The State of Michigan Transportation Asset Management Council

2009 PASER Survey
of
Lapeer County

Prepared by the Genesee County Metropolitan Planning Commission

The State of Michigan
Transportation Asset Management Council
2009 PASER Road Survey
Lapeer County

Project Overview:
On June 3, 4 and 5, 2009, GLS Region V staff along with representatives of the Lapeer County Road Commission (LCRC) 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 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 0 to 10 rating scale, with a value of 10 representing a new road and a value of 0 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, concrete and gravel roads have been included with this report.

The State of Michigan Asset Management Council has requested that the information gathered in this survey be reported using the following categories:

- **Roads with PASER ratings of 8-10 require Routine Maintenance**. Routine maintenance is the day-to-day maintenance activities that are scheduled, such as street sweeping, drainage clearing, shoulder gravel grading and sealing cracks, to prevent standing water and water penetration.

- **Roads with PASER ratings of 5-7 require Capital Preventive Maintenance**. Capital preventive maintenance is a planned set of cost effective treatments to an existing roadway system and its appurtenances that preserves, retards future deterioration and maintains or improves the functional condition of the system without significantly increasing structural capacity. The purpose of capital preventive maintenance fixes is to protect the pavement structure, slow the rate of pavement deterioration and/or correct pavement surface deficiencies. Surface treatments are targeted at pavement surface defects primarily caused by the environment and by pavement material deficiencies.

- **Roads with PASER ratings of 0-4 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 6.9.1 software loaded. A Garmin GPS 35/36 TracPak 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

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:
Three staff members is the optimal amount to use for collecting PASER data. One drives, one navigates and 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 representative and one MDOT representative present. It took 20 hours to rate approximately 477 miles of road.

Training:
All participants in the survey were required to attend a day long training session at the Hannah Community Center in East Lansing, Michigan, on March 17, 2009. Participants received an overview of the project and were given instruction on how to use the RoadSoft software and the PASER road rating system for data collection. Once out in the field, experienced staff members taught the new participants how to use the RoadSoft program and guided them through the rating process. Most participants felt comfortable after an hour of working the computer and rating the roads.

Overview of the Federal Aid Network:
The Lapeer County Federal Aid network is comprised of 481 road miles. Of the total miles, 314 road miles are within Townships, which are under the jurisdiction of the Lapeer County Road Commission (LCRC) and 26 miles are within the cities and villages. Of the total roads surveyed, 417 miles (87%) were Asphalt, 63 miles (13%). Local Road agencies with the greatest amount of federal aid miles within their jurisdiction are the LCRC with 314 miles, MDOT with 136 miles and the City of Lapeer with 14 miles of federal aid roads.

2009 PASER Surface Rating by Cities and Villages				
Jurisdictions	**0 to 4 PASER Rating (miles)**	**5 to 7 PASER Rating (miles)**	**8 to 10 PASER Rating (Miles)**	**Total Road Miles**
Almont	0.37	0.64	0.00	1.01
Clifford	1.62	0.00	1.05	2.68
Columbiaville	0.72	1.01	0.50	2.24
Dryden	0.00	0.56	0.46	1.02
Imlay City	2.56	0.00	0.00	2.56
Lapeer	6.22	8.13	0.29	14.63
Metamora	0.52	0.00	0.76	1.28
North Branch	0.50	0.00	0.00	0.50
Otter Lake	0.00	0.23	0.75	0.97
Total	12.50	10.57	3.81	26.88
Percentage	47%	39%	14%	100%

2009 LCRC Surface Rating by Township				
Jurisdiction	**0 to 4 PASER Rating (miles)**	**5 to 7 PASER Rating (miles)**	**8 to 10 PASER Rating (Miles)**	**Total Road Miles**
Almont Twp	5.05	7.53	2.56	15.13
Arcadia Twp	8.82	7.33	0.00	16.15
Attica Twp	18.45	4.34	1.25	24.04
Burlington Twp	14.10	4.82	0.00	18.92
Burnside Twp	10.48	1.50	0.00	11.98
Deerfield Twp	6.92	4.40	2.98	14.30
Dryden Twp	7.92	5.99	0.00	13.91
Elba Twp	9.46	13.27	1.27	24.00
Goodland Twp	8.92	4.75	0.00	13.67
Hadley Twp	2.31	12.33	1.66	16.31
Imlay Twp	16.22	2.08	0.00	18.30
Lapeer Twp	13.93	11.09	3.17	28.18
Marathon Twp	9.11	9.42	0.00	18.53
Mayfield Twp	8.95	4.72	6.58	20.25
Metamora Twp	0.40	7.56	1.30	9.25
North Branch Twp	8.56	3.00	0.00	11.56
Oregon Twp	18.18	4.59	0.00	22.77
Rich Twp	2.00	1.46	0.51	3.96
Other	11.03	0.41	1.75	13.19
Total Townships	180.77	110.59	23.02	314.38
Percentage	58%	35%	7%	

*** There is approximately 4 miles of boundary roads that were rated both in Genesee and Lapeer County

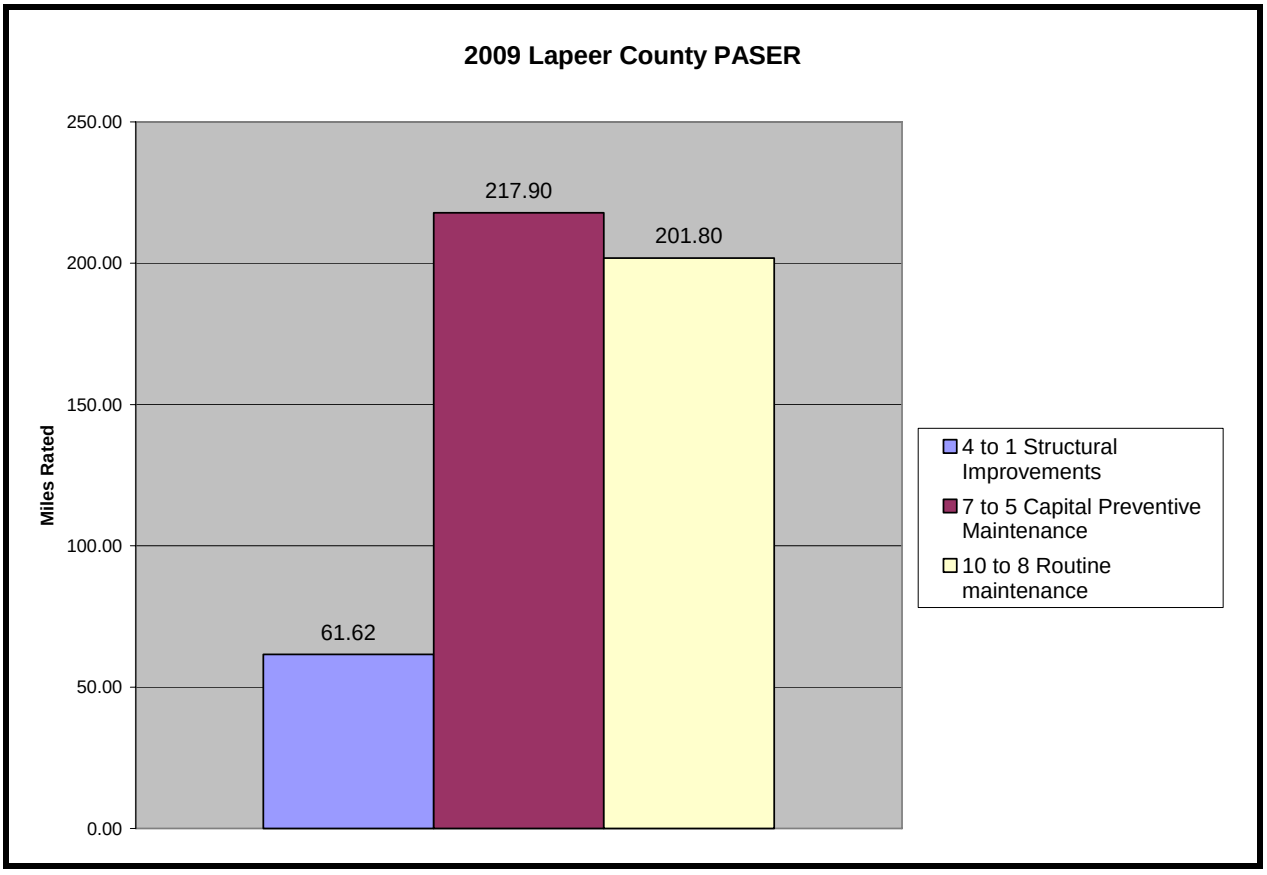
2009 PASER Surface Rating by Jurisdiction				
Jurisdictions	**0 to 4 PASER Rating (miles)**	**5 to 7 PASER Rating (miles)**	**8 to 10 PASER Rating (Miles)**	**Total Road Miles**
Almont	0.37	0.64	0.00	1.01
Clifford	1.62	0.00	1.05	2.68
Columbiaville	0.72	1.01	0.50	2.24
Dryden	0.00	0.56	0.46	1.02
Imlay City	2.56	0.00	0.00	2.56
Lapeer	6.22	8.13	0.29	14.63
Metamora	0.52	0.00	0.76	1.28
North Branch	0.50	0.00	0.00	0.50
Otter Lake	0.00	0.23	0.75	0.97
LCRC	180.77	110.59	23.02	314.38
MDOT	8.52	92.84	22.15	136.05
Total	201.80	217.90	61.62	481.32
Percentage	**42%**	**45%**	**13%**	**100.00%**

Results:
Approximately 477 lane miles of federal aid eligible roads were rated for this project. The project was completed in 20 hours with an average rating speed of 21 miles per hour. 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. 48.97 miles (10%) of the roads rated received a rating of 8 or better, 214 miles (45%) of the roads rated received a rating of 5, 6 or 7 and 214.33 miles (45%) received a rating less than or equal to 4. The Asset Management Council has prescribed a fix for each of the PASER rating categories:

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

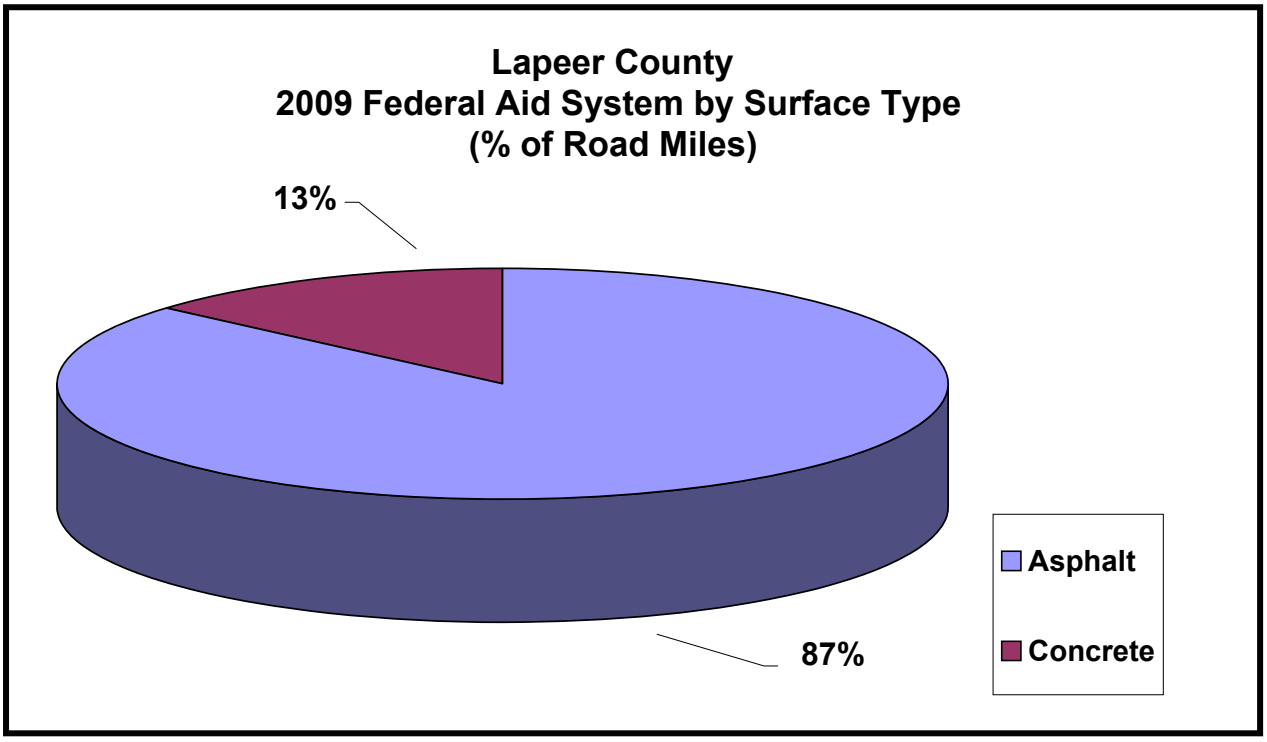
PASER Rating	Prescribed Fix	Miles	Percent of Total Miles Rated
10 – 8	Routine Maintenance	61.62	13%
7 – 5	Capital Preventive Maintenance	217.90	45%
4 – 1	Structural Improvements	201.80	42%

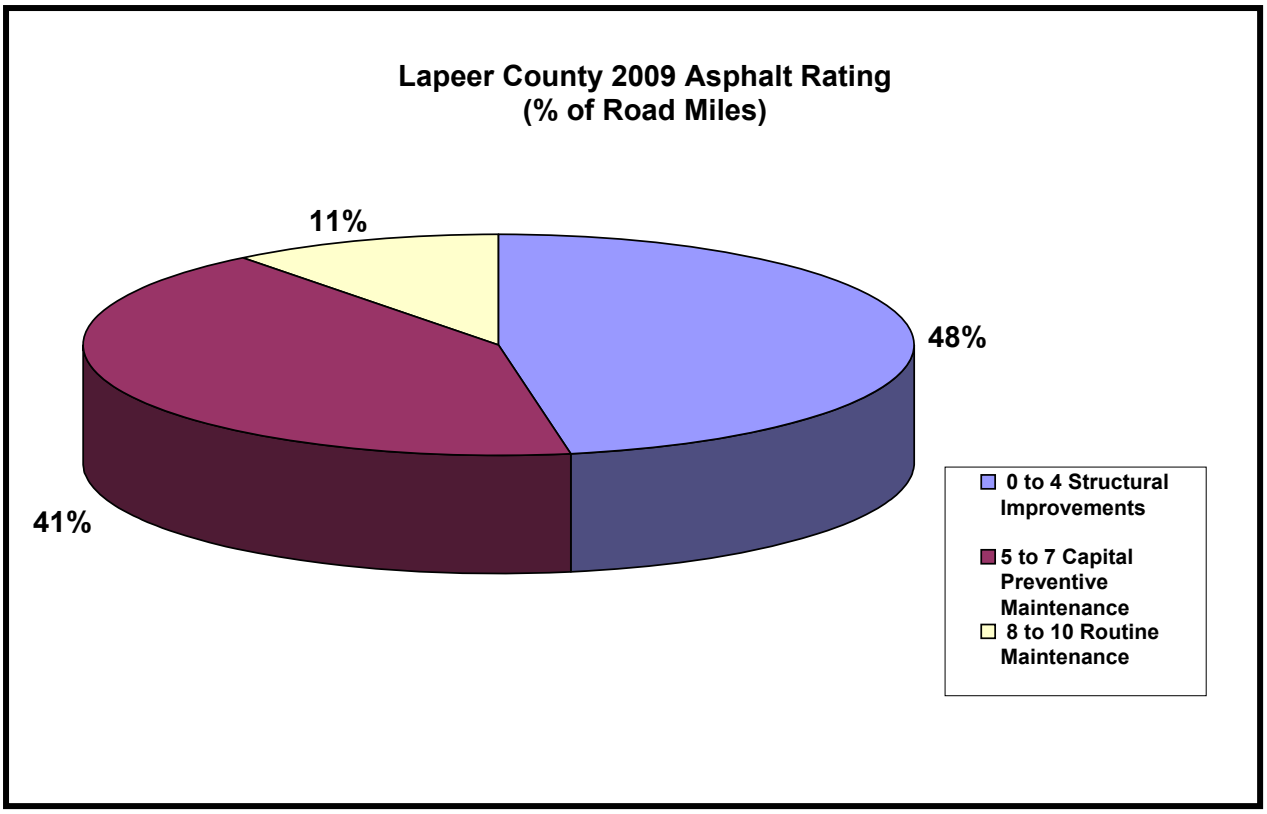
The following charts summarize the distribution of ratings by mileage for all roads rated in the project.

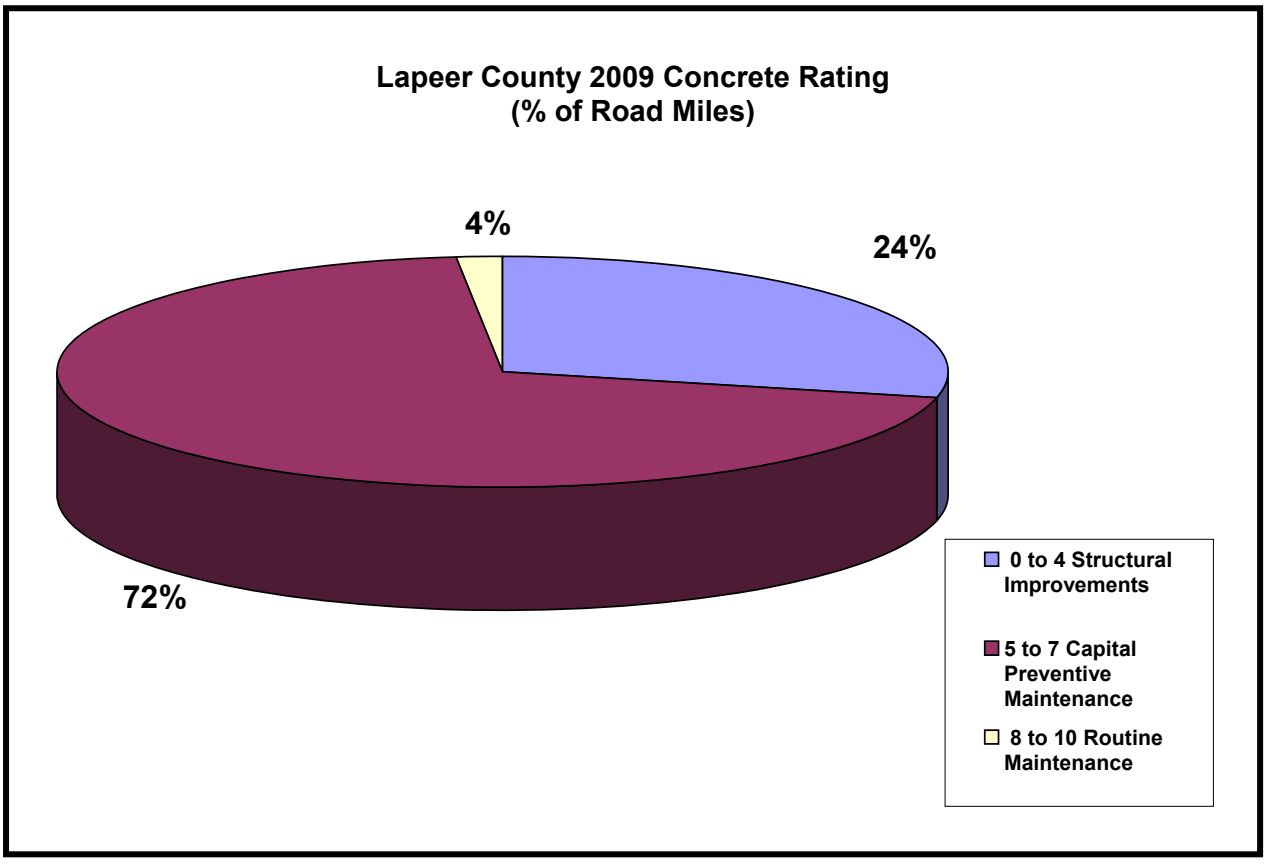


The following tables provide a summary of the 2009 PASER survey rating by surface type.

2009 PASER Surface Rating by Surface Type				
Description	0 to 4 PASER Rating	5 to 7 PASER Rating	8 to 10 PASER Rating	Total Road Miles
Asphalt	199.12	172.36	46.33	**417.81**
Concrete	2.68	45.54	15.29	**63.51**
Undefined	0.00	0.00	0.00	**0.00**
Total	201.80	217.90	61.62	**481.32**
Percentage	**42%**	**45%**	**13%**	**100.00%**




Lapeer County 2009 Asphalt Rating
(% of Road Miles)
11%
48%
41%
0 to 4 Structural Improvements
5 to 7 Capital Preventive Maintenance
8 to 10 Routine Maintenance

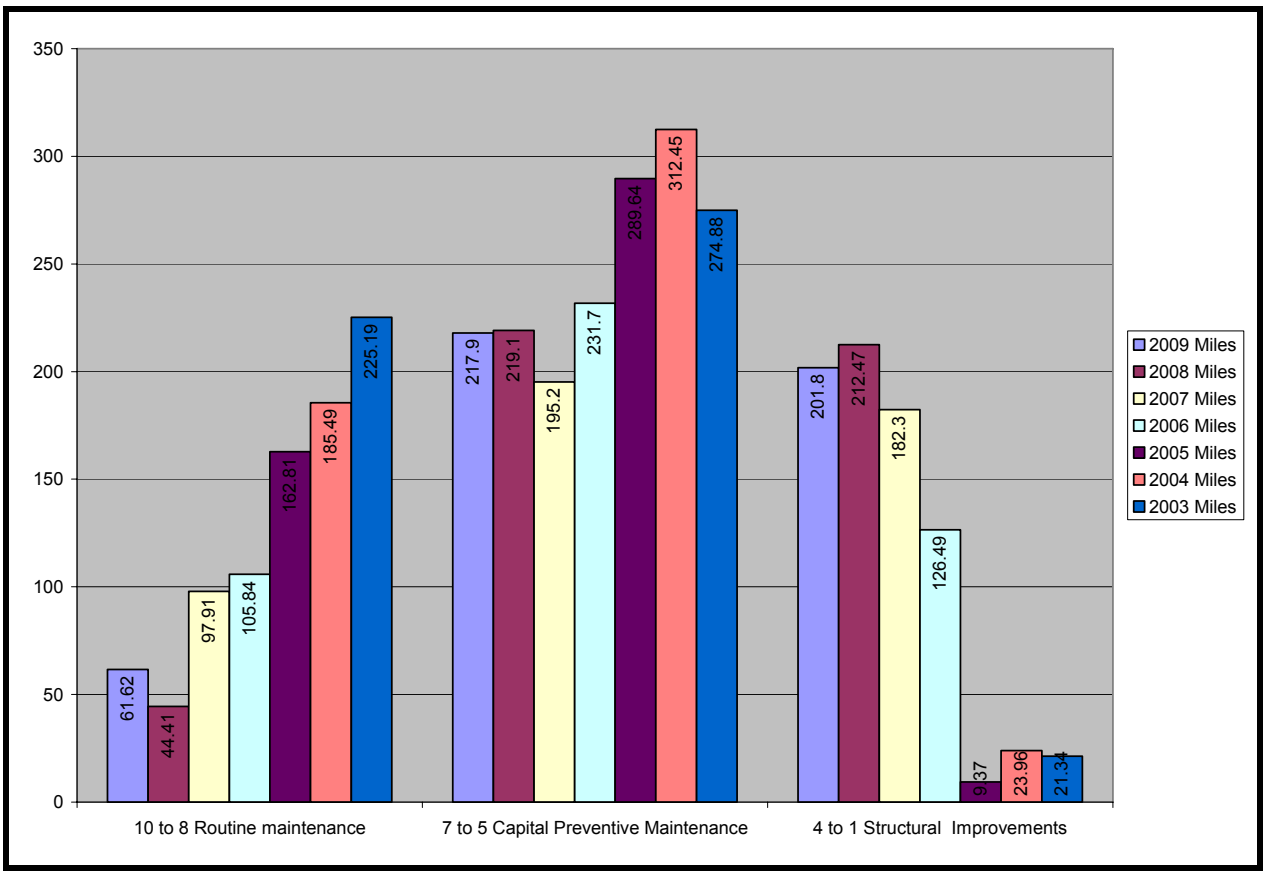

Lapeer County 2009 Concrete Rating
(% of Road Miles)
4%
24%
72%
0 to 4 Structural Improvements
5 to 7 Capital Preventive Maintenance
8 to 10 Routine Maintenance

To obtain a digital copy of the data collected in this study each Local Road Agency must submit a written request to GLS 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.

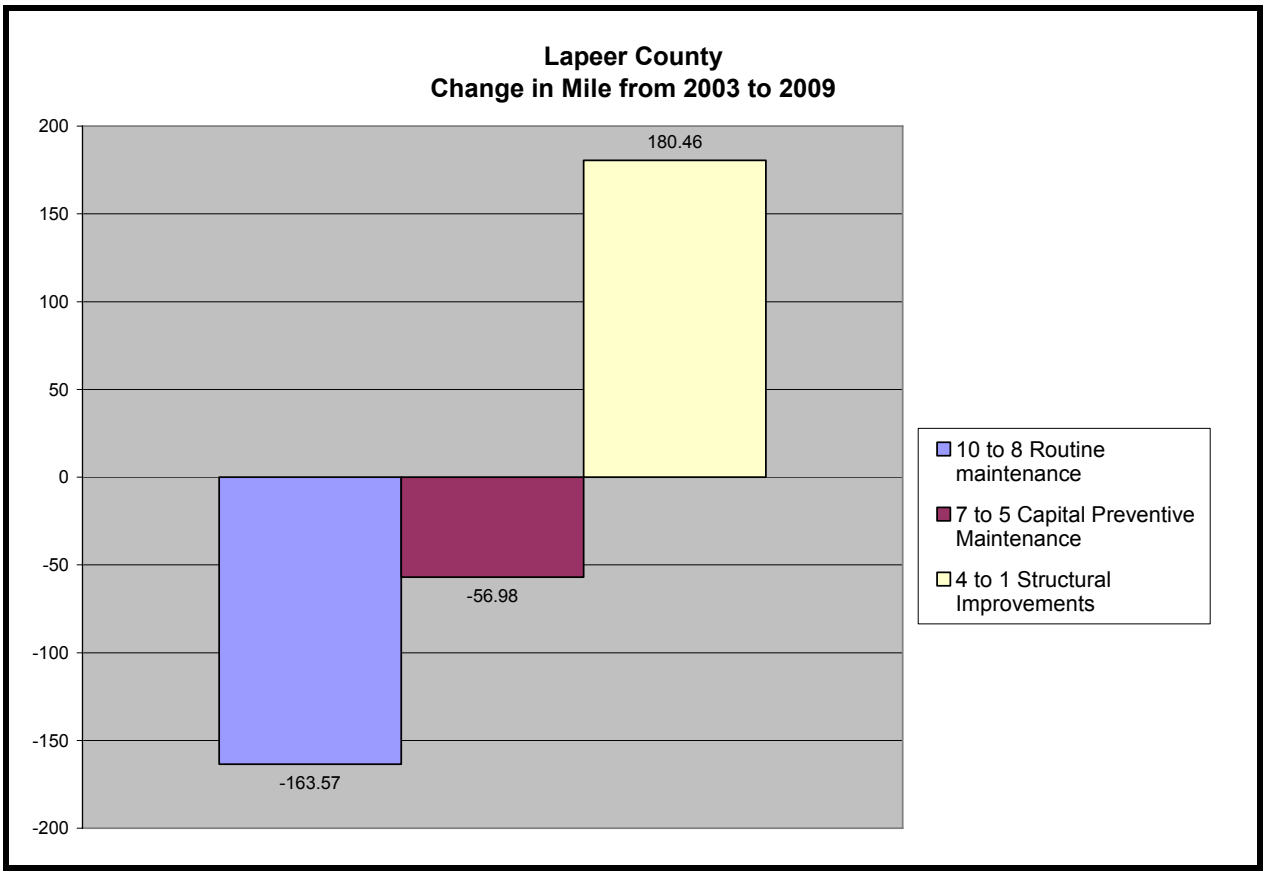
A set of color thematic maps depicting the 481 miles of federal aid eligible roads rated for this project are provided in the back of this report.

Updating the ratings:
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 continues to provide 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.

Comparisons: 2003 to 2009 Lapeer County PASER Evaluation:
(Rating By Miles)



*** 2005 thru 2009 data does not include gravel roads
*** 2006 and 2007 include rutting consideration in rating



The change in miles from 2003 to 2009 indicated a significant amount of miles decreased in the Routine Maintenance and Capital Preventive Maintenance and an increase in miles under the Structural Improvement category.

- In 2009, 42% or 201 miles of the Federal Aid Road system are in the PASER Rating Category of 4 to 0. Roads with 0 to 4 ratings require structural improvements that include full depth repairs, major overlay or reconstruction. This is an increase of 924% as compared to the 2003 rating distribution in the same category.

- In 2009, 45% or 217 miles of the Federal Aid Road system are in the PASER Rating Category of 5 to 7. Roads with 5 to 7 ratings require some partial depth joint repairs, seal coat or crack filling. This is a decrease of14% as compared to the 2003 rating distribution in the same category.

- In 2009, 13% or 61 miles of the Federal Aid Road system are in the PASER Rating Category of 8 to 10. Roads with 8 to 10 ratings require little or no maintenance. This is a decrease of 70% as compared to the 2003 rating distribution in the same category.

In general, this comparison indicates an increased need for Structural Improvements and Capital/Preventive Maintenance improvements in Lapeer County, as a whole. The difference in the significant increase and decrease is partly due to the more detailed rating process. In 2006, rutting was given greater consideration compared to previous years and the surveyors slowed the vehicles speed down and took a closer look at the

distresses. Rutting is located in the wheel path and is considered to be functional and structural types of distress. In 2006, rutting severity of .5 to 1.0 inch could not receive a rating higher then a 4.

The following tables compare PASER Rating Categories, miles rated, and Percentage of miles from 2003 to 2009 PASER survey for each Lapeer County jurisdiction and the Lapeer County as a whole.

ALMONT	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0	0	0	0.21	0.14	0.52	0.06	-0.06
7 to 5	0.64	0.781	0.21	0.61	0.84	0.5	0.95	-0.31
4 to 1	0.37	0.228	0.8	0.19	0	0	0	0.37
Total	1.01	1.009	1.01	1.01	0.99	1.02	1.01	0

CLIFFORD	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	1.05	0	0	0	0	1.47	1.91	-0.86
7 to 5	0	0	0.76	2.68	2.68	1.21	0.77	-0.77
4 to 1	1.62	2.675	1.91	0	0	0	0	1.62
Total	2.67	2.675	2.67	2.68	2.68	2.68	2.68	-0.01

COLUMBIAVILLE	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0.5	0	0.08	0.58	0.92	0.92	1.69	-1.19
7 to 5	1.01	1.754	1.86	1.66	1.24	1.24	0.48	0.53
4 to 1	0.72	0.484	0.31	0	0.08	0.08	0.08	0.64
Total	2.23	2.238	2.25	2.24	2.24	2.24	2.24	-0.01

DRYDEN	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0.46	0.265	0	0	0	0	0	0.46
7 to 5	0.56	0	0	0	1.02	1.02	1.02	-0.46
4 to 1	0	0.752	1.02	1.02	0	0	0	0
Total	1.02	1.017	1.02	1.02	1.02	1.02	1.02	0

IMLAY CITY	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0	0	0.17	0	0.07	0.25	0	0
7 to 5	0	5.373	5.44	0.75	2.42	1.99	2.41	-2.41
4 to 1	2.56	2.879	2.64	1.74	0	0.09	0.09	2.47
Total	2.56	8.252	8.25	2.49	2.49	2.32	2.49	0.07

LAPEER	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0.29	0.29	0.65	0.87	1.83	4.27	3.53	-3.24
7 to 5	8.13	6.695	9.47	4.83	8.34	5.96	5.05	3.08
4 to 1	6.22	9.449	6.32	4.62	0.13	0	1.65	4.57
Total	14.64	16.434	16.44	10.32	10.31	10.23	10.23	4.41

METAMORA	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0.76	0	0	0	0	0.33	0.33	0.43
7 to 5	0	0	0	0.84	1.28	0.95	0.95	-0.95
4 to 1	0.52	1.276	1.28	0.43	0	0	0	0.52
Total	1.28	1.276	1.28	1.27	1.28	1.28	1.28	0

NORTH BRANCH	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0	0	0	0	0	0	0	0
7 to 5	0	0	0	0.5	0.5	0.44	0.5	-0.5
4 to 1	0.5	0.499	0.5	0	0	0	0	0.5
Total	0.5	0.499	0.5	0.5	0.5	0.44	0.5	0

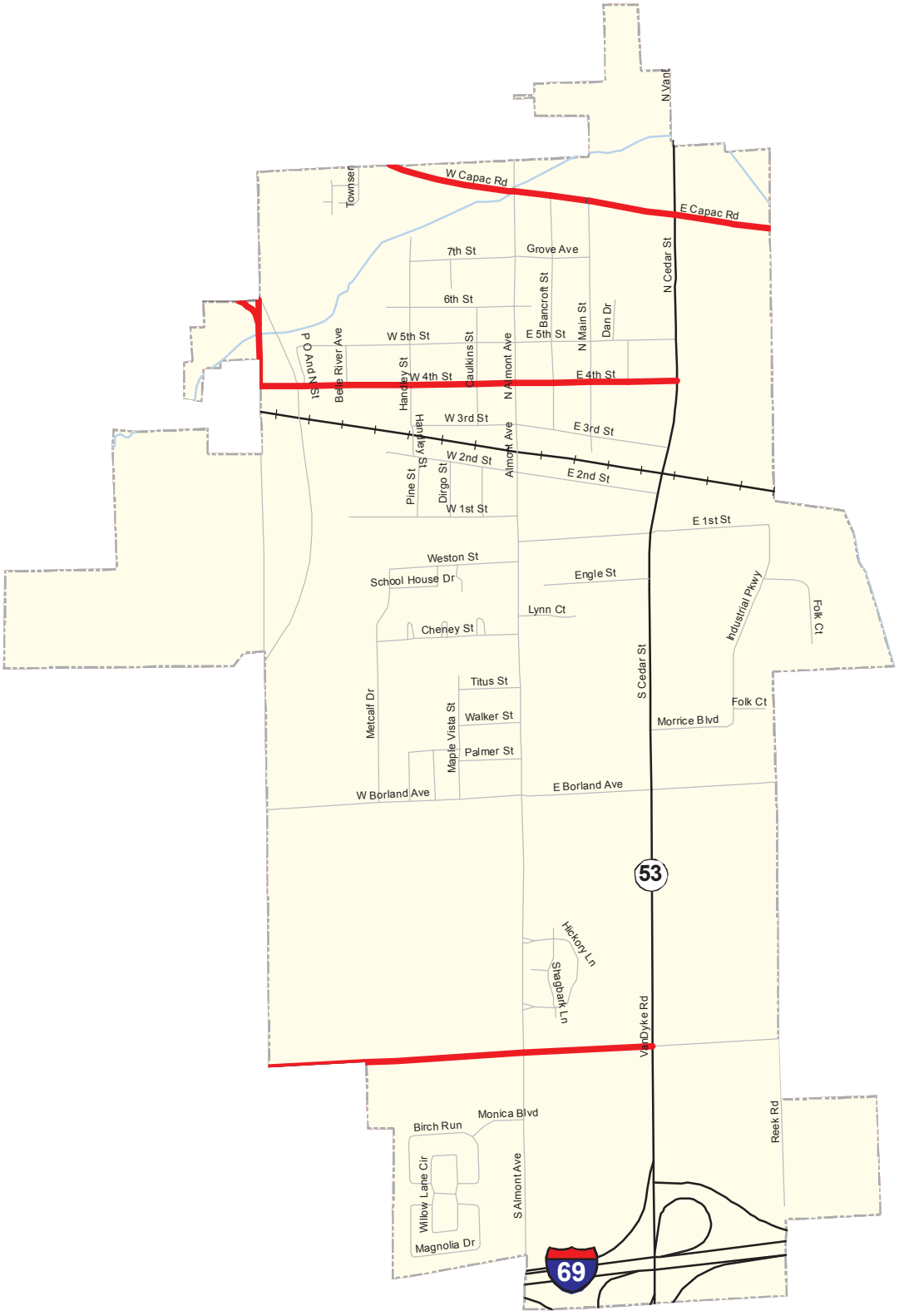
OTTER LAKE	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	0.75	0.891	0.89	0.89	0.95	0.23	0.23	0.52
7 to 5	0.23	0	0	0	0	0	0	0.23
4 to 1	0	0.082	0.08	0.08	0.19	0.75	0.66	-0.66
Total	0.98	0.973	0.97	0.97	1.13	0.97	0.89	0.09

LCRC	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	23.02	172.336	96.12	47.81	75.48	98.1	144.37	-121.35
7 to 5	110.59	116.103	177.46	158.68	218.72	242.64	200.16	-89.57
4 to 1	180.77	20.815	167.41	99.98	8.98	23.05	18.51	162.26
Total	314.38	309.254	440.99	306.47	303.18	363.79	363.03	-48.65

MDOT	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8	34.8	22.151	49.02	56.38	83.41	79.42	73.08	-38.28
7 to 5	96.74	92.842	75.28	61.15	52.6	56.51	62.61	34.13
4 to 1	8.52	21.057	11.76	18.52	0	0	0.36	8.16
Total	140.06	136.05	136.06	136.05	136.01	135.93	136.05	4.01

LAPEER COUNTY	2009 Miles	2008 Miles	2007 Miles	2006 Miles	2005 Miles	2004 Miles	2003 Miles	Change in Miles from 2003 to 2009
10 to 8 Routine maintenance	61.62	44.41	97.91	105.84	162.81	185.49	225.19	-163.57
7 to 5 Capital Preventive Maintenance	217.9	219.1	195.2	231.7	289.64	312.45	274.88	-56.98
4 to 1 Structural Improvements	201.8	212.47	182.3	126.49	9.37	23.96	21.34	180.46
Total	481.32	475.98	475.41	464.03	461.82	521.9	521.41	-40.09

PASER THEMATIC MAPS



Imlay City

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 0.0 miles)
Rating 5-7 (Capital Preventative Maintenance, 0.0 miles)
Rating 1-4 (Structural Improvements, 2.56 miles)

N
W E
S

0.2 0.1 0 0.2
Miles

Sources: Michigan Geographic Framework Vs5A
Date: July 2009
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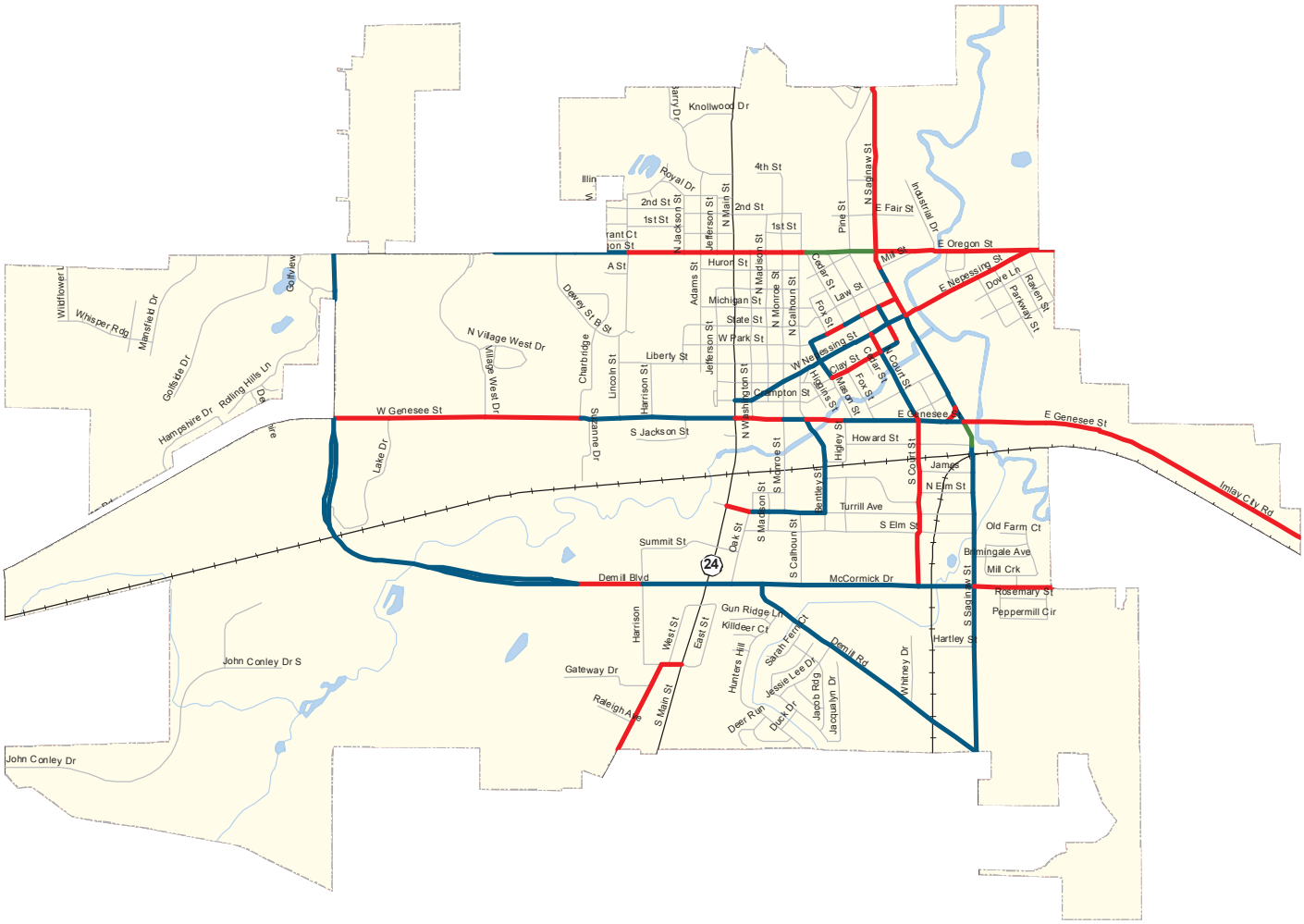
GLS
REGION V
PLANNING & DEVELOPMENT COMMISSION



City of Lapeer

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W
E
S

0.3 0.15 0 0.3
Miles

2009 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.29 miles)
- Rating 5-7 (Capital Preventative Maintenance, 8.13 miles)
- Rating 1-4 (Structural Improvements, 6.22 miles)

Sources: Michigan Geographic Framework Vs5a
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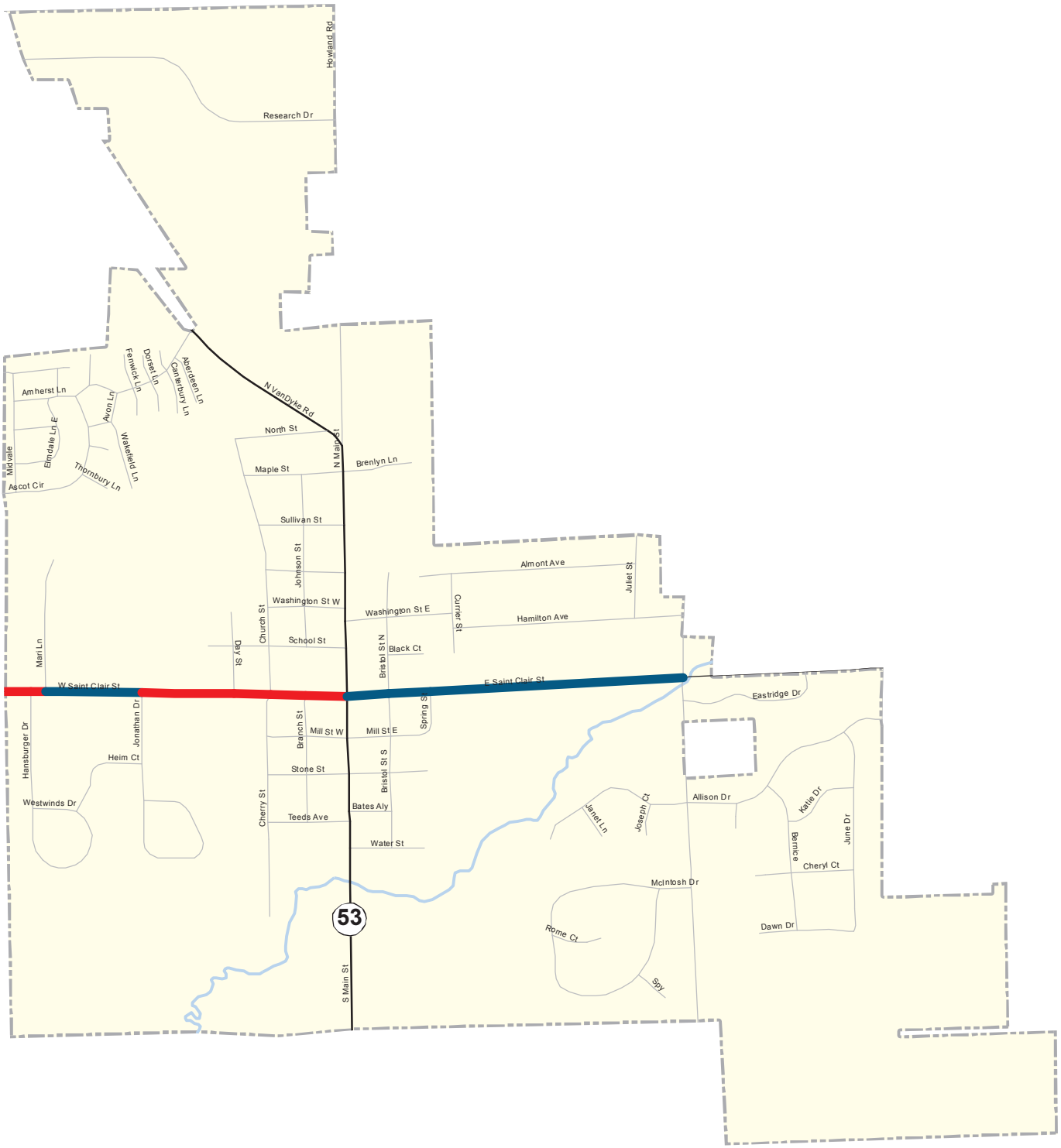

Village of Almont

GLS REGION V PLANNING & DEVELOPMENT COMMISSION

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W E
S

0.1 0.05 0 0.1
Miles

2009 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.0 miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.64 miles)
- Rating 1-4 (Structural Improvements, 0.37 miles)

Sources: Michigan Geographic Framework Vs5a
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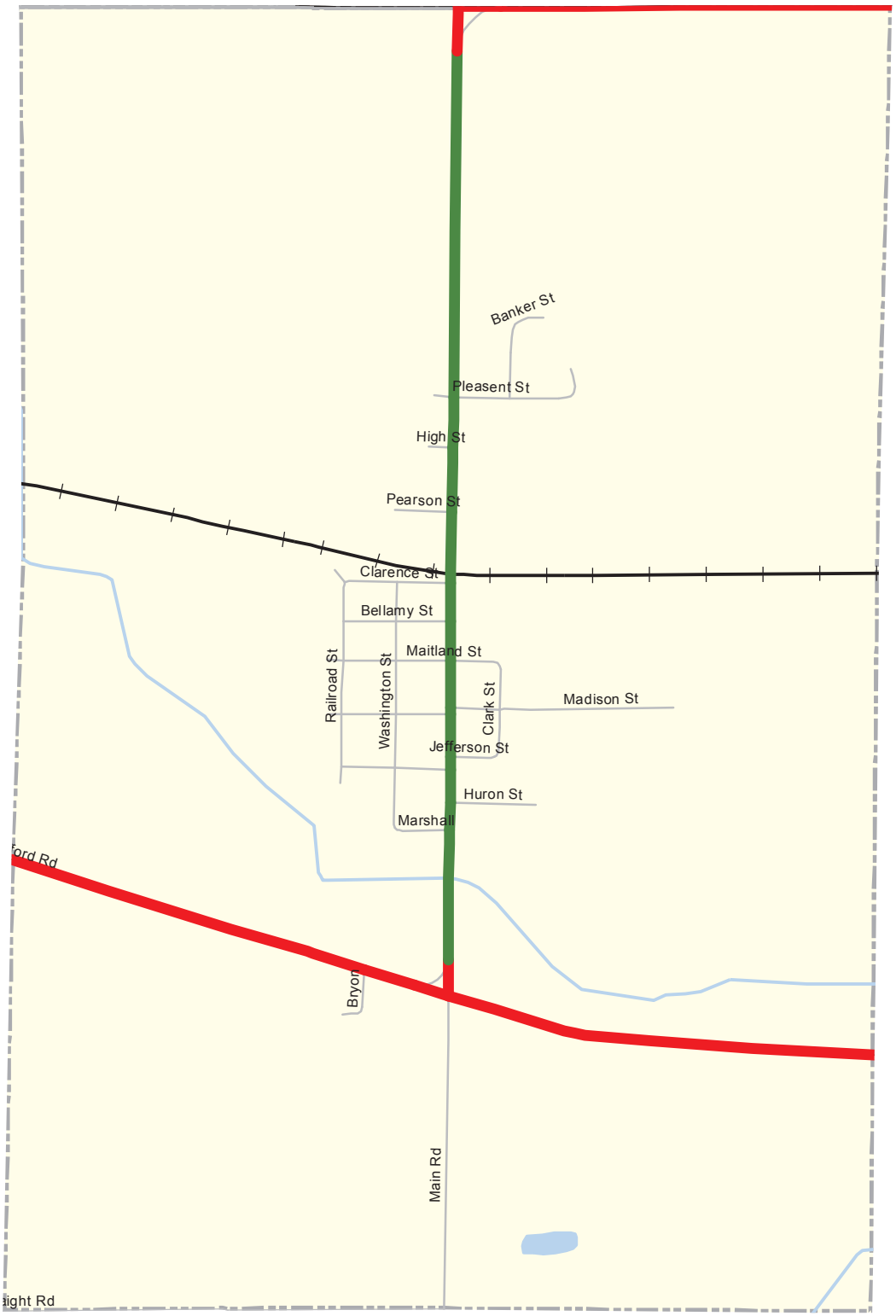

Village of Clifford

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W E
S

0.1 0.05 0 0.1
Miles

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 1.05 miles)
Rating 5-7 (Capital Preventative Maintenance, 0.0 miles)
Rating 1-4 (Structural Improvements, 1.62 miles)

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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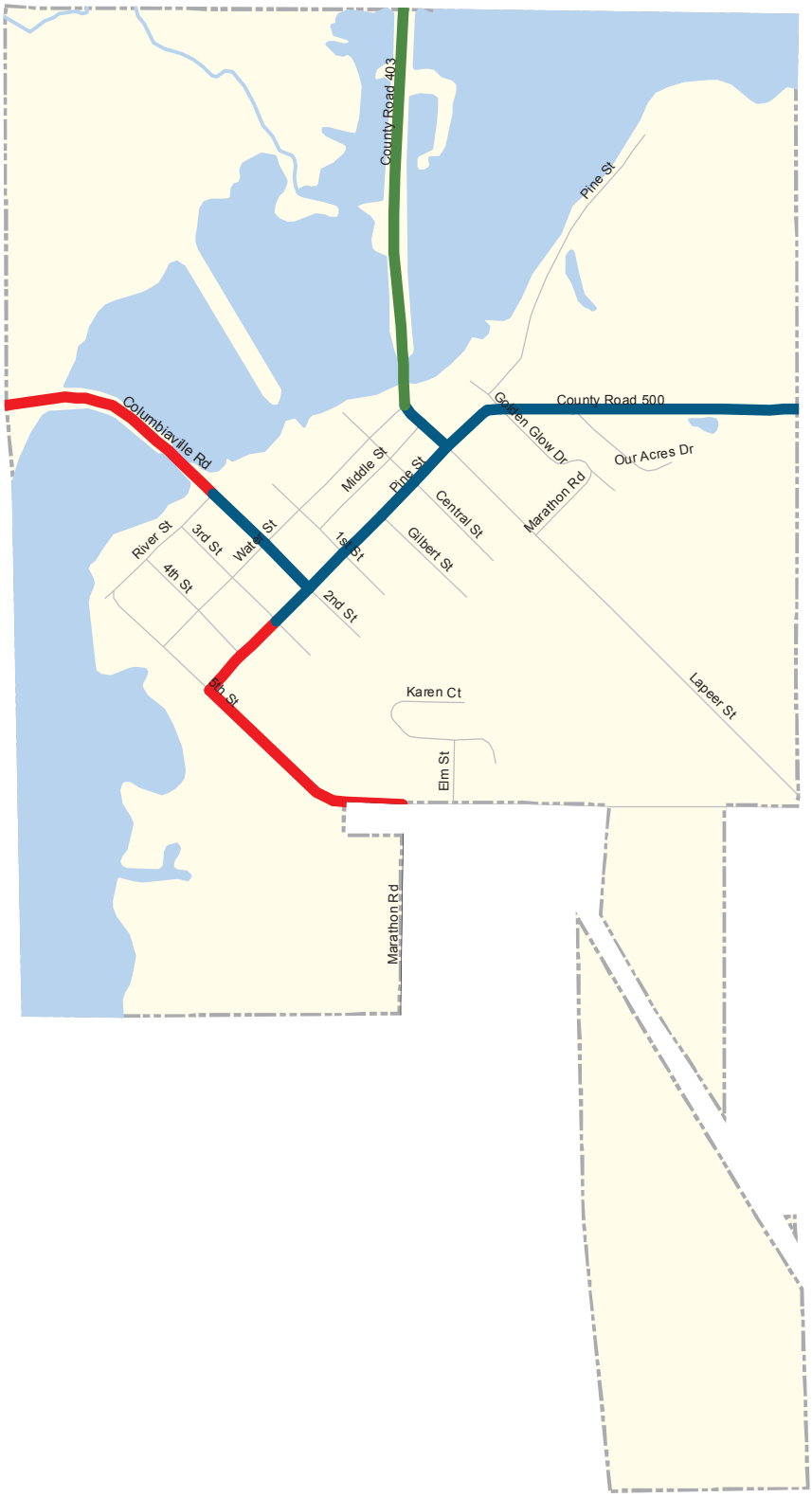

Village of Columbiaville

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W
E
S

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 0.50 miles)
Rating 5-7 (Capital Preventative Maintenance, 1.01 miles)
Rating 1-4 (Structural Improvements, 0.72 miles)

0.2 0.1 0 0.2
Miles

Sources: Michigan Geographic Framework Vs 5a
Date: July 2009
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GLS REGION V PLANNING & DEVELOPMENT COMMISSION

Village of Metamora

GLS REGION V PLANNING & DEVELOPMENT COMMISSION

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W E
S

0.1 0.05 0 0.1
Miles

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 0.76 miles)
Rating 5-7 (Capital Preventative Maintenance, 0.0 miles)
Rating 1-4 (Structural Improvements, 0.52 miles)

Sources: Michigan Geographic Framework Vs5a
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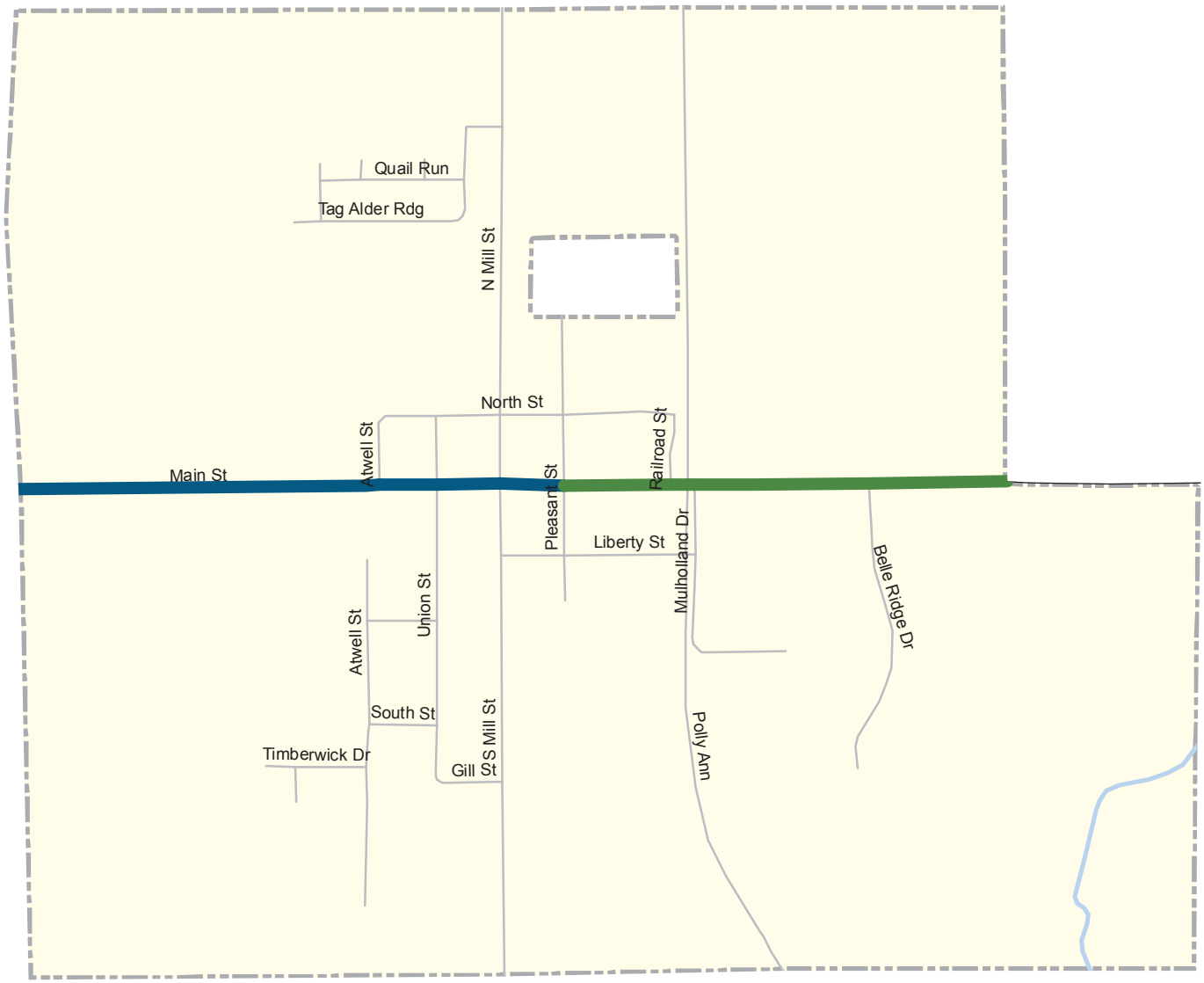

Village of Dryden

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W E
S

0.1 0.05 0 0.1
Miles

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 0.46 miles)
Rating 5-7 (Capital Preventative Maintenance, 0.56 miles)
Rating 1-4 (Structural Improvements, 0.0 miles)

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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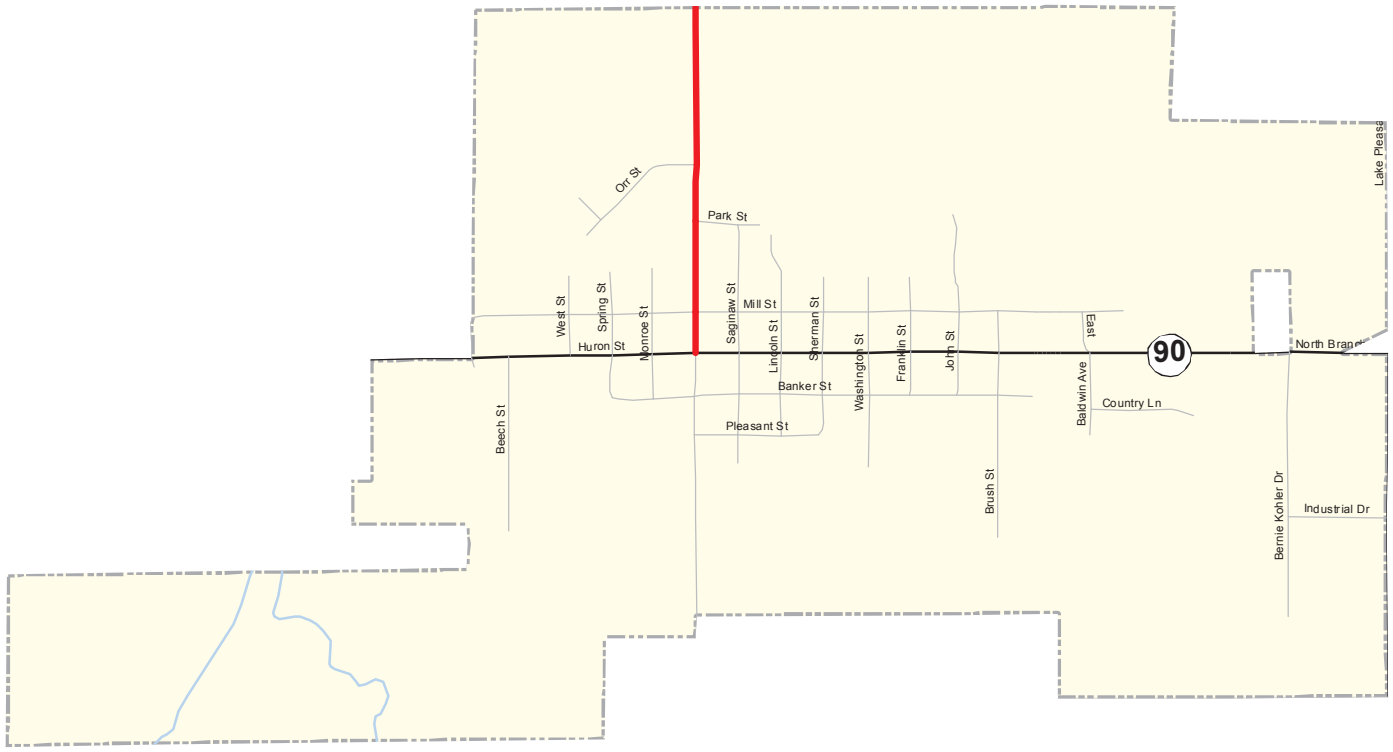
GLS REGION V PLANNING & DEVELOPMENT COMMISSION



Village of North Branch

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W
E
S

0.2 0.1 0 0.2
Miles

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 0.0 miles)
Rating 5-7 (Capital Preventative Maintenance, 0.0 miles)
Rating 1-4 (Structural Improvements, 0.50 miles)

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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Village of Otter Lake

Interstate/Freeway
Arterials
Collectors
Local Roads
Railroads
Rivers and Streams

N
W
E
S

2009 PASER Survey

- Rating 8-10 (Routine Maintenance, 0.75 miles)
- Rating 5-7 (Capital Preventative Maintenance, 0.23 miles)
- Rating 1-4 (Structural Improvements, 0.0 miles)

0.1 0.05 0 0.1
Miles

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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Lapeer County Road Commission Roads

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

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 23.02 miles)
Rating 5-7 (Capital Preventative Maintenance, 110.59 miles)
Rating 1-4 (Structural Improvements, 180.77 miles)

N
W E
S

2 1 0 2
Miles

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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GLS
REGION V
PLANNING & DEVELOPMENT COMMISSION

Lapeer County MDOT Roads

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

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 34.80 miles)
Rating 5-7 (Capital Preventative Maintenance, 96.74 miles)
Rating 1-4 (Structural Improvements, 8.52 miles)

N
W E
S

2 1 0 2
Miles

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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GLS
REGION V
PLANNING & DEVELOPMENT COMMISSION

Lapeer County Roads

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

2009 PASER Survey

Rating 8-10 (Routine Maintenance, 61.62 miles)
Rating 5-7 (Capital Preventative Maintenance, 217.90 miles)
Rating 1-4 (Structural Improvements, 201.80 miles)

GLS REGION V PLANNING & DEVELOPMENT COMMISSION

N W E S

2 1 0 2
Miles

Sources: Michigan Geographic Framework Vs5a
Date: July 2009
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Concrete - PASER Manual Rating System

PASER — Rating System

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. 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. Recent asphalt overlay. 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 settement or heave area.	First sign of transverse cracks (all tight) or 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.

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

Rating system

Surface rating	Visible distress *	General condition/ Treatment measures
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 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.

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

Asphalt - PASER Manual Rating System

PASER — Rating System

Surface Rating	Visible Distress*	General Condition/ Treatment Measures
5 Fair	Moderate to severe ravelling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2") show first signs of slight ravelling 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 nonstructural overlay.
4 Fair	Severe surface ravelling. Multiple longitudinal and transverse cracking. with slight ravelling. 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 recycling or overlay.
3 Poor	Closely spaced longitudinal and transverse cracks often showing ravelling 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 major overlay or complete recycling.
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.
1 Failed	Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

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

PASER — Rating System

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 1/4" or less).	Recent sealcoat or new road mix. Little or no maintenance required.
7 **Good**	Very slight or no ravelling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10 feet or more apart, little or slight crack ravelling. No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6 **Good**	Slight ravelling (loss of fines) and traffic wear. Longitudinal cracks (open 1/4"–1/2") due to reflection and paving joints. Transverse cracking (open 1/4" to 1/2") some spaced less than 10 feet. First sign of block cracking. Slight to moderate flushing or polishing. Occasional patching in good condition.	Show signs of aging, sound structural condition. Could extend life with sealcoat.

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