Michigan Transportation Infrastructure Needs and Funding Solutions

Executive Summary

March 2023

PSC

Report Overview

In 2016, the State of Michigan's 21st Century Infrastructure Commission estimated that Michigan needs to invest an additional $2.2 billion in roads and bridges each year to meet established goals for state road and bridge quality. If multimodal transportation (e.g., bus transit, passenger rail, and freight) needs are considered, the annual total rises to $2.6 billion.

To address the estimated gap in transportation infrastructure funding, the State of Michigan and the Michigan legislature worked to increase revenue. In 2017, Michigan's gas tax increased slightly to $0.263 per gallon for both gas and diesel, increasing the total motor fuel tax revenue by 34.3 percent, or $347.2 million. Additionally, Michigan will receive a one-time funding allocation of $7.3 billion from the federal Infrastructure Investment and Jobs Act (IIJA), and the 2019 Rebuilding Michigan Program (RBMP) provided $3.5 billion in one-time bond funding for state and federal roads.

In 2022, to better understand the impact of additional funding on Michigan's infrastructure needs, the Michigan Infrastructure and Transportation Association (MITA) approached Public Sector Consultants (PSC) to update the transportation infrastructure estimates in the 21st Century Infrastructure Commission report and review potential solutions to fill the long-term funding gap.

This report outlines the overall costs to maintain Michigan's road network, current road funding estimates and revenue sources, as well as potential options for raising additional revenue to close the funding gap. In developing the estimated funding gap, PSC found:

- **Michigan's transportation system needs are likely higher than previous estimates.** Transportation organizations' previous estimates focused on the part of the system under their authority, federal-aid roads for the Michigan Department of Transportation (MDOT) and non-federal-aid roads for the County Road Association (CRA), which presents an incomplete picture. PSC modeled the total cost of the Michigan road system using MDOT information on the life cycle of a lane mile of road (referred to throughout the report as a lane mile) according to different maintenance approaches. PSC estimates that Michigan's transportation network cost $9.0 billion per year to operate and maintain and could reach upwards of up to $16.7 billion per year with limited or deferred maintenance.
- **Investment in recommended maintenance can save Michigan residents money.** Spending to maintain and rehabilitate roads (referred to as the right fix at the right time) is more cost effective than waiting until a lane mile has reached the end of its design life, when reconstruction becomes the only option. PSC estimates that proper maintenance can save between $3.0 and $7.6 billion per year.
- **Michigan road system has not been properly maintained to MDOT-recommended standards, and it will cost more to bring the system up to standard.** MDOT assessments of Michigan road conditions show that 33 percent of all federal-aid roads and 45 percent of non-federal-aid roads are in poor condition and should be reconstructed in the next two years. Reconstruction is five to eight times more expensive per lane mile than preventative maintenance.
- **To achieve the goals of the Michigan Legislature and MDOT to utilize asset management planning and properly maintain our roads, PSC has modeled an annual funding gap of $3.9 billion per year and could be significantly more depending on the maintenance**

approach. This funding shortfall includes estimates for the formula funding portion of the bipartisan IIJA as well as the RBMP, the state's bonding plan.

Investment Needs

PSC analyzed how investments in proper maintenance of the road can extend the life of the road and at what cost. The following table outlines the different approaches and their costs per lane and annual cost per life of the investment.

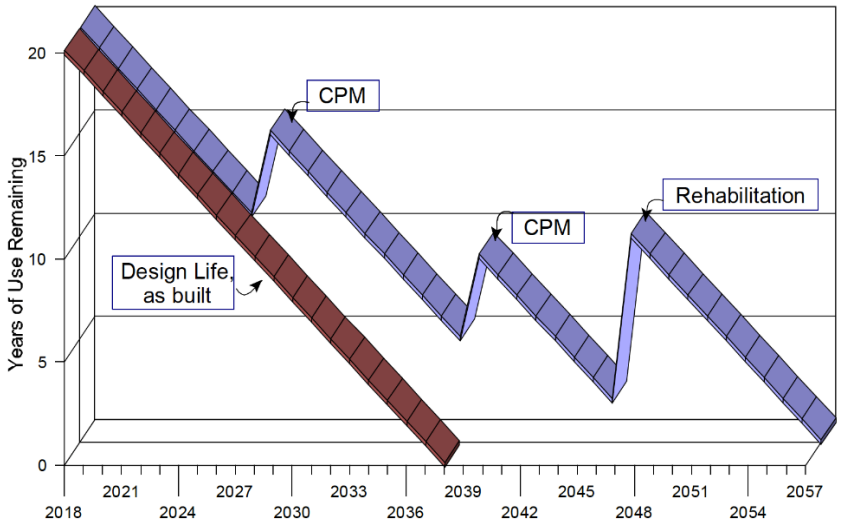
EXHIBIT X. Average Cost and Life of Different Maintenance Approaches per Lane Mile

	Prevention	Rehabilitation	Reconstruction
Federal-aid roads average cost per lane mile	$109,000	$792,000	$3,216,000
Average life of investment	6.5	16	22
Average annual cost per lane mile	$16,769	$50,000	$136,364
Non-federal-aid (local) roads average cost per lane mile	$21,372	$112,203	$402,648
Average life of investment	6.5	16	22
Average annual cost per lane mile	$3,288	$7,013	$18,302

Sources: MDOT March 2021, Siracuse 2019

Each of these different maintenance techniques can extend the design life of a road beyond the typical twenty-year design life. Exhibit X illustrates how investing in proper preventative repairs while the road is good condition and rehabilitation repairs when the road is still in fair condition can extend the design life of a road.

EXHIBIT X. Illustration of Pavement Life Cycle Comparisons, Michigan Senate Fiscal Agency and MDOT



Sources: Bleech 2018, Siracuse 2019

Taking this approach, PSC calculated what is should annually cost to maintain and operate Michigan's 83,030 lane miles of federal-aid roads and 165,000 lane miles of local county roads, assuming the desire to maximize the design life of any road. This approach moves away from looking at current funding models and gaps, to a holistic view of our Michigan's road network and how to maintain and operate the road system to maximize the design life and maintenance schedule.

EXHIBIT X. Estimated Overall Annual Cost of Michigan's Road System to Maximize Design Life

	Federal-aid Roads	Non-federal-aid Roads
Total cost per lane mile	$4,226,000	$557,595
Average annual cost per lane mile	$86,245	$11,379
Total lane miles	83,030	165,000
Total average annual cost	$7,160,940,012	$1,877,615,816
Average annual cost of the State of Michigan road system, all roads		$9,038,555,828

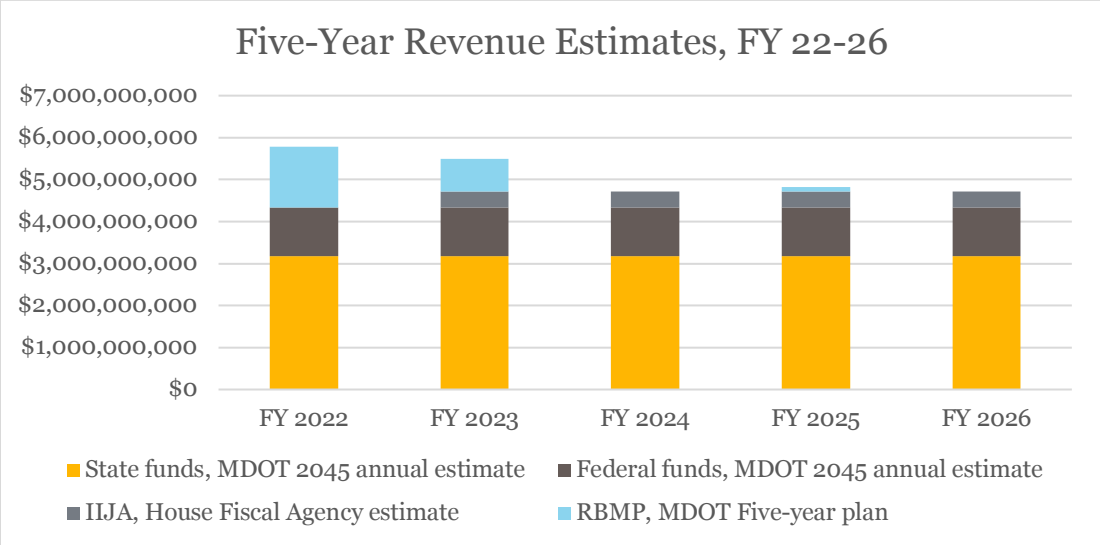
Source: PSC calculations

Current Funding and Identified Funding Gap

Historically, state transportation funds are generated through three main revenue sources which are deposited in the Michigan Transportation Fund: taxes on gasoline and other petroleum products, vehicle registration fees, and general fund dollars (income taxes). Additionally, the federal government provides federal funds for federal-aid roads. Recently, two additional funding streams have been created through the federal Infrastructure Investment and Jobs Act and the state Rebuilding Michigan Program. In total these funds represent revenue estimates of over $5.4 billion for Fiscal Year (FY) 2023. The following chart shows the five-year revenue estimates through FY 2026.

Based on PSC's calculations this leaves an annual revenue gap of $3.9 billion.

EXHIBIT X: Five-Year Revenue Estimate, FY 2022-26



Source: MDOT November 2022a

Funding Opportunities

The report outlines five common funding options for closing the revenue gap, which on a per capita basis (using only Michigan's adult population) would cost between $283 and $535 annually.

Option one would require a motor fuel tax increase between $0.39 to $0.74 per gallon to meet the funding gap. The tax rate increase ranges from $0.39 per gallon, which meets MDOT and CRA estimates, to $0.74 to meet PSC's modeled estimates for different pavement life cycle maintenance levels.

Option two would also increase the motor fuel tax and assess the motor fuel tax on a per dollar (instead of per gallon) basis. This increases revenue during times of higher gas prices, but similarly decreases revenue during price downturns. Other states have moved away from this approach due to its volatility.

Option three would increase the sales tax and dedicate the increase to transportation funding. It would require a sales tax increase of 2 to 3 percentage points dedicated to transportation to meet the funding gap. This option would require an amendment to the State of Michigan constitution.

Option four would allow local communities to pursue sales tax increases. While local communities are currently prohibited from charging their own sales tax, this could be changed through a constitutional amendment and could provide local government units of government a revenue source for local roads. This option is similar to option three.

Option five would generate revenue based on the miles traveled on Michigan roads; a tax between $0.03 and $0.05 per mile traveled would be necessary to meet the funding gap. Different states and countries have explored this approach in different ways, and the federal government is currently providing funding to pilot this model.

230 N. Washington Square
Suite 300
Lansing, MI 48933