

Revenue Gap White Paper

The *MI Transportation Plan*'s primary focus is on the parts of the transportation system that the Michigan Department of Transportation (MDOT) has jurisdiction over, provides funding for, or regulates. The purpose of this white paper is to update the needs, revenues, and resource gaps facing Michigan's transportation system under MDOT.

The statewide long-term transportation needs for the department were split into eight categories:

1. *Aviation*: Preservation and modest expansion of aviation facilities.
2. *Freight*: Preservation and modest expansion of rail and marine facilities, as well as investment in preserving and modernizing roadway infrastructure to support safe and efficient goods movement.
3. *Highway Expansion*: New capacity on trunkline facilities.
4. *Highway Other*: Miscellaneous capital improvements to trunkline facilities, such as electrical, drainage, etc.
5. *Highway Preservation*: Maintenance, rehabilitation, resurfacing, and replacement of pavements and bridges.
6. *Highway Modernization*: Safety and operational improvements, such as intelligent transportation systems and signalization coordination.
7. *Multi-modal Preservation*: Sustaining current bus and rail transit operations and infrastructure, carpool, and bike/pedestrian facilities.
8. *Multi-modal Expansion*: Adding new capital to bus transit and rail passenger facilities, expanding transit and rail passenger service, carpool lots, and bike/pedestrian facilities.

This paper provides a forward-looking assessment of state transportation revenues, needs, and gaps under MDOT's current revenue and investment trends. It delineates the state's transportation needs against the available revenues, based on trends in the growth of revenues and how transportation programs are currently funded over the 25-year life of the *MI Transportation Plan* update (2016-2040).

Revenue Analyses

Transportation revenues available to the department over the 25-year plan are consistent with the numbers from the Finance White Paper.

This forecasted revenue is grouped into three transportation programs based on the overall structure of MDOT's annual appropriations (legislation). Table 1 provides the 2016 base dollars, escalation rate, and the revenues available for the programs. (Public Transportation Programs use 2017 and 2015, respectively, for state and federal base dollars.) The escalation rate was applied to the 2016 base dollars, then brought back to 2016 dollars using the discount rate of 2.0 percent.

Table 1: Assumptions of Gross Revenues by Program *(in Millions of 2016 Dollars)*

Fund	2016 Base		Escalation Rate		2016 - 2040	
	Federal	State	Federal	State	Federal	State
Highway Program	\$799.8	\$973.8	2.4%	2.3%	\$20,093.2	\$25,669.1
Public Transportation Program	\$32.4	\$316.7	3.8%	1.15%	\$975.3	\$7,345.4
Aviation Program	\$79.0	\$3.5	0.0%	3.9%	\$2,392.2	\$132.9

Amounts are before capital and non-capital uses.
Source: MDOT, Bureau of Transportation Planning.

The revenues available from the programs were added together to get the total revenues available for the plan. The Highway Program required deductions for non-capital uses and routine maintenance, as shown in Table 2. Similar deductions were not needed for the other two programs. Revenues dedicated to maintenance and operations are included in both Table 1 and 2, since operations and maintenance are essential parts of providing these programs. The federal and state Highway Program revenues were escalated using 2.4 percent and 2.3 percent, respectively, which are based on the long-term trend of historical revenues available to the State Trunkline Fund. This estimate encompasses growth due to economic activities, as well as the built-in traditional fuel and vehicle tax increases that have occurred at both state and federal levels over the historical 20-year timeframe. Due to state and federal legislation passed in late 2015, estimated long-range revenues are higher than those published in the 2010-2035 MI Transportation Plan Revenue Gap White Paper. Please refer to the Finance White Paper for additional information about the federal Fixing America's Surface Transportation (FAST) Act and Michigan's new transportation funding package.

The federal and state Public Transportation and Aviation programs' revenues were escalated using the percentages shown in Table 1. For the Public Transportation Program, estimated long-range state revenues are also higher than in the previous Revenue Gap White Paper due to state legislation passed in 2015.

Table 2: Total Funds Available by Program (in Millions of 2016 Dollars)

Fund	2016 - 2040 Revenues	2016 - 2040 Adjustments	2016 - 2040 Available
Highway Program	Federal: \$20,093.2 State: \$25,669.1 Total: \$45,762.2	-\$7,626.3 Non-capital Uses -\$7,371.0 Routine Maintenance -\$14,997.3 Total Adjustments	\$30,764.9
Public Transportation Program	Federal: \$975.3 State: \$7,345.4 Total: \$8,320.7	None	\$8,320.7
Aviation Program	Federal: \$2,392.2 State: \$132.9 Total: \$2,525.1	None	\$2,525.1
Total	\$56,608.0	-\$14,997.3	\$41,610.7

Numbers may not calculate exactly due to rounding.
Source: MDOT, Bureau of Transportation Planning.

In the original Revenue Gap and Investment Packages Technical Report, detailed information was provided to show how the revenues in the above programs (Tables 1 and 2) are distributed to a series of need categories. The need categories were then rolled up to nine overall categories as listed in Table 3. The distribution of the revenues is applied to each category assuming continuation of current program emphasis.

Needs Analyses

The MDOT State Long-Range Transportation Plan 2005-2030 Revenue Gap and Investment Packages Report estimated transportation needs in Michigan at \$81.2 billion (base-year 2005 dollars). This white paper increased those needs to reflect 2016 dollars using the Bureau of Labor Statistics Inflation Calculator on April 19, 2016 (1.219). Due to a significant decline in vehicle miles traveled (VMT), the forecasted (modeled) number of congested lane miles have significantly decreased compared to the [2030 State Long-Range Plan](#). Because of this, the Highway Expansion category needs were not simply increased by a growth factor as the other categories. Analysis was done to calculate the number of forecasted congested lane miles on the state trunkline network in 2040. An average capacity improvement cost was then applied to calculate the Highway Expansion category need. The new estimate of state transportation needs is \$86.5 billion (in 2016 dollars) over the life of the plan. The distribution of these needs by categories is shown in Table 3.

The categories represent groups of state transportation programs. These categories are mutually supporting. For example, programs explicitly supporting goods movement through ports and marine infrastructure comprise the Freight category. However, the investments in Highway Preservation, Highway Expansion, and Highway Modernization also represent a significant investment in goods movement, supported by programs with a broader reach than freight alone. In a similar way, the Freight category, including needs associated with rail freight, addresses only the state-owned rail system, which is a small part of the overall rail system in Michigan. The privately held rail industry is also likely to invest millions in the private system over the 25-year plan time frame, in ways beyond the scope of the public investment quantified in the MI Transportation Plan.

In order to preserve infrastructure needed to operate rail passenger services on the Chicago-Detroit/Pontiac High-Speed Rail Corridor, MDOT purchased a portion of that infrastructure in fiscal year (FY) 2013. The additional costs of capital improvements and maintenance needed on this corridor significantly increase the passenger rail infrastructure needs. Since these needs were not known when the original Revenue Gap Report was published, they were not included in the Revenue Gap white papers. In addition, due to the implementation of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) in FY 2014, the operating costs and necessary maintenance for the Wolverine service (Pontiac/Detroit-Chicago) were shifted to MDOT. These costs are also not included in the Revenue Gap reports. It is estimated that these additional infrastructure and operating needs approach \$1.3 billion for a 25-year period beginning in FY 2013. Therefore, the gap between the needs and revenues of the multi-modal categories is understated.

Table 3: Summary of Need by Category *(in Millions of 2016 Dollars over 25 years)*

Category	Needs
Aviation	\$6,434.1
Freight	\$562.9
Highway Expansion	\$4,218.5
Highway Other	\$8,901.7
Highway Preservation	\$37,703.0
Highway Modernization	\$10,446.8
Multi-modal Preservation	\$14,893.8
Multi-modal Expansion	\$3,312.7
Total	\$86,473.5

Numbers may not calculate exactly due to rounding.
Source: MDOT, Bureau of Transportation Planning.

Revenue Gap Analyses

The revenue gaps are simply the difference between the available revenues and needs over the 25 years, all expressed in 2016 dollars. The revenue gap over the 25 years (in 2016 dollars) is \$44.9 billion.

Table 4 and Figure 1 show these gaps grouped into the eight categories, providing a better look at the big picture. Over the 25-year plan (2016-2040), the state has a significant gap in transportation revenues compared to transportation needs. The revenues available (in 2016 dollars) are estimated at only \$41.6 billion, while the needs are estimated at \$86.5 billion, which leaves a revenue gap of approximately \$44.9 billion.

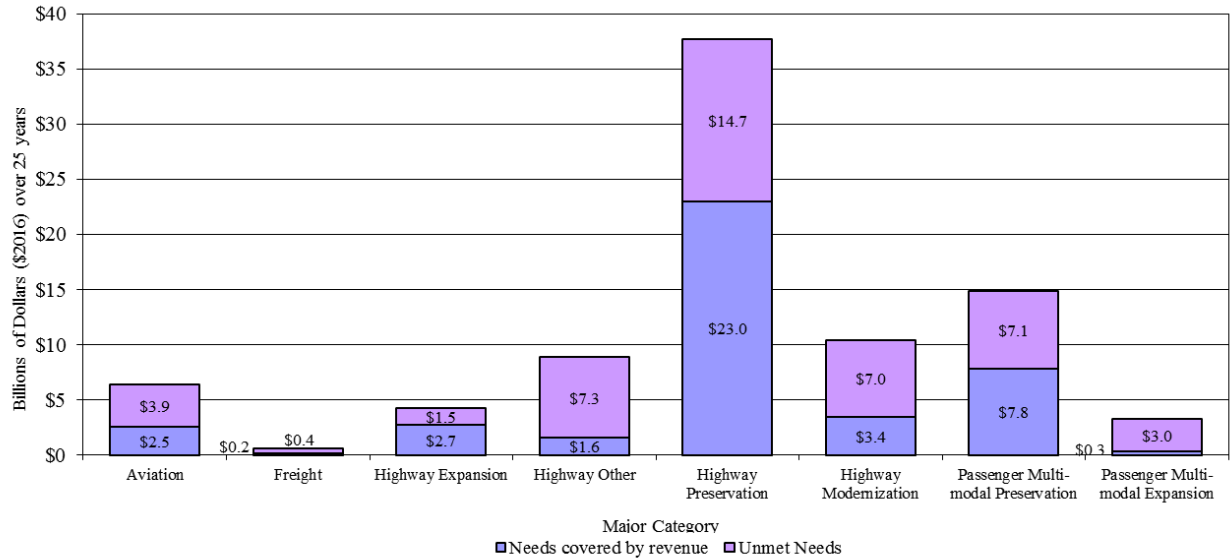
Table 4: Summary of Gap by Category (in Millions of 2016 Dollars, over 25 years)

Category	Needs	Revenues	Gaps	% of Needs in Category Met	% of Gap
Aviation	\$6,434.1	\$2,525.1	\$3,909.0	39.3%	8.7%
Freight	\$562.9	\$175.8	\$387.1	31.2%	0.9%
Highway Expansion	\$4,218.5	\$2,734.5	\$1,484.0	64.8%	3.3%
Highway Other	\$8,901.7	\$1,569.0	\$7,332.6	17.6%	16.3%
Highway Preservation	\$37,703.0	\$23,014.5	\$14,688.6	61.0%	32.7%
Highway Modernization	\$10,446.8	\$3,446.9	\$6,999.8	33.0%	15.6%
Multi-modal Preservation	\$14,893.8	\$7,817.0	\$7,076.8	52.5%	15.8%
Multi-modal Expansion	\$3,312.7	\$327.9	\$2,984.8	9.9%	6.7%
Total	\$86,473.5	\$41,610.7	\$44,862.7	48.1%	100.0%

Numbers may not calculate exactly due to rounding.
Source: MDOT, Bureau of Transportation Planning.

Highway Preservation has the greatest need (\$37.7 billion), with a gap of \$14.7 billion. Multi-modal Expansion has the lowest percentage of its needs covered by multi-modal revenues (9.9 percent).

Figure 1:
Revenue Gap, by Major Category



Conclusion

This white paper update of the Revenue Gap and Investment Packages Technical Report is offered as a reference for understanding the shortfall in funding available for Michigan's transportation system. The findings highlight the estimated revenue, needs, and funding gap MDOT is facing over the 2016-2040 time period.