

State Notes

TOPICS OF LEGISLATIVE INTEREST

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The Rising Costs of Road Repair

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Introduction

Despite the passage of a road funding package in 2015,¹ designed to add \$1.2 billion in new revenue to the Transportation budget annually, the condition of Michigan's trunkline and local road systems continues to decline. The cost associated with fixing any roadway depends upon the condition of that roadway; roads in poor condition are significantly more expensive to address than other roads. As more and more of Michigan's roads deteriorate into poor condition, the cost for fixing Michigan's roads will continue to rise sharply. Michigan's roads now require an additional \$2 billion dollars annually to fix because there are 20% more roads in poor condition today than there were in 2015. This paper provides a background on the road funding legislation adopted in 2015, describes the quality of Michigan's road system and the dynamics of maintenance and repair costs, and discusses several approaches that could be considered to direct more funding to Michigan's road system.

Background

Michigan's system of State and local roads and bridges is composed of three parts, each its own line item in the annual Transportation budget: those under city or village jurisdiction, those under county or county road commission jurisdiction, and those under State jurisdiction (commonly referred to as the State trunkline). The State trunkline includes all limited access interstate roads as well as State and Federal highways. Throughout this document, references to Michigan's roadways are meant to include roads and bridges under jurisdictions of all three categories mentioned above.

Although the road funding package of 2015 generated, and will continue to generate, substantial revenue for roads, the delay in adding that revenue and the amount generated has contributed to an increase in roadways rated in poor condition. Michigan's trunkline and local roadways now need more funding than they did in 2015 to stop the deterioration in road quality. New estimates place the cost to fix Michigan's roadways at over \$2.0 billion per year, and other factors may continue to drive the cost upwards, such as a potential shortfall in labor and the State's low unemployment rate.

In May 2015, Proposal 1, which would have provided almost \$1.3 billion annually for roads by increasing sales and gas taxes, was defeated at the polls by a 60% margin. Six months later, the Michigan Legislature passed a road funding package to eventually add \$1.2 billion to the transportation budget annually. While Proposal 1 would have added funding for the maintenance and construction of Michigan's roadways in 2016, the legislative package did not. The legislation delayed increases in fuel taxes and registration rates until 2017, and those initial 2017 increases were structured to provide approximately half of the \$1.2 billion in additional revenue. The remaining revenue was to come from earmarking progressively greater amounts of individual income tax revenue to the Michigan Transportation Fund (MTF), beginning at \$150.0 million in fiscal year (FY) 2018-19, and reaching \$600 million per year by FY 2020-21. Since that new

¹ Public Acts 174 through 180 of 2015, available at the Michigan Legislature website: <http://www.legislature.mi.gov>.

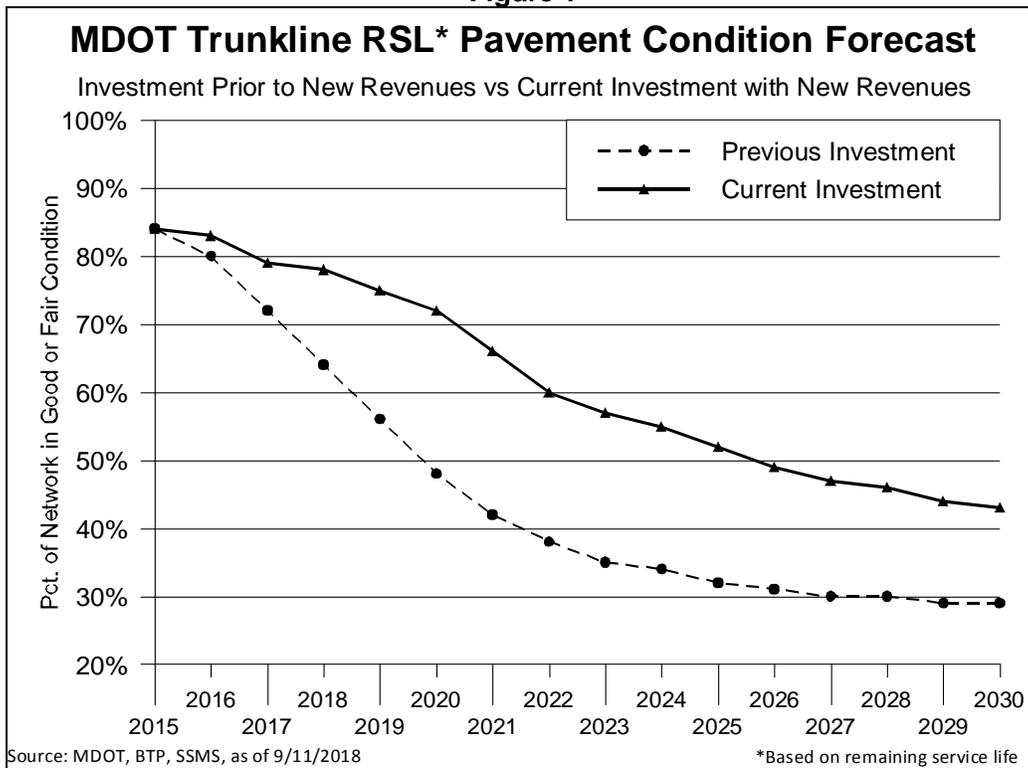


revenue is still being phased in, it has not yet reached its maximum annual allotment, less directed to the transportation system to keep road quality from declining. The cost to fix the roads in 2018 is greater than it was in 2015 because there are more roads in poor condition than there were in 2015. As will be discussed below, the cost to rebuild or reconstruct a road in poor condition is exponentially more expensive than the cost to maintain it in fair condition. As the roads continue to decline, the cost to restore them to good or fair condition will continue to rise each year.

After New Funding in 2015, Road Conditions Still Need Improvement

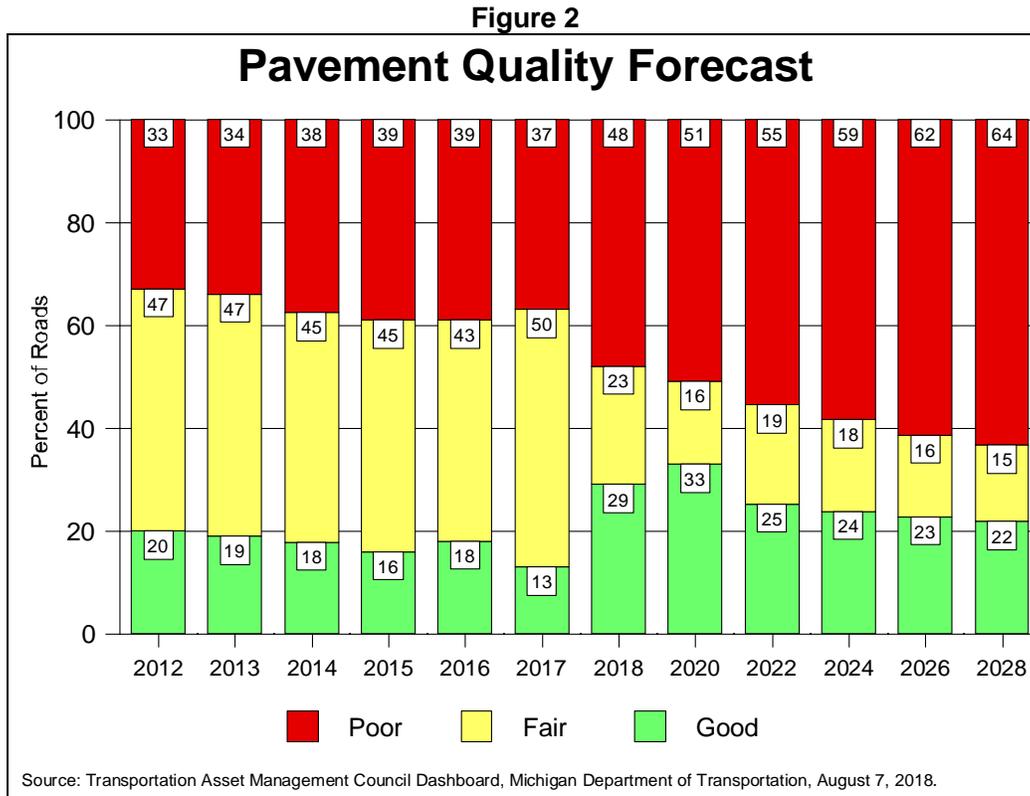
Despite additional funding from the road funding package, Michigan's roads have continued to decline. The road funding package slowed the rate of decline, but remains less than what is needed to halt or reverse it. Road condition projections are shown in [Figure 1](#), which illustrates that the additional revenue from the road funding package was able to slow the decline of Michigan's trunkline system, but not prevent it.

Figure 1





The current forecast in [Figure 2](#), derived from the Michigan Department of Transportation's "Pavement Forecast", indicates that without additional funding the percentage of trunkline and local roads in poor condition will nearly double within 10 years, and could possibly include two-thirds of the State's entire roadway system by 2028.



This forecast, provided by the Department of Transportation's (MDOT's) Asset Management Council (TAMC), is supported by independent assessments. For example, in its 2018 Report Card for Michigan's Infrastructure, the American Society of Civil Engineers (ASCE) downgraded Michigan's roadways from a D in 2009 to a D- in 2018,² largely because of the decline shown in [Figure 3](#).

The cost of fixing a road depends on its condition. Spending \$1 on capital preventative maintenance when a road is in fair condition can delay or prevent spending \$6 to \$14 on reconstruction of a road that has degraded to poor condition (see [Figure 4](#)).

² The American Society of Civil Engineers, *2018 Report Card for Michigan's Infrastructure*, p. 53, 2018.

Figure 3

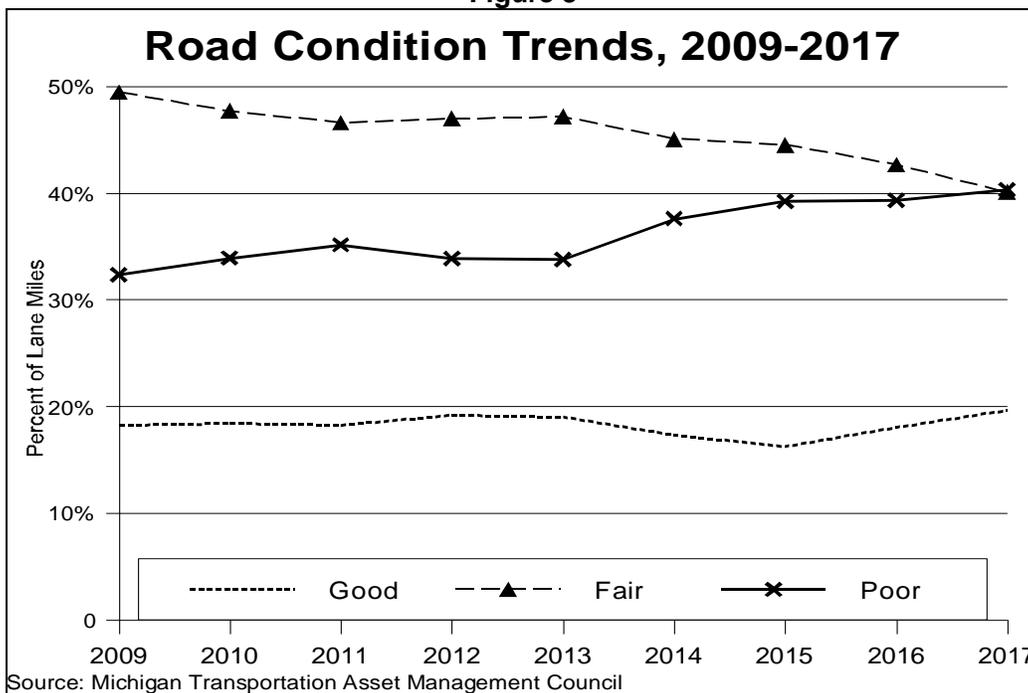
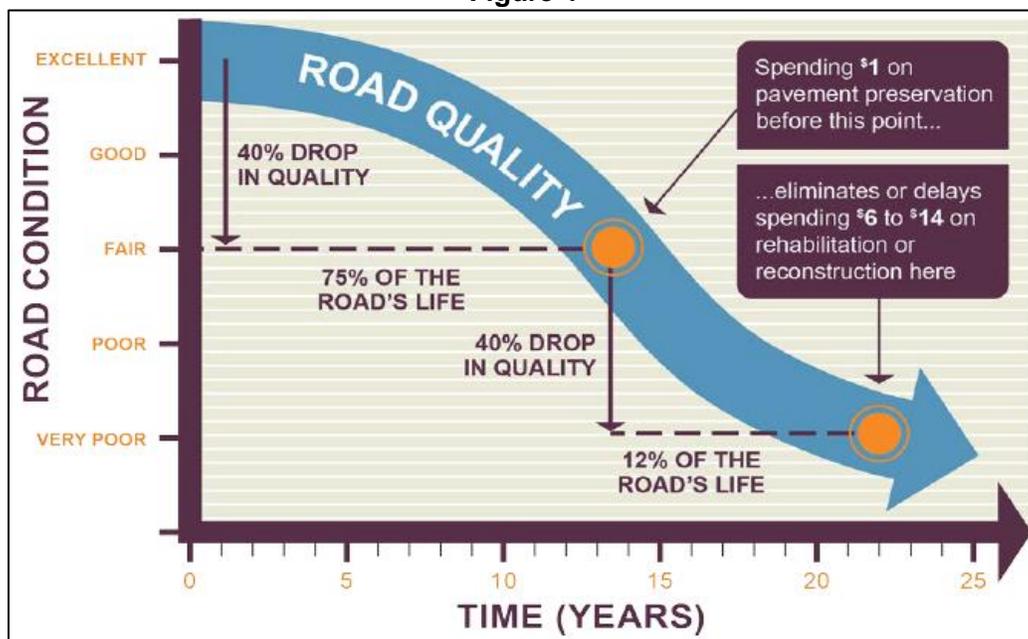


Figure 4



For a clearer picture of the costs of letting a road fall into poor condition, consider the Lifecycle Comparison in [Figure 5](#) and the Lane-Mile Costs in [Table 1](#). The Lifecycle Comparison demonstrates how a roadway's life can be extended beyond its original design life with the timely application of capital preventative maintenance (CPM) or rehabilitation. Capital preventative maintenance

treatments include crack sealing, thin asphalt overlays, and concrete patching. When applied at the right time, while a road is still in reasonably good condition, CPM can extend the life of that road by five years (in some cases, longer). Rehabilitation includes the application of structural enhancements, and can include several layers of resurfacing. Trunkline rehabilitation can extend road life by 10-15 years. Reconstruction requires the complete demolition and replacement of the existing roadway, including its foundation. All roadways eventually will require reconstruction, but the timely application of CPM or rehabilitation can delay that reconstruction and its associated costs. [Table 1](#) illustrates how these costs differ, as well as how they have increased between 2013 and 2018.

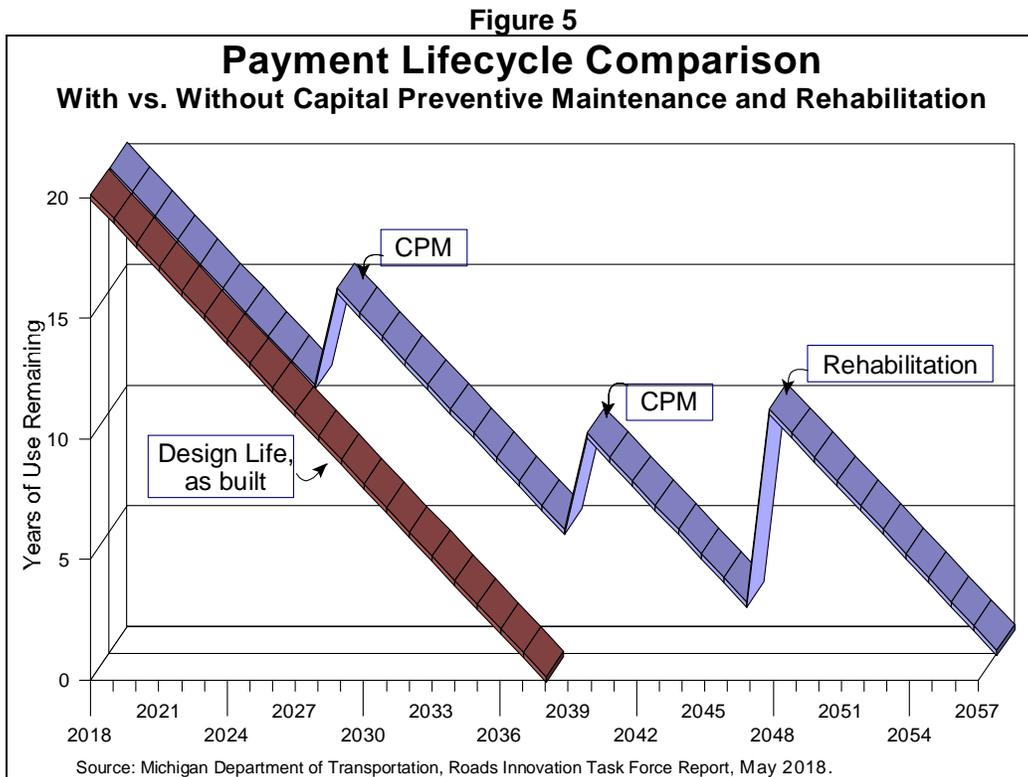


Table 1

2013 Lane-Mile Costs			
	Reconstruction	Rehabilitation	CPM
Freeway	\$1,785,163	\$666,059	\$68,988
Non-Freeway Trunkline	1,378,930	391,106	58,559
Federal Aid Non-Trunkline	619,967	176,318	27,783
Non-Federal Aid (Local)	402,648	112,203	21,372
Source: Rick Olsen, <i>Michigan Roads Crisis</i> , 2014 update.			
2018 Lane-Mile Costs			
	Reconstruction	Rehabilitation	CPM
Freeway	\$3,454,000	\$820,000	\$116,000
Non-Freeway Trunkline	1,788,000	545,000	90,000
Federal Aid Non-Trunkline	619,967	176,318	38,000
Non-Federal Aid (Local)	402,648	112,203	21,372
Source: Michigan Department of Transportation.			

As stated in the ASCE report, 2018 Report Card for Michigan's Infrastructure,

The percentage of Michigan roads in good condition is expected to increase in the coming years, however, at the same time, the percentage of roads rated in poor condition is also expected to increase. Even with recently enacted increases in transportation funding implemented at the State level over the next several years [the 2015 road funding package], funding levels will still not be sufficient to reverse the rate of deterioration of Michigan's roads.

While the additional revenue from the 2015 road funding package has slowed the decline of Michigan's roadways, the size and timing of that revenue did not prevent further declines. In 2015, the additional amount necessary to halt the decline in trunkline road conditions, as estimated by MDOT, was \$1.2 billion per year. At its peak, the 2015 road funding package will generate \$1.14 billion per year, but not until FY 2020-21. As a result, the cost to restore Michigan's roadways has increased.

Over the last several decades, the State has not had the opportunity to apply less expensive forms of maintenance to many roadways in fair condition. As a result, many roads have degraded into poor condition, where the application of CPM and rehabilitation is less effective or is no longer an option. As long as improvements are not made, the percentage of Michigan's roads in poor condition will continue to grow, and the overall cost to fix the roads will rise each year until the problem is addressed.

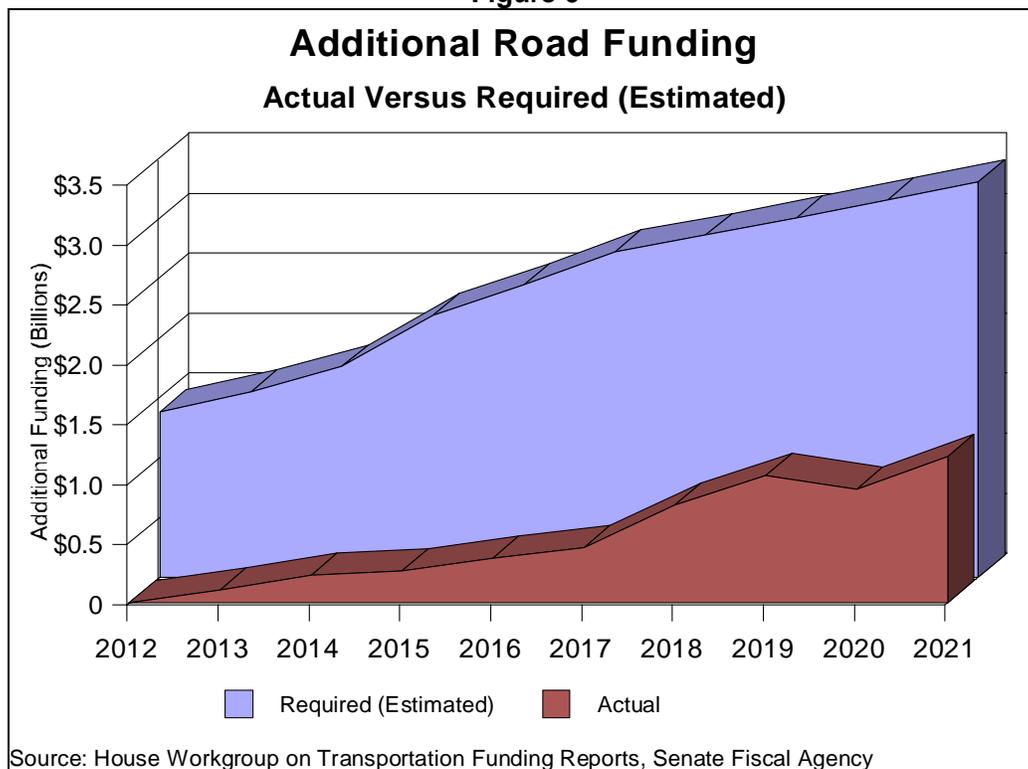
How Much Additional Revenue is Needed?

The 2015 road funding package is projected to add \$750.0 million to the Transportation budget for FY 2018-19, of which \$690.0 million will be dedicated to roads. Once the road funding package is fully implemented in FY 2020-21, it will commit, compared to the funding prior to the 2015 legislation, an additional \$1.14 billion of ongoing funding to roads.

Based on estimates in a 2016 report issued by Governor Snyder's Infrastructure Commission,³ Michigan's road system currently needs an additional \$2.2 billion annually. That estimate includes funding for Michigan's trunkline system as well as for roadways under local jurisdiction, and is up slightly from previous reports.

³ The 21st Century Infrastructure Commission, *21st Century Infrastructure Commission Report*, p. 69, 11-30-2016.

Figure 6



In 2011, the Work Group on Transportation Funding of the House of Representatives Transportation Committee estimated the need for an additional \$2.0 billion in funding in FY 2018-19.⁴ That estimate, however, included over a billion dollars in additional funding each fiscal year from FY 2011-12 leading up to FY 2018-19, a time period during which only \$3.3 billion was added to the transportation budget, either in one-time supplemental appropriations from the General Fund (\$1.3 billion), transfers from other restricted funds (\$200.0 million), or increases in ongoing restricted funding under the 2015 road funding package (\$1.8 billion). A 2014 follow-up report produced by members of the original work group also estimated the additional funding needed for FY 2018-19 to be \$2.2 billion.⁵ Figure 6 charts the actual appropriations made against the backdrop of the estimated annual funding needed each year, as assessed by the work group, since 2012. The amounts indicated in Figure 6 represent funding levels that are in addition to roughly \$2.0 billion in MTF revenue from gas and registration taxes, which have remained flat for nearly twenty years.

⁴ The Work Group on Transportation Funding, of the House of Representatives Transportation Committee, *Michigan's Roads Crisis: What Will It Cost to Maintain Our Roads and Bridges?*, p. 18, 9-19-2011.

⁵ Rick Olsen, *Michigan's Roads Crisis: How Much Will It Cost to Maintain Our Roads and Bridges? 2014 Update*, p. 3, 3-19-2014.

Funding Options

Given that the Department of Transportation and other independent sources agree that more funding is required to improve Michigan's roadways, the next obvious question is: where will this funding come from?

Historically, the majority of funding for Michigan's roads has come from a combination of Federal aid and constitutionally-earmarked State revenue. Much of this State revenue is based on a "benefits received" principal in that the revenue come from sources such as motor fuel taxes and vehicle registration fees. Generally, the individuals most likely to use the roads are those who are most likely to be contributing to road funding. The 2015 road funding package broke with the "benefits received" concept somewhat by earmarking to the Michigan Transportation Fund a portion of individual income tax revenue that otherwise would have been directed to the General Fund. Also, between FY 2011-12 and FY 2018-19, the Legislature has supplemented earmarked revenue by appropriating approximately \$1.3 billion in General Fund/General Purpose money to help with the roads.

A variety of potential sources of revenue for roads exists, ranging from new sources that require legislation or ballot proposals, to redirecting current revenue via cuts to discretionary spending. A number of potential sources of revenue were identified in the Governor's 21st Century Infrastructure Commission Report. Similarly, the Department of Treasury's Executive Budget Appendix on Tax Credits, Deductions, and Exemptions identifies a variety of circumstances where the tax base has been narrowed. Historically, expanding the tax base also has been a way to generate revenue for a variety of purposes.

The Relationship Between Road Expenditures and Road Quality

Across the State, road quality and funding varies substantially. For example, at the county level, the Transportation Asset Management Council reports average road quality in 2017 varied from 55.2% of roads under county road commission jurisdiction in Muskegon being in good shape, to 2.8% in Branch County, with the statewide average at 18.8%. Similarly, the percentage of roads in poor condition varied from 6.5% in Barry County, to 81.7% in Ingham County, with the statewide average at 47.9%.

On the funding side, there is no single measure that accommodates all factors. Based on data submitted to the Michigan Department of Treasury for the annual census of governments, expenditures per lane mile ranged from \$998 in Otsego County, to \$22,510 in Wayne County in 2017, with the statewide average totaling \$6,104. However, while expenditures per lane mile do account for the need to have more lanes to accommodate more traffic, this information does not differentiate between a road that needs the capacity for morning and evening rush hours only from a road that needs to accommodate heavy traffic throughout the day. Expenditures per vehicle mile traveled can account for traffic demands, but does not account for things like road size or the number of bridges. Expenditure per vehicle mile travelled varies from \$12 in Otsego County, to \$229 in Baraga County, with a statewide average of \$36.

It should be noted that the figures in the previous paragraph represent a one-year snapshot, not an average over time. As a result, the figures can be influenced heavily by how recently major construction projects have been completed. The figures also exclude roads maintained by the State, as well as by cities and villages. Despite these limitations, it is possible to analyze county road data and identify certain relationships. First, a greater percentage of roads in good condition

is positively correlated with higher expenditures per lane mile, and the percentage of roads in poor condition is negatively correlated with higher expenditures per lane, supporting the conclusion that devoting more revenue to roads will result in improvements to the system. Similarly, expenditure per lane mile is positively correlated with vehicle miles traveled. These correlations support the contention that despite differences between counties in efficiencies, weather conditions, population or population densities, two basic relationships dominate: heavier traffic requires more road spending, and better road quality requires more spending.

Conclusion

This paper describes the recent history of road funding efforts in Michigan, particularly in the context of Michigan's current road quality. Road quality is a particularly important consideration because while drivers focus mainly on how unpleasant (and/or costly) it can be to drive on a poor road, the quality of the road has a significant impact on both the expected life of the road and the cost of any available road repair options.

While the 2015 road funding package provided a substantial amount of revenue, and the percentage of roads in good condition have improved, both the magnitude and the timing of the funding did not prevent many roads from degrading to poor condition. As a result, not only do the roads need more revenue but they will require more revenue than in 2015 to address the situation. The Governor's Infrastructure Commission estimated Michigan's roadways will require approximately \$2.2 billion more each year, on top of the revenue generated by the 2015 legislation. Because that estimate was made in late 2016, and the underlying funding dynamic driving those costs higher has continued (not only because of the continued deterioration of many roads, but because economic factors such as the shortage of available construction workers--associated with Michigan's current 4.3% unemployment rate--have driven up labor costs), the actual cost for FY 2018-19 likely is higher.