

Chestonia Township
Suggested Five Year Pavement Maintenance Priorities
March 6, 2017

This report is provided for information on the current status of the local county paved roads in the township. For some townships, it is a useful tool when looking at potential road projects. It is by no means meant as a final determination of road projects. The Antrim County Road Commission has a cost share policy which allows it to share in a portion of the cost of most local road improvements that a township may decide to accomplish.

The included priorities are based on Asset Management principals. Asset Management is a systematic approach to selecting the best investment at the right time to maximize the life of the asset being measured, in this case, road pavements. The goal is to maintain a pavement in a good condition, making periodic investments in the pavement that keep it in a good condition, rather than letting it deteriorate to a level that requires a major investment to bring it back to a good condition. The periodic investments typically total less than the major investment required to rebuild a pavement.

This report uses the PASER pavement condition rating system. PASER stands for Pavement Surface Evaluation and Rating. PASER ratings range from 1, failed condition, to 10, brand new pavement. A pavement will only be a 10 the first year of its life, the second year automatically becoming a 9. Any condition of 8 or greater is considered to be a good condition, 7 through 5 is fair, with 4 and below poor.

Table 1 shows the typical pavement treatments for each PASER rating and the estimated costs per mile of roadway for each option.

Table 1

PASER Road Rating	Typical Treatment	Estimated cost per mile
10	No maintenance - new road first year only	\$ 0
9	No maintenance - like new	\$ 0
8	Minimal routine maintenance	\$ 0
7	Crack filling - minor maintenance	\$ 4,500
6	Chip seal with crack filling	\$ 33,500
5 - 6	Ultra-thin hot mix asphalt (HMA) overlay (road cannot be distorted)	\$ 50,000
5	Chip seal with hot mix wedging or 1 ½" HMA overlay	\$ 85,000
4	wedge and 1 ½" HMA overlay or 2" HMA overlay	\$ 120,000
3	Crush and shape, 2" HMA paving	\$ 145,000
1-2	Reconstruction - very poor condition	\$ 290,000 +

The repairs listed in Table 1 are for general estimating purposes. A specific treatment can only be determined with a close inspection of the actual road. Using the PASER ratings and the listed treatment will give fairly accurate budgeting numbers. Different treatment than those listed in Table 1 for a given PASER rating may be appropriate in certain cases.

A hot mix asphalt (HMA) pavement will typically last from 15 to 20 years. At that point, it is usually beyond a preservation treatment and requires a major investment. Good pavement management would involve less expensive treatments earlier in the life of the pavement in order to extend the useful life. A variety of treatments and repairs are listed in this report. An emphasis is placed on early preventive maintenance treatments as suggested by the principals of asset management.

Table 2 shows the most current PASER ratings for all local county roads in the township along with the termini and length for each segment rated. Also included is the age of the pavement. The column labeled "Last PM" shows the latest year that a preventive maintenance treatment was applied. This is typically something less than two inches of HMA and other treatments such as a chip seal.

Table 2

PASER Rating	Road Name	From	To	Length (miles)	Age	Last PM
9	Cinder Hill Rd *	Alba Hwy	US 131	0.083	2	
8	2nd St	Alba Hwy	Maple Ave	0.126	19	
8	Maple Ave	2nd St	US 131	0.134	19	
8	1st St	Alba Hwy	Elm	0.063	21	
8	2nd St	US 131	Alba Hwy	0.064	21	
8	Birch St	Elm	Cinder Hill	0.061	21	
8	Elmwood St	Birch	Alba Hwy	0.122	21	
8	Maple Ave	1st St	2nd St	0.100	21	
8	1st St	US 131	Alba Hwy	0.157	24	
8	Smith Rd	1st St	2nd St	0.099	24	
7	Jordan River Rd *	600' N of US 131	end of pavement	0.443	11	
7	Jordan River Rd *	US 131	600' N of US 131	0.114	16	
7	Kregulka Rd	Harvey	US 131	0.360	19	
7	Cinder Hill Rd *	Kregulka	Alba Hwy	0.504	21	
6	Doerr Rd *	US 131	Conrad Rd	0.203	20	
5	Corey Rd	Richardson Rd	US 131	0.159	18	
5	Richardson Rd	Corey	end of pavement	0.169	18	
5	Doerr Rd *	Cedar River Road	end of pavement	0.157	25	
3	2nd St	Elm	North	0.061	31	
3	Doerr Rd *	Satterly Lake Rd	US 131	0.821	?	
2	Elm St	1st St	Jordan River	0.255	28	
2	Doerr Rd *	Conrad Rd	end of pavement	0.123	?	
2	Green River Rd ^	end of pavement	M 66	0.394	?	
2	Old 620 Rd	Alba Hwy	Alba Hwy	0.320	?	
1	1st St	Maple Ave	North	0.122	?	
1	Doerr Rd * #	M 66	Satterly Lake Rd	0.993	?	
1	North St	1st St	2nd St	0.094	?	

* Township line road

Total

6.301

^ Green River Rd inadvertently left off 2010 report

returned to gravel in 2015

These are the latest pavement condition ratings and will change over time as the pavement ages and deteriorates. A suggested fix may not be the appropriate fix the following year depending on the rate of deterioration. Repair costs are current estimates and will increase with inflation every year.

The township recently passed a road millage that will generate about \$39,000 per year. Based on this amount, a five year suggested road improvement / pavement maintenance strategy is presented on the following page.

The repair costs listed below have been adjusted for inflation for more accurate planning.

2017 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 48,500	0.993	\$ 48,161	\$ 43,344	Doerr (66 to Satterly Lake) *	pave with 2" HMA
Total township share =			\$ 43,344		

2018 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 33,500	0.159	\$ 5,327	\$ 4,794	Corey	crack fill and chip seal
\$ 33,500	0.169	\$ 5,662	\$ 5,095	Richardson	crack fill and chip seal
\$ 33,500	0.157	\$ 5,260	\$ 4,734	Doerr (Cedar River Rd to east)	crack fill and chip seal
\$ 132,000	0.122	\$ 16,104	\$ 14,494	1st Street (Maple to North)	resurface with HMA
\$ 132,000	0.094	\$ 12,408	\$ 11,167	North Street	resurface with HMA
Total township share =			\$ 40,284		

2019 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 135,000	0.061	\$ 8,235	\$ 7,412	2nd Street (Elm to North)	resurface with HMA
\$ 135,000	0.255	\$ 34,425	\$ 30,983	Elm	resurface with HMA
Total township share =			\$ 38,394		

2020 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
		\$ 0	\$ 0		
Total township share =			\$ 0		

2021 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 70,000	0.821	\$ 57,470	\$ 51,723	Doerr (Satterly Lake to US 131) *	wedge and overlay with HMA
Total township share =			\$ 51,723		

5 year cost summary
Township

Year	Cost Share	Annual Average
2017	\$ 43,344	
2018	\$ 40,284	\$ 41,814
2019	\$ 38,394	\$ 40,674
2020	\$ 0	\$ 30,506
2021	\$ 51,723	\$ 34,749
Total	\$ 173,745	

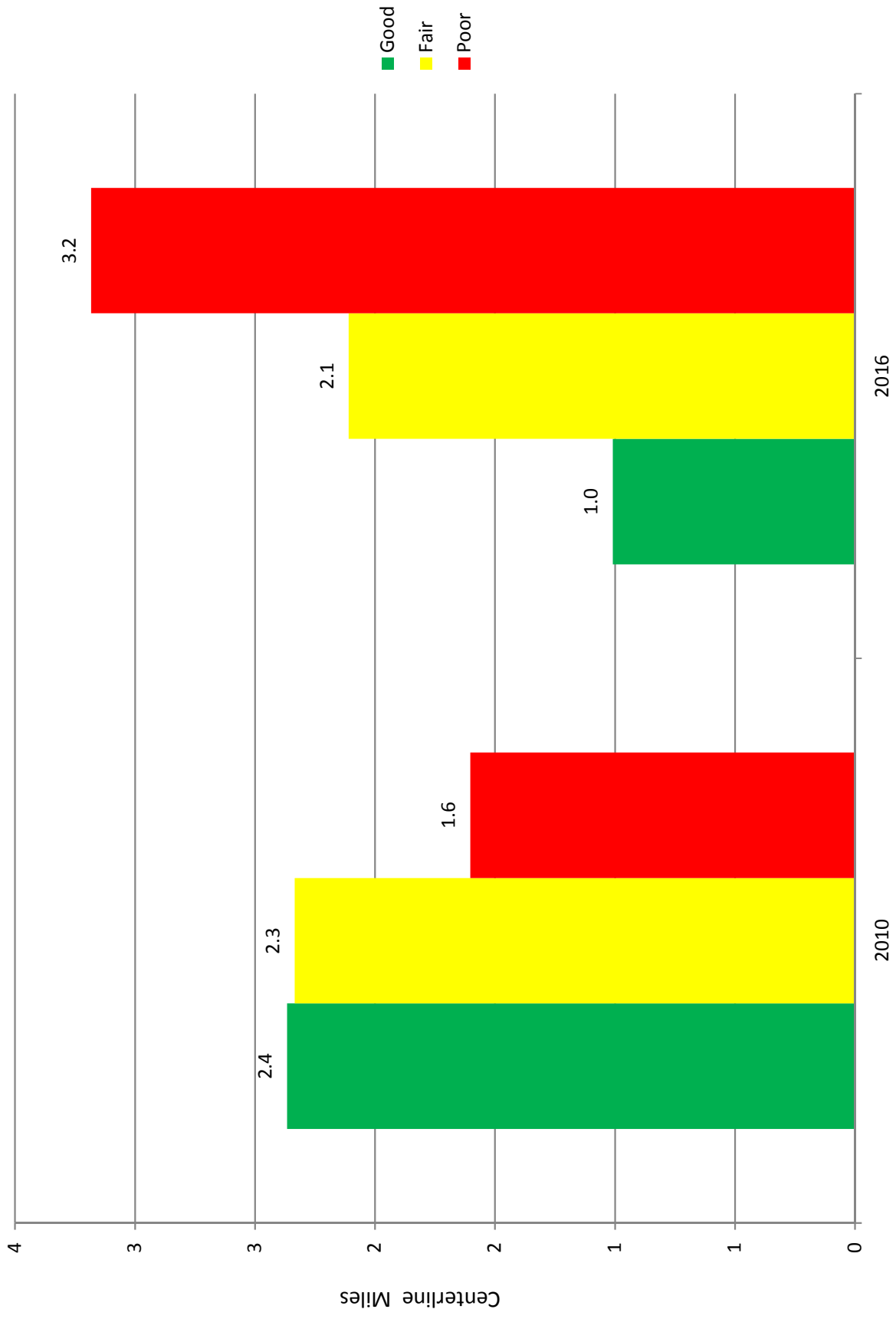
* Cost is half of actual assuming Mancelona Twp will share.

The graph on page 5 shows pavement condition trends from 2010 to 2016. The numbers represent centerline miles. Note that a significant number of miles has deteriorated from good to poor.

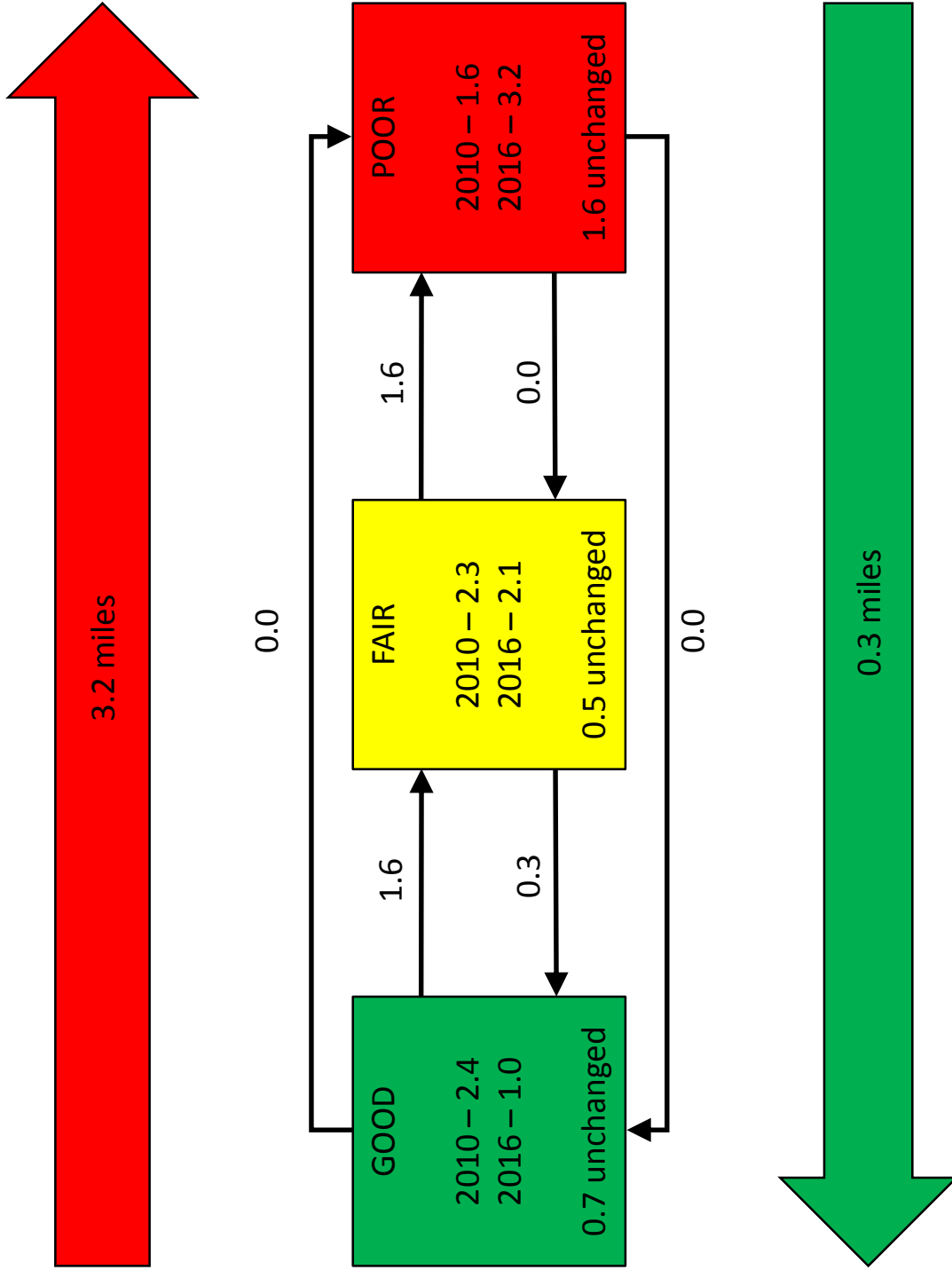
The graph on page 6 shows the change between good, fair and poor from 2010 to 2016. This shows more detail on the deterioration of the pavement and the repairs made. (Note: not all numbers add up due to round off error)

Page 7 is a map of all roads in the township, including county primary and state trunkline roads. The condition of all paved roads is indicated by the red, yellow and green which is poor, fair and good respectively. County primary roads are not included in this report and are on the map only for information.

Pavement Condition Trend






Pavement Condition Flow



Chestonia Township – 2016 Paved Road Ratings



Legend

-  • Poor – 1 thru 4
-  • Fair – 5 thru 7
-  • Good – 8 thru 10

