



A DATA-DRIVEN ASSESSMENT OF MICHIGAN'S ROAD PROGRAM

This paper summarizes Report 420 available at <https://crcmich.org/publications/data-driven-assessment-michigans-road-program>

In a Nutshell:

- Michigan ranks 30th among all 50 states in road funding levels by an assessment of data from 2012 to 2021 and 40th in road system conditions using the latest available data.
- Michigan's road program *performance* – the efficacy in utilizing given funding levels to maintain the public road network – is found to have declined between 2004 and 2024.
- Policy discussions regarding road funding should include an evaluation of options to improve Michigan's road program performance. Primary among policy implications are recommendations to review the efficacy of Michigan's approach to pavement management and to prioritize the repeal and replacement of Public Act 51 of 1951, Michigan's road funding distribution law.

Report 420 provides an objective fact-based analysis to help inform ongoing public discussions regarding Michigan's road funding. It provides an assessment of key data describing Michigan's statewide road program, including road and bridge funding and system conditions. Michigan's road program performance – the efficacy in utilizing given funding levels to maintain the public road network – is found to have declined between 2004 and 2024 and is now less effective than many other states.

The analysis suggests that ongoing road funding discussions should include an evaluation of options to improve Michigan's road program performance. Primary among policy implications are recommendations to review the efficacy of Michigan's approach to pavement management and to prioritize a legislative repeal and replacement of Public Act 51 of 1951, the law that determines road funding distribution and allocation.

Michigan's Road Funding

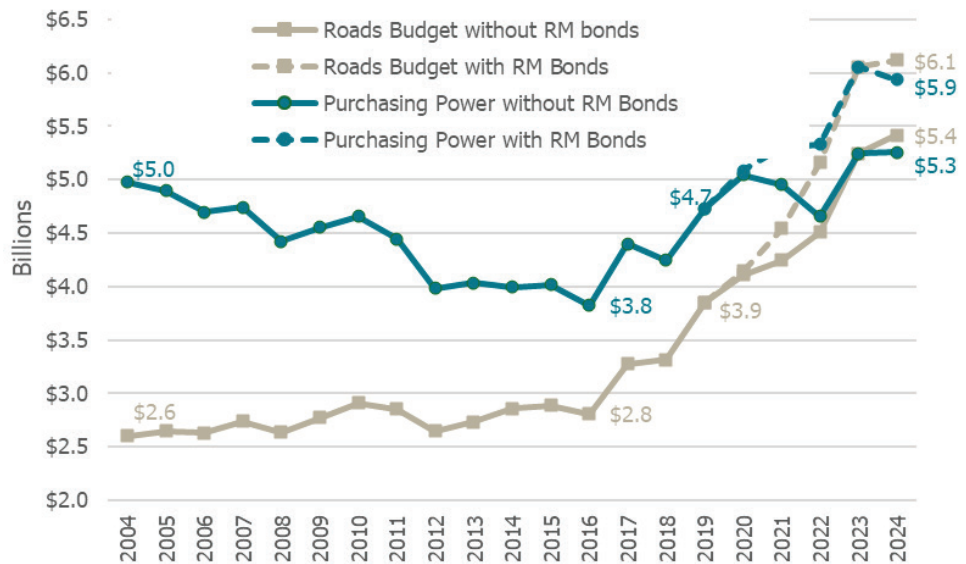
The report provides a unique analysis of Michigan's road program by focusing specifically on state and federal funding of road and bridge programs from 2004 to 2024. It is more common to evaluate Michigan's entire transportation budget, but about 15 percent of the Transportation funding is applied to aeronautics and public transit.

Michigan spent about \$2.6 billion on roads and bridges in 2004. Funding remained relatively unchanged to 2016, when Michigan spent \$2.8 billion

on roads. Funding began increasing in 2017 as a result of the 2015 road funding package, reaching \$5.4 billion in 2024. When Governor Whitmer’s Rebuilding Michigan Bond program is included, 2024 spending was \$6.1 billion. (This analysis does not include local revenue spent on local road projects as this data is unavailable.)

Chart A shows Michigan’s road funding from 2004 to 2024, both in nominal dollars, as well as purchasing power in 2023 inflation-adjusted dollars.

Chart A
Michigan Road Budget and Purchasing Power in 2023 Inflation-adjusted Dollars, FY2004-FY2024



Sources: House Fiscal Agency and MDOT.

Michigan’s \$2.6 billion road funding in 2004 had the purchasing power of \$5.0 billion in 2023 dollars. As nominal funding remained relatively flat from 2004 to 2016, Michigan’s road funding purchasing power steadily declined due to cost inflation until reaching a low point of \$3.8 billion in 2016. By 2024, this had increased to \$5.3 billion in 2023 inflation-adjusted dollars. If bond funding is included, Michigan’s road funding totaled \$5.9 billion in 2024. Even when bond funding is omitted, Michigan’s 2024 road funding was greater than at any point going back to at least 2004.

This report provides an additional method of analysis that compares Michigan’s road funding to all 50 states. Using federal data from 2012 to 2021,

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Michigan ranks 30th in road funding. Michigan is less well-funded than Ohio, Illinois, Virginia, Wisconsin, North Carolina, and Pennsylvania, but better funded than Indiana, Missouri, Georgia, and Tennessee.

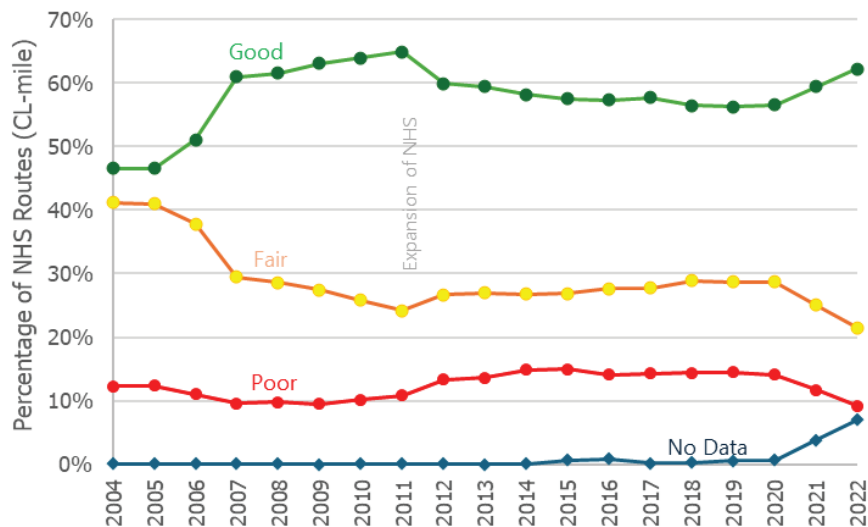
Michigan's Road System Conditions

The best available data on Michigan's statewide public road network is provided by the International Roughness Index (IRI), an expression of irregularities in the pavement surface that adversely affects the ride quality of a vehicle (and thus the user experience). Unfortunately, only about six percent of Michigan's public road network is included in the National Highway System (NHS) the condition of which all states are required to annually report to the Federal Highway Administration. However, the NHS includes Michigan's most heavily travelled and economically critical routes, including all limited-access highways.

Chart B shows Michigan's reported NHS pavement condition (by lane-mile) from 2004 to 2022.

Chart B

International Roughness Index (IRI) on NHS, 2004-2022



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

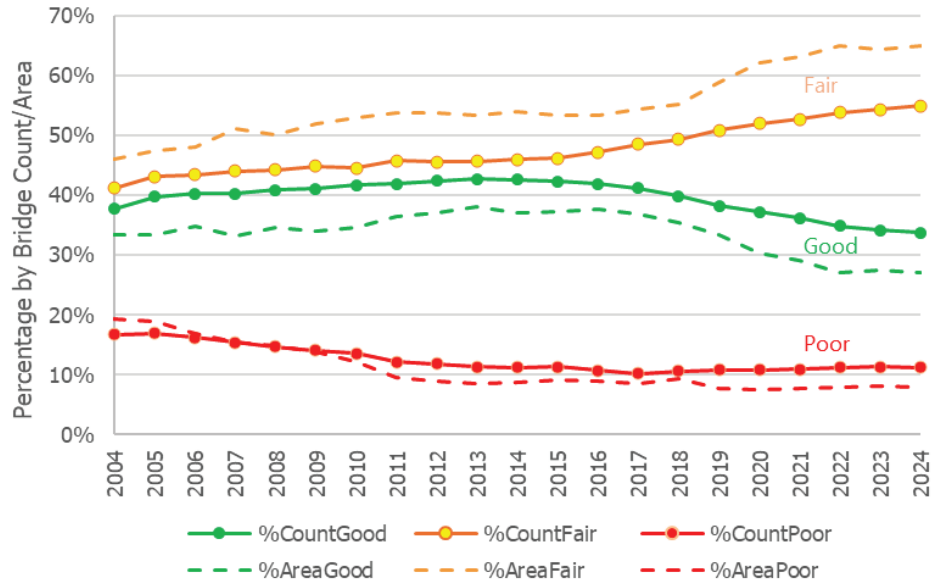
Michigan's IRI data shows that the percentage of the NHS rated in good condition has improved from 46.5 percent in 2004 to 62.3 percent in 2022. However, this increase in NHS pavement in good condition was associated with a drop in pavement in fair condition, while pavement in poor condition remained fairly consistent over this period. This trend suggests a diminished ability to cost-effectively maintain pavement in fair condition since 2004.

The IRI data can be distinguished by urban and rural NHS routes, which report notably different pavement conditions. In 2022, 86.2 percent of Michigan's rural NHS pavement was in good condition, ranking 7th best

nationally. In contrast, only 47.3 percent of urban NHS pavement was in good condition, ranking 35th nationally. Most states’ rural NHS routes are in better condition than urban routes, but Michigan’s difference between the condition of rural and urban road system is more extreme than others.

Michigan’s bridge conditions show a different trend, as shown in Chart C.

Chart C
Michigan Bridge Conditions, 2004-2024



Source: FHWA National Bridge Inventory.

Unlike pavements, Michigan has significantly reduced bridges in poor condition, from 17 percent in 2004 to 11 percent in 2024. This is good progress, as bridges in poor condition may impose safety issues or require reduced load limits. The increase in bridges in fair condition over this period suggests that Michigan road agencies are successfully maintaining bridges with routine maintenance. However, this may also imply that in coming years additional bridge investments may be needed to prevent bridges from falling into poor condition.

While Michigan’s bridge infrastructure has improved since 2004, the overall condition of bridges ranks relatively low compared to other states. Michigan’s 2024 reporting of 34 percent of bridges in good condition ranks 36th nationally. Michigan’s 11.3 percent of bridges in poor condition ranks low – only seven other states have a greater percentage of bridges in poor condition.

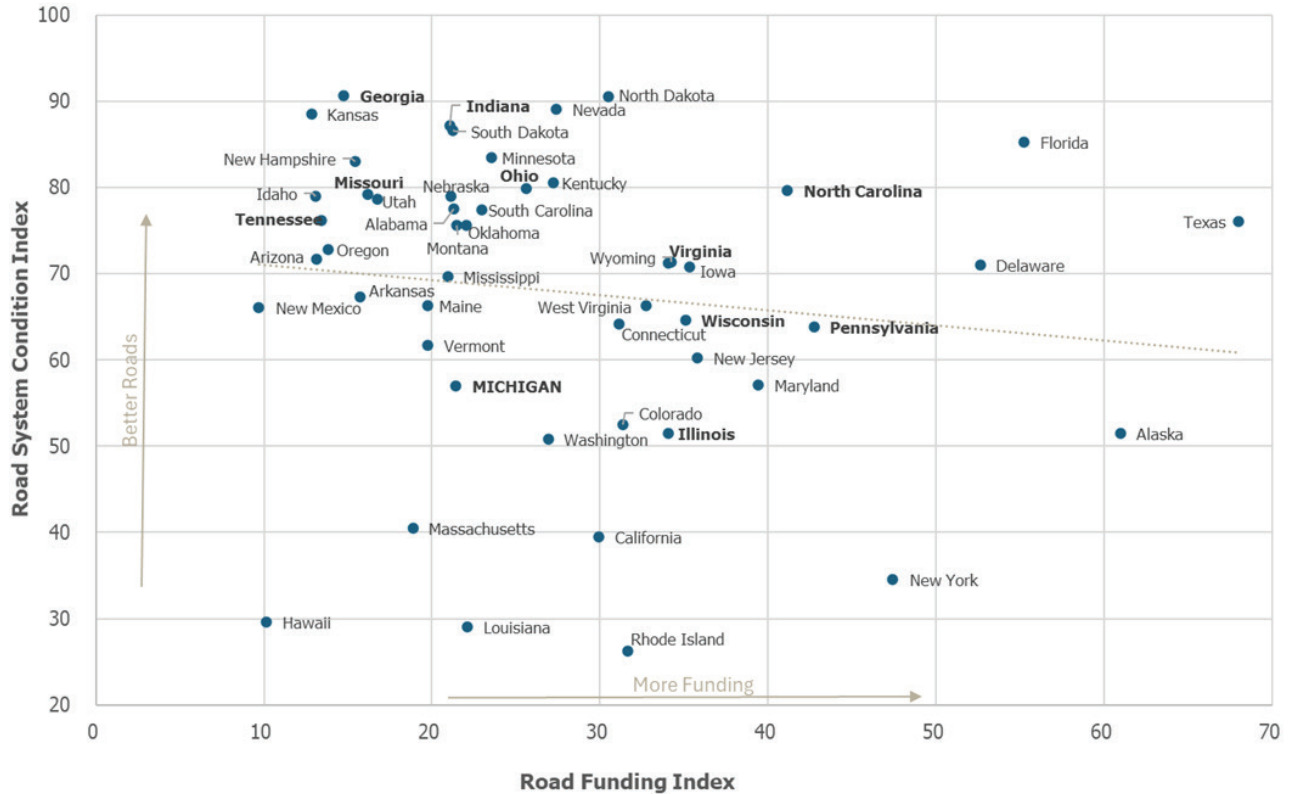
In addition to evaluating Michigan’s road system conditions over time, the report introduces a multifactorial analysis incorporating 17 individual metrics of road system condition using the latest available national data. Michigan ranks 40th in overall system condition.

Michigan's Road Program Performance

The report defines a state's roads programs 'performance' as the ability to utilize given funding levels to provide appropriate road system condition. Michigan ranks 30th nationally in funding, and 40th in system condition. In theory, states that are better funded should be expected to achieve better system conditions.

Chart D

State Road System Condition Index vs. Road Funding Index



Sources: See Report Table 1 for data sources compiled into the Road Funding Index score. See Report Table 4 for data sources used in the Road System Condition Index Score. Note: Michigan and peer states rendered in bold.

As shown in Chart D, states with more funding are statistically no more likely to achieve better system conditions.

For example, both Pennsylvania and Wisconsin are better funded than Michigan, ranking 6th and 11th, respectively, in the Road Funding Index (compared to Michigan's ranking of 30th). Both of these states have also achieved better system conditions than Michigan. The Road System Condition Index ranks Pennsylvania 36th, and Wisconsin 34th.

In other words, both Pennsylvania have achieved slightly better system condition than Michigan, but have spent much more money to achieve that condition. Michigan is making better use of road funding dollars than either of these two states.

On the other hand, many states are making better use of available funding than Michigan.

For example, Ohio ranks 24th in road funding, and 11th in pavement condition. Indiana has utilized a lower level of funding than Michigan (ranking 34th nationally) to achieve the 5th best system. Most remarkable is Georgia, which ranks 43rd in road funding, and 1st in system condition.

This analysis suggests that practically all states have achieved minimal funding levels that allow for relatively good system condition – assuming that funding is appropriately distributed and invested.

A different method to judge performance is to evaluate the historical relationship between road funding and system conditions in a single state.

Generally, Michigan's road and bridge infrastructure conditions appear to have improved during the period of rapid funding increases from 2016 to 2022, though perhaps not as much as might be expected, and the data is messy.

Michigan's time-series performance data matches expectations more than it defies them, but the relationship between funding and condition is not consistent. It is impossible to use this data, for example, to extrapolate what funding level might be needed to achieve a given system condition.

This unclear relationship between road funding and system condition in Michigan, combined with the lack of correlation between funding and system condition applied to a 50-state analysis, strongly suggests that road funding levels are not a primary factor in forecasting system conditions.

Policy Implications

For the proportion of Michigan's road network that can be analyzed, it is evident that Michigan's roads are sub-par. Further, there is very little evidence that these system conditions are primarily a result of underfunding.

Michigan is the 30th most well-funded state. This is below the median state, but not near last and above Michigan's ranking of 40th in system condition.

As the Michigan legislature evaluates options to increase road funding, there should be a parallel effort to better understand how funding can be put to greatest and best use. Better information is needed to enable more effective management of the transportation system.

In order to create a sustainable funding system for all of Michigan's road agencies in the future, the following topics deserve more study and attention from policymakers:

- Michigan's road funding law, Public Act 51 of 1951, should be re-

pealed and replaced with new legislation that provides a rational formula for the distribution and allocation of state revenue-sharing based on the needs of today's transportation system and citizens. The measure of needs should incorporate metrics that better reflect the role of each road and the relative cost of constructing and maintaining the roads and bridges.

- The legislature should direct an independent road user cost allocation study, including the costs imposed by trucks of various classes and the distribution of truck traffic across Michigan's public road network.
- The legislature should consider authorizing local-option revenue sources for local road funding.
- The legislature should direct an independent assessment of the efficacy of pavement management programs in Michigan.
- Any new road funding should be indexed to road construction cost inflation to the extent practical.
- The difficulty of permitting new aggregate mines has increased road construction costs by an estimated one to two percent, on average. This is likely a highly localized issue best addressed with targeted policy intervention rather than a statewide approach.
- Legislation should be pursued to strengthen the state's role in encouraging and directing multi-agency collaborative infrastructure projects.

Typically, when policymakers discuss large budget items (e.g., education and public health), the allocation of resources and efficacy of programs is evaluated along with funding levels. Michigan's road and bridge programs rarely receive such scrutiny.

Evaluating new sources of road revenue is likely appropriate as fuel tax revenues are forecast to slowly decline in future years. However, there should be more research and analysis of how existing road funding is spent.

Evidence suggests there are multiple inefficiencies in our current system. Allocating more funding to roads without addressing these inefficiencies may reinforce systemic problems without making much progress in fixing the roads.

Michigan's citizens and taxpayers deserve a thorough evaluation of transportation funding policy before being subjected to substantial tax increases or redirecting general revenue from other programs.

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