

Echo Township
Current Pavement Condition Status
March 2016

This report is provided for information on the current status of the local county paved roads in the township. For some, 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 HMA overlay (road cannot be distorted)	\$50,000
5	Chip seal with HMA wedging or 1 1/2" HMA overlay	\$85,000
4	Wedge and 1 1/2" HMA overlay or 2" HMA overlay	\$120,000
3	Crush and shape, 2" HMA paving	\$135,000
1 - 2	Reconstruction - very poor condition	\$180,000 +

HMA - Hot Mix Asphalt

The treatments 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 treatments 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 Last PM column shows the 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. All roads were last rated in late 2014.

Table 2

PASER Rating	Road Name	From	To	Length (miles)	Age	Last PM
10	Graham Rd	Vance	end of pavement	0.313	1	
9	Vermeersch Rd	Old State	end of pavement	0.057	2	
9	Scofield Rd	Vance	project split	0.93	3	
9	Vance Rd	Graham	project split	0.168	4	
9	Graham Rd	Scofield	Vance	0.444	4	
9	Scofield Rd	project split	Graham	0.252	4	
8	Vance Rd	project split	project split	0.178	4	
8	Vance Rd	project split	project split	0.7	5	
8	Scofield Rd	Dingman School	Vance	0.509	6	
8	Bartholomew Rd	M 66	end of pavement	0.496	7	
8	McKinney Rd *	Twp Line	end of road	1.026	9	
8	Muckle Rd *	end of pavement	end of pavement	0.188	10	
8	Graham Rd	Vance	Graham	0.032	11	
8	Vance Rd	end of pavement	Graham	0.594	11	
8	Garner Rd	Mt Bliss	Twp Line	0.222	20	2012
7	Wilson Rd	Old State	end of road	1.46	10	
7	Muckle Rd *	Old State	Bunker Hill	1.842	14	
7	Lewis Rd	Finkton	Kidder	1.714	16	
6	Skinkle Rd	Twp Line	Old State	2.297	21	
4	Finkton Rd	Old State	Lewis	0.509	28	
4	Finkton Rd	Lewis	510' NW of Lewis	0.097	28	
4	Finkton Rd	1810' NW of Lewis	Kidder	0.819	28	
4	Graham Rd	Scofield	Schroeder	0.538	30	
4	Schroeder Rd	Graham	top of hill	1.185	30	
3	Schroeder Rd	top of hill	Kidder	0.177	31	
2	Finkton Rd	510' NW of Lewis	1810' NW of Lewis	0.246	28	
2	Vance Rd	project split	Kidder	0.638	?	

* township line roads (age as of 2016) Total 17.631

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 spent an average of \$57,700 per year over the last five years. A 1 mil road millage is levied by the township which generates approximately \$33,000. Based on these amounts, a suggested road improvement / pavement maintenance strategy is presented for the next five years.

Five Year Suggested Pavement Work Priorities

2016 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 33,500	2.297	\$ 76,950	\$ 69,255	Skinkle Rd	crack fill and chip seal
		\$ 0	\$ 0		

Total township share = \$ 69,255

2017 Suggested Priorities

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

Total township share = \$ 0

2018 Suggested Priorities

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

Total township share = \$ 0

2019 Suggested Priorities

Cost per Mile	Number of Miles	Total Cost	Township Share	Selected Roads (miles)	Suggested Repair
\$ 123,000	1.900	\$ 233,700	\$ 210,330	Schroeder/Graham	2 inch HMA overlay
		\$ 0	\$ 0		

Total township share = \$ 210,330

2020 Suggested Priorities

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

Total township share = \$ 0

5 year cost summary

2016	\$ 69,255	Annual average
2017	\$ 0	\$ 34,627
2018	\$ 0	\$ 23,085
2019	\$ 210,330	\$ 69,896
2020	\$ 0	\$ 55,917
Total	\$ 279,585	

Table 3 below shows other work that should be done but is not addressed in the suggested five year plan due to lack of funding. This is based on current costs and will certainly increase with time. Also, these roads will continue to deteriorate and in the future will require costlier work.

Table 3

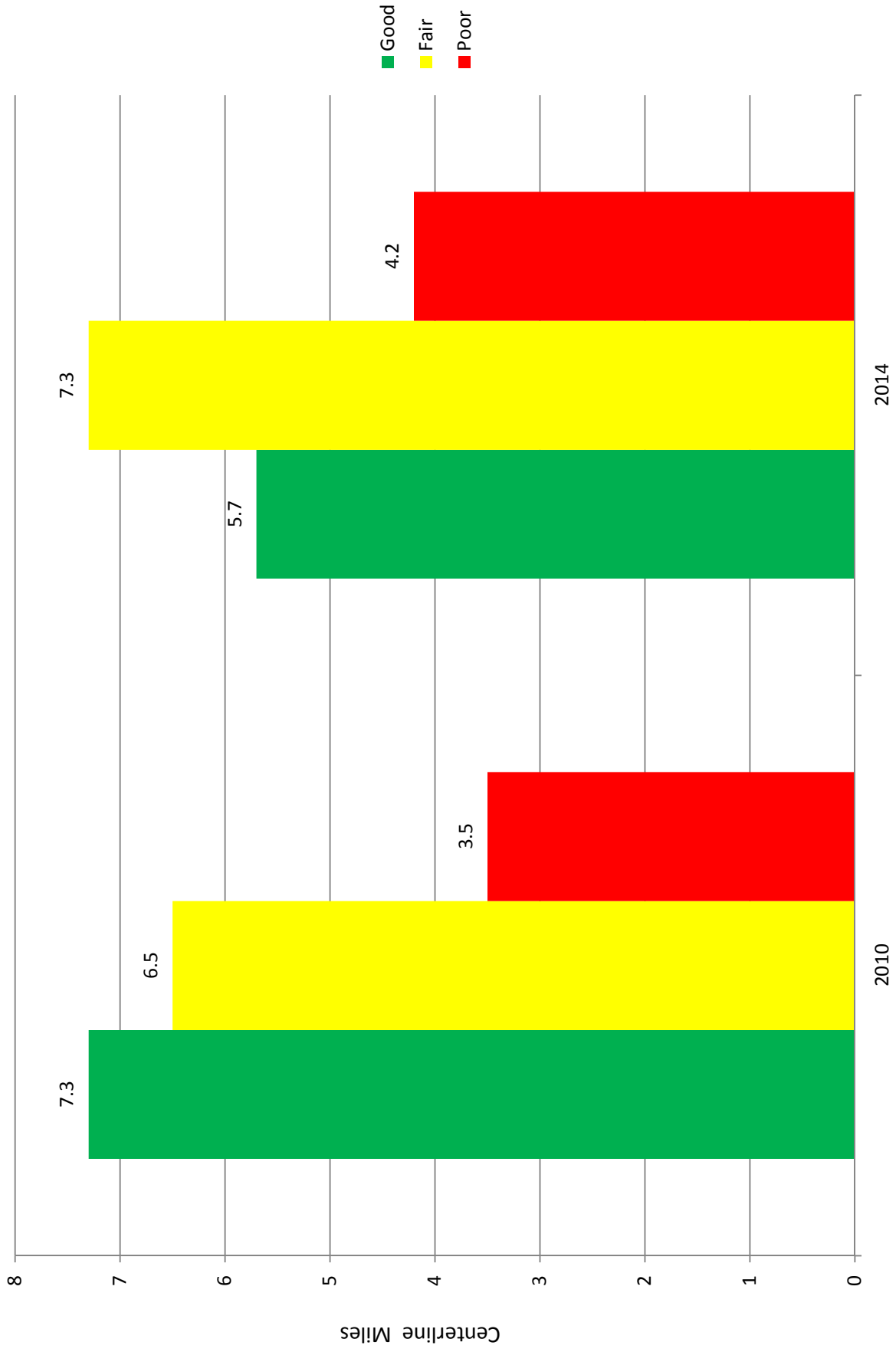
Selected roads	Current PASER rating	Suggested Repair	Current cost per Mile	Number of miles	Total cost
Wilson	7	crack fill and chip seal	\$ 33,500	1.460	\$ 48,910
Muckle	7	crack fill and chip seal	\$ 33,500	1.842	\$ 61,707
Lewis	7	crack fill and chip seal	\$ 33,500	1.714	\$ 57,419
Finkton	4	2 inch hot mix overlay	\$ 120,000	1.425	\$ 171,000
Finkton	2	reconstruct	\$ 180,000	0.246	\$ 44,280
Vance	2	reconstruct	\$ 180,000	0.638	\$ 114,840
Totals				7.325	\$ 498,156

The graph on page 5 shows pavement condition trends from 2010 to 2014. The numbers represent centerline miles. Most local county roads within the township are rated fair and good but a significant number, 4.2 miles are rated poor. This graph also shows the change in each category and indicates a significant shift from good to fair with about 0.7 mile deteriorating to poor.

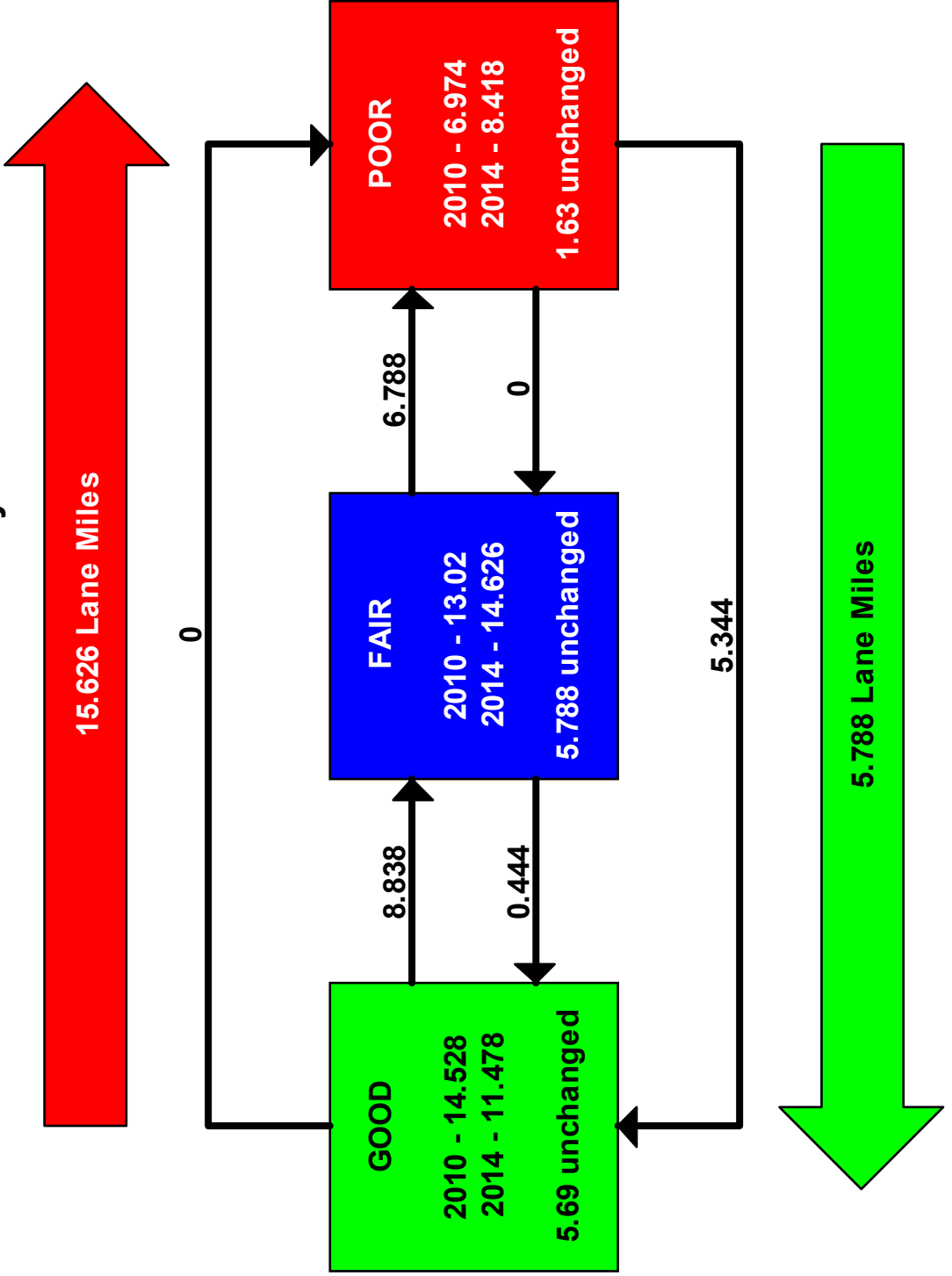
The graph on page 6 shows the change between good, fair and poor from 2010 to 2014. Please note that this graph is in lane miles, or double the centerline miles. This graph shows that almost 3 miles (6 lane miles) of road were improved between 2010 and 2014 yet 8 miles (16 lane miles) deteriorated. This is not a good trend and only shows that more work needs to be done to keep from further deterioration.

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. The roads indicated in grey are gravel, black are seasonal (not snowplowed) roads and the white are private roads.

Surface Condition Trend



Surface Condition Flow by Lane Miles



Echo Township – 2014 Paved Road Ratings

Legend

-  Gravel
-  Seasonal (not snowplowed)
-  Poor – 1 thru 4
-  Fair – 5 thru 7
-  Good – 8 thru 10

