CITIZENS RESEARCH COUNCIL OF MICHIGAN

"The right to criticize government is also an obligation to know what you're talking about."
Lent Upson, First Director of the Citizens Research Council

May 5, 2025

Is Michigan Getting the Most Out of Its Road Funding? A Closer Look at the Data

In a Nutshell

- Michigan's roads rank poorly despite near-average funding levels, with a troubling mix of roads in both very good and very poor condition, with too few maintained in fair condition to prevent decline.
- Data shows Michigan prioritizes expensive reconstruction and rehabilitation over routine preventative maintenance, leading to higher costs as more roads fall into disrepair.
- Michigan's pavement management system directed by the state's Transportation Asset Management Council fails to account for the benefits of preventative maintenance. An independent review is needed to ensure taxpayer money is spent effectively.

A recent Citizens Research Council report, "A Data-Driven Assessment of Michigan's Road Program," shows that Michigan ranks 40th among 50 states in road condition with a road funding rank of 30th. The state has done a relatively good job keeping major highways in good shape, but too many roads have slipped into poor condition. Data suggests that Michigan road agencies often fail to do routine maintenance, which could have mitigated this decline. A key reason may be that the pavement management systems used to prioritize road investments favor expensive fixes over low-cost maintenance. Without changes, Michigan risks spending more and more just to keep up.

Road quality can be measured in many ways. This report's national rankings are based on 17 different indicators, most of which focus on state's ability to prevent roads from falling into poor condition. Michigan's low ranking is largely due to its higher share of roads in poor condition compared to other states.

But it's not all bad news. Michigan ranks relatively well at keeping some of its most important roads in good condition. For example, Michigan ranks:

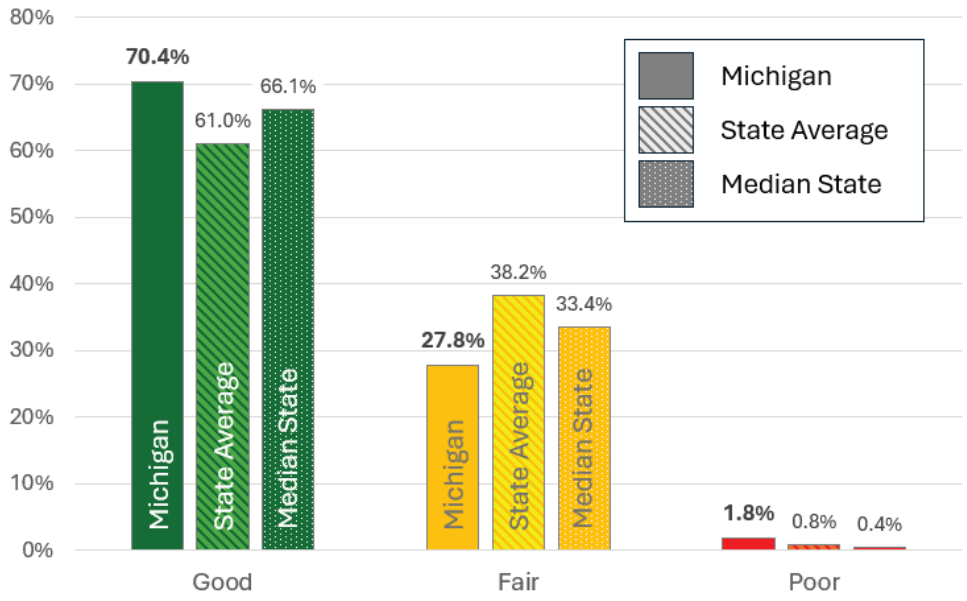
- 24th in the U.S. for National Highway System (NHS) roads rated "good" by the International Roughness Index (IRI)
- 18th for Interstates in good condition by the federal Pavement Condition Metric (PCM)
- 22nd for non-Interstate NHS roads in good condition by PCM

NHS roads make up only about six percent of Michigan's total public road mileage but carry most of the state's traffic and economic activity. It's encouraging that many of Michigan's highways and major arterials are in good condition. On the other hand, it is objectively problematic that Michigan has an above-average percentage of pavement in poor condition.

Further, Michigan reports a below average percentage of pavement in fair condition. A low percentage of pavement in fair condition isn't necessarily a bad thing, assuming that pavement is not allowed to decline into poor condition. However, Michigan is allowing pavement to deteriorate into poor condition, as shown in Charts 1 and 2.

Chart 1

Interstate Pavement Condition by PCM, Lane-miles, 2021



Source: Federal Highway Administration Transportation Performance Management Program

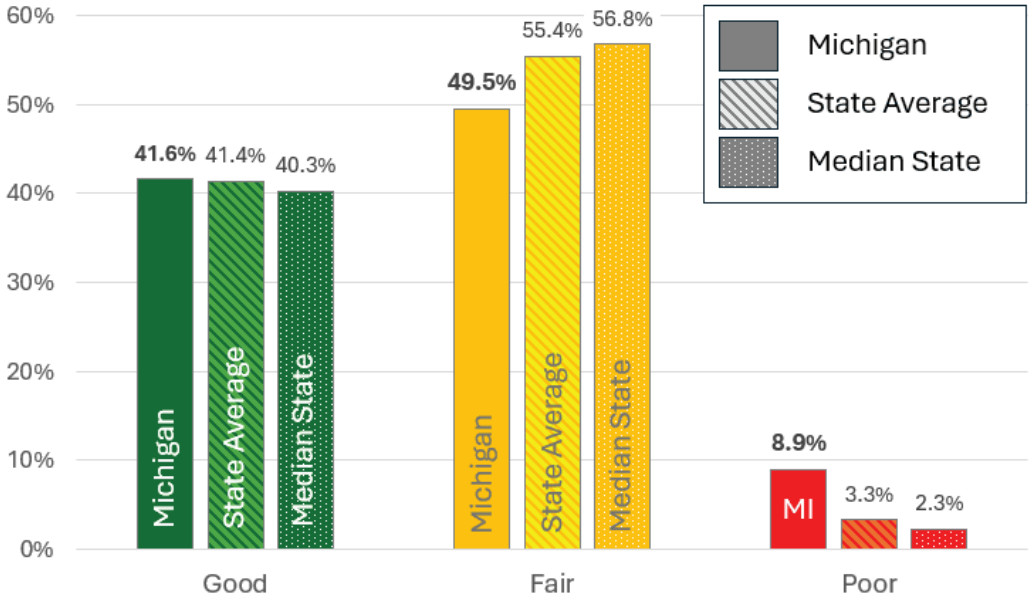
The federal Pavement Condition Metric, or PCM, is a system that measures the overall condition of roads by combining four factors: IRI, cracking, rutting, and faulting. If all four measures are rated as good, the road is considered in good condition. If two or more measures are rated as poor, the road is considered in poor condition. Anything in between is rated as fair.

According to PCM data in Chart 1, 70.4 percent of Michigan's Interstate highways were rated in good condition in 2021. This is better than both the average state and the median state. However, 1.8 percent of Michigan's Interstate highways were rated in poor condition. While that share may seem small, it is more than twice the national average of 0.8 percent and more than four times the median state's rate of 0.4 percent.

PCM data is also available for Michigan's non-Interstate National Highway System routes, as shown in Chart 2.

Chart 2

Non-Interstate NHS Pavement Condition by PCM, Lane-miles, 2021



Source: Federal Highway Administration Transportation Performance Management Program

Michigan's 41.6 percent of non-Interstate NHS pavement is in good condition is above average. However, 8.9 percent of pavement is in poor condition, more than twice the state average and nearly four times the percentage-poor pavement of the median state.

Michigan has a below-average percentage of Interstate and non-Interstate NHS pavements maintained in fair condition.

On Interstates, Michigan reported 27.8 percent of pavement in fair condition. This is less than the state average (38.2 percent) and the median state (33.4 percent). Only 11 states have a smaller share of Interstate pavement in poor condition compared to Michigan.

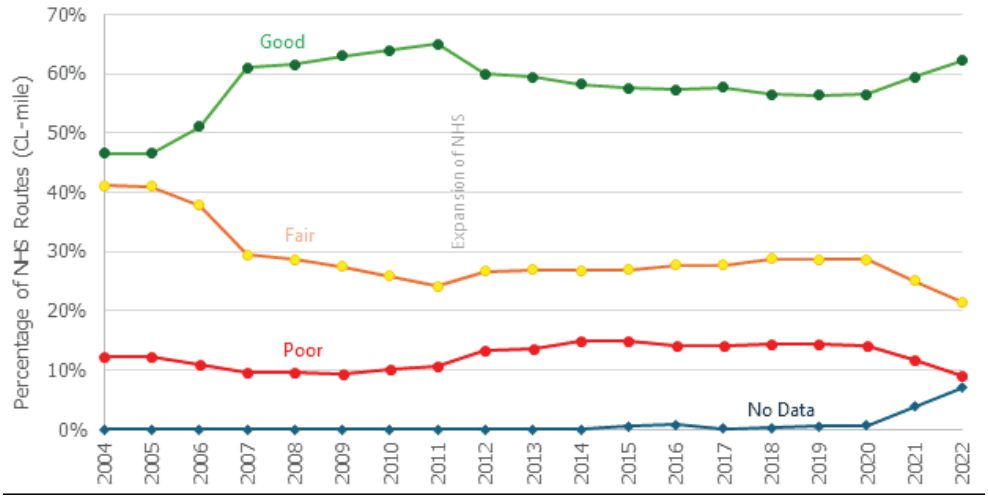
Michigan reported 49.5 percent of pavement on non-Interstate NHS routes in fair condition. This is less than the state average (55.4 percent) and the median state (56.8 percent). Only ten states have a lower percentage of non-Interstate pavement in fair condition than Michigan.

This data suggests that, compared to a typical state, Michigan struggles to maintain pavement in fair condition. Michigan's Road Program appears to emphasize costly capital improvement projects (pavement reconstruction and rehabilitation) and underemphasizes cost-efficient routine maintenance to keep pavement in fair condition.

A historical look at Michigan's NHS pavement condition shows that keeping roads in fair condition was not always this difficult. PCM is a fairly new metric, and data is only available going back to 2018. However, one of the component metrics incorporated into PCM, the International Roughness Index, has been reported for decades.

Chart 3

Michigan NHS Pavement Condition by IRI, Centerline miles, 2004 – 2022



Source: FHWA Highway Statistics Series Table HM-47, Multiple Years.

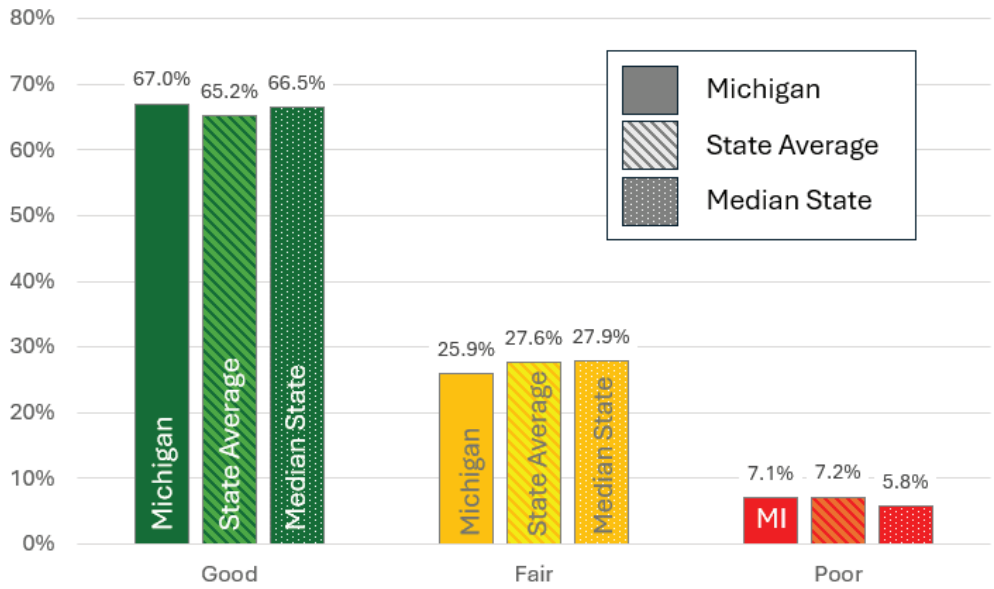
Notes: The NHS was expanded in 2012 to include all routes federally classified as principal arterials. The "No-Data" category increase in 2021-2022 may relate to ongoing construction during those years. (A road agency cannot report road condition data when it is undergoing construction.) The FHWA did not report IRI data on the NHS in 2021. Thus, this data year was estimated by interpolating between 2020 and 2022.

As shown in Chart 3, the percentage of NHS pavement in poor condition in Michigan remained relatively consistent from 2004 to 2022, ranging between nine and 15 percent. However, over this period, the percentage of pavement in fair condition has been reduced by about half.

Michigan's NHS IRI pavement condition data for 2022 is compared to national data in Chart 4.

Chart 4

NHS Pavement Condition by IRI, Centerline miles, 2022



Source: FHWA Highway Statistics Series Table HM-47, 2022.

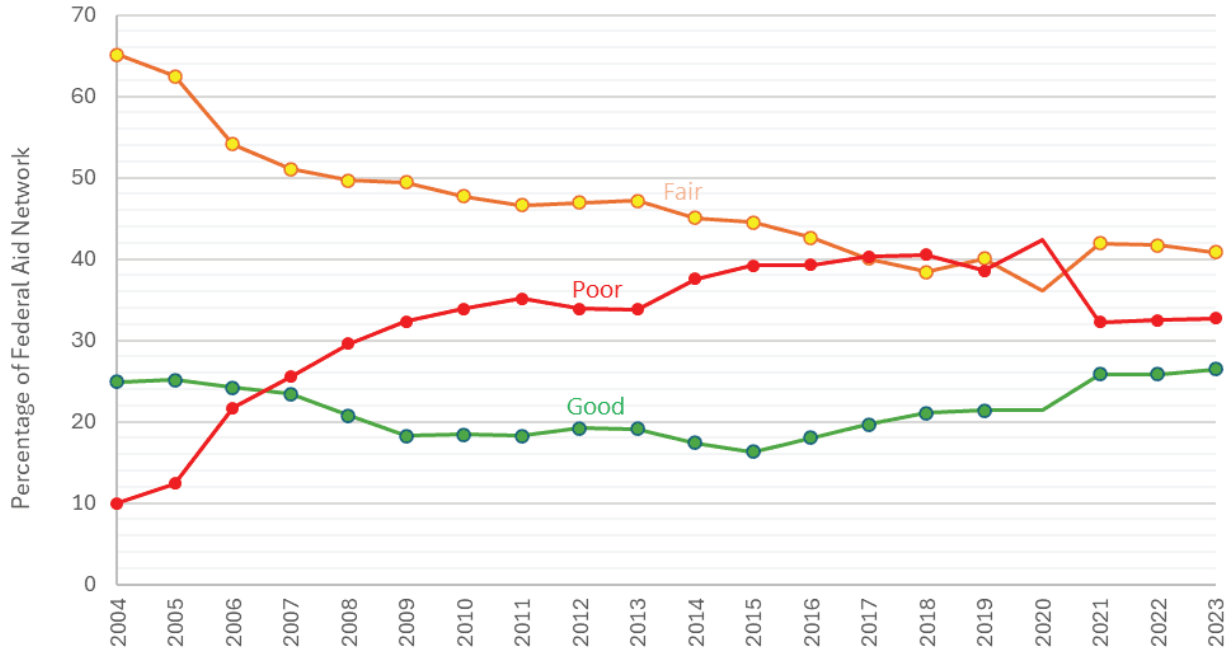
Note: The percentage data in Chart 4 is not equivalent to Chart 3 because Chart 4 displays percentages of reported pavement conditions, while Chart 3 includes unreported pavement.

Chart 4 shows the same basic trend as Charts 1 and 2, though the difference between Michigan and the average state is not as extreme. In fact, Michigan reported a lesser percentage of pavement in poor condition than the state average (though more than the median state). (This analysis must be caveated because Michigan did not report on eight percent of its NHS network in 2022.)

Thus far, we have shown pavement condition data for the National Highway System. Similar trend data is also available on Michigan's Federal Aid Eligible (FAE) network. The FAE network includes all NHS routes but additionally covers minor arterials and collector roads. Michigan's FAE network covers about a third of public roads by centerline mile, and hosts about 90 percent of traffic within the state.

Chart 5

Michigan FAE Pavement Condition by MI-PASER, Centerline miles, 2004 – 2023



Source: Michigan.gov TAMC Dashboard – Pavement Conditions, Federal Aid.

Note: 2020 data was not collected but estimated and reported by TAMC.

Michigan uses a metric called MI-PASER to evaluate pavement condition on the FAE network. This system relies on what is known as a "windshield survey," where a rating team visually assess road conditions from behind the windshield of a moving vehicle. Because it is based on observation rather than detailed testing, the data is subjective and of questionable reliability. Still, the MI-PASER data in Chart 5 supports earlier findings, showing that Michigan's percentage of roads in fair condition has been declining since 2004.

The decline in percentage-fair pavement observed since 2004 may be related to pavement management systems employed in Michigan. In 2002, the state legislature created the Transportation Asset Management Council (TAMC) to oversee a statewide pavement management program and to better estimate funding needs. This was a difficult task. In addition to the Michigan Department of Transportation (MDOT), there are 614 local road agencies across the state, many of which are very small. To meet the legal requirements for a statewide system without creating too much of a financial burden, TAMC developed a low-cost process. Each agency

sends a data-collection team to drive their roads and rate each segment on a scale from 1 to 10. A score of 1 to 4 is considered poor, 5 to 7 is fair, and 8 to 10 is good.

This rating is based on an approach called Pavement Surface Evaluation and Rating (PASER). PASER was originally designed for small towns and rural areas, not for large urban road systems. Despite this, TAMC requires all of Michigan's local road agencies to use the PASER-based system in their asset management plans.

Michigan has created a pavement management system that fails to recognize the cost-effectiveness value of routine preventative maintenance.

Although this approach meets TAMC's statutory obligations, it is not very useful for making specific road investment decisions. The 1-to-10 rating provides only a general sense of road condition and is based on human judgment. There are guidelines that describe how to assign scores based on visible distresses. Yet, even if rating teams follow these guidelines closely, the resultant rating alone does not explain what specific problems exist or what repairs are needed. In other words, the score does not show "why" a road is in poor condition or "what" is needed to fix it.

MI-PASER data is forecast using a network-level assessment tool called the Pavement Condition Forecasting System (PCFS). The PCFS forecast assumes that all pavements deteriorate at the same rate regardless of critical factors such as pavement age, pavement type, and traffic demands.

Most critically, PCFS assumes that routine preventative maintenance does not preserve pavement.

As described in a 2018 report, Analysis of TAMC Investment Reporting Data for Network Level Modelling on the Locally Owned Road System in Michigan:

PCFS can model three of the four TAMC construction and maintenance classifications: Reconstruction, rehabilitation, and heavy preventive maintenance. … The fourth construction and maintenance classification defined by the TAMC is light preventive maintenance, which is not modeled by the PCFS since these treatments do not directly increase the condition of a pavement as measured by the Pavement Surface Evaluation Rating (PASER) condition system. Light preventive maintenance does provide a material benefit when it is applied to pavements, however this benefit is not readily apparent in the relatively course PASER 10 to 1 rating system.

TAMC defines light preventative maintenance as "treatments primarily designed to seal isolated areas of the pavement from water (crack and joint sealing), or protect and restore surface oxidation with limited surface thickness materials (fog seal)." Such treatments can extend pavement service life by up to five years and are the most cost-effective way to maintain pavement in good or fair condition for as long as possible.

By adopting MI-PASER and PCFS, Michigan has created a pavement management system that fails to recognize the cost-effectiveness value of routine preventative maintenance. As a result, many road agencies in Michigan seem to have shifted their approach. Instead of doing low-cost maintenance to keep roads in fair condition, they allow roads to deteriorate until more expensive repairs or reconstruction are necessary to bring them back into good condition.

A 2018 analysis, summarized in Table 1, found that Michigan's local road agencies collectively spend less than two percent of their maintenance and construction budgets on light preventative maintenance ("Light CPM").

Table 1

Michigan Local Agency Pavement Project Cost Data, 2017

All Projects Statewide					
	# of Projects	Lane Miles	Total Dollars	% of Total	Dollars/LM
Light CPM	837	2,264.2	$ 10,840,529	1.55%	$ 4,788
Heavy CPM	1,756	5,547.3	$ 115,921,824	16.63%	$ 20,897
Rehabilitation	1,218	2,766.2	$ 321,777,460	46.15%	$ 116,326
Reconstruction	484	711.5	$ 248,712,003	35.67%	$ 349,545
Totals	***4,295***	***11,289.1***	***$ 697,251,816***		
Federal Aid Projects Statewide					
	# of Projects	Lane Miles	Total Dollars	% of Totals	Dollars/LM
Light CPM	400	1,672.5	$ 7,551,626	2%	$ 4,515
Heavy CPM	572	3,343.0	$ 67,114,433	17%	$ 20,076
Rehabilitation	419	1,600.7	$ 208,974,236	52%	$ 130,552
Reconstruction	168	350.7	$ 120,087,742	30%	$ 342,451
Totals	***1,559***	***6,966.9***	***$ 403,728,036***	100%	
Non Federal Aid Projects Statewide					
	# of Projects	Lane Miles	Total Dollars	% of Totals	Dollars/LM
Light CPM	437	591.6	$ 3,288,903	1%	$ 5,559
Heavy CPM	1,184	2,204.2	$ 48,807,391	17%	$ 22,143
Rehabilitation	799	1,165.5	$ 112,803,224	38%	$ 96,787
Reconstruction	316	360.9	$ 128,624,260	44%	$ 356,439
Totals	***2,736***	***4,322.2***	***$ 293,523,779***	100%	

Source: TAMC and MTU, "Analysis of TAMC Investment Reporting Data for Network Level Modeling on the Locally Owned Road System in Michigan," October 25, 2018.

One possibility is that Michigan road agencies have been so underfunded that they have been unable to afford to maintain their roads. This may have some merit for some specific routes and road agencies. However, this argument is generally flawed. Saying, "We can't afford maintenance, so we must reconstruct the roads," is like saying, "I can't afford to change the oil, so I'll just replace the engine."

Preventative maintenance should be prioritized regardless of funding levels, especially when funding is low.

The idea behind TAMC was smart: create a coordinated, statewide effort to manage Michigan's roads efficiently. However, the tools it adopted (MI-PASER and PCFS) haven't delivered the results that taxpayers were promised. In fact, they may have made things worse by undervaluing routine light maintenance that could have saved money and kept roads in better shape.

There is a clear need for an independent engineering-quality review of Michigan's pavement management systems. The state needs to ask some tough questions: Are road agencies using the right tools? Are they making smart investments? And most importantly, are they getting the best value for the money we spend on roads?

Author's Note

This post provides data of pavement condition on the National Highway System and Federal Aid Network, and proposes that the pavement management system employed by TAMC disincentivizes preventative maintenance treatments. This assessment is incomplete; much of Michigan's NHS is administered by the Michigan Department of Transportation, which does not use MI-PASER or the PCSF for decision support. However, available data suggests that MDOT state trunkline routes suffer from a similar lack of maintenance as locally-owned routes (i.e., Chart 1), and may be related to similar data quality issues. A review of MDOT's approach to pavement management is provided in the full Citizens Research Council report, "A Data-Driven Assessment of Michigan's Road Program."

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Eric joined the Citizens Research Council in 2022 as an expert in civil infrastructure policy. Previous to his position with the Research Council, Eric spent nearly ten years as a transportation systems analyst, focusing on the policy implications of emerging technologies such as autonomous vehicles, connected vehicles, and intelligent transportation systems. Eric has been a Michigan-licensed professional engineer (PE) since 2012. As a practicing engineer, Eric has design and project experience across multiple domains, including highways, airfields, telecommunications, and watershed management. Eric received his Bachelor's degree in civil engineering from Michigan State University in 2006. Eric also holds Masters degrees in environmental engineering and urban/regional planning, both from the University of Michigan.