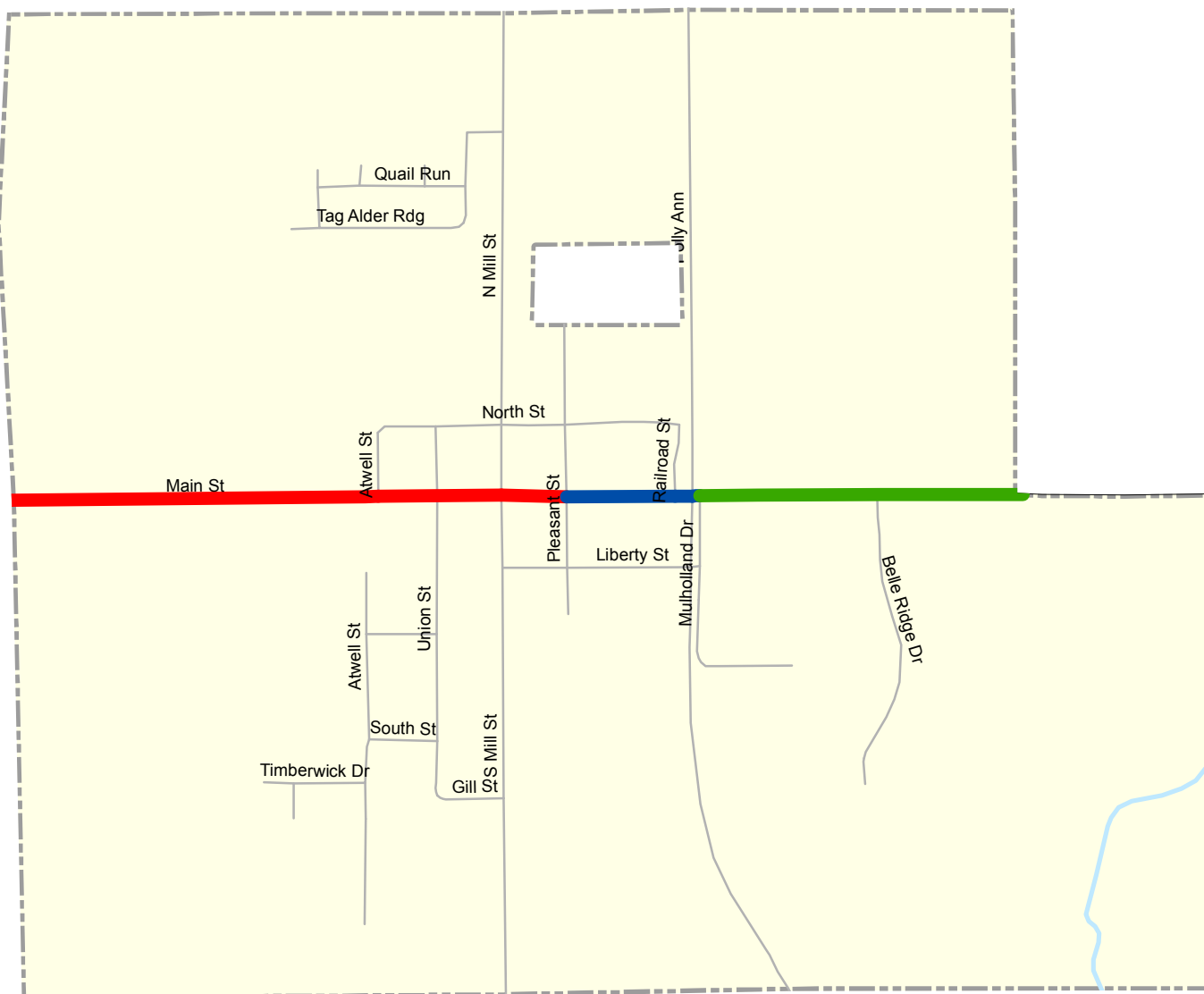
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|----------------------|---------------|----------------------|
| — Interstate/Freeway | — Collectors | — Railroads |
| — Arterials | — Local Roads | — Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.0 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.84 lane miles)
- Rating 1-4 (Structural Improvements, 2.48 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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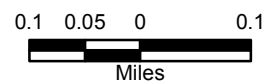
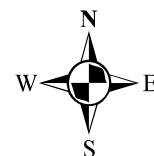
Village of Dryden



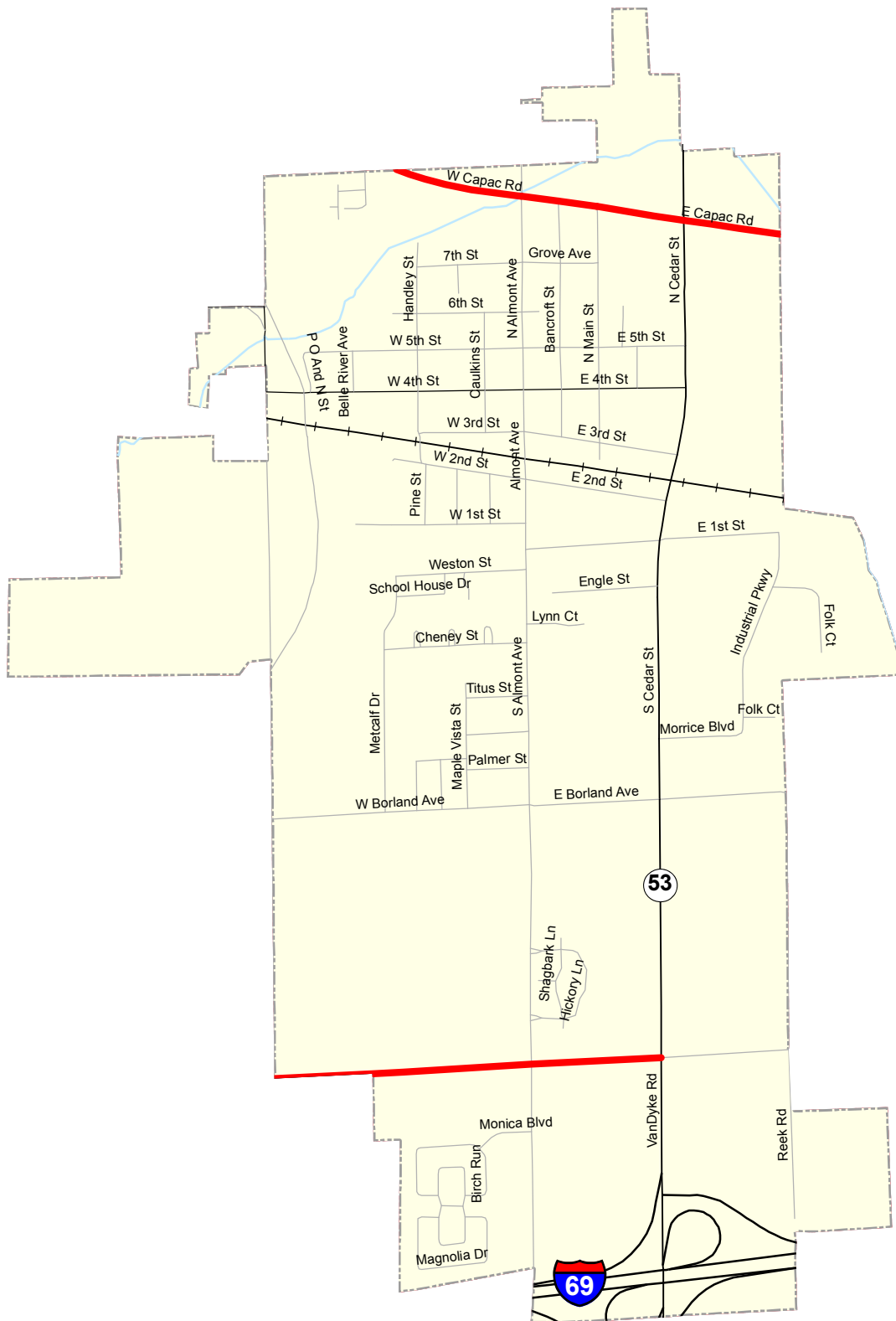
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|----------------------|---------------|----------------------|
| — Interstate/Freeway | — Collectors | — Railroads |
| — Arterials | — Local Roads | — Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.65 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.27 lane miles)
- Rating 1-4 (Structural Improvements, 1.25 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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Imlay City

- | | | | | | |
|--|--------------------|--|-------------|--|--------------------|
| | Interstate/Freeway | | Collectors | | Railroads |
| | Arterials | | Local Roads | | Rivers and Streams |

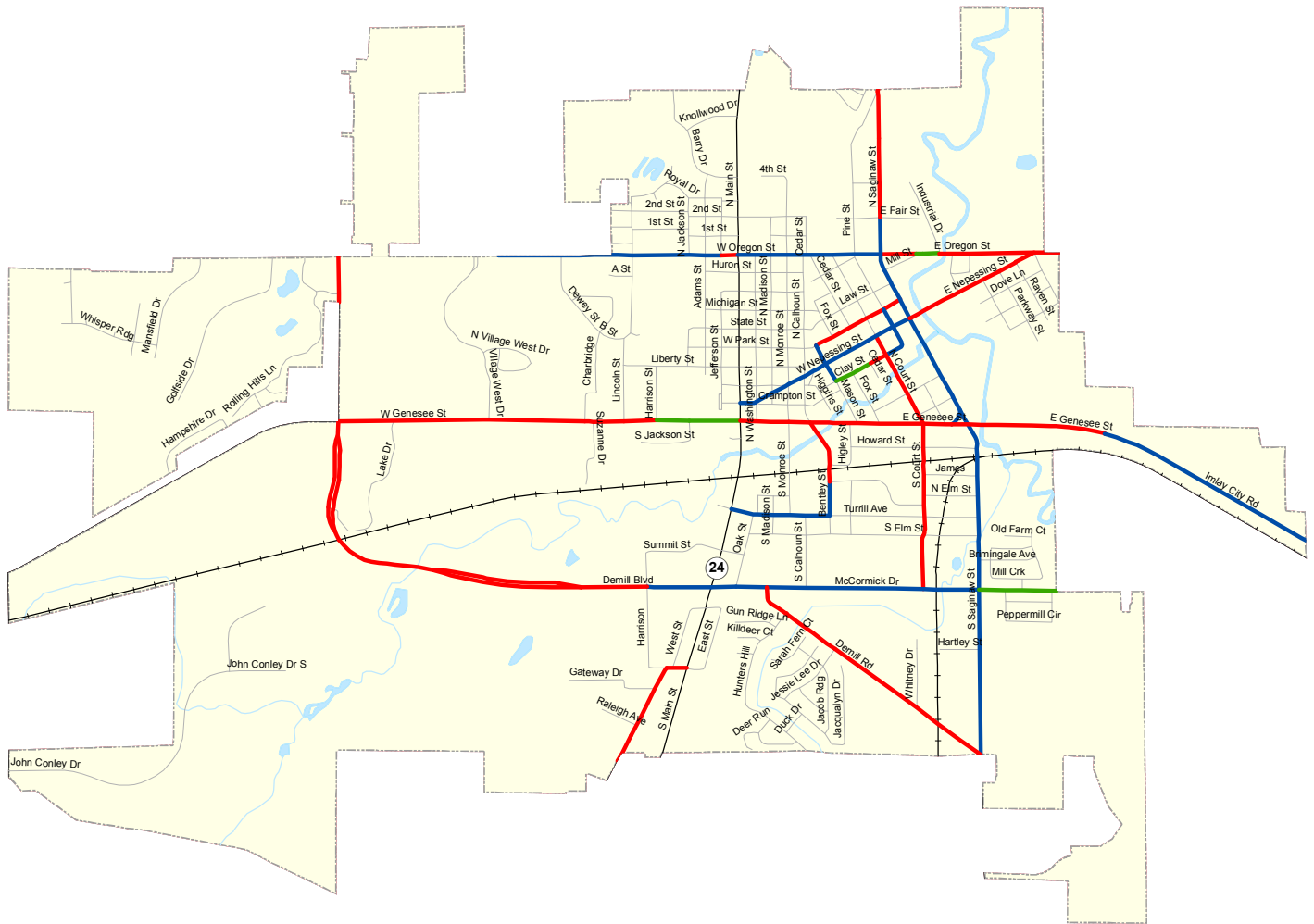
2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.0 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.0 miles)
- Rating 1-4 (Structural Improvements, 5.16 lane miles)



Sources: Michigan Geographic Framework Vs5A
Date: October 2014
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City of Lapeer

- | | | | | | |
|--|--------------------|--|-------------|--|--------------------|
| | Interstate/Freeway | | Collectors | | Railroads |
| | Arterials | | Local Roads | | Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 2.22 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 16.42 lane miles)
- Rating 1-4 (Structural Improvements, 22.55 lane miles)



0.250.125 0 0.25
Miles

Sources: Michigan Geographic Framework Vs5a
Date: October 2014
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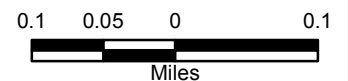
Village of Metamora



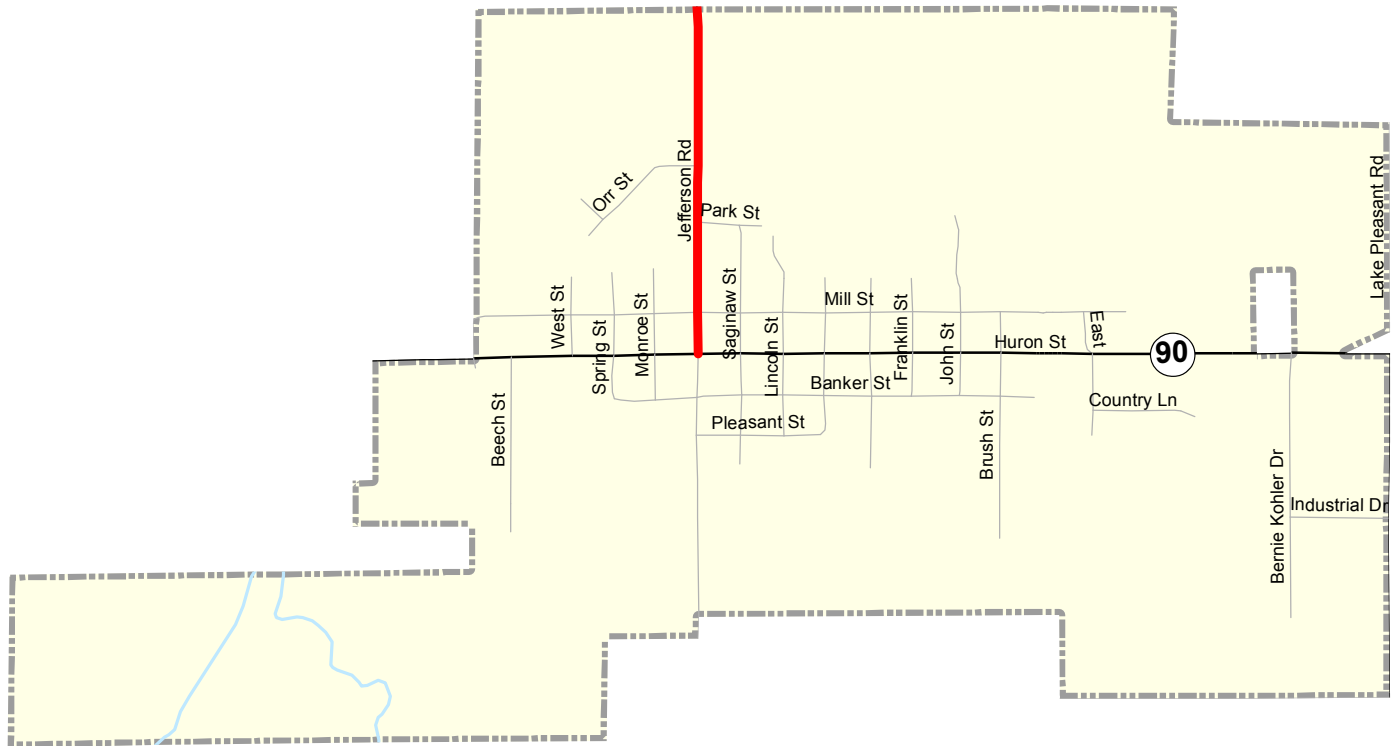
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| Interstate/Freeway | Collectors | Railroads |
| Arterials | Local Roads | Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.57 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.95 lane miles)
- Rating 1-4 (Structural Improvements, 0.0 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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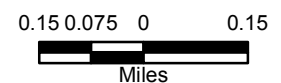
Village of North Branch



- | | | |
|--------------------|-------------|--------------------|
| Interstate/Freeway | Collectors | Railroads |
| Arterials | Local Roads | Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.0 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.0 lane miles)
- Rating 1-4 (Structural Improvements, 1.46 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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Village of Otter Lake



- | | | |
|--------------------|-------------|--------------------|
| Interstate/Freeway | Collectors | Railroads |
| Arterials | Local Roads | Rivers and Streams |

2013 PASER Survey

- Rating 8-10 (Routine Maintenance, 1.76 lane miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.45 lane miles)
- Rating 1-4 (Structural Improvements, 0.0 lane miles)



Sources: Michigan Geographic Framework Vs5a
 Date: October 2014
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Concrete - PASER Rating System Manual

Rating system

| Surface rating | Visible distress* | General condition/ treatment measures |
|------------------------|--|---|
| 10 Excellent | None. | New pavement. No maintenance required. |
| 9 Excellent | Traffic wear in wheelpath. Slight map cracking or pop-outs. | Recent concrete overlay or joint rehabilitation. Like new condition. No maintenance required. |
| 8 Very Good | Pop-outs, map cracking, or minor surface defects. Slight surface scaling. Partial loss of joint sealant. Isolated meander cracks, tight or well sealed. Isolated cracks at manholes, tight or well sealed. | More surface wear or slight defects. Little or no maintenance required. |
| 7 Good | More extensive surface scaling. Some open joints. Isolated transverse or longitudinal cracks, tight or well sealed. Some manhole displacement and cracking. First utility patch, in good condition. First noticeable settlement or heave area. | First sign of transverse cracks (all tight); first utility patch. More extensive surface scaling. Seal open joints and other routine maintenance. |
| 6 Good | Moderate scaling in several locations. A few isolated surface spalls. Shallow reinforcement causing cracks. Several corner cracks, tight or well sealed. Open (1/4" wide) longitudinal or transverse joints and more frequent transverse cracks (some open 1/4"). | First signs of shallow reinforcement or corner cracking. Needs general joint and crack sealing. Scaled areas could be overlaid. |
| 5 Fair | Moderate to severe polishing or scaling over 25% of the surface. High reinforcing steel causing surface spalling. Some joints and cracks have begun spalling. First signs of joint or crack faulting (1/4"). Multiple corner cracks with broken pieces. Moderate settlement or frost heave areas. Patching showing distress. | First signs of joint or crack spalling or faulting. Grind to repair surface defects. Some partial depth patching or joint repairs needed. |
| 4 Fair | Severe polishing, scaling, map cracking, or spalling over 50% of the area. Joints and cracks show moderate to severe spalling. Pumping and faulting of joints (1/2") with fair ride. Several slabs have multiple transverse or meander cracks with moderate spalling. Spalled area broken into several pieces. Corner cracks with missing pieces or patches. Pavement blowups. | Needs some full depth repairs, grinding, and/or asphalt overlay to correct surface defects. |
| 3 Poor | Most joints and cracks are open, with multiple parallel cracks, severe spalling, or faulting. D-cracking is evident. Severe faulting (1") giving poor ride. Extensive patching in fair to poor condition. Many transverse and meander cracks, open and severely spalled. | Needs extensive full depth patching plus some full slab replacement. |
| 2 Very Poor | Extensive slab cracking, severely spalled and patched. Joints failed. Patching in very poor condition. Severe and extensive settlements or frost heaves. | Recycle and/or rebuild pavement. |
| 1 Failed | Restricted speed. Extensive potholes. Almost total loss of pavement integrity. | Total reconstruction. |

* Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.

Asphalt - PASER Rating System Manual

Rating system

| 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). All cracks sealed or tight (open less than 1/4"). | Recent sealcoat or new cold mix. Little or no maintenance required. |
| 7 Good | Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10' 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 fines) and traffic wear. Longitudinal cracks (open 1/4"–1/2"), some spaced less than 10'. First sign of block cracking. 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 fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2") show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition. | Surface aging. Sound structural condition. Needs sealcoat or thin non-structural overlay (less than 2") |
| 4 Fair | Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (1/2" deep or less). | Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more). |
| 3 Poor | Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25% of surface). Patches in fair to poor condition. Moderate rutting or distortion (1" or 2" deep). Occasional potholes. | Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay. |
| 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. Pulverization of old pavement is effective. |
| 1 Failed | Severe distress with extensive loss of surface integrity. | Failed. Needs total reconstruction. |

* Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.